BRITISH COLUMBIA GEOLOGICAL SURVEY est. 1895

Provincial Overview of Exploration and Mining in British Columbia, 2020

BRITISH COLUMBIA
Ministry of Energy, Mines and Low Carbon Innovation

Information Circular 2021-01

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Front Cover:
Drill rigs, Kemess East deposit, North Central Region. **Photo by Paul Jago.**

Back Cover:
Examining drill core, Kwanika project, North Central Region. **Photo by Paul Jago.**

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Victoria
British Columbia
Canada

January 2021

Foreword

This volume is the latest in a series of annual reviews that dates back to 1874, when the first Annual Report of the Minister of Mines was published. Detailing significant projects region-by-region, the volume complements the British Columbia Coal Industry Overview (British Columbia Geological Survey Information Circular 2021-02).

To prepare the district chapters in this volume, the Regional Geologists visit project sites to view outcrops and drill core and to discuss results and progress. A significant amount of information is gleaned from corporate press releases, websites and reports. 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, Mines and Low Carbon Innovation, the Association for Mineral Exploration, and EY LLP.

As used in this volume

- grassroots exploration refers to activities that are typically below Mines Act permit thresholds and commonly include mapping, sampling and prospecting
- early-stage exploration includes activities such as geophysics, geochemistry, trenching, and drilling
- advanced-stage exploration is concerned with resource definition, emphasizing drilling and bulk sampling, and may include baseline environmental studies, economic pre-feasibility work, and secondary target exploration
- mine evaluation begins with a commitment to develop a resource and usually coincides with government applications to open a mine and environmental, social, engineering, and financial assessment activities
- mine lease exploration represents work on a mining property beyond known reserves and commonly has characteristics of early-stage or advanced exploration

Founded in 1895, the British Columbia Geological Survey integrates historical data with active research programs and, drawing on continuously advancing concepts and technologies in the Earth sciences, informs the mineral and coal industries. The British Columbia Geological Survey preserves, archives, and provides free web-based access to more than a century's worth of geoscience information.

We appreciate the information and access to project sites provided by industry representatives and thank George Owsiacki of Total Earth Science Services for desktop publishing.

Gordon Clarke
Director, Mineral Development Office
British Columbia Geological Survey
January, 2021

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Exploration and Mining in British Columbia, 2020: A summary

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1. Introduction

Reflecting its complex geological history, British Columbia is endowed with diverse minerals and deposit types. British Columbia is Canada's largest exporter of coal, leading producer of copper, and only producer of molybdenum. Also produced are significant amounts of gold, silver, lead, and zinc, and more than 30 industrial minerals including gypsum, magnesite, limestone, and dimension stone. Numerous quarries produce sand and gravel or crushed aggregate. In 2020, many mineral exploration projects remained active (Fig. 1).

Flanked by the Pacific Ocean, British Columbia offers easy access to global markets. Mine operations benefit from tax incentives and a well-developed infrastructure, including low-cost electricity, an integrated road and rail network, and large deep-water ports. Exploration benefits from an extensive geoscience database and a web-based mineral tenure system.

This summary uses information from the British Columbia Coal Industry Overview (British Columbia Geological Survey Information Circular 2021-02) and incorporates the Regional Geologist reports in this volume. The Regional Geologists (Fig. 2; Table 1) represent the provincial government on geological matters at a regional level. Within their communities, they provide information on exploration trends, possible investment opportunities, land use processes, First Nation capacity building, and public outreach. Since 1993, the Regional Geologists reported to regional office directors. In 2020, the Regional Geologists were repatriated to the British Columbia Geological Survey as part of the Mineral Development Office.

Noteworthy acquisitions and proposed mergers were announced in 2020. Artemis Gold Inc. acquired the **Blackwater Gold** project from New Gold Inc. for approximately $210 million. The project has both provincial and federal environmental assessment approval. BW Gold Ltd. (a wholly owned subsidiary of Artemis) plans to move the project forward with construction starting in Q2, 2022. In November, Serengeti Resources Inc. and Sun Metals Corp. entered into an agreement whereby Serengeti would acquire all issued shares of Sun Metals. The transaction would consolidate the contiguous copper-gold exploration and development assets of the **Kwanika** and **Stardust** projects. A financing of $10.35 million connected with the merger transaction was completed. In December, Seabridge Gold Inc. purchased the **Snowfield** deposit (Measured and Indicated resources of 25.9 Moz Au, 75.8 Moz Ag, 2.98 Blbs Cu, 258.3 Mlbs Mo, and 22.5 Moz Re) from Pretium Resources Inc. for $100 million US.

Despite the Covid-19 pandemic, provincial mining production and exploration expenditures improved over the previous year.

2. Mine production

The Ministry of Energy, Mines and Low Carbon Innovation forecasts the total value of mine production for 2020 at $9.28 billion (Fig. 3) including coal, copper, gold, industrial minerals, aggregate, molybdenum, and silver. This is $0.48 billion more than the 2019 preliminary estimate by the Ministry using Natural Resources Canada values and estimate of $8.80 billion (Fig. 4) and is mostly due to an increase in gold and copper prices.

At the start of 2020 the price of copper was US$2.75/lb dropping to US$2.02/lb by late March before staring a steady upward trend to US$3.62/lb by the end of the year. Gold started 2020 at US$1527/oz rising to US$2067/oz in early August and closing out the year at US$1887/oz.

Metallurgical coal prices fluctuated through 2020 mainly due to market disruptions caused by the Covid-19 pandemic (all prices are per tonne, $US, West Coast port price). Prices for British Columbia hard coking coal averaged $127/tonne for the year. At the start of 2020, the price was about $142; as Covid-19 forced mines to close in China, temporarily disrupting supply, the price rose steadily to as high as $164 in mid-March. Prices began to decline toward the end of March as steel production and infrastructure work were disrupted. A dispute between Australia and China affected prices through the fall, and coking coal prices fell below $100/tonne in mid-November. Pulverized Coal Injection (PCI) prices averaged between $75 and $80 for the year.

As in previous years, coal was the highest value mine

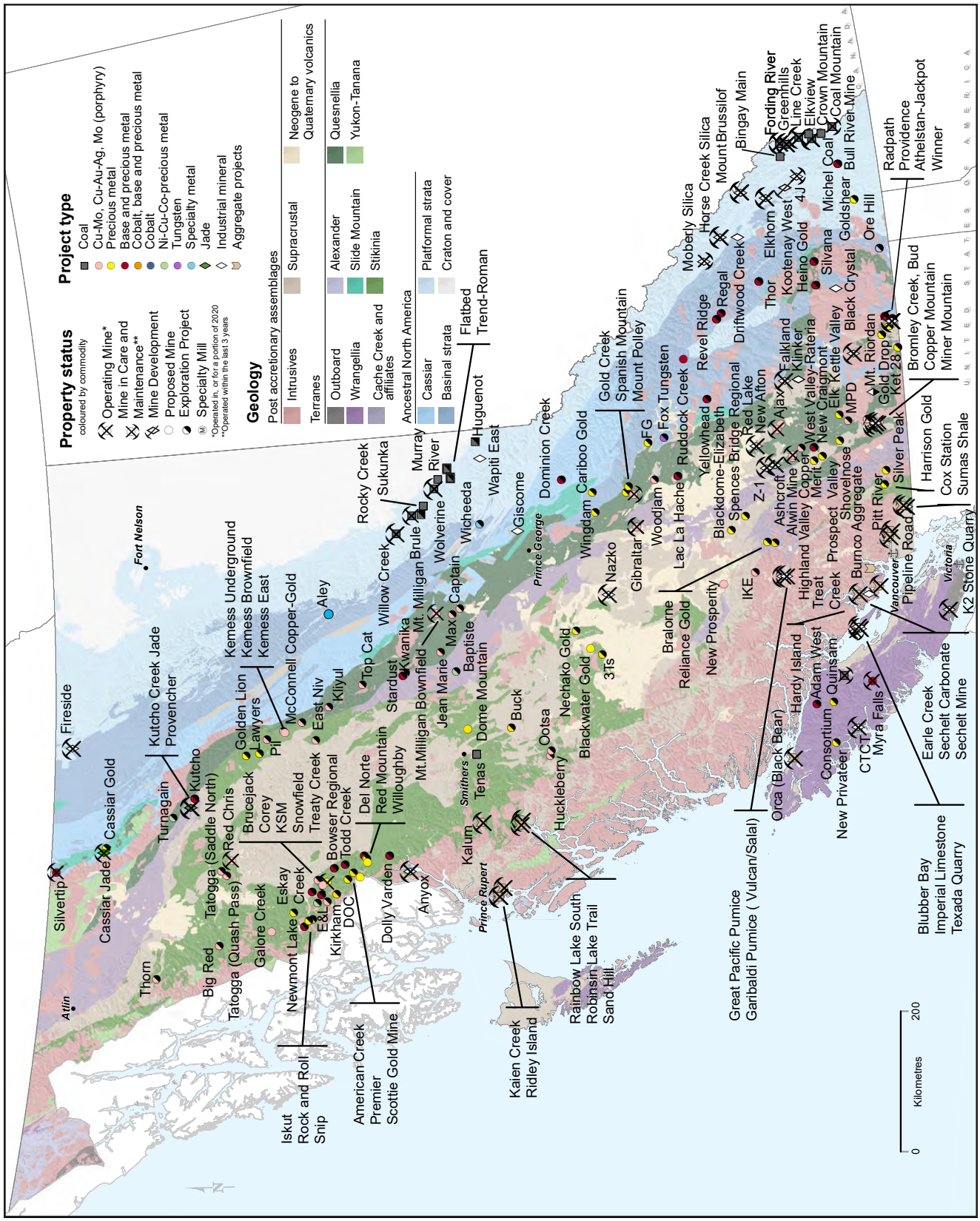

Fig. 1. Mines, mine development, selected proposed mines, and selected exploration projects in British Columbia, 2020. Based on Clarke et al., 2021, British Columbia Geological Survey Open File 2021-01.

Fig. 2. Geographic regions and Regional Geologist offices.

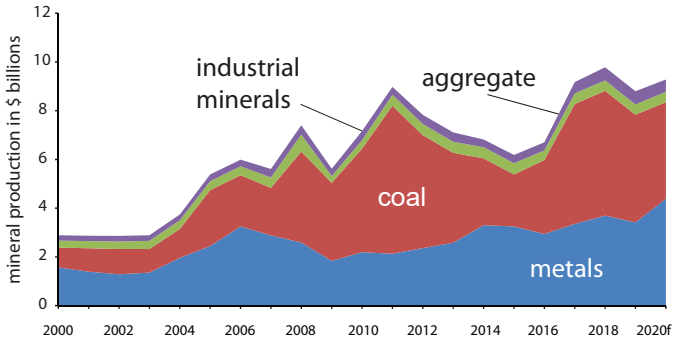

Fig. 4. Value of British Columbia mineral production by year 1998-2020; value for 2019 is preliminary estimate, value for 2020 is forecast.

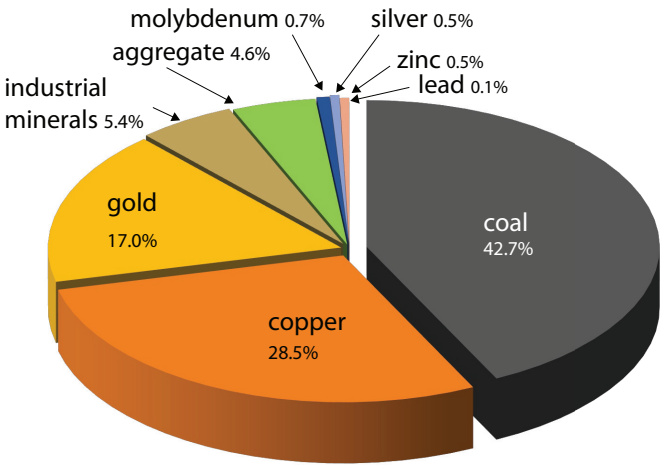

Fig. 3. 2020 forecast value of British Columbia mineral production by commodity; total is $9.28 billion.

product (42.7%) followed by copper (28.5%). In 2020, nine metal mines operated during at least part of the year (Fig. 1; Table 2). Metallurgical coal was produced at four large open-pit operations in the southeastern part of the province and three open-pit operations in the northeastern part. Conuma Coal Resources Limited's **Willow Creek** mine in the northeast ceased operations in Q2 of 2020. About 30 industrial mineral mines and more than 1000 aggregate mines and quarries were in operation.

3. Mining highlights

3.1. Metal mines

Metal mines accounted for $4.39 billion (forecast) of all mine production in 2020, representing about 47% of total output (Fig. 3). Nine mines produced in 2020 (Fig. 1; Table 2). In the Northwest Region producing metal mines included **Brucejack**, **Red Chris** and **Silvertip.**

At the **Brucejack** mine, production for the first three quarters totalled 259,443 oz of gold at a head grade of 8.4 g/t Au and 364,233 oz Ag. The mill throughput in the first nine months of the year totalled 3642 tpd with 997,821 t milled. In March, the company filed a technical report with Indicated and Measured mineral resources totalling 23.2 Mt grading 10.1 g/t Au and 65.5 g/t Ag, and Proven and Probable mineral reserves totalling 15.7 Mt grading 8.4 g/t Au and 59.6 g/t Ag.

Table 1. Mineral Development Office and Regional Geologist contact information.

Region	Community	Regional Geologist	Phone	email
Northwest	Smithers	Sean Tombe	250-877-2649	Sean.Tombe@gov.bc.ca
Northeast and North Central	Prince George	vacant	-	-
South Central	Kamloops	vacant	-	-
Southeast	Cranbrook	Fiona Katay	250-919-4724	Fiona.Katay@gov.bc.ca
Southwest	Vancouver	Bruce Northcote	604-660-2713	Bruce.Northcote@gov.bc.ca
Mineral Development Office	Vancouver	Gordon Clarke	604-660-2094	Gordon.Clarke@gov.bc.ca

Table 2. Operating metal mines, 2020, forecast mine production, reserves, and resources.

Mine	Region	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Brucejack	Northwest	**Pretium Resources Inc.**	Au, Ag; Intermediate-sulphidation epithermal; 104B 193	345,000 oz Au 485,000 oz Ag	P+Pr: 15.7 Mt 8.4 g/t Au, 59.6 g/t Ag	M+I: 23.2 Mt 10.1 g/t Au, 65.5 g/t Ag Inf: 9.4 Mt 10.3 g/t Au, 44.3 g/t Ag	April 2020 updated mineral reserves and resources; based on VOK and West zone deposits.
Red Chris	Northwest	**Newcrest Mining Limited (70%)**, Imperial Metals Corporation (30%)	Cu, Au, Ag; Hybrid calc-alkalic to alkalic porphyry; 104H 005	66.4 Mlbs Cu 53,700 oz Au	P+Pr: 301.5 Mt 0.36% Cu, 0.27 g/t Au	M+I: 1.034 Bt 0.35% Cu, 0.35 g/t Au, 1.14 g/t Ag Inf: 787.1 Mt 0.29% Cu, 0.32 g/t Au, 1.04 g/t Ag (These resource figures do not consider any mining since the start-up in 2014)	Infill drilling beneath East zone intersected discrete high-grade Au-Cu pods of mineralization with highlights including 514 m grading 1.3 g/t Au and 0.77% Cu including 166 m grading 3.0 g/t Au and 1.5% Cu (from hole RC634).
Silvertip	Northwest	**Coeur Mining Inc.**	Ag, Pb, Zn; Manto carbonate-replacement; 104O 038	139,000 oz Ag 2.46 Mlbs Zn 2.18 Mlbs Pb	P+Pr: 1.61 Mt 289 g/t Ag, 5.6% Pb, 8.24% Zn	M+I: 1.18 Mt 222.73 g/t Ag, 4.09% Pb, 8.58% Zn Inf: 0.53 Mt 271.04 g/t Ag, 5.02% Pb, 9.31% Zn	Mining operations temporarily suspended at the end of February. Exploration included 60,000 m of drilling; early results indicate potential for resource growth along a 3.5 km north-south strike length.
Mt. Milligan	North Central	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 093N 194, 191	83.2 Mlbs Cu 1590 Koz Au	P+Pr: 191.0 Mt 0.23% Cu, 0.39 g/t Au	M+I: 125.4 Mt 0.19% Cu, 0.35 g/t Au (additional to reserves)	Concentrator design capacity 62,500 tpd. Estimated mine life +20 years. More than 350 employees.

Table 2. Continued.

Copper Mountain	South Central	**Copper Mountain Mining Corporation 75%**, Mitsubishi Materials Corporation 25%	Cu, Au, Ag; Porphyry Cu-Au, Alkalic; 092HSE001	70-75 Mlb Cu+Au, Ag (management's guidance)	P+Pr: 462.339 Mt 0.23% Cu, 0.10 g/t Au, 0.72 g/t Ag	M+I: 645.395 Mt 0.20% Cu, 0.10 g/t Au, 0.50 g/t Ag Inf: 323.502 Mt 0.20% Cu, 0.10 g/t Au, 0.50 g/t Ag	Deep drilling intersected mineralization at Ingerbelle. New 21-year life of mine plan with higher throughput (Nov. 2020). Resources inclusive of reserves.
Gibraltar	South Central	**Taseko Mines Limited 75%**, Sojitz Corp. 12.5%, Dowa Holdings Co Ltd. 6.25%, Furukawa Co. Ltd. 6.25%	Cu, Mo; Porphyry Cu±Mo±Au; 093B 012	130 Mlb Cu+Mo (±5%) (management's guidance)	P+Pr: 564 Mtons 0.25% Cu, 0.008% Mo	M+I: 1081 Mt 0.25% Cu, 0.007% Mo	Resources inclusive of reserves. Exploration drilling in 2020.
Highland Valley	South Central	**Teck Resources Limited**	Cu, Mo; Porphyry Cu±Mo±Au; 092ISW012, 45	120,000-125,000 t Cu and 3.4-4.0 Mlbs Mo (management's guidance)	P+Pr: 484 Mt 0.31% Cu, 0.007% Mo	M: 552.3 Mt 0.29% Cu, 0.008% Mo I: 861.6 Mt 0.23% Cu, 0.009% Mo Inf: 270.5 Mt 0.20% Cu, 0.008% Mo	2040 extension plan under consideration.
New Afton	South Central	**New Gold Inc.**	Au, Ag, Cu; Porphyry Cu-Au, Alkalic; 092INE023	Approximately 65-75 Mlbs Cu and 62,000-72,000 oz Au including Ag by-product (management's guidance)	P+Pr: 47.301 Mt 0.66 g/t Au, 1.9 g/t Ag, 0.77% Cu	M+I: 57.008 Mt 0.61 g/t Au, 2.1 g/t Ag, 0.74% Cu Inf: 14.022 Mt 0.38 g/t Au, 1.3 g/t Ag, 0.42% Cu	M+I resources are exclusive of reserves. Exploration is ongoing at Cherry Creek 3 km west of mine and regionally.
Myra Falls	Southwest	**Nyrstar Myra Falls Ltd.**	Zn, Cu, Pb, Au, Ag; Noranda/ Kuroko massive sulphide; 092F 330, 71, 72, 73	Not reported	P+Pr: 4.7 Mt 7.11% Zn, 0.78% Pb, 0.92% Cu, 76.55 g/t Ag, 1.78 g/t Au	M+I: 7.64 Mt 6.59% Zn, 0.72% Pb, 0.99% Cu, 72.52 g/t Ag, 1.79 g/t Au	Resumed production in April 2019, continued 2020. Underground drilling, approx. 20,000 m in 42 holes, VTEM survey.

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

At the **Red Chris** mine, production to the end of the third quarter of 2020 totalled 40,275 oz Au and 49.8 Mlbs Cu. As of 2014, open pit/block cave Measured plus Indicated resources totalled 1.034 Bt with grades of 0.35% Cu, 0.35 g/t Au, and 1.14 g/t Ag. Additional Inferred resources totalled 787.1 Mt with average grades of 0.29% Cu, 0.32 g/t Au, and 1.04 g/t Ag. This year, brownfield exploration drilling was carried out and electromagnetic and gravity surveys were completed to generate future targets. Resource definition infill drilling was also completed and confirmed several discrete high-grade pods in the East zone. Highlights from this infill drilling included 514 m grading 1.3 g/t Au and 0.77% Cu including 166 m grading 3.0 g/t Au and 1.5% Cu (from hole RC634).

At the end of February, Coeur Mining Inc. announced a temporary suspension of mining and processing at the **Silvertip** mine, placing the project on care and maintenance. In the first quarter of 2020 the mill produced 139,000 oz Ag, 2.46 Mlbs Zn, and 2.18 Mlbs Pb from 29,240 t milled. In February 2019, Coeur released an updated mineral resource and reserve estimate. The company reported Proven plus Probable reserves of 1.61 Mt grading 289 g/t Ag, 5.6% Pb, and 8.24% Zn. Measured plus Indicated resources were reported at 1.18 Mt grading 222.73 g/t Ag, 4.09% Pb, and 8.58% Zn. Additional Inferred resources were reported at 0.53 Mt grading 271.04 g/t Ag, 5.02% Pb, and 9.31% Zn. Coeur carried out an exploration program directed at expanding the resource and extending the mine life. Early drill results indicate the potential for resource growth along a 3.5 km north-south strike length, prompting the company to spend $1 million US towards underground development to facilitate follow-up drilling.

In the North Central Region, the **Mt. Milligan** open-pit copper-gold mine is in its seventh year. Production to the end of the 3rd quarter totalled 62.4 Mlb of Cu and 119,191 oz Au from 14.6 Mt of ore grading 0.26% Cu and 0.41 g/t Au. Metal recoveries averaged 78.9% for Cu and 63.5% for Au.

In the South Central Region, operating mines included C**opper Mountain**, **Gibraltar**, **Highland Valley**, and **New Afton**. At the **Copper Mountain** mine, production to the end of the third quarter totalled 54.5 Mlbs Cu, 20,268 oz Au and 247,560 oz Ag. Mill expansion, to 65,000 tpd, is to be commissioned in 2024. The new projected mine life is 21 years based on current reserves. Exploration drilling at the New Ingerbelle pit included about 4000 m in five holes. The holes tested the depth of mineralization; one hole returned 585 m grading 0.33% Cu, 0.21 g/t Au, and 0.45 g/t Ag, and another 120 m grading 0.69% Cu, 0.37 g/t Au, and 1.55 g/t Ag. New Ingerbelle reserves were added to Copper Mountain's mine plan in 2019.

At the **Gibraltar** mine, production to the end of the 3rd quarter totalled 98.1 Mlb Cu and 1.72 Mlb Mo at a copper grade of 0.23% and 85.0% recovery. Taseko has a multi-year permit for exploration north and northwest of the mine. They reported about 4000 m of mostly diamond drilling in 2020.

At the **Highland Valley** mine, production to the end of the third quarter totalled 85.4 Mlb Cu and 2.8 Mlb Mo at a copper grade of 0.28% and 86.0% recovery. Teck Resources Limited plans to return to the Bethlehem pit, which was last active in 1982. An expansion project has a Mines Act permit and the project is at the pre-feasibility stage. If implemented, it could extend mine life 13 years (to 2040) or beyond and raise the average production rate to 175,000 tpd.

At the **New Afton** mine, production to the end of the third quarter totalled 53.6 Mlbs copper and 47,858 oz Au from 4.119 Mt of ore grading 0.72% Cu and 0.45 g/t Au. Metal recoveries averaged 82% for Cu and 80.0% for Au. Underground drilling included delineation of the East Extension zone. Surface drilling started in late October on the Cherry Creek trend, 3 km west of the mine's mill. Phase 1 is a 10,000 m program to test both epithermal and porphyry targets along a 12 km trend.

3.2. Coal mines

Seven coal mines (Fig. 1; Table 3) accounted for a forecast production of $3.97 billion for 2020. This production represents about 43% of all total mineral output in the province. Coal was produced at four large open-pit operations of Teck Coal Limited in southeastern British Columbia and three open-pit operations of Conuma Coal Resources Limited in northeastern British Columbia. Conuma Coal Resources Limited's **Willow Creek** mine in the northeast, ceased operations in Q2 of 2020.

3.3. Industrial minerals, aggregates, and jade

About 30 industrial mineral mines and more than 1000 aggregate operations are active in British Columbia (selected operations are listed in Table 4). With forecast production figures for industrial minerals of $430 million (5.4% of total mineral production) and for aggregates of $500 million (4.6% of total mineral production), these operations are important to the economy of the province. British Columbia produces the world's best quality nephrite jade. The Northwest Region was the most active for jade producers.

In the Northeast Region, Fireside Minerals Ltd. mines veins of massive white barite. The barite is crushed and bagged on site and trucked to Fort St. John and Alberta for use in the drilling industry. In the South Central Region, industrial mineral commodities produced include roofing granules (from basalt), limestone, dimension stone, opal, railway ballast, diatomaceous earth, and zeolite. The Southeast Region hosts several industrial mineral mines, the largest of which are in the Rocky Mountain foreland belt. Commodities produced include magnesite, silica, gypsum, graphite, mineral wool, and abrasives. In the Southwest Region a number of operations remained in steady production and continue to be a major employer.

4. Mine development projects

As used herein, the term 'mine development projects' refers to those where the decision to produce has been made, necessary permits have been acquired, financing has been secured, and on-site construction has started. In 2020, only

Table 3. Operating coal mines, 2020, forecast mine production, reserves, and resources.

Mine	Region	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Brule	Northeast	**Conuma Coal Resources Limited**	PCI; Bituminous coal; 093P 007	2.1 Mt	P+Pr: 12.26 Mt	na	About 230 employees.
Willow Creek	Northeast	**Conuma Coal Resources Limited**	HCC, PCI; Bituminous coal; 093O 008	700,000 t	P+Pr: 11.04 Mt	na	Placed on care and maintenance in July.
Wolverine	Northeast	**Conuma Coal Resources Limited**	HCC; Bituminous coal; 093P 025	1.19 Mt	P+Pr: 26.99 Mt	na	About 300 employees, mine and plant.
Elkview	Southeast	**Teck Coal Limited (95%)**; Nippon Steel & Sumitomo Metal Corp. (2.5%), POSCO (2.5%)	HCC; Bituminous coal; 082GNE017	6.672 Mt clean	P: 11.9 Mt Pr: 258.0 Mt	M: 320.9 Mt I: 146.8 Mt Inf: 219.0 Mt	Baldy Ridge Extension (BRE) approved (2016); exploration drilling in active pits and expansion areas; coal quality testwork; P+Pr reserves expected to support approximately 36 more years at current production rate.
Fording River	Southeast	**Teck Coal Limited**	HCC; Bituminous coal; 082JSE012	6.156 Mt clean	P: 74 Mt Pr: 191.2 Mt	M: 418.3 Mt I: 921.6 Mt Inf: 711.3 Mt	Exploration drilling in active pits and Castle Mountain expansion area; coal quality testing; geophysical work; Project description submitted for provincial and federal environmental assessment reviews of Castle Mountain project; water treatment facility commissioned in Q4; P+Pr reserves are projected to support 43 years of mining at current production rate.
Greenhills	Southeast	**Teck Coal Limited (80%)**; POSCAN (20%)	HCC Bituminous coal; 082JSE007	4.918 Mt clean	P: 11.6 Mt Pr: 283.4 Mt	M: 179.5 Mt I: 227.6 Mt Inf: 168.5 Mt	Cougar Pit Expansion (CPX) approved (2016); exploration drilling in expansion areas; coal quality testing; P+Pr reserves are projected to support another 50 years of mining at current planned production rates.
Line Creek	Southeast	**Teck Coal Limited**	HCC, TC; Bituminous coal; 082GNE020	3.170 Mt clean	HCC P: 3.2 Mt Pr: 41.9 Mt TC P: 0.5 Mt Pr: 12.7 Mt	HCC M: 305.1 Mt I: 405.3 Mt Inf: 417.9 Mt TC M: 7.2 Mt I: 5.8 Mt Inf: 3.3 Mt	Burnt Ridge Extension (BRX) approved (2016); exploration drilling and coal quality test work in expansion areas; first active water treatment facility commissioned (2016); P+Pr reserves at Line Creek are projected to support another 15 years of mining at planned production rates.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal; ULV = ultra low volatile
P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

Table 4. Selected operating industrial mineral mines and quarries, 2020, forecast mine production, reserves, and resources.

Mine	Region	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Anyox	Northwest	**True-Grit Abrasives**	Slag steel	80,000 t	na	na	Slag is mined, cleaned, and barged for roofing and sand for sand blasting.
Cassiar Jade	Northwest	**Dynasty Jade Ltd.**	Nephrite jade; Gems and semi-precious stones; 104P 005	unknown	na	na	Placer production; reclaiming jade from Cassiar mine asbestos stockpiles.
Kaien Creek	Northwest	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, and crushing.
Kalum	Northwest	**Kalum Quarry Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and others.
Kutcho Creek Jade	Northwest	**Continental Jade Ltd.**	Nephrite jade; Gems and semi-precious stones; 104I 078	unknown	na	na	Mining and trenching.
Provencher	Northwest	**Glenpark Enterprises Ltd.**	Nephrite jade; Gems and semi-precious stones; 104I 092	unknown	na	na	Mining, trenching.
Rainbow Lake South	Northwest	**Spring Creek Aggregates Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Ridley Island	Northwest	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Robinson Lake Trail	Northwest	**Haisla & Progressive Ventures Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Sand Hill	Northwest	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Crushing for CN Railway and LNG projects.
Fireside	Northeast	**Fireside Minerals Ltd.**	Barite; Vein barite; 094M 003, 19	na	na	na	Product is bagged and trucked to Fort St. John and to Alberta, where it is used to produce high-density drilling mud.

Table 4. Continued.

Ashcroft	South Central	**IG Machine and Fibers Ltd. (IKO Industries Ltd.)**	Basalt (roofing granules); 092INW104	300,000 t (approx. target)	na	Approx. 13.3 Mt in 2002	Typically mines 500,000 t with 60% processed into granule products.
Bromley Creek (Zeotech)	South Central	**Absorbent Products Ltd. (owner International Zeolite Corp.)**	Zeolite; Open system zeolites; 092HSE243	na	na	M+I: (as of 2013-06-30) 550,000 t	
Bud	South Central	**Absorbent Products Ltd.**	Bentonite; 092HSE162	na	na	na	
Falkland	South Central	**Lafarge Canada Inc.**	Gypsum; 082LNW001	na	na	na	Finding alternate uses since closure of Lafarge's Kamloops cement plant.
Kettle Valley Quarries	South Central	**Kelowna Sand and Gravel Ltd./Kettle Valley Stone Company**	Ashlar, flagstone, thin veneer; 082ENW109, 111, 112	na	na	na	
Klinker	South Central	**Opal Resources Canada Inc.**	Opal; 082LSW125	Intermittent operation	na	na	
Nazko	South Central	**Can Lava Mining Corporation**	Lava Rock; Cinder cone; 093B 060	na	na	Historical: 45 Mt	1998 resource estimate. Exploration permitted on adjacent property.
Red Lake	South Central	**Absorbent Products Ltd.**	Diatomaceous earth; Lacustrine diatomite; 092INE081	na	na	na	
Z-1	South Central	**Progressive Planet Solutions Inc.**	Zeolite; Open system zeolites; 092INW095	na	na	Approx. 800,000 t	Historical resource.
Elkhorn	Southeast	**CertainTeed Gypsum Canada Inc.**	Gypsum, anhydrite; Bedded gypsum; 082JSW021	Gypsum: 300,000 t Anhydrite: 120,000 t	na	na	Mine expected to remain open until 2023; the company will replace production by developing the Kootenay West mine (EAO certificate granted in 2018).

Table 4. Continued.

Horse Creek Silica	Southeast	**HiTest Sand Inc.**	Silica; Silica sandstone; 082N 043	na	na	Estimated: 3 Mt at 99.5% silica (1987)	Seasonal quarry; variety of aggregate and industrial use products; amending quarry permits; mine planning; geotechnical and environmental baseline studies.
Mount Brussilof	Southeast	**Baymag Inc.**	Magnesite; Hydrothermal sparry magnesite; 082JNW001	230,000 t	P: 50 Mt	na	MgO, and MgOH; sediment-hosted sparry magnesite.
Winner	Southeast	**Rockwool Inc.**	Gabbro/basalt; Crushed rock for mineral wool; 082ESE265	Quarrying feed stock for mineral wool plant	na	na	Crushing, screening, stockpiling; environmental monitoring.
Blubber Bay	Southwest	**CRH Canada Group Inc.**	Limestone, dolostone; Limestone; 092F 479	Up to 75,000 t Dolostone annually	na	100+ years	Opens for contracts.
Cox Station	Southwest	**Mainland Construction Materials**	Aggregate; Crushed rock; 092GSE103	Approx. 2-3 Mtpy	na	na	
CTCT	Southwest	**Vancouver Island Marble Quarries Ltd.**	Marble; Limestone; 092E 020	Typically, about 400 t annually	na	na	Supplies Matrix Marble and Stone Inc.
Earle Creek	Southwest	**Lafarge Canada Inc.**	Sand and Gravel	Typically >1 Mtpy	na	na	Supplies Matrix Marble and Stone Inc.
Garibaldi Pumice (Vulcan/Salal)	Southwest	**Garibaldi Pumice Ltd.**	Pumice; Volcanic ash; 092JW 039	10,000 m^3, in anticipation of lower demand	na	11,396,000 m^3 pumice 4,990,000 m^3 pumicite (fines)	2014 resource. Additional exploration 2015, 2018, 2019.
Imperial Limestone	Southwest	**Imperial Limestone Co. Ltd.**	Limestone; Limestone; 092F 394	Approx. 600,000 t	na	na	
K2	Southwest	**K2 Stone Quarries Inc.**	Dimension stone, flagstone; 092C 159	15,000-20,000 t annually	na	na	Production number represents material extracted.
Orca	Southwest	**Polaris Minerals Corporation (US Concrete Inc. and Namgis First Nation)**	Sand and Gravel	Up to 6 Mtpy	na	na	Planning increased production.
Pitt River	Southwest	**Lafarge Canada Inc.**	Aggregate; Crushed rock; 092GSE007	Typically >1 Mtpy	na	na	
Sechelt	Southwest	**Lehigh Hanson Materials Limited**	Sand and Gravel	Typically 5-6 Mtpy	na	Several decades	

Table 4. Continued.

Sumas Shale	Southwest	**Sumas Shale Ltd.** (Lafarge Canada Inc., Clayburn Industrial Group)	Shale, clay, sandstone; Residual kaolin; 092GSE024	About 500,000 t annually	na	50+ years	Approximately 55% shale, 45% sandstone for cement production.
Texada Quarry	Southwest	**Texada Quarrying Ltd.** (Lafarge Canada Inc.)	Limestone, aggregate; Limestone; 092F 395	Typically, approx. 3.5 Mtpy	na	100+ years	Mostly produces limestone for cement manufacture.
Treat Creek	Southwest	**Lehigh Hanson Materials Limited**	Aggregate; Crushed rock	Approx. 500 ktpy	na	na	

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

CertainTeed Gypsum Canada Inc.'s **Kootenay West** project (Fig. 1; Table 5) was considered under development.

4.1. Kootenay West (CertainTeed Gypsum Canada Inc.)

CertainTeed Gypsum's **Kootenay West** project is a new gypsum mine under construction in the Southeast Region. The operation plans to produce 400,000 tpy over a 42-year mine life.

5. Selected proposed mine or quarry projects

Projects at the proposed mine or quarry (or mine evaluation) stage have a resource defined or largely defined and are at least preparing to submit a project description to initiate the environmental assessment process or are waiting on permit amendments. Projects that have permits in place but have yet to obtain financing to begin site construction are also considered to be at the proposed stage. Selected projects (Fig. 1; Table 6) discussed below are grouped by region and commodity types.

5.1. Northwest Region

Proposed metal mines include Blue Lagoon Resources Inc.'s **Dome Mountain** project, Galore Creek Mining Corporation's **Galore Creek** project, Seabridge Gold Inc.'s **KSM** project, Kutcho Copper Corp.'s **Kutcho** project and Ascot Resources Ltd.'s **Premier** and **Red Mountain** projects. Telkwa Coal Ltd., a subsidiary of Allegiance Coal Ltd., is proposing to develop the **Tenas** coal mine project.

5.1.1. Proposed metal mines

The **Dome Mountain** gold project is operated by Blue Lagoon Resources Inc. The project contains an Indicated resource of 227,276 t grading 10.71 g/t Au and Inferred resources of 530,183 t grading 7.52 g/t Au (with a cut and fill method at 3.42 g/t Au cut-off; Blue Lagoon Resources Inc., 2020). The project currently holds both an Environmental Management Act Permit and a Mining Permit, providing for an annual production of up to 75,000 t. The company entered into a milling agreement with Nicola Mining Inc. in which ore will be trucked for processing at a mill west of Merritt.

The **Galore Creek** gold-copper project is operated by the Galore Creek Mining Corporation (GCMC). Ownership of GCMC is equally split between Teck Resources Limited and Newmont Corporation. Newmont purchased 50% interest from Novagold Resources Inc. in July 2018. The project contains a Measured plus Indicated resource of 1.103 Bt grading 0.47% Cu, 0.26 g/t Au, and 4.2 g/t Ag, with an additional Inferred

Table 5. Mine development projects.

Mine	Region	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Kootenay West	Southeast	**CertainTeed Gypsum Canada Inc.**	Gypsum; Evaporitic bedded gypsum; 82JSW005, 20	na	North and South quarries: Total 16.9 Mt (at average quality of 83-85%)	Mine construction; granted a conditional EA certificate in January 2018; environmental baseline and geotechnical work, permitting, and modifications to mine design; construction began in 2019; 400,000 tpy; 43-year mine life.

Table 6. Selected proposed mine projects.

Project	Region	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Dome Mountain	Northwest	**Blue Lagoon Resources Inc.**	Au, Ag; Au-quartz veins; 093L 276	na	I: 227 kt 10.09 g/t Au Inf: 530 kt 7.52 g/t Au (resource based on cut and fill)	Preliminary Economic Assessment filed in July 2020; 3700 m drilling; property-wide airborne radiometric, electromagnetic, and magnetic surveys completed.
Galore Creek	Northwest	**Galore Creek Mining Corporation** (Teck Resources Limited (50%), Newmont Goldcorp Corporation (50%)	Cu, Au, Ag; Alkaline porphyry; 104G 090	P+Pr: 528 Mt 0.59% Cu, 0.32 g/t Au, 6.02 g/t Ag	M+I: 1.103 Bt 0.47% Cu, 0.26 g/t Au, 4.2 g/t Ag Inf: 198 Mt 0.27% Cu, 0.21 g/t Au, 2.7 g/t Ag	Baseline environmental sampling continued. Exploration deferred because of Covid-19 pandemic.
KSM	Northwest	**Seabridge Gold Inc.**	Cu, Au, Ag, Mo; Calc-alkalic porphyry; 104B 191	P+Pr: 2.198 Bt 0.55 g/t Au, 0.21% Cu, 2.6 g/t Ag, 42.6 g/t Mo	M+I: 3.04 Bt 0.52 g/t Au, 0.21% Cu, 2.8 g/t Ag, 48 g/t Mo Inf: 4.60 Bt 0.38 g/t Au, 0.32% Cu, 2.2 g/t Ag, 29 g/t Mo (Total for KSM deposits)	Prefeasibility Study and Preliminary Economic Assessment update filed in April 2020. 4000 m of geotechnical drilling completed on Mitchell Treaty tunnels.
Kutcho	Northwest	**Kutcho Copper Corp.**	Cu, Pb, Zn; Noranda/ Kuroko VMS; 104I 060	P+Pr: 10.4 Mt 2.01% Cu, 3.19% Zn, 34.61 g/t Ag, 0.37 g/t Au	M+I: 17.26 Mt 1.85% Cu, 2.72% Zn, 0.49 g/t Au, 33.9 g/t Ag Inf: 10.71 Mt 1.18% Cu, 1.76% Zn, 0.26 g/t Au, 21.5 g/t Ag	Reserves collected from 2017 Prefeasibility Study and resources updated separately in 2019. Feasibility Study has begun and will be completed by the second quarter in 2021.
Red Mountain	Northwest	**Ascot Resources Ltd.**	Au, Ag; Subvolcanic and precious metal veins; 103P 086	na	M+I: 3.19 Mt 7.63 g/t Au, 21.02 g/t Ag Inf: 0.41 Mt 5.32 g/t Au, 7.33 g/t Ag	Feasibility Study filed in May 2020.
Tenas	Northwest	**Allegiance Coal Ltd. (95%)**, Itochu Corp. (5%)	PCI; Bituminous coal; 093L 156	P+Pr: 62.9 Mt coal	na	Entered provincial environmental assessment in November of 2018 proposed to produce about 775,000-825,000 t of metallurgical coal annually, with a mine-life of 22 years.

Table 6. Continued.

Murray River	Northeast	**HD Mining International Ltd.**	Coal; Bituminous; 093I 035	P: 261.6 Mt mineable coal	M+I: 314.2 Mt Coal in situ Inf: 373.9 Mt Coal in situ	Provincial and Federal EA certificates in place. Mine plan and reclamation program approved April 2018. Would produce 6 Mtpy from two longwall faces over 25-year mine life with 764 direct jobs.
Sukunka	Northeast	**Glencore Canada Corporation**	Coal; Bituminous; 093P 014	na	145.0 Mt Coal in situ	20+ year mine life at 1.5-2.5 Mt saleable coal per year, 250 permanent jobs once operational. Permitting in progress.
Wapiti East	Northeast	**Fertoz International Inc.**	P_2O_5; Sedimentary phosphate deposits; 093I 008, 22, 15	na	I+Inf: 1.54 Mt 21.6% P_2O_5	Permitting in progress. Proposed seasonal shallow open pit mine with annual production of less than 75,000 t over a +20year mine life.
Aley	North Central	**Taseko Mines Ltd.**	Nb; Carbonatite-hosted; 094B 027	P+Pr: 83.8 Mt 0.50% Nb_2O_5 (at 0.30% Nb_2O_5 cut-off)	M+I: 285.8 Mt 0.37% Nb_2O_5 (at 0.20% Nb_2O_5 cut-off)	Proposed open-pit mine with 10,000 tpd ore processing rate and average annual production of 9000 t Nb over a 24-year mine life.
Blackwater Gold	North Central	**Artemis Gold Inc.**	Au, Ag; Epithermal Au-Ag-Cu (intermediate sulphidation); 093F 037	P+Pr: 334.4 Mt 0.75 g/t Au, 5.8 g/t Ag at a 0.20 g/t AuEq cut-off containing 8.0 Moz Au, 62.3 Moz Ag	M+I: 597 Mt (including reserves) 0.61 g/t Au, 6.4 g/t Ag at a 0.20 g/t AuEq cut-off containing 11.7 Moz Au, 122.4 Moz Ag	Federal and Provincial Environmental Assessment certificates in place. Project acquired by Artemis from New Gold Inc. for approximately $210 million. A 35,000 m grade control reverse circulation drill program began in late fall.
Giscome	North Central	**Graymont Western Canada Inc.**	$CaCO_3$; Limestone; 093J 041, 25	na	I: >100 Mt of limestone (>95% calcium carbonate, <5% magnesium carbonate) in situ	Environmental Assessment in place. Proposed 600,000 tpy limestone quarry to feed a vertical lime kiln producing 198,000 t of lime annually over a 50+ year mine life.
Kemess Underground (KUG)	North Central	**Centerra Gold Inc.**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 094E 021	Pr: 107.38 Mt 0.27% Cu, 0.54 g/t Au, 1.99 g/t Ag containing 629.6 Mlbs Cu, 1.87 Moz Au, 6.88 Moz Ag	I: 173.7 Mt (including reserves) 0.182% Cu, 0.3 g/t Au, 1.55 g/t Ag containing 1195 Mlbs Cu, 3.33 Moz Au, 13.87 Moz Ag	Permitted, proposed underground panel cave mine with 24,600 tpd ore processing rate and life-of-mine average annual production of 106,000 oz Au and 47 Mlbs Cu over a 12-year mine life.
Ajax	South Central	**KGHM Ajax Mining Inc. (KGHM Polska Miedź SA 80%, Abacus Mining and Exploration Corporation 20%)**	Cu, Au; Alkalic porphyry; 092INE012, 13	P+Pr (NSR cut-off US$7.10/t): 426 Mt 0.29% Cu, 0.19 g/t Au, 0.39 g/t Ag	M+I (NSR cut-off US$7.10/t): 568 Mt 0.26% Cu, 0.18 g/t Au, 0.35 g/t Ag	Environmental certification denied by provincial (2017) and federal ministers (2018). Proponents are investigating a possible re-submission.

Table 6. Continued.

Cariboo Gold	South Central	**Osisko Development Corp.**	Au; Au-quartz veins; 093H 140, 139, 19, 6	na	M+I: 21.441 Mt 4.6 g/t Au Inf: 21.649 Mt 3.9 g/t Au	Updated project description has average production rate of 4750 tpd and mine life up to 15 years. Ongoing exploration drilling.
New Prosperity	South Central	**Taseko Mines Limited**	Cu, Au; Porphyry; 092O 041	P+Pr (NSR cut-off $5.50/t): 831 Mt 0.23% Cu, 0.41 g/t Au containing (recoverable) 3.6 Blb Cu, 7.7 Moz Au	M+I: 1010 Mt 0.24% Cu, 0.41 g/t Au (at 0.14% Cu cut-off)	Granted provincial environmental certificate and time extensions but denied federal approval. Taseko and Tŝilhqot'in Nation in discussion.
Ruddock Creek	South Central	**Ruddock Creek Mining Corporation (Imperial Metals 45.3%, Mitsui Mining and Smelting Co. 30%, ITOCHU Corp. 20%, JOGMEC 4.7%)**	Pb, Zn, Ag; Broken Hill-type; 082M 082	na	M+I: 6.2 Mt 6.50% Zn, 1.33% Pb Inf: 6.678 Mt 6.33% Zn, 1.20% Pb (resources at a 4.0% Pb+Zn cut-off)	Project at environmental assessment pre-application stage. Feb. 2013 resource, prior to 2018-2019 drilling.
Bingay Main	Southeast	**Centermount Coal Ltd.**	Coal; Bituminous coal; 082JSE011	na	na	Pre-application stages of EA; letter submitted for project to remain in EA.
Black Crystal	Southeast	**Eagle Graphite Corp.**	Graphite; Crystalline flake graphite; 082FNW260, 283	na	Regolith + calcsilicate; M+I: 19.23 Mt at 1.35% fixed carbon Inf: 23.92 Mt at 1.3% fixed carbon (2018)	Research and development; possible application for Li-ion batteries.
Crown Mountain	Southeast	**NWP Coal Canada Limited (Jameson Resources Limited (80%), Bathurst Resources Limited (20%))**	Coal (HCC and PCI); Bituminous coal; 082GNE018	HCC: P: 42.60 Mt Pr: 4.91 Mt PCI: P: 7.13 Mt Pr: 1.19 Mt (2014)	HCC+PCI: M: 68.9 Mt I: 6.0 Mt (2014)	Pre-application of EA (2014); Application Information Requirements (AIR; 2018); water quality and treatment studies; engineering studies and mine design; bankable feasibility study; 15-year mine life; 3.7 M tpy.

Table 6. Continued.

Driftwood Creek	Southeast	**MGX Minerals Inc.**	Magnesite; Sparry magnesite; 082KNE068	na	M+I: 7.847 Mt 43.27% MgO Inf: 55.8 Mt (2016; using cut-off grade of 42.5% MgO)	1200 tpd quarry proposed; 169,700 t of MgO, average grade of 43.27% MgO, 19-year mine life; environmental baseline and engineering studies; preliminary test work indicates recovery rates of 93.4% reverse flotation and removal of up to 70% silica and 30% calcium oxides; bulk of resource is within 100 m of surface.
Michel Coal	Southeast	**North Coal Limited**	Coal (HCC and PCI); Bituminous coal; 082GSE050	na	HCC: M: 44.6 Mt I: 42.5 Mt open-pit and underground (2015)	Entered pre-application of EA in 2015; received AIR requirements in September 2020; geotechnical studies and updates to mine design; coal quality testing indicates coal has similar characteristics to Elk Valley hard coking coal; environmental baseline and mine design.
Black Bear and Orca	Southwest	**Polaris Materials Corporation** (US Concrete, Inc. and Namgis First Nation)	Aggregate; na	na	20 years (proposed life)	Orca environmental certificate amendment application. Proposed 250,000 tpy near the Orca quarry revised to 3-4 Mtpy.
BURNCO Aggregate	Southwest	**BURNCO Rock Products Ltd.**	Aggregate; Sand and gravel; na	na	Approx. 20 Mt	Has environmental certification, would require Mines Act and other permits.
Sechelt Carbonate	Southwest	**Ballinteer Management Inc.**	Limestone, dolostone, aggregate; Limestone, dolomite, crushed rock; 093GNW031	na	Carbonate rock: 76.1 Mt Gabbro: >700 Mt	Proponent requests project remain in environmental assessment preapplication stage.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal; P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

resource of 198 Mt grading 0.27% Cu, 0.21 g/t Au, and 2.7 g/t Ag (Teck Resources Limited, 2020). Although environmental baseline sampling continued, the company did not conduct exploration in 2020 because of the Covid-19 pandemic.

The **KSM** project is operated by Seabridge Gold Inc. and consists of four porphyry Cu-Au deposits: Kerr, Sulphurets, Mitchell, and Iron Cap. It is the largest undeveloped gold project in the world by resources: the total KSM Measured and Indicated resource is 3.04 Bt grading 0.52 g/t Au, 0.21% Cu, 2.8 g/t Ag, and 0.0048% Mo and an Inferred resource of 4.59 Bt grading 0.38 g/t Au, 0.32% Cu, 2.4 g/t Ag, and 0.0029% Mo (Seabridge Gold Inc., 2020). A Preliminary Economic Assessment published in April proposes a mine life of 44 years producing 27.6 Moz Au and 17.0 Blbs Cu. The initial capital for mine construction and development is $5.2 billion, with a four-year payback period. This year no exploration was done on the project, although 4000 m of geotechnical drilling was completed along the proposed route of the Mitchell Treaty tunnels, which will serve to supply consumables and electricity to the mine and transfer ore to the mill.

Kucho Copper Corp.'s **Kutcho** project has Measured and Indicated resources of 17.3 Mt grading 1.85% Cu, 2.72% Zn,

0.49 g/t Au, and 33.9 g/t Ag and with an Inferred resource of 10.7 Mt at 1.18% Cu, 1.76% Zn, 0.26 g/t Au, and 21.5 g/t Ag. The company entered the environmental assessment process late in 2019 and has received a Section 11 Order that defines the scope of the assessment and the Indigenous Nations that the company will engage with.

The **Premier** project is operated by Ascot Resources Ltd. with an Indicated resource of 4.14 Mt grading 8.01 g/t Au, 35.1 g/t Ag and an Inferred resource of 5.06 Mt grading 7.25 g/t Au, 28.7 g/t Ag. Ascot is targeting construction to begin as early as 2021. Major projects will include mill refurbishment, construction of a tailings dam and water treatment plant, and underground development. Recently a SAG and Ball mill was bought for $6.5 million and is expected to be delivered to the site at the end of the second quarter of 2021. In the last two years, the company completed additional environmental baseline monitoring and collected data for supporting permit amendments to the Mines Act (originally issued in 2018), the Environmental Management Act, and several ancillary permits. Construction depends on receiving these approvals. The company targeted permit amendments and submission to the province in the fourth quarter of 2020.

The **Red Mountain** project is a proposed high-grade underground gold mine. The project has both provincial and federal Environmental Assessment Certificates. The project was purchased by Ascot Resources from IDM Mining in 2019 for $45 million. Earlier this year a Feasibility Study was completed. Red Mountain is estimated to contain Measured and Indicated resources of 3.19 Mt grading 7.63 g/t Au and 21.02 g/t Ag and an additional Inferred resource of 405,000 t grading 5.32 g/t Au and 7.33 g/t Ag (reported at 3.0 g/t Au cut-off for long hole stoping). Proven plus Probable reserves are reported as 2.54 Mt at 6.52 g/t Au, 20.60 g/t Ag.

5.1.2. Proposed coal mines

Telkwa Coal Ltd., a subsidiary of Allegiance Coal Ltd., is proposing to develop the **Tenas** project, which is 25 km south of Smithers and 7 km southwest of the community of Telkwa. Itochu Corp. has a 5% interest. The Telkwa coalfield produced 433,000 t of thermal coal from rocks of the Skeena Group (Early Cretaceous) between 1918 and 1970. Currently there are four separate pits on approximately 1050 ha, where the current focus is the Tenas pit. The project has entered the provincial Environmental Assessment process. It is estimated that the project would produce approximately 775,000-825,000 t of steelmaking coal annually with a mine-life of about 25 years. In 2017, the company released a reserve estimate of Proven plus Probable reserves of 62.9 Mt of coal. This year, no exploration was completed. In June, Allegiance Coal Ltd. and the Environmental Assessment Office held a virtual open house to explain the environmental assessment process and to answer questions from the public.

5.2. Northeast Region

Proposed mines in the Northeast Region include HD Mining International Ltd.'s **Murray River** and Glencore Canada Corporation's **Sukunka** coal projects. Fertoz International Inc. proposes the **Wapiti East** industrial mineral mine (phosphate).

5.2.1. Proposed coal mines

Murray River is a proposed underground mine that would extract metallurgical coal from the Gates Formation. In 2015, HD Mining International Ltd. completed bulk sampling for testing coal quality, processing, and marketability. In April 2018, the company received its Mines Act permit. An adit, driven to collect the bulk sample in 2015 but also to be used for the mining conveyor, descends 1.3 km down a decline. Two vertical shafts are to be completed, one for moving staff and equipment, and the other for ventilation. HD Mining plans to construct its own wash plant and use existing rail facilities. The project is expected to provide about 764 jobs in direct employment during a 25-year mine life. In 2020, HD Mining applied for and received an Environmental Act Certificate extension to October 2025. Murray River awaits a final investment decision by HD Mining's parent company, China Huiyong Holdings.

Glencore Canada Corporation and JX Nippon Oil and Energy Corporation's **Sukunka** project has been planned as both an open-pit and underground operation. The project is listed on The British Columbia Environmental Assessment Office website as 'in progress'.

5.3. North Central Region

There are four proposed mines in the North Central Region. Three are proposed metal mines and include, Taseko Mines Ltd.'s **Aley** Niobium project; Artemis Gold Inc.'s **Blackwater** Au-Ag project and Centerra Gold Inc.'s Cu-Au-Ag **Kemess Underground** project. Graymont Western Canada Inc.'s **Giscome** project is a proposed industrial mineral mine (limestone).

5.3.1. Proposed metal mines

Taseko Mines Ltd.'s wholly-owned **Aley** niobium-bearing carbonatite project is near the western extremity of platformal strata. The carbonatite intrusion is oval in map view, measuring about 2.0 by 2.8 km. Within that body, reserves stand at 84 Mt grading 0.5% Nb_2O_5. An open-pit mine is proposed, processing 10,000 tpd and producing ferroniobium. The projected mine life is 24 years with an output of about 9 Mkg of niobium annually, making it among the largest niobium deposits in the world. Environmental assessment is underway. In 2020, Taseko continued with technical work, environmental monitoring, and product marketing initiatives.

Artemis Gold Inc. acquired the **Blackwater Gold** project from New Gold Inc. for approximately $210 million. At a 0.20 g/t AuEq cut-off, the total Measured and Indicated mineral resource is estimated at 597 Mt at 0.65 g/t AuEq (0.61 g/t Au, and 6.4 g/t Ag), for a total of 12.4 million AuEq oz. Revised pre-feasibility study results included an unlevered after-tax Net Present Value of $2.2 billion, an after tax Internal Rate of

Return of 35% and payback on initial capital costs of two years. The project has both provincial and federal Environmental Assessment approval. BW Gold Ltd. (a wholly owned subsidiary of Artemis) plans to start construction in Q2, 2022. The project is accessible by existing roads, but development would require construction of a 140-km power transmission line from a substation south of the community of Endako. In the fall, Artemis began a planned 35,000 m reverse circulation grade control drill program and continued with metallurgical test work.

Centerra Gold Inc.'s **Kemess Underground (KUG)** project is estimated to contain an Indicated resource of of 173.7 Mt grading 0.182% Cu, 0.3 g/t Au, and 1.55 g/t Ag. Within this resource are Probable reserves of 107.4 Mt grading 0.27% Cu, 0.54 g/t Au, and 1.99 g/t Ag. The former Kemess South mine closed in 2011. However, infrastructure remains in place, and both the camp and ore processing plant will be used to service KUG, which is about 6.5 km north of the former processing plant. KUG is considered a stand-alone operation, to be mined by panel caving, with crushed ore conveyed underground to the processing plant. Processing rate would be 24,600 tpd with a life of mine average production of 106,000 oz Au and 47 Mlbs Cu over a 12-year mine life. **Kemess East** (KE), about 1 km east of KUG, is an underground operation that could be integrated into the KUG project and use facilities developed for KUG. KE has an Indicated resource of 177.5 Mt grading 0.36% Cu, 0.4 g/t Au, and 1.97 g/t Ag and an Inferred resource of 29.3 Mt grading 0.314% Cu, 0.3 g/t Au, and 2.00 g/t Ag. The KUG project has approval for development, but Centerra has not declared a timeline.

5.3.2. Proposed industrial mineral mines or quarries

At their **Giscome** limestone project, Graymont Western Canada Inc. plans to exploit a high-purity Paleozoic limestone deposit. Crushed stone would be transported about 5 km by conveyor to lime kilns at a former stone quarry, owned and operated by CN Rail, in the community of Giscome. An existing CN Rail line would be used for transporting the product. The project has environmental assessment approval but, due to weak markets for lime in the region, Graymont has not yet decided to initiate construction.

5.4. South Central Region

Proposed mine projects in the South Central Region include KGHM Ajax Mining Inc.'s **Ajax**, Osisko Development Corp.'s **Cariboo Gold**, Taseko Mines Limited's **New Prosperity** and, Ruddock Creek Mining Corporation's **Ruddock Creek** projects. All are metal mine projects.

5.4.1. Proposed metal mines

The **Ajax** porphyry copper-gold project, owned by KGHM Ajax Mining Inc., is an 80:20 joint venture between KGHM Polska Miedź S.A. and Abacus Mining and Exploration Corporation. A revised feasibility study released in 2016 modelled Ajax as a 65,000 tpd open-pit mine with a projected 18-year life. In December 2017, the project was denied certification by the British Columbia Ministries of Environment and Climate Change Strategy and Energy, Mines and Petroleum Resources. In June 2018, the Ministers of Natural Resources and Fisheries, Oceans and the Canadian Coast Guard denied federal certification. Although KGHM Ajax has not announced plans for the site, Abacus issued an update stating that the project remains a priority and that they have begun re-engaging potentially affected groups and are considering whether to reapply for environmental certification.

Barkerville Gold Mines Ltd., operator of the **Cariboo Gold** project, became a subsidiary of Osisko Gold Royalties Ltd. in 2019. In 2020, Osisko placed the project in a new company, Osisko Development Corp. and raised funds to advance its projects. The project entered the early engagement phase of the provincial environmental assessment process in 2019. In 2020, Osisko submitted a revised project description to the British Columbia Environmental Assessment Office. Proposed average production rate is 4750 tpd with a projected mine life up to 15 years. Revised resource estimates in all zones at a 2.1 g/t Au cut-off total was 21.441 Mt at 4.6 g/t Au in Measured and Indicated categories, and 21.649 Mt at 3.9 g/t Au in Inferred category. A concentrator on site would serve as a pre-concentrator to reduce transportation costs to the QR mill, 111 km away. Tailings generated at the mine site would be disposed of as paste backfill; tailings at the mill site would be dry stacked. The QR mill currently has a capacity of 850 tpd and would require modification to process the higher feed grades of the pre-concentrated material. A large exploration project in 2020 included six to eight drill rigs late in the year. The company expects about 59,000 m in 216 core holes by the end of the year. To date, the highest-grade intersection is 6530 g/t Au along 0.50 m. An underground bulk sample is in permitting stages. It is to access Cow Mountain through a portal on the Bonanza Ledge access road and would also provide platforms for underground drilling. The former Bonanza Ledge mine is part of the Cariboo Gold project. The company expect to resume mining at Bonanza Ledge in 2021 with a two-year mine plan.

The **New Prosperity** project of Taseko Mines Limited, is a porphyry gold-copper deposit with Proven and Probable reserves of 830 Mt grading 0.42 g/t Au and 0.23% Cu. In 2014, the federal government issued a decision to deny the project. Taseko was later unsuccessful in seeking a judicial review of this decision. British Columbia extended the expiry date of the project certificate that was granted to Taseko in 2010 to early 2021. In 2017, the British Columbia Ministry of Energy, Mines and Petroleum Resources issued a permit for a detailed site investigation of the proposed mine infrastructure. The most recent activity concerning this project has been in the courts. The Tsilhqot'in Nation challenged the 2017 permit arguing the province breached its duty to consult and accommodate. In 2019, the case reached the Supreme Court of Canada, which ruled that Taseko could proceed with investigative work. However, before the work could begin, the Tsilhqot'in

Nation filed a complaint on different grounds (infringement of aboriginal rights) and a new injunction halted work. Taseko and the Tsilquot'in Nation, facilitated by the provincial government, have since agreed to suspend litigation and regulatory matters as they discuss the conflict in confidence. The **Ruddock Creek** project remains in the pre-application phase of environmental assessment. A mineral resource estimate, released in March 2012, reported 4.65 Mt grading 6.77% Zn and 1.38% Pb (Indicated) and 5.38 Mt grading 6.69% Zn and 1.31% Pb (Inferred), using a 4.0% combined Pb+Zn cut-off. Ruddock Creek Mining Corporation is the operator and manager of the joint venture (Imperial Metals Corporation 45.3%; Mitsui Mining and Smelting Co. Ltd. 30%; Itochu Corporation 20%; Japan Oil, Gas and Metals National Corporation 4.7%).

5.5. Southeast Region

Proposed mine projects in the Southeast Region include Centermount Coal Ltd.'s **Bingay Main**, NWP Coal Canada Ltd.'s **Crown Mountain** and North Coal Ltd.'s **Michel** coal projects. As well, there are two proposed industrial mineral mine projects: Eagle Graphite Corp.'s **Black Crystal** and MGX Minerals Inc.'s **Driftwood Creek** project.

5.5.1. Proposed coal mines

Centermount Coal Ltd. is proposing an open-pit mine on the **Bingay Main** property. The mine would produce approximately 1 Mtpy during an estimated 15-year lifespan, with a total resource of approximately 13 Mt. The coal is medium volatile to high volatile-A bituminous in rank. Although the project has been delayed, in 2020 the company requested that it remain in the environmental assessment process.

NWP Coal Canada limited is jointly owned by Jameson Resources Limited (80%) and Bathurst Resources Limited (20%). Their **Crown Mountain** project entered the environmental assessment process in 2014 and received Application Information Requirements in April 2018. Environmental baseline and mine design work progressed in 2020, with planned submissions for environmental assessment to both federal and provincial agencies in early 2021. A bankable feasibility study completed this year indicates that the project could produce 3.7 Mtpy during a mine life of 15 years and has an estimated net present value of $217 million with an internal rate of return of 27.2%. Coal quality test work indicates that approximately 84% of the coal is hard coking coal, the remainder PCI coal. Environmental baseline work and geotechnical drilling continued, as did engineering work on spoil pile design and water treatment. The company is exploring the use of biological processes in anoxic waste rock piles as one means to sequester and manage selenium runoff.

North Coal Ltd., a wholly owned subsidiary of CoalMont Pty Ltd., received the Application Information Requirements (AIR) for their **Michel Coal** project in September 2020. The project will undergo both federal and provincial reviews, and will include their Loop Ridge, Loop South, Tent Mountain, and Michel Head areas, with two open pits. The project is expected to produce between 2.3 and 4 Mt annually, with a 30-year mine life. In 2020, work on environmental baseline and monitoring, permitting, and mine design continued, in addition to trail construction for further drilling. Water treatment options being explored will use diversion, and active and passive techniques. Coal seams are 5 to 20 m thick and are characteristic of Elk Valley hard coking coals (HCC). Variations in coal quality characteristics in their different mining areas will allow them flexibility in blending product to client specifications. Structure and spacing of the seams give the project a low (~6:1) strip ratio. The resource estimate (2018) includes 44.6 Mt Measured and 42.5 Mt Indicated (open pit and underground).

5.5.2. Proposed industrial mineral mines or quarries

Eagle Graphite Corp. operates the **Black Crystal** flake graphite open-pit quarry on Hodder Creek and a processing plant 10 km west of Passmore. Disseminated fine to coarse flake graphite is distributed along foliation in organic-rich calcsilicates and marbles, across an area of about 500 m^2. At the quarry location, the graphitic horizon is 30-40 m thick, immediately underlying overburden, and dips sub-parallel to topography. Graphite is in two zones: a 'hard rock' zone, and an overlying 'regolith' zone. The regolith zone, reflecting near surface weathering, averages 2-4 m thick and has grades of up to 6.95% carbon. Most of the deposit is friable, and blasting is not required. Sand and aggregate are by-products.

The **Driftwood Creek** project is owned by MGX Minerals Inc. The deposit of sparry magnesite is 100 to 300 m wide to a depth of approximately 110 m, and has been traced along strike for 2000 m. The proposed quarry is a 1200 tpd operation that would produce 169,700 t of MgO at an average grade of 43.27% MgO, with a 19-year mine life. In 2020, the company continued environmental baseline studies, engineering design work, and work on a Preliminary Economic Assessment.

5.6. Southwest Region

Proposed quarries in the Southwest Region include Polaris Materials Corporation's **Black Bear**, BURNCO Rock Products Ltd.'s **BURNCO Aggregate** and Ballinteer Management Inc.'s **Sechelt Carbonate** projects.

5.6.1. Proposed quarries

Polaris Materials Corporation is including the **Black Bear project** near its **Orca** sand and gravel quarry in an Environmental Certificate amendment for Orca. If the project proceeds, it will be a source of up to 3-4 Mtpy of crushed basalt, an increase over the 250,000 tpy proposed in a 2017 project description.

The **BURNCO Aggregate** Project in the McNab Creek Valley now has environmental certification and may proceed with British Columbia Mines Act and other permitting. Fisheries and Oceans Canada concluded that the project is unlikely to cause significant environmental harm. The proposed sand and gravel mine would ramp up to a 1.6 Mtpy operation, initially barging product to BURNCO Rock Products Ltd.'s ready-mix

concrete plants in South Burnaby and Port Kells. BURNCO submitted revisions to the project in 2014, changing production rate, relocating some facilities, and specifying a mine life of 16 years.

Ballinteer Management Inc. now holds the property comprising the **Sechelt Carbonate** project. They filed engineering, archeological, and baseline environmental studies for assessment in 2016; activity was not reported for 2017-2020. The property contains resources of calcite- and dolomite-bearing carbonate rock and gabbroic rock for potential use as aggregate. The original proposal was for a 4-6 tpy carbonate quarry producing both limestone and dolostone. Product was to be shipped from a barge load out on Sechelt Inlet.

6. Exploration expenditures

In 2020, 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, Mines and Low Carbon Innovation, the Association for Mineral Exploration, and EY LLP. A full report will be available in March. The new survey does not capture exploration expenditures for aggregates, which had previously been done for the Southwest region only.

Total metal, industrial mineral and coal exploration expenditures are estimated at $422.7 million for 2020, up $93.2 million from the 2019 survey total of $329.5 million. Of this, $44.8 million was from coal projects and $378.0 million was from metal and industrial mineral projects (Fig. 5). Exploration expenditures by region (Fig. 6) can be further divided into five categories: grassroots, early stage, advanced stage, mine evaluation, and mine lease (Figs. 7, 8). The provincial combined total for grassroots and early-stage exploration in the 2020 survey is 33.4%, down from the 2019 total of 39.8%.

The total reported metres drilled for the province was 991,350 m, up from the 2019 total of 709,730 (see Fig. 9 for regional breakdown).

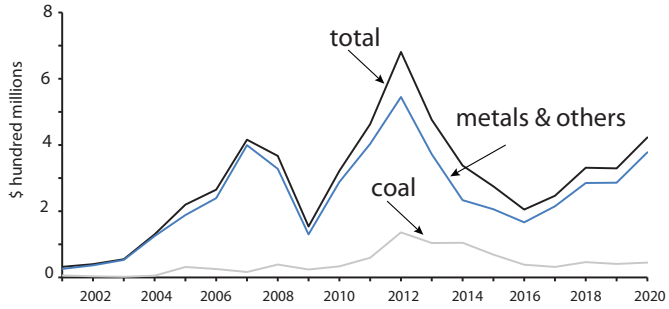

Fig. 5. Exploration expenditures per year, by type.

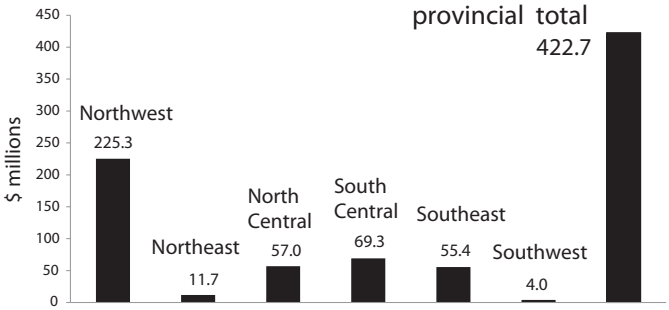

Fig. 6. 2020 exploration expenditures by region.

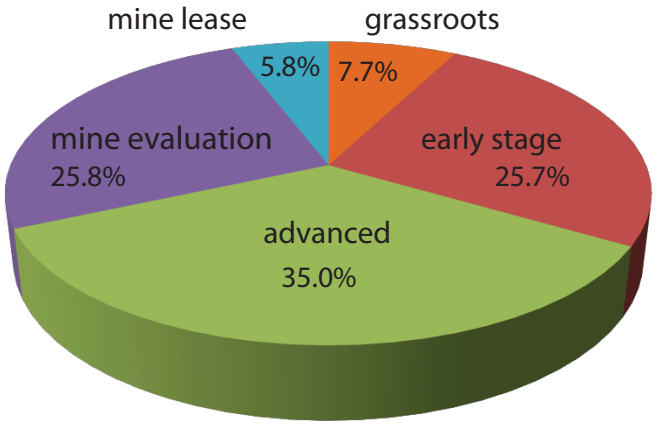

Fig. 7. 2020 exploration expenditures by category.

7. Exploration land tenure

Acquisition of new mineral claims in 2020 was down slightly compared to 2019 (Fig. 10). The total for 2020 was 1,895,560 hectares vs. 1,913,583 hectares for the previous year. New coal licenses issued in 2020 totalled 811 hectares down significantly from the 2019 total of 9045 hectares (Fig. 11).

8. Selected exploration project highlights

There was a significant increase of $93.2 million in expenditures in 2020 compared to 2019. After initial disruptions in March, explorationists quickly adapted to Covid-19 protocols and continued to discover, define, and expand porphyry and porphyry-related copper-gold and copper-molybdenum deposits, gold deposits of various types, and stratiform base-metal, specialty metals, industrial minerals, and coal deposits. Expenditures may have benefitted from availability of venture capital spurred by increases in the price of gold and copper. Data from the British Columbia Mineral and Coal Exploration Survey show a slight decrease in grassroots and early-stage projects (combined). Below, selected exploration projects (Fig. 1; Table 7) are grouped by project type and region; the individual regional sections of this volume provide further details.

8.1. Selected precious metal projects

8.1.1. Northwest Region

Mountain Boy Minerals Ltd. carried out more than 2000 m of drilling at their **American Creek** project. Drilling targeted three areas (MB Silver, Wolfmoon, and Dorothy) and tested the

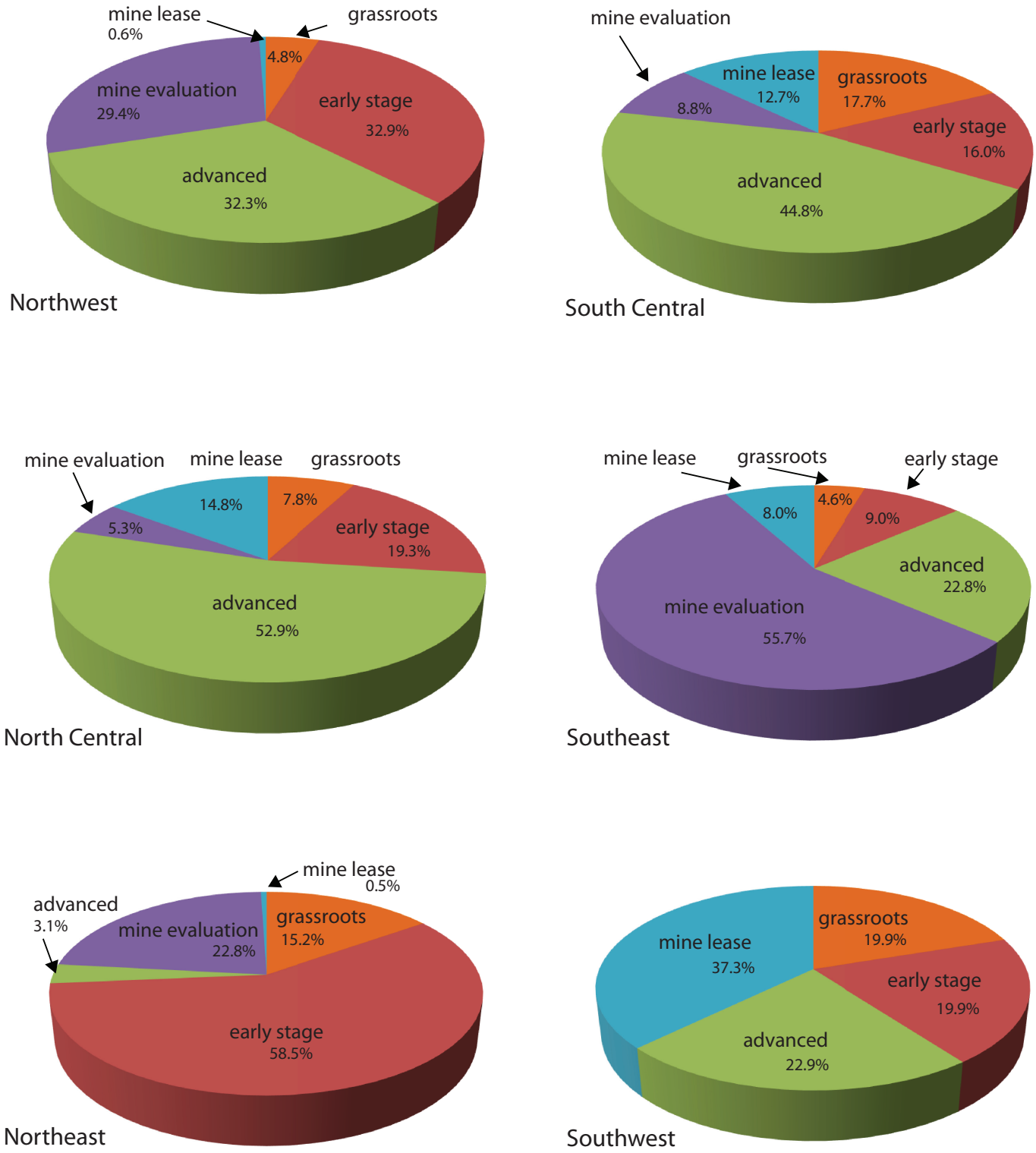

Fig. 8. 2020 exploration expenditures by category for regions.

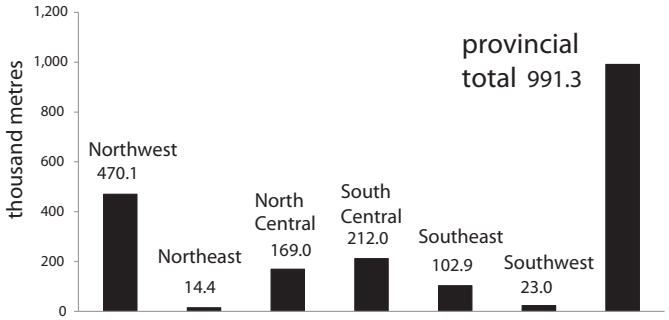

Fig. 9. 2020 exploration drilling by region.

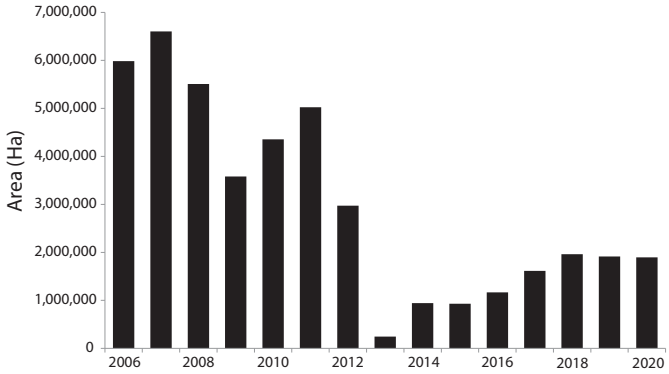

Fig. 10. New mineral claims by year.

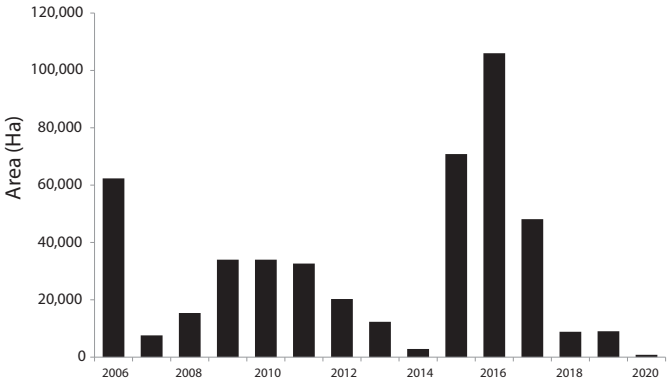

Fig. 11. New coal license issuances by year.

extent of epithermal mineralization. Drilling at the MB Silver target was designed to test a high-grade silver intersection (5.18 m grading 5258 g/t Ag) drilled in 2006. The Maybee zone and untested Upper Ruby zone at Dorothy were drilled to better understand mineralized structures that extend from the MB Silver veins to the south. Grab samples collected in 2019 from a structurally controlled alteration zone that coincides with an IP anomaly at Wolfman yielded assays of 28 g/t Au and 1200 g/t Ag; drilling this year tested this zone.

At their **Buck** project, Sun Summit Minerals Corp. (previously San Marco Resources Inc.) carried out early-season fieldwork included geological mapping, rock sampling, and IP geophysics. Highlights from grab samples include 13.3 g/t Au and 44.1 g/t Ag at the Trench zone. Drilling (1806 m) completed earlier this year targeted potential depth extensions from a known mineralized zone and yielded highlights including 91 m grading 0.75 g/t Au. Later in the year the company drilled an additional 4200 m to test the lateral extent of epithermal mineralization at the Buck breccia. In later drilling, most holes intersected vein pyrite-sphalerite-marcasite ±chalcopyrite±galena mineralization, which appear spatially related to pervasive silica-sericite-carbonate-clay alteration. Highlight assays included 17 m grading 5.86 g/t Au, 2.07 g/t Ag and 7.5 m grading 10.19 g/t Au, 7.42 g/t Ag.

Margaux Resources Inc. changed its name in September to Cassiar Gold Corp. and operates the **Cassiar Gold** project. Exploration this year focussed on Taurus and Table Mountain and included geological mapping, sampling, and drilling. Approximately 5000 m of drilling was used for infill and extension at the Taurus resource (Inferred: 21.83 Mt grading 1.43 g/t Au with a 0.7 g/t Au cut-off) and highlights include 32.79 m grading 1.78 g/t Au. Exploration targets were also drilled to test the lateral and vertical continuity of gold-bearing veins. Results at Tarus include 18.22 m grading 5.34 g/t Au and 83.42 m grading 1.20 g/t Au.

At their **DOC** project, Hanstone Gold Corp. drilled 2724 m to test six of twelve prospective areas. Initial results include 2.25 m grading 6.18 g/t Au, 47.78 g/t Ag and 7.02 m grading 2.27 g/t Au. Prospecting, geological mapping, and satellite analysis were also completed.

Enduro Metals Corporation's **Newmont Lake** project contains four main zones (Burgundy, McLymont, Cuba, and Chachi) and is prospective for epithermal Au-Ag, skarn Cu-Au-Ag, and alkalic porphyry Cu-Au deposits. This year, exploration included IP geophysics, hyperspectral, and geochemical surveys in conjunction with lithological and alteration mapping. Previously unsampled core from a former operator was also assayed and returned 144 m grading 3.18 g/t Au and 3.66 g/t Ag. Approximately 6000 m of diamond drilling was also completed to test for new gold mineralization. Step-out drilling at the newly discovered NE extension assayed 8.85 m grading 31.09 g/t Au and 1.07% Cu.

Scottie Resources Corp.'s **Scottie Gold** project is centred on the past producing Scottie Gold mine, which operated from 1981 to 1985, producing 95,426 oz of Au at 16.2 g/t Au. More than 7000 m of diamond drilling was completed this year, focussing on the Blueberry vein, Scottie Gold mine, and Domino zone. At the Scottie Gold mine, the O-zone is one of six parallel mineralized structures; the drilling was used to test interpreted orientations. Highlights from the O-zone include 2.53 m grading 109.4 g/t Au and 32.4 g/t Ag. Results for the Blueberry zone included 6.1 m grading 22.3 g/t Au and 13.7 m grading 8.96 g/t Au. Airborne magnetic and electromagnetic surveys and IP geophysical surveys were also completed.

The **Snip** deposit is another past producing mine with renewed exploration interest. Skeena Resources Ltd. filed an independent technical report in September containing an Indicated resource of 539,000 t grading 14.0 g/t Au (containing

Table 7. Selected exploration projects.

Project	Region	Operator (partner)	Commodity; deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
American Creek	Northwest	**Mountain Boy Minerals Ltd.**	Ag, Pb, Zn, Au; Polymetallic veins; 104A 011	na	2000 m of drilling at MB Silver, Wolfmoon, and Dorothy zones.
Big Red	Northwest	**Libero Copper & Gold Corp.**	Cu, Au; Alkalic porphyry; 104G 208	na	Mapping and sampling with a grab sample highlight of 104 g/t Au at the Ridge zone and 19.1 g/t Au at ME-18; 3500 m RC drilling. Results available for first hole, 24.38 m grading 0.38% Cu, 0.06 g/t Au and 2.2 g/t Ag.
Bowser Regional	Northwest	**Pretium Resources Inc.**	Au, Cu, Pb, Zn; Epithermal vein and VMS	na	More than 25,000 m of drilling to test A6, Hanging Glacier, Koopa, Snowfield East, Haimila. Hanging Glacier highlight: 13 m with 9.5 g/t Au in 102 m with 2.1 g/t Au.
Buck	Northwest	**Sun Summit Minerals Corp.**	Au, Ag, Zn, Pb, Cu; Polymetallic veins; 093L 009	na	6000 m of drilling. Highlights include 17 m grading 5.86 g/t Au, 2.07 g/t Ag and 7.5 m grading 10.19 g/t Au, 7.42 g/t Ag.
Cassiar Gold	Northwest	**Cassiar Gold Corp.**	Au; Precious metal veins; 104P 012	Inf: 21.83 Mt 1.43 g/t Au (0.7 g/t Au cut-off)	5000 m of infill and extension drilling at Taurus resource; exploration targets also drilled. Results at Tarus include 18.22 m grading 5.34 g/t Au and 83.42 m grading 1.20 g/t Au.
Corey	Northwest	**Eskay Mining Corp. (80%)** and Kirkland Lake Gold Ltd. (20%)	Au, Ag, Cu, Zn; Noranda/Kuroko massive sulphide; 104B 385	na	Airborne and ground-based geophysics. Drilling (4000 m) at the TV and Jeff targets; highlights at TV include 4.1 m grading 11.09 g/t Au, 44.2 g/t Ag, highlights at Jeff include 5.1 m grading 31.23 g/t Au, 138.1 g/t Ag.
Del Norte	Northwest	**Decade Resources Ltd.**	Ag, Zn, Pb; Polymetallic veins; 104A 176	na	Drilling 5975 m in 31 holes at the Argo and Eagle Nest zones.
DOC	Northwest	**Hanstone Gold Corp.**	Au, Ag; Intrusion-related, mesothermal; 104B 014	na	Drilling (2724 m) to test six of twelve prospective zones. Initial results include 2.25 m grading 6.18 g/t Au, 47.78 g/t Ag and 7.02 m grading 2.27 g/t Au.

Table 7. Continued.

Dolly Varden	Northwest	**Dolly Varden Silver Corporation**	Cu, Pb, Zn, Ag, Au; Kuroko VMS with polymetallic veins; 103P 188	I: 3.42 Mt at 299.8 g/t Ag Inf: 1.29 Mt at 277.0 g/t Ag	Preliminary metallurgical testing, 11,000 m of drilling, geochemical sampling, prospecting and geological mapping. Highlights at Chance target of 15.20 m grading 488.3 g/t Ag, 0.55% Pb, and 0.05% Zn in a previously unknown offset of the Chance vein.
E&L	Northwest	**Garibaldi Resources Corp.**	Ni, Cu, Co, Pt, Pd, Au; Tholeiitic intrusion hosted; 104B 006	na	Drilling extended the strike length of the mineralized E&L intrusion from 200 to 650 m and to 578 m at depth.
Eskay Creek	Northwest	**Skeena Resources Limited**	Au, Ag, Cu, Pb, Zn; VMS and precious metal veins; 104B 008	I: 12.7 Mt 4.3 g/t Au, 110 g/t Ag (pit constrained) Inf: 14.4 Mt 2.3 g/t Au, 47 g/t Ag (pit constrained) I: 819 kt 6.4 g/t Au, 139 g/t Ag (underground) Inf: 295 kt 7.1 g/t Au, 82 g/t Ag (underground)	The company exercised its option to acquire 100% of the project; Barrick Gold Inc. expected to still own 12.4%. Highlights from drilling include 56.34 m grading 2.17 g/t Au and 234 g/t Ag. Company raised $46 million late in 2020.
Huckleberry	Northwest	**Imperial Metals Corporation**	Cu, Mo, Ag, Au; Calc-alkaline porphyry; 093E 037	M+I: 180 Mt 0.32% Cu, 0.01% Mo Inf: 48 kt 0.46% Cu (for Main Zone; resource published 2011)	Drilling (~2500 m) to test mineralized extent below the East zone pit. Highlights include 361 m grading 0.35% Cu.
Iskut	Northwest	**Seabridge Gold Inc.**	Cu, Au; Porphyry; 104B 694	na	Anomalous surface samples and coincident IP and magnetic anomalies guided 8961 m of drilling. Preliminary results of 158 m at 0.16 g/t Au, 0.16% Cu.
Kirkham	Northwest	**Metallis Resources Inc.**	Cu, Au; Porphyry; 104B 209	na	Field mapping, drill core relogging, an IP survey, and short-wave-infrared analysis guided 3820 m of drilling.
Newmont Lake	Northwest	**Enduro Metals Corporation**	Au, Cu, Ag; Intrusion-related Au pyrrhotite veins; 104B 126	na	IP geophysics, hyperspectral, geochemical surveys, lithological and alteration mapping, and 6000 m of drilling. Results include 8.85 m grading 31.09 g/t Au, 1.07% Cu.

Table 7. Continued.

Ootsa	Northwest	**Surge Copper Corp.**	Cu, Au, Ag, Mo; Calc-alkaline porphyry; 093E 105	M+I: 224 Mt 0.22% Cu, 0.15 g/t Au, 0.021% Mo, 2.8 g/t Ag Inf: 5.2 Mt 0.18% Cu, 0.09 g/t Au, 0.019% Mo, 2.6 g/t Ag (2016 Prefeasibility Study)	Late-season drilling included 10,000 m to test IP chargeability anomaly on the Seel trend. Highlights include 176.1 m grading 0.35% Cu, 0.40 g/t Au, 1.7 g/t Ag including 126.0 m grading 0.43% Cu, 0.50 g/t Au, 2.0 g/t Ag and 700 m grading 0.23% Cu, 0.16 g/t Au 0.031% Mo and 3.1 g/t Ag.
Rock and Roll	Northwest	**Etruscus Resources Corp.**	Cu, Zn, Pb, Au; Besshi VMS and intrusion-related precious metal veins; 104B 377	Inf: 2.02 Mt 0.71 g//t Au, 87.1 g/t Ag, 0.23% Cu, 0.23% Pb, 0.98% Zn	Mineralization around the Black Dog deposit was drilled (~2000 m).
Scottie Gold Mine	Northwest	**Scottie Resources Corp.**	Au, Ag, Cu; Intrusion-related and polymetallic veins; 104B 034	na	Drilling (>7000 m) focussed on the Blueberry and Bow veins, Domino zone and the Scottie Gold mine. Highlights from the O-zone at the Scottie Gold mine include 2.53 m of 109.4 g/t Au, 32.4 g/t Ag. Results for the Blueberry zone included 6.1 m grading 22.3 g/t Au and 13.7 m grading 8.96 g/t Au.
Snip	Northwest	**Skeena Resources Limited**	Au, Ag; Intrusion-related, mesothermal; 104B 250	I: 539 kt 14.0 g/t Au Inf: 942 kt 13.3 g/t Au	An independent Technical Report was filed September 2020. 5000 m was drilled for resource expansion.
Tatogga (Quash Pass)	Northwest	**GT Gold Corp.**	Cu, Au, Ag, Pb, Zn; Polymetallic veins; 104G 161	na	Drilling (4841 m) tested Au and Cu geochemical trends coincident with IP chargeability anomalies.
Tatogga (Saddle North)	Northwest	**GT Gold Corp.**	Cu, Au, Ag; Porphyry; 104G 432	I: 298 Mt 0.28% Cu, 0.36 g/t Au, 0.8 g/t Ag Inf: 543 Mt 0.25% Cu, 0.31 g/t Au, 0.7 g/t Ag	A maiden resource was filed in August.
Thorn	Northwest	**Brixton Metals Corporation**	Ag, Au, Cu, Zn, Pb; Subvolcanic Cu-Ag-Au (As-Sb); 104K 031	I: 7.4 Mt 35.54 g/t Ag, 0.51 g/t Au, 0.13% Cu, 0.32% Pb, 0.59% Zn	Drilling (>5000 m), rock (1200) and soil (5000) sampling. Land size of project increased by optioning adjacent properties.
Todd Creek	Northwest	**P2 Gold Inc. (70%)**, ArcWest Exploration Inc. (30%)	Cu, Au, Pb, Zn; Porphyry, volcanogenic, hydrothermal; 104A 001	na	Drilling (1027 m) with near surface intersections of 1.8 m grading 4.19% Cu, 0.19 g/t Au, 4.90 g/t Ag. Airborne magnetic and radiometric surveys.

Table 7. Continued.

Treaty Creek	Northwest	**Tudor Gold Corp. (80%)**, (Teuton Resources Corp. (20%), American Creek Resources Ltd. (20%))	Cu, Au; Porphyry; 104A 004	na	Drilling (~40,000 m) focussed on Goldstorm zone and newly discovered Perfect Storm zone. Highlights of 348 m of 2.04 g/t Au, 4.13 g/t Ag within 930 m of 1.07 g/t Au, 2.80 g/t Ag.
Turnagain	Northwest	**Giga Metals Corp.**	Ni, Co, Pt, Cu, Mo; Alaskan-type, magmatic; 104I 014	M+I: 1.073 Bt 0.220% Ni, 0.013% Co Inf: 1.142 Bt 0.217% Ni, 0.013% Co	A Preliminary Economic Assessment (PEA) was completed in October.
Willoughby	Northwest	**Strikepoint Gold Inc.**	Au, Ag, Zn, Pb; Precious and polymetallic veins; 103P 006	na	Surface sampling focussed on targeting newly exposed mineralization, results included up to 37.3 g/t Au and 263 g/t Ag. 1700 m of drilling followed up on previously identified Au and Ag mineralization.
3Ts	Northwest	**Independence Gold Corp.**	Au, Ag; Epithermal Au-Ag, low sulphidation; 093F 055	Tommy and Ted-Mint veins Inf: 5.45 Mt 2.52 g/t Au, 71.5 g/t Ag (at a cut-off grade of 1 g/t Au)	Drilling, 11 DDH, 2200 m. Results included 3.0 m grading 30.94 g/t Au and 130.0 g/t Ag and 67.6 m grading 3.63 g/t Au and 132.83 g/t Ag.
Baptiste (Decar)	North Central	**FPX Nickel Corp.**	Ni, Fe; na; 093K 116	Baptiste deposit I: 1996 Mt 0.122% Ni, DTR (Davis Tube Recoverable) Inf: 593 Mt 0.114% Ni, DTR Ni (0.06% Ni cut-off)	New Preliminary Economic Assessment released. Potential for robust operating margins.
Captain	North Central	**Orestone Mining Corp.**	Cu, Au; Alkalic porphyry Cu-Au; 093J 026, 094C 180	na	Drilling, three DDH, 942 m.
Dominion Creek	North Central	**High Range Exploration Ltd.**	Au, Ag, Zn, Pb; Polymetallic veins Ag-Pb-Zn+/-Au; 093H 133	na	Plans to extract a 10,000 t bulk sample. Nicola Mining Inc. has entered into a mining and profit-sharing agreement with High Range. As part of their due diligence Nicola collected a 9.7 kg grab sample and chip sampled at the Number 16 vein. The grab sample graded 62.1 g/t Au, 320 g/t Ag, 23.4% Pb, and 12.4% Zn. Chip sample results included 0.5 m grading 34.9 g/t Au, 176 g/t Ag, 12.7% Pb, and 8.6% Zn and 0.75 m grading 13.2 g/t Au, 46 g/t Ag, 2.7% Pb, and 2.7% Zn.

Table 7. Continued.

East Niv	North Central	**Serengeti Resources Inc.**	Cu, Au; Alkalic porphyry Cu-Au; na	na	Mapping, sampling, and IP geophysical surveys. Data identified a 3.5 km^2 porphyry Cu-Au target area.
Golden Lion	North Central	**Evergold Corp.**	Au, Ag; Epithermal Au-Ag, low sulphidation; 094E 077	na	Drilling, 10 DDH, 2500 m and IP surveying. Drill results included 73.12 m grading 0.69 g/t Au and 61.70 m grading 0.76 g/t Au.
Jean Marie	North Central	**Pacific Empire Minerals Corp.**	Cu, Au, Ag, Mo; Porphyry Cu±Mo±Au; na	na	Rock sampling, ground geophysics, airborne geophysics and reverse circulation drilling (15 holes, 1692 m). Rock sample results included 8.79 g/t Au, 86.6 g/t Ag, and 1.75% Cu from the newly identified Leap target area, and continuous chip sampling results of 4 m grading 1.37% Cu, 0.08 g/t Au, and 67.4 g/t Ag at C zone south.
Kemess Brownfield	North Central	**Centerra Gold Inc.**	Cu, Mo, Au; Porphyry Cu±Mo±Au; 094E 315	Kemess East I: 177.5 Mt 0.36% Cu, 0.4 g/t Au, 1.97 g/t Ag Inf: 29.3 Mt 0.314% Cu, 0.3 g/t Au, 2.00 g/t Ag	Potential to be integrated into the Kemess Underground project. Diamond drilling, 4257 m at Kemess East and 3302 m at Nugget target.
Kliyul	North Central	**Pacific Ridge Exploration Ltd.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 094D 023	I: historic non NI 43-101 compliant: 2.3 Mt 1.30 g/t Au, 0.45% Cu, 6.9 g/t Ag	IP and ground magnetic geophysical surveys, sampling and core relogging. Geophysics defined potential to expand Kliyul Main zone and two new targets, Kliyul East and Kliyul West.
Kwanika	North Central	**Kwanika Copper Corporation (67% Serengeti Resources Inc., 33% Posco International Corporation)**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 093N 073	Central zone pit M+I: 104.6 Mt 0.23% Cu, 0.21 g/t Au, 0.78 g/t Ag (at a cut-off grade of 0.13% CuEq) Central zone underground M+I: 118.9 Mt 0.30% Cu, 0.29 g/t Au, 0.96 g/t Ag (at a confining shape basis of 0.27% CuEq) South zone pit Inf: 33.3 Mt 0.26% Cu, 0.08 g/t Au, 1.64 g/t Ag, 0.01% Mo	Drilling, nine DDH, 4350 m. Results included 698 m grading 0.40% Cu, 0.65 g/t Au, 1.9 g/t Ag and new deep mineralization that graded 0.15% Cu, 0.2 g/t Au, 0.6 g/t Ag over 150 m.

Table 7. Continued.

Lawyers	North Central	**Benchmark Metals Inc.**	Au, Ag; Epithermal Au-Ag, low sulphidation; 094E 066	Inf: Cliff Creek N zone 550 Kt 4.51 g/t Au, 209.15 g/t Ag Duke's Ridge zone 58 Kt 4.30 g/t Au, 139.13 g/t Ag	Highlight drilling results included 57.91 m grading 1.90 g/t Au, 91.96 g/t Ag, 31 m grading 2.98 g/t Au, 72.77 g/t Ag, 128.10 m grading 1.65 g/t Au, 110.02 g/t Ag and 15 m grading 7.01 g/t Au, 307.9 g/t Ag.
Max	North Central	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 093K 020	na	Drilling, 11 DDH, 5441 m.
McConnell Copper-Gold	North Central	**GGL Resources Corp.**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 094D 030	na	20 line-km of IP and ground magnetic surveys over a known porphyry Cu-Au zone.
Mt. Milligan Brownfield	North Central	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 094N 194	na	Drilling, 69 DDH, 32,671 m.
Nechako Gold	North Central	**Tower Resources Ltd.**	Au, Ag; Epithermal Au-Ag, low sulphidation; 093F 060, 4	na	Drilling, 41 RCH, 350 m, 11 DDH, 1590 m. Results included 7.1 m of core grading 2.75 g/t Au and 40.2 g/t Ag.
Pil	North Central	**Finlay Minerals Ltd.**	Cu, Au, Ag; Porphyry Cu±Mo±Au, alkalic porphyry Cu-Au; 094E 310, 377	na	Geological mapping and soil and rock sampling. Targets included the Pil South, Copper Ridge, WG, Gold and Spruce zones.
Stardust	North Central	**Sun Metals Corp.**	Cu, Au, Ag, Zn; Cu skarn; 093N 09	Canyon Creek I: 985,000 t 1.34% Cu, 1.59 g/t Au, 36.8 g/t Ag, 0.62% Zn	Drilling, 17 DDH, 11,988 m. Results included 1.57% Cu, 1.08 g/t Au, 28.2 g/t Ag over 44 m and 4.45 m grading 5.58% Cu, 5.99 g/t Au, 190.5 g/t Ag.
Top Cat	North Central	**Serengeti Resources Inc.**	Cu-Au; Alkalic porphyry Cu-Au; 094C 174	na	Mapping, sampling, IP surveying and data compilation.
Wicheeda	North Central	**Defense Metals Corp.**	Nb, REE; Carbonatite-hosted deposits; 093J 014	I: 4.89 Mt 3.02% LREO Inf: 12.1 Mt 2.90 % LREO Resources at a cut-off grade 1.5% total metal LREO = sum of Ce_2O_3+ +La_2O_3+Nd_2O_3+Nd_2O_3 +Pr_2O_3+Sm_2O_3 Total metal % = sum of Ce+La+Nd+Pr+Sm+Nb percentages	Baseline environmental studies, flotation pilot plant studies and a 43-101 report updating resources.

Table 7. Continued.

Flatbed	Northeast	**Colonial Coal International Corp.**	Coal; Bituminous coal; 0931 049	na	Permitting, First Nations consulting, environmental monitoring and data review.
Huguenot	Northeast	**Colonial Coal International Corp.**	Coal; Bituminous coal; 093I 036	M+I: 132.0 Mt (in situ surface mineable)	Permitting, First Nations consulting, environmental monitoring and data review.
Rocky Creek	Northeast	**CTI Plus Resources Ltd.**	Coal; Bituminous coal; 093P 004	na	Drilling, 50, DDH, 818 m, 19 RCH, 3154 m. Coal quality testing. Trench sampling and mapping.
Trend-Roman	Northeast	**Peace River Coal Inc. (subsidiary of Anglo American plc)**	Coal; Bituminous coal; na	na	Drilling, six DDH, 3204 m. Testing for underground potential near the former Trend-Roman mine.
Alwin Mine	South Central	**GSP Resource Corp.**	Cu, Ag; Cu; ±Ag quartz veins; porphyry Cu+/-Mo+/-Au; 092ISW010, 21	Historical: 390,000 t 2.5% Cu, 11.7 g/t Ag, 0.69 g/t Au	Drilling, approximately 2000 m in 10 holes. Initial result 12.1 m grading 2.27% Cu.
Blackdome-Elizabeth	South Central	**Tempus Resources Ltd.**	Au, Ag; Au quartz veins, epithermal Au-Ag-Cu, low sulphidation; 092O 053, 12	I: 144,500 t 11.29 g/t Au, 50.01 g/t Ag Inf: 90,600 t 8.79 g/t Au, 18.61 g/t Ag	Drilling, 5087 m in 26 holes at Blackdome; 2400 m in 12 holes at Elizabeth.
Bralorne	South Central	**Talisker Resources Ltd.**	Au; Au-quartz veins; 092JNE001	M+I: 260,000 tons 0.351 oz/ton Au Inf: 317,000 tons 0.231 oz/ton Au	Drilling, 23,000 m planned by year end. Updated resources estimate not including latest drilling. Example highlight intersection 995 g/t Au along 0.5 m within 227.55 g/t Au along 2.25 m.
Elk	South Central	**Gold Mountain Mining Corp.**	Au, Ag; Au quartz veins; 092HNE009, 295, 41, 261	M+I: 2,699,000 t 5.22 g/t Au, 9.23 g/t Ag Inf: 454,000 t 6.4 g/t Au,14.17 g/t Ag	Preliminary economic assessment, drilling 3200 m in 12 holes.
FG	South Central	**Kore Mining Ltd.**	Au, Ag; Au-quartz veins; 093A 061	M: 5,600,000 t 0.812 g/t Au I: 9,570,000 t 0.755 g/t Au Inf: 27,493,000 t 0.718 g/t Au	Drilling, approximately 7400 m in 23 holes. Expanded land position.
Fox Tugsten	South Central	**Happy Creek Minerals Ltd.**	W; W skarns; 093A 259, 260, 261, 211	I: 582,000 t 0.826% WO_3 Inf: 565,400 t 1.231% WO_3	Drilling, approximately 1100 m in 7 holes.
Gold Creek	South Central	**Kore Mining Ltd.**	Au, Ag; Au-quartz veins; 093A 127	na	Drilling, 1550 m in 5 holes (early December).

Table 7. Continued.

Highland Valley (West Valley-Rateria)	South Central	**Happy Creek Minerals Ltd.**	Cu, Mo, Au, Ag, Re; Porphyry Cu±Mo±Au; 092ISE199	na	Drilling approximately 2400 m in 5 holes.
IKE	South Central	**Amarc Resources Ltd.**	Cu, Mo, Ag; Porphyry Cu±Mo±Au; 092O 025, 67	na	Technical report and surface work (geology, geochemistry, geophysics).
Lac La Hache	South Central	**Engold Mines Ltd.**	Cu, Au, Ag, Fe; Alkalic porphyry Cu-Au, Cu skarn; 092P 120, 108, 2, 153	Aurizon Inf: 1,073,000 t 2.48 g/t Au, 0.64% Cu, 5.98 g/t Ag Spout zone I: 7.6 Mt 0.28% Cu, 0.05 g/t Au, 1.26 g/t Ag, 11.4% magnetite Inf: 15.8 Mt 0.21% Cu, 0.04 g/t Au, 0.93 g/t Ag, 8.32% magnetite	Drilling at Ann North, G1 and recently discovered Road Gold zone. Highlight intersection 22.4 m grading 1.29% Cu, 0.11 g/t Au, 4.36 g/t Ag and 26.91% Fe at G1.
Merit	South Central	**Independence Gold Corp.**	Au, Ag; H05: Epithermal Au-Ag; 092ISW106	na	Prospecting, rock sampling, ground magnetic survey, metallurgy. Sample highlight 9.5 g/t Au and 341 g/t Ag.
Miner Mountain	South Central	**Sego Resources Inc.**	Cu, Au; Alkalic porphyry Cu-Au; 092HSE203, 78	na	Trenching and drilling 3970 m. Granby mineralization extended 80 m.
MPD	South Central	**Kodiak Copper Corp**	Cu, Au; Alkalic porphyry Cu-Au; 092HNE243, 55, 191, 244	na	Drilling approximately 7000 m in 10 holes, magnetic and ZTEM surveys. Highlight 282 m grading 0.70% Cu and 0.49 g/t Au.
Mt. Riordan	South Central	**Garnet Peak Resources Inc.**	Garnet; Garnet skarns; 082ESW102	Historical: 11,848,200 t 78% (west) 17,955,000 t 80% (north) 10,663,380 t 77% (south)	Mainly permitting, community relations. Permit received for drilling and bulk sample.
New Craigmont	South Central	**Nicola Mining Inc.**	Cu, Au; Cu skarns; 092ISE035	Inf: 18.669 Mt 0.13% Cu	Portal area and southern waste dump resource estimate. Metallurgical testing.
Reliance Gold	South Central	**Endurance Gold Corporation**	Au, Sb, Ag; Au quartz veins, stibnite veins and disseminations; 092JNE033, 136, 191	na	Reverse circulation drilling 978 m in 17 holes. Rock channel sampling highlight of 8.97 g/t Au along 9.6 m.

Table 7. Continued.

Shovelnose	South Central	**Westhaven Gold Corp.**	Au, Ag; Epithermal Au-Ag-Cu, low sulphidation; 092HNE309, 308	na	Drilling, 43,000 m in 100 holes. Highlights included outcrop discovery of Franz zone (51.10 g/t Au and 165.00 g/t Ag grab, 7.78 m 14.84 g/t Au and 39.4 g/t Ag drill intercept) 2.8 km from South zone. FMN zone discovered between Franz and South zone (5.5 m 4.58 g/t Au, 267.4 g/t Ag). Several other targets identified.
Spanish Mountain	South Central	**Spanish Mountain Gold Ltd.**	Au, Ag; Au-quartz veins; 093A 043	M+I: 273.2 Mt 0.47 g/t Au, 0.71 g/t Ag Inf: 52.4 Mt 0.37 g/t Au, 0.67 g/t Ag	Exploration drilling, geotechnical drilling, test pits. Began Preliminary Feasibility Study.
Spences Bridge and Regional	South Central	**Talisker Resources Ltd.**	Au, Ag; Epithermal Au-Ag-Cu, low sulphidation; 092O 54, 60, 143, 092INW092, 110, 092ISW118, 124, 84	na	Large regional prospecting and sampling program continued in 2020. About 6000 soil samples, mapping, talus fines sampling, rock sampling.
Wingdam	South Central	**Omineca Mining and Metals Ltd.**	Au; Au-quartz veins; 093H 012	na	Drilling, approximately 300 m in 13 holes (program to continue into 2021). Airborne magnetic survey.
Woodjam	South Central	**Consolidated Woodjam Copper Corp.**	Cu, Au; Alkalic porphyry Cu-Au; 093A 269, 78	Inf: 227.5 Mt 0.31% Cu (Woodjam South) Inf: 32.8 Mt 0.22% Cu, 0.59 g/t Au (Deerhorn) Inf: 8.3 Mt 0.22% Cu, 0.26 g/t Au (Takom)	Drilling, 1737 m in 4 holes at Deerhorn. Highlight intersection of 110 m 2.57 g/t Au and 0.44% Cu including 26 m of 5.89 g/t Au and 0.92% Cu. IP survey at Megaton target.
Yellowhead	South Central	**Taseko Mines Limited**	Cu, Au, Ag; Noranda/Kuroko; 082M 008, 9	M+I: 1292 Mt 0.25% Cu, 0.028 g/t Au, 1.2 g/t Ag Inf: 109 Mt 0.21% Cu, 0.024 g/t Au, 1.2 g/t Ag	Updated Feasibility Study considers a 25-year 90,000 tpd open pit operation. Proven + Probable reserves are 817 Mt 0.28% Cu.
Athelstan-Jackpot	Southeast	**Belmont Resources Inc.**	Au, Ag, Cu, talc; Polymetallic veins Ag-Pb-Zn±Au, carbonate-hosted talc; 082ESE047	na	Data compilation, mapping, sampling, lidar, drone-based magnetic survey; ground IP.

Table 7. Continued.

Bull River Mine	Southeast	**Braveheart Resources Inc.**	Cu-Ag-Pb-Zn±Au; Polymetallic veins; 082GNW002, 6, 15	I: 1.51 Mt 1.91% Cu, 0.41 g/t Au, 15.6 g/t Ag (at 1% CuEq cut-off) Inf: 0.34 Mt 1.58% Cu, 0.36 g/t Au, 10.7 g/t Ag (at 1% CuEq cut-off) (2018)	Drilling (5 DD holes, 831 m); environmental baseline studies; updating mine plan and permitting; design work on the TSF; drill results include 4.24 m grading 1.39% Cu, 1.33 g/t Au, and 9.51 g/t Ag.
Gold Drop	Southeast	**GGX Gold Corp.**	Au, Ag, Te; Alkaline intrusion associated Au; 082ESE055, 150, 152, 153, 285, 286, 287	na	Drilling (24 DD holes, 2700 m) at C.O.D vein and C.O.D West; trenching; mapping, rock sampling. Two new veins discovered. Results up to 10.15 g/t Au and 142 g/t Ag from trenching at C.O.D South.
Gold Shear	Southeast	**PJX Resources Inc.**	Au, Cu, Pb, Zn; Polymetallic veins, Au-quartz veins; 082FSE108	na	David zone; vein target 1.2 to 4.5 m width; results include 2.5 m grading 25.07 g/t Au, 2.1 m grading 14.06 g/t Au, and 1.2 m grading 19.85 g/t Au; mapping and sampling identified four parallel mineralized shear ones, traced along strike for 1600 m; grab samples returned up to 250 g/t Au.
Henio Gold	Southeast	**MGX Minerals Inc.**	Au-Ag-Pb-Zn; Skarn; 082FNW234, 294, 295, 296, 297, 220	na	Heino-Money and Tillicum zones; data compilation; lidar; mapping; metallurgical test work (94.1% recovery of Au); sample results up to 207 g/t Au.
Iron Range	Southeast	**Private partner** (Eagle Plains Resources Ltd.)	Pb-Zn-Ag±Cu, Au; Vein, breccia, IOCG; 082FSE014, 15, 16, 17, 18, 19, 20, 21, 22, 23	na	Drilling (10 DD holes, 1000 m); mapping, sampling.
Ket 28	Southeast	**Grizzly Discoveries Inc.**	Au; Au-veins; 082ESW210	na	Drilling (15 DD holes, 1975 m); initial results include 3.08 m grading 7.37 g/t Au.
Ore Hill	Southeast	**Apex Resources Inc.**	Au±Ag, Pb, Zn; Au-quartz veins, polymetallic veins; 082FSW040, 48, 50, 51, 52, 53 082FSE 030, 31, 34, 25	na	Drilling (1600 m, 12 DD holes); mapping, rock sampling; two magnetic anomalies coincident with soil geochemical anomalies and historic production; results include 0.30 m grading 32.9 g/t Au; assays pending.

Table 7. Continued.

Providence	Southeast	**Ximen Mining Corp.**	Au±Ag, Pb, Zn; Au-quartz veins, polymetallic veins; 082ESE001, 135, 165	na	Drilling (6 DD holes, 1172 m); mapping, grab and chip sampling, soil geochemistry; two grab samples assayed 884 g/t Ag and 1.36 g/t Au; 436 g/t Ag and 4.4 g/t Au.
Radpath	Southeast	**KG Exploration (Canada) Inc.**	Au-Cu-Pb-Zn-Ag±Mo; Cu-Au-Ag skarn, VMS, polymetallic veins, Au-vein, porphyry; 082ESE077, 57, 146, 158	na	Drilling (4 DD holes, 1200 m); mapping, sampling, soil geochemistry; following up on targets identified on ground magnetics and airborne geophysics; rock sample results include up to 11.9 g/t Au.
Regal	Southeast	**Affinity Metals Corp.**	Ag-Pb-Zn±Au; Polymetallic veins, SEDEX; 082N 004, 3, 16	Regal 590,703 t 71.6 g/t Ag, 2.66% Pb, 1.26% Zn, 1.1% Cu, 0.13% Sn and 0.015% W (1982; noncompliant)	Results reported for 2019 drilling include 11.1 m grading 143.29 g/t Ag. Drilling at the Allco (19 DD holes, 3443 m).
Revel Ridge	Southeast	**Rokmaster Resources Corp.**	Ag-Pb-Zn±Au; SEDEX, Irish-type carbonate-hosted, polymetallic veins; 0825M 003	Main zone M+I: 4.2 Mt 5.59 g/t Au, 53.4 g/t Ag, 1.87% Pb, 3.43% Zn Inf: 4.562 Mt 4.36 g/t Au, 61.8 g/t Ag, 1.88% Pb, 2.59% Zn Yellowjacket zone I: 771 kt 0.9 g/t Au, 62.6 g/t Ag, 2.6% Pb, 9.93% Zn Inf: 23 kt 0.11 g/t Au, 55.4 g/t Ag, 2.65% Pb, 7.68% Zn	J&L mine; rehabilitation of portal and underground workings at the Main Zone; underground drilling began late in the year, continuing into 2021 (6000 m, 20 DD holes completed); mapping and sampling; metallurgical test work; updated resource estimate; environmental baseline and monitoring; began an updated PEA; grab samples results up to 6.57 g/t Au, 311 g/t Ag, 9.53% Zn, and 7.02 % Pb; chip sample results include 0.3 m grading 5.6 g/t Au, 173 g/t Ag, 0.72% Zn, and 6.65% Pb.
Silvana	Southeast	**Klondike Silver Corp.**	Ag-Pb-Zn±Au; Polymetallic veins; 082FNW050, 13, 082KSW006	na	Underground drilling (10 DD holes); facility upgrades; environmental monitoring; mill on care and maintenance; environmental baseline work.

Table 7. Continued.

Thor	Southeast	**Taranis Resources Inc.**	Ag-Pb-Zn±Au; Polymetallic veins and breccia, stratiform volcanogenic massive sulphide; 082KNW030, 31, 60, 61	I: 640,000 t 0.88 g/t Au, 187 g/t Ag, 0.14% Cu, 2.51% Pb, 3.51% Zn Inf: 424,000 t 0.98 g/t Au, 176 g/t Ag, 0.14% Cu, 2.26% Pb, 3.2% Zn (2013)	Drilling (8 DD holes, 1200 m); mapping; sampling; geophysics; update of geological model; environmental baseline studies; permitting for 10,000 t bulk sample; channel sample results at Scab zone include: 3.05 m grading 3.72 g/t Au, 345 g/t Ag, 0.07% Cu, 2.24% Pb and 0.38% Zn; and 2.52 m grading 1.29 g/t Au, 72 g/t Ag, 0.02% Cu, 1.40% Pb and 0.71% Zn; initial drill results from the first drill hole include: 0.76 m grading 3.96 g/t Au, and 2.9 m grading 0.5 g/t Au, 252.5 g/t Ag, 0.14% Cu, 1.64% Pb, and 5.3% Zn.
Adam West	Southwest	**GoldHaven Resources Corp.**	Au, Ag, Cu; Volcanic redbed Cu; 092L 222	na	Rock geochemistry. Highlight 46.4% Cu, 144 g/t Ag, 16.55 g/t Au.
Consortium	Southwest	**Gold Basin Resources Corporation**	Au, Ag, Cu; Au quartz veins, Cu+/-Ag quartz veins; 092K 175	na	Rock and soil geochemistry. Grab samples up to 30.4 g/t Au.
Harrison Gold	Southwest	**Bear Mountain Gold Mines Ltd., Bayhorse Silver Inc.**	Au, Ag; Au quartz veins; 092HSW092	Historical I: 1.845 Mt 2.79 g/t Au Inf: 0.6 Mt 2.8 g/t Au	Sampling, metallurgical testing. Underground development, bulk sample.
New Privateer	Southwest	**Privateer Gold Ltd.**	Au, Ag; Au-quartz veins; 092L 008, 311, 155	na	Drilling 3000 m in 16 holes, soil survey.
North Island	Southwest	**Northisle Copper and Gold Inc.**	Cu, Au, Mo, Re; Porphyry Cu±Mo±Au; 092L 185, 240, 200	I: 341,743,000 t 0.24% Cu, 0.29 g/t Au, 0.008% Mo, 0.48 ppm Re Inf: 190,788,000 t 0.19% Cu, 0.24 g/t Au, 0.007% Mo, 0.35 ppm Re	Resource estimate combines Red Dog and Hushamu. 2020 work included metallurgical tests which improved recoveries at Red Dog and Hushamu.
Silver Peak	Southwest	**Homegold Resources Ltd., M. Nugent**	Ag; Polymetallic veins; 092HSW011	na	Trenching, sampling, drilling.

M = Measured; I = Indicated; Inf = Inferred

244,000 oz Au). The company began a 5000 m drill program in the fall that could be used to expand the resource.

At their **Willoughby** project Strikepoint Gold Inc. completed 1700 m of drilling to test disseminated gold and silver mineralization identified from previous drilling and surface sampling, and to improve continuity of high-grade mineralization. Surface sampling was also conducted and focussed on outcrops newly exposed by glacier retreat. Results included up to 37.3 g/t Au and 263 g/t Ag.

8.1.2. North Central Region

Independence Gold Corp. announced that approximately 2200 m in 11 holes would be drilled in the fall at its **3Ts** project. Drill collar location selection was largely based on an extensive compilation and a 3D geological model of the known epithermal vein system, in addition to magnetic and spectral surveys that were completed in 2019. Highlight results included 3.0 m grading 30.94 g/t Au and 130.0 g/t Ag and 67.6 m grading 3.63 g/t Au and 132.83 g/t Ag.

At their **Golden Lion** project, Evergold Corp. reported broad intersections of epithermal mineralization from more than 2500 m of drilling in ten holes at the GL1 "Main" prospect. The company also carried out an IP survey that defined a resistivity and chargeability anomaly encompassing 100s of m of strike length, broad widths, and untested down-dip potential. Results included 73.12 m grading 0.69 g/t Au and 61.70 m grading 0.76 g/t Au.

Benchmark Metals Inc. planned to complete up to 100,000 m of diamond drilling in 2020 at their **Lawyers** project. The project is a regional-scale prospect that follows northwest-trending linear magnetic and radiometric anomalies with multiple gold-silver showings for more than 20 km. The project has four discrete zones (Cliff Creek, Duke's Ridge, Phoenix and AGB) targeted for their bulk tonnage potential. Highlight results included: 57.91 m grading 1.90 g/t Au and 91.96 g/t Ag; 31 m grading 2.98 g/t Au and 72.77 g/t Ag; 128.10 m grading 1.65 g/t Au and 110.02 g/t Ag; and 15 m grading 7.01 g/t Au and 307.9 g/t Ag. Results will be used to prepare a global resource estimate and a Preliminary Economic Assessment in early 2021.

Tower Resources Ltd. completed 1590 m of diamond drilling in 11 holes and 350 m of reverse circulation drilling in 41 holes on epithermal gold and silver targets at their **Nechako Gold** project. Results included 7.1 m of core grading 2.75 g/t Au and 40.2 g/t Ag.

8.1.3. South Central Region

Tempus Resources Ltd. acquired the **Blackdome-Elizabeth** project when it bought Sona Resources Corp., a subsidiary of Skeena Resources Ltd. in 2019. In 2020, they drilled 5087 m in 26 holes at Blackdome and completed about 2400 m in 12 holes of a planned 6000 m program at Elizabeth before shutting down for winter. Highlight results at Blackdome included 0.6 m grading 28.3 g/t Au and 513 g/t Ag. The linked Blackdome and Elizabeth properties were the subject of a 2010 Preliminary Economic Assessment in which mining would occur at both sites, with processing at an existing mill at Blackdome. Tempus is focussed on verifying and expanding the existing resource.

Talisker planned 23,000 m of drilling in 2020, continuing into early 2021 at their **Bralorne** project. Target veins are near the mine. Highlight intersections include 995 g/t Au along a 0.5 m interval within 2.25 m grading 277.55 g/t Au. Bralorne is a past-producing gold mine, which last operated between 2010 and 2014 when it suspended operation because the tailings storage facility reached capacity. The mine had been operating at a 100 tpd trial basis. The 100 tpd mine permit was updated in 2017, but Talisker anticipates a larger operation.

Freeform Capital Partners Inc. and Bayshore Minerals Incorporated are combining to operate under the name Gold Mountain Mining Corp., a subsidiary of Bayshore which holds the **Elk** property. Before the deal, Freeform reported results of a Preliminary Economic Assessment including an updated resource estimate with Measured and Indicated resources of 2,699,000 t at 5.22 g/t Au and 9.23 g/t Ag, and Inferred resource of 454,000 t at 6.40 g/t Au and 14.17 g/t Ag that support a conceptual 10-year 70,000 tpy mine. Bayshore reported a 3200 m, 21-hole drill program in the fall, before the planned reverse takeover was completed. **Elk** produced about 51,500 oz of Au between 1992 and 1995 from 14,730 t of ore, mainly from an open pit. Bulk sampling resumed in 2012-14 when 7761 t with an average grade of 14.81 g/t Au were processed.

Kore Mining Ltd. drilled 5746 m in 15 holes at the **FG**, reporting highlight intersections including 11.0 m grading 10.0 g/t Au near surface. They also reported a discovery, the Lower Zone, below the existing FG resource where they intersected 52.5 m of 1.1 g/t Au. Highlight intersections in the Lower zone include a step out 215 m down dip returning 31.3 m grading 3.2 g/t Au.

By early December, Kore drilled 1550 m in 5 holes at the **Gold Creek** orogenic gold project, part of their Cariboo land holdings. Targets are gold-bearing quartz veins and stratabound vein zones in metasedimentary rocks, including a black phyllite. The company is considering placing its British Columbia exploration properties in Karus Gold Corp., a company separate from its more advanced US projects.

Endurance Gold Corporation carried out mapping and sampling in the Bridge River camp at the **Reliance** property. Work included biogeochemical and rock sampling. Highlight results of channel sampling included 8.97 g/t Au along 9.6 m at the Eagle South showing. Following up on the channel sampling, a reverse circulation drill program was underway in early December at the Imperial, Imperial North, Eagle South, and Eagle targets. The company reported 978 m in 17 holes.

Westhaven Gold Corp. continued drilling the **Shovelnose** low sulphidation epithermal prospect with a 43,166 m program. In addition to continued drilling at the South zone, the 2018 discovery area, and nearby Lear zone, new targets include the Franz zone, a prospecting discovery in outcrop approximately 2.8 km northwest of the South zone. Initial grab samples

returned up to 51.10 g/t Au and 165.00 g/t Ag. Subsequent drill intersections included 7.78 m of 14.84 g/t Au and 39.40 g/t Ag. The company reports 5.50 m of 4.58 g/t Au and 267.40 g/t Ag at another newly discovered zone (FMN) between the South and Lear zones and the Franz zone. Shylock is another drill target, about 1.5 km southeast of the South zone. Westhaven reported several other targets 500 m to 4 km from the South zone emerging from 2019-20 geophysics, soil geochemistry, prospecting, and mapping.

Spanish Mountain Gold Ltd. expects to deliver a Preliminary Feasibility Study for the **Spanish Mountain** gold property in the first quarter of 2021. The current Preliminary Economic Assessment is based on a Measured and Indicated resource of 273.2 Mt grading 0.47 g/t Au and 0.71 g/t Ag. In their phase one scenario, 39 Mt at an average diluted grade of 1.00 g/t Au and 0.74 g/t Ag would feed an 11-year, 10,000 tpd operation with average life of mine production of 104,000 oz/y Au. The new study is considering a 20,000 tpd mill throughput. The resource estimate is to be updated. The project has been in the pre-application phase of environmental assessment since 2011 but the company withdrew at the end of 2019. They expect to resume when the project scope is finalized. The company began drilling in the fall to expand resources in the Main zone. They drilled about 4500 m in 28 reverse circulation holes. There was additional sonic drilling for geotechnical purposes and some core drilling. They also dug 84 test pits.

Talisker Resources Ltd. holds claims covering most of the Spences Bridge belt, which consists of Lower Cretaceous calc-alkaline volcanic rocks extending for 220 km along a northwest trend. Talisker resumed its **Spences Bridge** project in 2020 with a crew of 20 geologists collecting stream-sediment samples and evaluating more than 100 anomalies found in a 2019 survey. The follow up included about 6000 soil samples from across three broadly prospective areas as well as mapping and stream, talus fine, and rock sampling. By the end of the season they reported generating 13 prospects.

Omineca, Mining and Metals Ltd. through its subsidiary CVG Mining Ltd., expanded its holdings near the **Wingdam** project and commenced a gold exploration project seeking lode gold sources of paleoplacer gold, which is the target of an underground bulk sampling project. The hard rock program is planned to include 9000 m of drilling in 27 holes, 2-3 km northwest of the placer operation. By the end of 2020, the company completed about 3000 m in 13 holes and flew an airborne magnetic survey. The placer project had been on care and maintenance since 2012, but now dewatering of the underground workings has begun. Private companies have an option to earn up to 50% of that project by progressing to bulk sampling.

8.1.4. Southeast Region

At their **Athelstan-Jackpot** project Belmont Resources Inc. conducted initial mapping and sampling and flew lidar, a drone magnetic survey, and a ground IP survey. The mineralized trend of the Athelstan and Jackpot historic producers coincides with IP resistivity and chargeability anomalies, and the company has prioritized targets for drilling next year.

GGX Gold Corp. continued drilling and trenching at the **Gold Drop** property. In 2020, the company drilled a second hole to test a 1834 by 1377 m anomaly from their 2019 airborne geophysics. The first hole encountered calc-silicate altered rocks and magnetite mineralization, with elevated copper, zinc, and iron, interpreted to be weak skarn mineralization. Trenching uncovered two new quartz veins (the Perky, and Lively) at the COD West area, and at the southern extension of the COD vein samples assayed up to 10.15 g/t Au and 142 g/t Ag. The company drilled at the COD vein to test mineralization at depth and at their new COD West zone. In total, 24 DD holes (2700 m) were drilled. Mapping and chip sampling were also done at the Gold Drop, North Star, Silent Friend, Ken, and Highland Valley veins to determine the next phases of drilling.

PJX Resources Inc. continued work at the **Gold Shear** property in 2020. VLF ground geophysics identified a large conductive target area down-dip of the David zone, below the depth of historical drilling. Results from drilling that tested the down dip extension of the David zone vein to 100 m below surface were 1.2 to 4.5 m wide, with 2.5 m grading 25.07 g/t Au, 2.1 m grading 14.06 g/t Au, and 1.2 m grading 19.85 g/t Au. Mapping and prospecting in 2020 identified four separate mineralized parallel shear zones along strike with the David zone. Grab samples from two of the veins returned values of up to 250 g/t Au.

At their **Ket 28** property, Grizzly Discoveries Inc. mapped, sampled, and drilled 15 holes (1975 m) to follow up on historic results of 11 m grading 2.77 g/t Au and 3 m grading 8.75 g/t Au, with a higher-grade zone of 2 m grading 11.90 g/t Au. They drill tested the main gold zone and southern faulted extension, encountering variable sericite-pyrite alteration, quartz veins, and silicification. Preliminary results for the first six holes included 3.08 m grading 7.37 g/t Au.

Ximen Mining Corp. acquired the **Providence** property in 2019, and continued work in 2020. The company drilled 6 holes (1172 m), mapped, sampled, and conducted soil geochemistry to locate extensions of the vein system. Two grab samples tested 884 g/t Ag and 1.36 g/t Au, and 436 g/t Ag and 4.4 g/t Au.

8.1.5. Southwest Region

Privateer Gold Ltd. drilled at **New Privateer** (previously called Surespan) in the Zeballos gold camp, completing about 3000 m in 16 holes and an 800-sample soil survey. The target is vein mineralization like that mined historically.

Homegold Resources Ltd., on behalf of the owners (Johan Shearer 15%, Michael Nugent 85%), began sampling and drilling at **Silver Peak**, site of the Eureka-Victoria, a past silver producer dating back to 1868. Current operators report silver assays up to 15,000 g/t, consistent with historical high-grade results along intervals of less than 1 m.

Bayhorse Silver Inc. entered into an agreement with Bear Mountain Gold Mines Ltd. to earn a 50% interest in the

Harrison Gold property. They collected samples for assay and metallurgical testing. Nine chip samples from the Jenner adit ranged from 2.86 to 414.20 g/t Au. Metallurgical testing achieved gravity recovery of 77.6% and gravity tails flotation recovered 17.1% for a total of 94.7% on a sample grading 11.89 g/t Au. Underground development and a bulk sample are permitted. The company mobilized a drill rig in December. An historical (1989) resource estimate has 1.845 Mt 2.79 g/t Au in the indicated category and 0.6 Mt 2.8 g/t Au in the inferred category.

Gold Basin carried out a mapping, prospecting, and rock and soil sampling at the **Consortium** project. Ten grab samples averaged 4.5 g/t Au and 14 g/t Ag with a high value of 30.4 g/t Au. The area is underlain by Karmutsen Formation tholeiitic basalts. Mineralization is in quartz veins with ankerite alteration.

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

8.2.1. Northwest Region

Libero Copper & Gold Corp. focussed on three main zones: Ridge, ME-18, and Terry at their **Big Red** project. The Ridge zone is 1 km long and has anomalous gold, silver, and copper that coincides with a ZTEM conductivity high. At ME-18, altered Stuhini Group volcanic rocks have been intruded by a diorite plug containing crosscutting gold-bearing quartz veins. The Terry zone is a previously identified porphyry Cu-Au target. Detailed mapping and geochemical sampling were continued from the previous year and surface sampling returned assays of 104.0 g/t Au at Ridge and 19.10 g/t Au at ME-18. A 3500 m reverse circulation drill program tested these targets. Results available for first hole, 24.38 m grading 0.38% Cu, 0.06 g/t Au and 2.2 g/t Ag.

Huckleberry was an open-pit mine until shutting down in 2016 and has since been on care and maintenance status. This year, Imperial Metals Corporation carried out 2491 m of exploratory drilling to test the extent of copper mineralization below the East zone pit. Initial results include 361 m grading 0.35% Cu from 368-729 m below surface.

Seabridge Gold Inc.'s **Iskut** project contains the former Johnny Mountain mine and the Bronson Slope copper-gold deposit. Previous drilling below the Quartz Rise lithocap discovered a mineralized diatreme containing clasts of veined diorite porphyry with copper-gold mineralization. This year, anomalous surface gold and copper concentrations and a large IP anomaly coincident with magnetic anomalies have guided the drilling of 8961 m in 11 holes to test 750 m of strike and greater than 800 m of vertical extent below and west of the lithocap. Initial results include intervals up to 158 m grading 0.16 g/t Au and 0.16% Cu. Higher grade (31.8 m grading 0.62% Cu) intersections were also recovered.

At their **Kirkham** project Metallis Resources Inc. work included field mapping, drill core re-logging, an IP survey, and short-wave infrared analysis. Late-season drilling (3820 m) tested the depth potential along the 4 km strike-length Cliff porphyry system, which was first highlighted by resistivity highs outlined in recent IP surveys. Early results from this drilling indicate continuous Cu-Au mineralization from surface to 850 m depth.

Surge Copper Corp.'s **Ootsa** project consists of three separate deposits: Ox, East Seel, and West Seel. A 3D deep-penetrating IP geophysical survey was conducted over the Seel trend producing a new chargeability anomaly, which in part was drilled with 10,000 m of core. The upper portion of hole S20-218 intersected the East Seel deposit as it progressed towards the deeper chargeability target. Assays for the portion of the hole in the East Seel deposit included 176.1 m grading 0.35% Cu, 0.40 g/t Au and 1.7 g/t Ag including 126.0 m grading 0.43% Cu, 0.50 g/t Au, and 2.0 g/t Ag and 700 m grading 0.23% Cu, 0.16 g/t Au 0.031% Mo and 3.1 g/t Ag. Drilling was also completed to test expanding the East and West Seel deposits.

GT Gold Corp. completed work on their **Tatogga** project at the Saddle North deposit and the Quash Pass zone. A maiden resource was completed for Saddle North and fieldwork was done at Quash Pass. Saddle North includes an Indicated resource containing 1.81 Blbs Cu and 3.47 Moz Au and an Inferred resource containing 2.98 Blbs Cu and 5.46 Moz Au (combined open-pit and underground mining methods). A Preliminary Economic Assessment is currently being completed for Saddle North and is targeted for release in the first quarter of 2021. Quash Pass is 7 km south of known mineralization at the Saddle North and South deposits. This year 4841 m of drilling was completed in nine diamond-drill holes that tested two anomalous geochemical trends spanning 6 km. District-scale west-northwest trending faults and coincident IP chargeability anomalies also guided exploration.

Brixton Metals Corporation completed approximately 5291 m of drilling in 19 holes at their **Thorn** project. Drilling focussed on the West and Central Outlaw gold targets and several deep holes were drilled at the Camp Creek porphyry copper-gold target. More than 5000 soil and 1200 rock samples were collected for geochemical analysis and early results from rock samples yielded highlights of 68.8 g/t Au from West Outlaw and 7.21% Cu from Camp Creek. Additionally, the company increased the overall land package of Thorn by optioning adjacent properties from Stuhini Exploration Ltd. (Metla) and Kodiak Copper Corp. (Trapper). Prospecting this year at Trapper yielded five rock samples assaying greater than 20 g/t Au.

The **Treaty Creek** project ownership is Tudor Gold Corp. 60%, Teuton Resources Corp. 20%, American Creek Resources Ltd. 20%. The project is considered prospective for large-scale porphyry-style gold mineralization. Highlights from drilling include near-surface intersections of 348 m grading 2.04 g/t Au and 4.13 g/t Ag within 930 m of 1.07 g/t Au and 2.80 g/t Ag (drill hole GS-20-65) and 229.5 m grading 1.34 g/t Au and 11.94 g/t Ag within 775.5 m of 0.84 g/t Au and 5.47 g/t Ag (drill hole GS-20-73). It is anticipated that more than 40,000 m of core will be drilled by the end of 2020, focussing on the Goldstorm zone and the newly discovered Perfect Storm zone.

8.2.2. North Central Region

Orestone Mining Corp's **Captain** project is 30 km south of the Mt. Milligan mine. Mineralization is hosted in an altered akalic monzonite porphyry. Target areas are outlined by strong magnetic anomalies with spatially associated moderate IP chargeability anomalies that are potentially related to mineralized monzonite porphyries and breccias. In late 2020, a total of 942 m of diamond drilling was completed in three holes.

Serengeti Resources Inc. carried out mapping, sampling, and IP geophysical surveys at their **East Niv** project. New data identified a 3.5 km^2 target area for porphyry Cu-Au mineralization and drilling is planned for 2021.

Pacific Empire Minerals Corp. carried out rock sampling, ground geophysics, airborne geophysics and reverse circulation drilling at their **Jean Marie** project. Rock sample results included 8.79 g/t Au, 86.6 g/t Ag, and 1.75% Cu from the newly identified Leap target area. At the C zone south target area, continuous chip sampling results returned 4 m grading 1.37% Cu, 0.08 g/t Au, and 67.4 g/t Ag. A ground magnetic survey was carried out over C zone south. A total of 1692 m of reverse circulation drilling in 15 holes was carried out at the A zone. A high-resolution airborne magnetic survey along 100 m spaced lines was flown over most of the property.

Centera Gold Inc. drilled at the Kemess East (4257 m) and Nugget (3302 m) targets that are part of their **Kemess Brownfield** project.

At their **Kliyul** project Pacific Ridge Exploration Ltd. carried out 9.1 line-km of IP and ground magnetometer surveys, surface and drill core sampling to identify alteration and geochemical trends, and historical core re-logging to identify porphyry-style veining. Geophysics outlined potential to expand the Kliyul Main zone and defined two new targets, Kliyul East and Kliyul West. Targets are defined by moderate to high chargeability and resistivity and variable magnetic signatures along a strike length of 1.5 km.

Kwanika Copper Corporation (67% Serengeti Resources Inc., 33% Posco International Corporation) was formed in 2017 to continue exploration on the **Kwanika** property. Since 2006, about 82,650 m of drilling has been done on Kwanika (Central and South zones). In 2020, Serengeti completed a nine-hole 4350 m diamond drilling program to test exploration targets and expand the known resource. Posco elected not to participate in the 2020 program and their ownership diluted from 35% to 33%. Highlight results included an infill hole that intersected 698 m grading 0.40% Cu, 0.65 g/t Au, and 1.9 g/t Ag, and new deep mineralization that graded 0.15% Cu, 0.2 g/t Au, and 0.6 g/t Ag along 150 m.

Centerra Gold Inc. drilled 5441 m in 11 holes at their **Max** property. The Max project consists of 12 mineral claims (4869 ha) under option from Jama Holdings Inc., 21 km south of the Mount Milligan mine.

GGL Resources Corp. carried out 20 line-km of IP and ground magnetic surveys over a known porphyry Cu-Au zone at their **McConnell Copper-Gold** project. The IP survey follows up on an older reconnaissance IP survey. New work was designed to better define the known chargeability target, and to expand geophysical coverage to evaluate the potential for other nearby targets buried by overburden.

Centerra Gold Inc. carried out a 69-hole 32,671 m diamond drilling program on their **Mt. Milligan Brownfield** project.

At their **Pil** project, Finlay Minerals Ltd. carried out detailed geological, alteration, and structural mapping, and soil and rock sampling. Targets included the PIL South, Copper Ridge, WG, Gold and Spruce zones.

IMC International Mining Corp. carried out ground geophysics, alteration mapping, and rock, soil, and silt sampling at their **Thane** property to guide future diamond drilling.

Mapping and sampling were carried out at the Nova zone by at Serengeti Resources Inc. at their **Top Cat** project. In addition, IP surveying was carried out over the Nova and Cat Mountain zones. Cat Mountain is an advanced gold-copper prospect that has seen more than 10,000 m of historical drilling, with results including grades of 1.15 g/t Au and 0.15% Cu along 95.4 m. Serengeti completed data compilation and 3D modelling for Cat Mountain and interpreted that mineralization potential remains open to the northwest and that there is a potential offset to the southeast.

8.2.3. South Central Region

GSP Resource Corp. reviewed historical data and commissioned a 3-D model for its **Alwin Mine** Cu-Ag-Au property in advance of drilling in the second half of the year. The first eight holes tested for replacement Cu sulphide mineralization, and subsequent drilling tested for porphyry alteration and mineralization to the north and south. The company drilled about 2000 m in 10 holes. Initial results included 12.1 m grading 2.27% Cu and 39.8 m grading 0.40% Cu near surface. Alwin produced copper, silver, and gold sporadically between 1916 and 1982.

Amarc Resources Ltd. prepared a technical report on the **IKE** property and reported surface work (geological, geophysical and geochemical) in 2020.

Sego Resources Inc.'s **Miner Mountain** project has several alkalic porphyry Cu-Au and Au targets in a roughly 2 by 3 km area, much of which is under cover. Sego reported trenching at its Southern gold zone, with a highlight result of 30 m of 1.02 g/t Au. Drilling tested other targets in the Granby-Cuba area with four holes totalling 3970 m. A step out extended Granby mineralization by 80 m.

Happy Creek Minerals Ltd. followed up an IP survey and mapping in 2019 with approximately 2400 m of drilling in five holes on their **Highland Valley (West Valley-Rateria)** project. The targets include the PIM, identified in 2019 in a recently logged area as a soil geochemical and IP anomaly with 0.4% Cu sampled in bedrock. Step outs at Zone 1 and Zone 2 were also priority targets. The property is in the Guichon batholith south of the Highland Valley Copper mine and north of the past producing Craigmont mine. It has about 25 known copper occurrences.

Following up on discoveries from work done in 2019, Kodiak Copper Corp. (previously Dunnedin Ventures Inc.), drilled on the **MDP** project, intersecting 282 m grading 0.70% Cu and 0.49 g/t Au at the Gate zone. Complete results for the hole included 535.1 m of 0.49% Cu and 0.29 g/t Au. Another hole from the setup near the north end of an approximately 1 km long copper-in-soil anomaly had similar results at a depth of 308 to 500 m down the -71° hole. Kodiak is now funded for about 30,000 m of drilling, which will include step outs and other zones on the property. Approximately 7000 m in 10 holes were drilled in fall 2020. The company flew an airborne magnetic and ZTEM survey earlier in the year. MPD is a consolidation of the Man, Prime, and Dillard alkalic porphyry Cu-Au targets, which had historically been explored to about 200 m depth.

Consolidated Woodjam Copper Corp. carried out drilling at the Deerhorn zone of the **Woodjam** project to test grade continuity and mineralization below previous drilling in a steeply dipping system. They also tested a parallel zone to the southwest and infilled and extended an IP survey on the Megaton target. A highlight result included 110 m of 2.57 g/t Au and 0.44% Cu including 26 m of 5.89 g/t Au and 0.92% Cu. Mineralization starts at 96 m down a -75° hole. Weather forced suspension of the program, which was to be extended based on initial results. The Woodjam project has a resource, including 32.8 Mt at 0.49 g/t Au and 0.22% Cu in the Inferred category at the Deerhorn zone. Woodjam comprises six zones in a cluster approximately 5 km in diameter.

8.3. Selected polymetallic base and precious metal projects

8.3.1. Northwest Region

In 2020, more than 25,000 m of core was drilled by Pretium Resources Inc. on the **Bowser** claims, which are prospective for epithermal Au-Ag, porphyry Cu-Au, and volcanogenic massive sulphides. At Hanging Glacier (4.5 km NW of the Brucejack mine), 9800 m of drilling tested anomalous surface samples. A highlight includes 13 m with 9.5 g/t Au in an interval of 102 m with 2.1 g/t Au. Work continued at A6 (14 km NE of the mine) with 11,900 m of drilling in search of volcanogenic massive sulphides. The remaining 3980 m of drilling followed up epithermal Au and porphyry Cu- Au mineralization at Koopa, Snowfield East, and Haimila.

The **Corey** project is owned by Eskay Mining Corp. (80%) and Kirkland Lake Gold Ltd. (20%). Eskay is the operator. This year, approximately 4000 m of core was drilled at the TV and Jeff prospects and almost all of the 20 holes intersected VMS mineralization. A review of historic diamond drill core from various prospects across the greater land tenure also revealed VMS mineralization: stratiform sulphide mineralization (TV and Jeff prospects), feeder-style mineralization (Cumberland, Red Lightening, SIB, and Lulu prospects), and sulphate mineralization (indicative of white smoker origin; C10 prospect). The TV and Jeff targets are approximately 1.5 km apart and historically have been interpreted to be isolated VMS targets. However, recent geophysical data (SkyTEM, magnetotelluric, and IP) suggest these prospects form a single, larger VMS system. Airborne and ground-based geophysics completed this year suggest several other VMS targets. Highlight drill results at TV include 4.1 m grading 11.09 g/t Au, 44.2 g/t Ag, highlights at Jeff include 5.1 m grading 31.23 g/t Au, 138.1 g/t Ag.

The **Del Norte** property was optioned to Decade Resources Ltd. early in the year. In the 1930s, a creek that transects the property was mined for placer gold. Recent exploration has led to the discovery of several prospects along a minimum strike length of 4 km. Exploration this year focussed on drill testing the Argo and Eagle Nest zones with 5975 m in 32 holes; intervals of pyrite, sphalerite, galena, and tetrahedrite were recorded.

This year Dolly Varden Silver Corp. carried out more than 10,000 m drilling at their **Dolly Varden** project. Drilling focused on resource expansion and step-out targets. Step-out drilling intersected highlights that included 2.70 m of 1083 g/t Ag within 12.75 m of 351 g/t Ag.

Skeena Resources Ltd. exercised its option to acquire 100% of the **Eskay Creek** property. Barrick is expected to retain 12.4% of the project and has waived its back-in right. This year, six to twelve ground-based and helicopter-supported drills focussed on infill drilling (approximately 88,000 m) at the 21A, 21B, and 21C zones and will be used for the Preliminary Feasibility Study resource category conversions. Highlights from infill drilling include 42.59 m grading 7.19 g/t Au and 665 g/t Ag in 21C zone, 35.42 m grading 21.90 g/t Au and 235 g/t Ag in 21A zone, and 56.34 m grading 2.17 g/t Au and 234 g/t Ag in 22 zone. Exploration drilling was also completed to test the Water Tower and Lower Mudstone zones. The company raised $46 million late in 2020 enabling financing for a Prefeasibility and Feasibility Study. The company is also permitting 137,000 m of exploratory drilling to test both brownfield and greenfield targets.

Etruscus Resources Corp. explored on their **Rock and Roll** property. Early season exploration consisted of sampling, prospecting, mapping, and a VTEM survey, which guided generating targets and drill planning. The company drilled approximately 2000 m to test new areas, the depth potential of the Black Dog deposit, and mineralization surrounding Black Dog. Three separate intervals of massive and semi-massive sulphide were intersected.

The **Todd Creek** project is owned by P2 Gold Inc. 70% and ArcWest Exploration Inc. 30%. This year, 1027 m of drilling tested a prominent gossan at Yellow Bowl, which hosts several structurally controlled copper-gold showings. Near-surface drill intersection highlights include 1.8 m grading 4.19% Cu, 0.19 g/t Au, and 4.90 g/t Ag within 3.3 m grading 3.03% Cu, 0.20 g/t Au, and 7.15 g/t Ag (TC-002). An additional drill hole tested closely spaced copper-gold showings 5 km south of Yellow Bowl. Airborne magnetic and radiometric surveys were also flown over the property and a satellite hyperspectral survey was completed.

8.3.2. North Central Region

High Range Exploration Ltd. announced plans to extract a 10,000 t bulk sample from its **Dominion Creek** property. The sample would be shipped to Nicola Mining Inc.'s mill and Nicola would be responsible for negotiating the sale of concentrate to a smelter or third-party purchaser. Nicola entered into a mining and milling profit share agreement with High Range and signed a letter of intent to acquire 50% of the property and a 75% economic interest. As part of their due diligence, Nicola collected a 9.7 kg grab sample and chip sampled at the Number 16 vein. The grab sample graded 62.1 g/t Au, 320 g/t Ag, 23.4% Pb, and 12.4% Zn. Chip sample results included 0.5 m grading 34.9 g/t Au, 176 g/t Ag, 12.7% Pb, and 8.6% Zn and 0.75 m grading 13.2 g/t Au, 46 g/t Ag, 2.7% Pb, and 2.7% Zn.

The **Stardust** property was acquired by Sun Metals Corp. in 2017. Historically regarded as a skarn deposit, it was explored intermittently for many years. Historic work included more than 80,000 m of drilling, 5800 soil samples, airborne magnetic surveys, mapping, and prospecting. Mineralization is hosted by the Sowchea, Pope and Copely successions west of the Pinchi fault, in the Cache Creek terrane. In 2018, Sun Metals reported discovering a new zone (421 zone) and drilling results included a 100 m intersection grading 2.51% Cu, 3.03 g/t Au, and 52.5 g/t Ag. In 2020, Sun Metals continued drilling, completing 11,988 m in 17 holes. Work also included geophysical surveys, geotechnical work, and core logging and sampling. Drilling results established continuity between the 421 and Canyon Creek zones along a 900 m corridor of continuous high-grade copper-gold mineralization. Results included 1.57% Cu, 1.08 g/t Au, and 28.2 g/t Ag along 44 m. The 421 zone was also expanded to the south with drilling intersecting 4.45 m grading 5.58% Cu, 5.99 g/t Au, and 190.5 g/t Ag.

8.3.3. South Central Region

Engold Mines Ltd. reported results of drilling at the G1 and Ann North at the **Lac La Hache** project. Notable intersections include 22.4 m grading 1.29% Cu, 0.11 g/t Au, 4.36 g/t Ag, and 26.91% Fe and another longer intersection of 215 m grading 0.25% Cu, 0.04 g/t Au, 1.47 g/t Ag, and 7.51% Fe at G1. Drilling at G1 included 20 m and 50 m step out holes. They also report grab sampling up to 9.65 g/t Au at Aurizon South. Drilling at Ann North returned anomalous copper, gold, and molybdenum values. Late in the year they drilled a recent gold discovery called the Road Gold zone. **Lac La Hache** has several different target types related to alkalic intrusions. Copper skarns have had much of the recent exploration attention, but there are also porphyry targets and the Aurizon Au-Ag-Cu vein and breccia zone.

Nicola Mining Inc. announced final 2019 drill results and results of flotation tests on Craigmont waste rock for their **New Craigmont** project. After processing with an X-ray transmission sorter, material with a feed grade of 0.32% Cu and 6.4% Fe produced a Cu concentrate grading about 30% Cu. Testing using magnetic separation on magnetite concentrate produced a 65% Fe concentrate. The company also began developing a resource estimate for the historic Craigmont mine waste terraces. Inferred resources for the Southern and 3060 Portal dumps total 18,669,000 t grading 0.13% Cu.

The British Columbia Environmental Assessment Office terminated Yellowhead Mining Inc.'s Harper Creek copper project assessment in 2018. However, in early 2019, Taseko Mines Limited acquired Yellowhead Mining, renamed the project **Yellowhead,** and is advancing the project. They indicate an intention to re-enter environmental assessment. Taseko announced results of an updated Feasibility Study in January, including a new development plan and resource estimate (Table 5). Proven and Probable reserves now stand at 817 Mt grading 0.28% Cu at a 0.17% cut-off. In May, Taseko announced an agreement with an unnamed local First Nation regarding the company's intention to restart the project regulatory approval process. Although porphyry-like in tonnage and grade, Yellowhead is generally considered a marine volcanogenic and syngenetic deposit.

8.3.4. Southeast Region

At their **Aldridge 1** and **Aldridge 2** properties DLP Resources Inc. drilled two DD holes (2477 m) on the **Aldridge 1** and encountered 200 m of moderate to intense hydrothermally altered (quartz-albite) sedimentary rocks with albite, garnet, silicification and trace tourmaline, along with disseminated and veinlets of sphalerite and abundant pyrrhotite. At the **Aldridge 2** they drilled one DD hole (482 m) on another target from a magnetotelluric survey competed in 2019.

In 2019, Braveheart Resources Inc. purchased the former **Bull River** mine, which had been on care and maintenance since 2009. In 2020, the company drilled 831 m (5 DD holes) of a planned 3000 m underground drill program but ceased activities in March because of Covid-19. The holes were all drilled from the lowest mine level and tested mineralization down dip of the south vein. Results include 4.24 m (true width) grading 1.39% Cu, 1.33 g/t Au, and 9.51 g/t Ag. The company began design work to upgrade the tailings storage facility and obtain permits to process the stockpiled ore and move towards a mine restart.

In 2020, MGX Minerals Inc. entered into an option agreement for the **Heino Gold** property, which includes the Tillicum, Heino-Money, and East Ridge showings. MGX complied historical data and completed a lidar survey. Extensions of the ore zones surrounding historic workings were sampled, with grab sample results of up to 207 g/t Au. Metallurgical test work of composite samples taken from historic drill core and from outcrop indicated recoveries of 94.1% Au in gravity-flotation. The company has applied for drill permits for 2021.

In 2020, Eagle Plains Resources Ltd. optioned the **Iron Range** property to a private company who could earn up to 80% in the property. The company has identified three main target zones: Talon/Canyon, O-Ray, and Car. The private company began drilling (10 DD holes, 1000 m) at the O-Ray zone late in the year to further test a zone that returned 7.0 m grading 51.52 g/t Au in 2008 drilling.

At their **Ore Hill** project, Apex Resources Inc. followed up on 2019 drilling that intersected zones including 0.30 m grading 289.97 g/t Au. They drilled 12 holes (1600 m) along a 500 m zone of the soil anomaly, and encountered 0.3 m grading 32.9 g/t, with assays pending from eight more holes.

At their **Radpath** project, KG Exploration (Canada) Inc. drilled 1200 m (4 DD holes) to follow up on 2019 drilling and targets identified on airborne geophysics, ground magnetics, geological mapping, and sampling. Rock samples assayed up to 11.9 g/t Au, with the highest values in rocks along the margins of intrusive rocks that appear as magnetic highs on ground geophysics.

In 2020, Affinity Metals Corp. continued drilling at their **Regal** project (previously known as Allco). Efforts were focussed to follow up on drilling in 2019, which intersected 11.1 m grading 143.29 g/t Ag, including 0.55 m grading 2612.0 g/t Ag. Drilling was completed late in the year (19 DD holes, 3443 m). Mineralized intersections from the drill program consisted mostly of argentiferous galena, sphalerite, and tetrahedrite in quartz veins and breccias. Further mapping and sampling were also done for several km along a northwest-southeast fault contact. Several gold and silver bearing outcrops were mapped along a mineralized trend that coincides with a northwest-trending geophysical anomaly.

Rokmaster Resources Corp. entered an option agreement to acquire 100% of the **Revel Ridge** project, which includes the historic J&L mine site, facilities and claims, including more than 3 km of underground workings. The company compiled the historical data and updated the NI 43-101 resource estimate. They began mapping and sampling early in the season and rehabilitated portals and underground workings at the Main zone. They began underground drilling late in the year and completed more than 6000 m (20 DD holes) to test extensions of the Au-Ag zones. Additional metallurgical test work was completed on several samples to improve procedures and grades of gold, silver, zinc and lead in the concentrates. The company began work on a Preliminary Economic Assessment and environmental baseline and monitoring work for permitting. Initial results from surface mapping include grab samples with up to 6.57 g/t Au, 311 g/t Ag, 9.53% Zn, and 7.02% Pb, and results from a 0.3 m chip sample grading 5.6 g/t Au, 173 g/t Ag, 0.72% Zn, and 6.65% Pb.

Klondike Silver Corp.'s **Silvana** project consists of 25,000 ha in the silver-rich historic Slocan mining camp, with production that dates back to 1891. In 2020, they continued drilling and drifted an additional 29 m (of a planned 80 m) before the program was suspended because of Covid-19. They encountered sphalerite and galena in every hole, with results including 0.8 m grading 71.73 g/t Ag, 1.09% Pb and 0.21% Zn. Environmental baseline work, monitoring, and engineering upgrades to the tailings facility and mill are ongoing as the company updates their mine plan and permit. The company's mill at Sandon is a 100 tpd flotation mill that operated at an average rate of 40 tpd and has been on care and maintenance since 2003.

Taranis Resources Inc. continued work at the **Thor** property, which has several targets and showings, including the True Fissure, Great Northern, Broadview, and Blue Bell (Fig. 3) past-producing mines. In 2020, the company drilled eight DD holes (1200 m) at the True Fissure target, and intersected semi-massive to massive sphalerite, tetrahedrite, and pyrite. Initial results from the first hole encountered an upper gold zone (0.76 m grading 3.96 g/t Au), and two zones with lower grades of gold but higher silver, lead and zinc (2.9 m grading 0.5 g/t Au, 252.5 g/t Ag, 0.14% Cu, 1.64% Pb, and 5.3% Zn). The company also completed additional mapping, sampling, and geophysics at the Ridge target for drilling in 2021. Mapping and channel sampling was done at the Scab zone, with results of 3.05 m grading 3.72 g/t Au, 345 g/t Ag, 0.07% Cu, 2.24% Pb, and 0.38% Zn; and 2.52 m grading 1.29 g/t Au, 72 g/t Ag, 0.02% Cu, 1.40% Pb, and 0.71% Zn. Taranis also continued environmental baseline work, tailings storage design work, and other requirements for a 10,000 t bulk sample permit.

8.3.5. Southwest Region

GoldHaven Resources Corp. (Formerly Altum Resources Corp.) reported results of rock sampling at **Adam West**. Of 147 grab samples, 102 returned >0.25% Cu. Highlights include 46.4% Cu and 144 g/t Ag and 16.55 g/t Au at the Lucky Jim occurrence. Targets include vein, fracture, and amygdule fillings of bornite, chalcocite and chalcopyrite in Karmutsen Formation basalt, overlain by limestone. The Lucky Jim is described as skarn or metasomatic mineralization.

Bayhorse Silver Inc. expanded the **Brandywine** property in 2020. The company released results from 2019 resampling of core drilled in 2010, verifying earlier work. Metallic screen assays returned up to 20.2 g/t Au along 1.5 m. The company planned a 1500 m 10-hole drill program and applied for a permit. Brandywine has vein targets and massive sulphide targets.

8.4. Selected Ni-Cu-Co-precious metal projects

8.4.1. Northwest Region

The **E&L** property is one of only two known high-grade magmatic Ni-Cu-(PGE) massive sulphide projects in the Canadian Cordillera. The deposit contains pyrrhotite, pentlandite, and chalcopyrite in an olivine gabbro stock that intrudes Lower Jurassic sedimentary and volcanic rocks. Drilling in 2020 by Garibaldi Resources Corp. extended the strike length of the E&L intrusion from 200 to 650 m to a depth of 578 m. Highlights from this drilling included 151.6 m grading 0.56% Ni and 0.61% Cu (EL-20-89).

In October, Giga Metals Corp. completed a Preliminary Economic Assessment for their **Turnagain** project. The zoned deposit has maximum dimensions of 3 by 8.2 km and displays a dunite core surrounded by peripheral peridotites, pyroxene rich peridotite, wehrlite, and olivine pyroxene (MINFILE 104I 119). The project is expected to produce 37,149 t of Ni per year (years 6-20) and, during its 37-year mine life, produce 1.2 Mt Ni concentrate. A resource estimate was completed

in 2019 with Measured plus Indicated resources of 1.073 Bt grading 0.22% Ni and 0.013% Co, and an Inferred resource of 1.142 Bt grading 0.22% Ni and 0.013% Co.

8.4.2. North Central Region

FPX Nickel Corp.'s **Baptiste** project contains ultramafic rocks mineralized with a naturally occurring nickel-iron alloy called awaruite. In 2020, FPX Nickel released a new Preliminary Economic Assessment. The project has the potential to be an operation with an average annual production of 99 Mlbs of contained nickel. Baptiste's large scale, combined with operating costs of US$2.74/lb, has the potential to generate average earnings (before royalties, taxes and depreciation) of US$481 million per year and an after-tax Net Present Value of US$1.7 billion. Tailings produced by the proposed mining and milling process have potential to sequester significant quantities of CO_2.

8.5. Selected tungsten projects

8.5.1. South Central Region

Happy Creek Minerals Ltd. drilled seven holes (1119 m) at its **Fox Tungsten** project, six of which tested the Nightcrawler zone. Nightcrawler is about 6 km south of the existing resource area at Ridley Creek. Happy Creek also reports prospecting discoveries of scheelite approximately 5 km west of Ridley Creek.

8.6. Selected specialty metal projects

8.6.1. North Central Region

Defense Metals Corp. filed an updated 43-101 technical report, began baseline environmental studies, and carried out flotation pilot plant studies for its **Wicheeda** rare earth element project. The updated report includes an Indicated mineral resource of 4.89 Mt averaging 3.02% Light Rare Earth Oxide (LREO) and an additional Inferred mineral resource of 12.1 Mt averaging 2.90% LREO. LREO % equals sum of light rare earth elements expressed as oxides Ce_2O_3 + La_2O_3 + Nd_2O_3 + Nd_2O_3 + Pr_2O_3 + Sm_2O_3. Resources reported at a cut-off grade of 1.5% total metal. Total metal % equals the sum of Ce+La+Nd+Pr+Sm+Nb percentages.

8.7. Selected coal projects

8.7.1. Northeast Region

Colonial Coal International Corp.'s **Flatbed** project is adjacent to the former Trend mine; the **Huguenot** project is south of Trend. In 2020, work on these projects consisted primarily of permitting, First Nations consulting, environmental monitoring, and data review. For **Huguenot**, Measured and Indicated surface mineable coal resources total 132.0 Mt, with an additional Inferred resource of 0.5 Mt. A conceptual open pit would yield 72 Mt of product coal during a mine life of 27 years.

At their **Rocky Creek** project, CTI Plus Resources Ltd. drilled 50 diamond-drill holes totalling 818 m and 19 reverse circulation holes totalling 3154 m. Diamond drilling included both HQ and PQ core. Coal seams were sampled and sent for testing. Also, ten trenches were geologically mapped and sampled. Data will be used for a feasibility study.

Peace River Coal Inc. (a subsidiary of Anglo American plc) carried out a six hole diamond drilling program totalling 3204 m near the **Trend-Roman** mine, which closed in 2014. The program was designed to test underground potential near the former mine.

8.8. Selected industrial mineral projects

8.8.1. South Central Region

Most of Garnet Peak Resources Inc.'s effort went toward permitting and First Nation engagement efforts for their **Mt. Riordan** project. They are permitted for exploration drilling and a bulk sample of up to 10,000 t. Depending on results of test marketing, a 25,000 tpy quarry with a 10-year life is contemplated. The product would be industrial garnet, used in water jet cutting and sand blasting.

9. Summary of assessment work, 2019

Results of mineral exploration programs are submitted by industry in assessment reports to the government in compliance with the Mineral Tenure Act. After a one-year confidentiality period, the reports become an open resource for mineral exploration, investment, research, land use, and resource management. The British Columbia Geological Survey maintains these reports in the Assessment Report Indexing System (ARIS) database. This database provides information about the location, mineral occurrences, commodities, claims, work types, and expenditures as presented in the assessment reports. ARIS contains more than 38,000 reports dating from 1947; all are available online as PDF documents through the British Columbia Geological Survey website.

The present summary includes assessment work registered with a Statement of Work affidavit dated to the end of 2019 and does not include work that may have been conducted in 2019 but registered in 2020. The expenditures recorded in assessment reports are registered to maintain claims beyond their expiry date and thus reported costs may represent only part of the total amount spent.

The number of approved assessment reports with an affidavit date of 2019 totalled 815 (Fig.12), with declared costs of $181,186,301 (Fig. 13), a 61% increase in expenditures from 2018 (Table 8). The Northwest Region accounted for 65% of the province-wide exploration costs in 2019 (Fig. 14). The region registered $118 million in exploration expenditure in 2019, doubling levels from 2018 ($59 million). Drilling accounted for 76% of the expenditures (Fig. 15); the remainder was spent on geochemical sampling (9%), geophysical surveys (8%), geological mapping (3%), physical work (3%), and prospecting (1%). Physical work expenditures only include work submitted as part of a technical work report, not expenditures reported in a physical work report. Average exploration costs by work type (Table 9) are from report statements for labour, consulting, food, accommodation, transport, camp equipment rentals

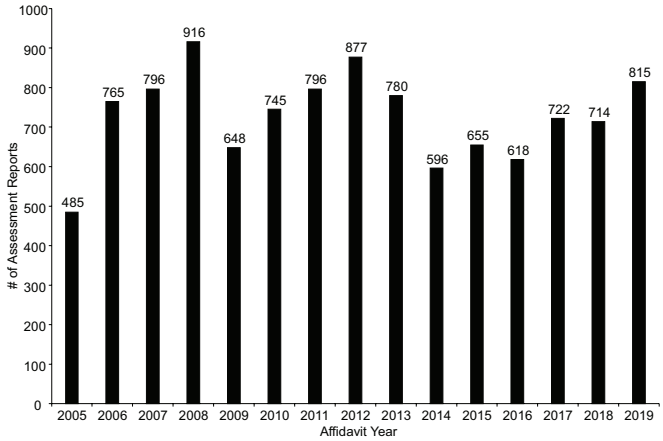

Fig. 12. Assessment reports approved between 2005 and 2019 by work affidavit year.

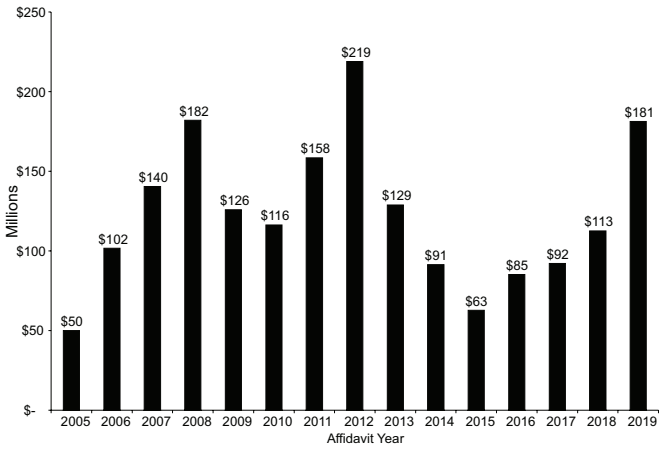

Fig. 13. Expenditures approved for assessment credit between 2005 and 2019 by work affidavit year.

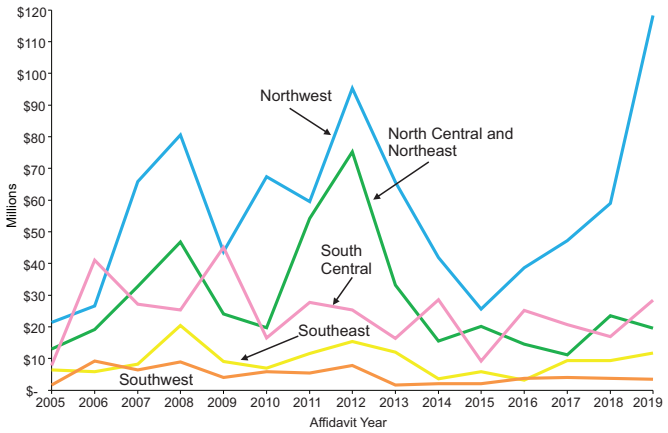

Fig. 14. Expenditures approved for assessment credit between 2005 and 2019 by work affidavit year and region.

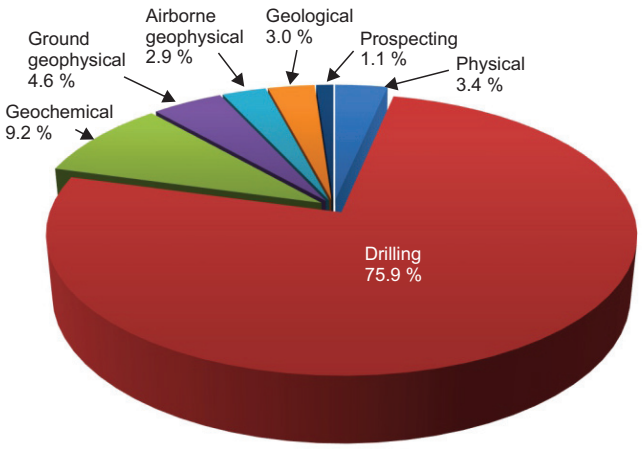

Fig. 15. Proportion of value of exploration work type in the work affidavit year 2019.

Table 8. Summary of assessment work, 2019.

		Reports	Value	Core drilling		Non-core drilling		Soil	Stream sediment	Rock
			$	Holes	m	Holes	m	Samples	Samples	Samples
Northwest	2019	229	$118,321,177	819	211,075	167	3874	18,813	607	10,090
North Central and Northeast	2019	104	$19,494,461	100	26,243	93	2071	6469	544	2030
South Central	2019	254	$28,333,514	230	57,241	129	3709	11,047	2172	4969
Southeast	2019	126	$11,641,239	186	19,871	-	-	5456	54	3510
Southwest	2019	102	$3,395,910	44	533	-	-	3141	112	1667
Provincial total	2016	618	$85,141,604	465	165,212	14	250	34,715	777	9698
Provincial total	2017	722	$92,215,514	1199	205,434	173	3458	30,188	1450	14,648
Provincial total	2018	714	$112,528,518	869	246,484	112	3665	49,736	1993	19,762
Provincial total	2019	815	$181,186,301	1379	314,962	389	9654	44,926	3489	22,266

Table 9. Average exploration project costs, 2016-2019.

	Cost	2016	2017	2018	2019
Core drilling	$ per m	310	252	297	387
Non-core drilling	$ per m	611	284	361	425
Stream sediments	$ per sample	332	355	348	502
Soil samples	$ per sample	139	152	152	139
Rock samples	$ per sample	269	371	371	332
Trenching	$ per m	92	163	78	168
Ground EM	$ per km	1419	3700	2187	4101
Ground magnetics	$ per km	1182	906	807	858
Induced polarization	$ per km	7882	4879	8362	8233
Airborne magnetics	$ per km	48	40	91	72
Airborne EM	$ per km	177	126	83	191
Geological mapping	$ per ha	70	59	16	21
Prospecting	$ per ha	51	19	9	39

and supplies, laboratory analyses, report preparation, direct administration, and project management.

Traditionally, data in assessment reports have been embedded in paper or non-digital electronic files, such as .PDF, making them difficult to extract and use. To resolve this problem, the British Columbia Geological Survey has embarked on a program to encourage submission of digital data files such as spreadsheets, databases, maps, and grids, which can be easily retrieved, integrated, recalculated, and recast for specific needs. These files can be uploaded through the ARIS Data Submission page <http://ardata.bcgeologicalsurvey.ca>, submitted by CD/DVD/USB when an assessment report is filed, or e-mailed to ARIS.digital@gov.bc.ca.

10. Public geoscience

10.1. British Columbia Geological Survey

The British Columbia Geological Survey (BCGS) creates and disseminates public geoscience to guide societal decisions, connecting government with the minerals industry and local communities. Applied research is undertaken by a range of geoscientists using established and emerging technologies to assess the geological evolution and mineral resources of the province. Value is added to BCGS programs through extensive collaboration with federal, provincial, and territorial geoscience agencies, and with other national and international organizations. BCGS provides freely accessible reports, maps, and databases via MapPlace, the BCGS geospatial web service. The wide array of information, services, and products provided by BCGS supports effective mineral exploration, sound land use management, and responsible governance thus informing decisions that balance the economy, the environment and community interests. The survey is the oldest scientific organization in British Columbia, having celebrated 125 years of public service in 2020. The Mineral Development Office (MDO) is the Vancouver base of the BCGS. It links the more than 800 exploration and mining companies headquartered in Vancouver to provincial mineral and coal information. The MDO distributes Survey data and provides technical information and expertise about mineral opportunities to the domestic and international investment community.

Plans for the 2020 field season were drastically changed by the Covid-19 pandemic. Following an initial decision to suspend multi-year mapping programs in the northwestern part of the province and near Hogem batholith, fieldwork across the more southern parts of the province were also cancelled in recognition of widely publicized, pandemic-related concerns of First Nations and other local communities. Limited fieldwork was undertaken in August on Vancouver Island in accordance with WorkSafe BC guidance. One project assessed the northerly extent and geochemical characteristics of prospective Neogene plutons on northern Vancouver Island. Supporting an ongoing commitment to innovation and technology development, another project tested the effectiveness of a device that measures atmospheric mercury to identify buried mineralized zones and faults, and work progresses on developing technology to rapidly capture geophysical information using drones.

Despite the absence of major field programs, BCGS staff have remained busy throughout 2020 with desk-based and analytical work to support the mineral exploration community and land use planning initiatives in the provincial government. In the office, ongoing map compilations continue to consolidate knowledge from recent field mapping and older published maps for the digital provincial database and selected map publications. Compilation efforts include significant swathes of northwestern British Columbia, focussing on areas near Dease Lake, Decar, Polaris, the southern Nicola Arc, southern Quesnellia and Johanson Lake. An extensive program of laboratory analysis, using recently collected and archived samples, continues to build geoscience knowledge across a range of projects and initiatives. Early October saw the successful delivery of an online workshop ‘Cordilleran Geoscience: a 2020 Perspective’. Planned in collaboration

with the Geological Survey of Canada, the Yukon Geological Survey, and the Pacific Section of the Geological Association of Canada and comprising 10 presentations, the meeting connected with more than 250 delegates. Results of work in 2020 are released in the annual BCGS Geological Fieldwork volume (Fig. 16), other types of BCGS publications, peer-reviewed journals, and partner publications.

Mineral potential assessment is now a renewed focus for the Survey, with an emphasis on supporting government and stakeholders in land use planning and policy. BCGS pioneered mineral potential assessment in Canada during the early 1990s, but recent analytical techniques and machine learning technology offer the opportunity to update methods and greatly improve results. The development of digital data sources and applications, such as MapPlace, have been a focus of recent activity and place the Survey in a strong position to apply these new techniques.

As the steward of mineral and coal resources in the province, the Survey has an important role in stimulating activity, attracting investment, and providing continuous research based on a corporate memory that extends back more than 125 years. Custodian of all provincial public geoscience data, the BCGS preserves, archives, and provides free web-based access to information. The BCGS houses, maintains and regularly updates numerous databases, including MINFILE, COALFILE, Property File, the Assessment Reports Indexing System (ARIS), digital bedrock geology, regional geochemical surveys, geochronologic data, and a publications catalogue. MapPlace, the BCGS geospatial web service, provides open geoscience data and custom map-making tools to help decision-makers from diverse disciplines reduce the costs of accessing and analyzing information.

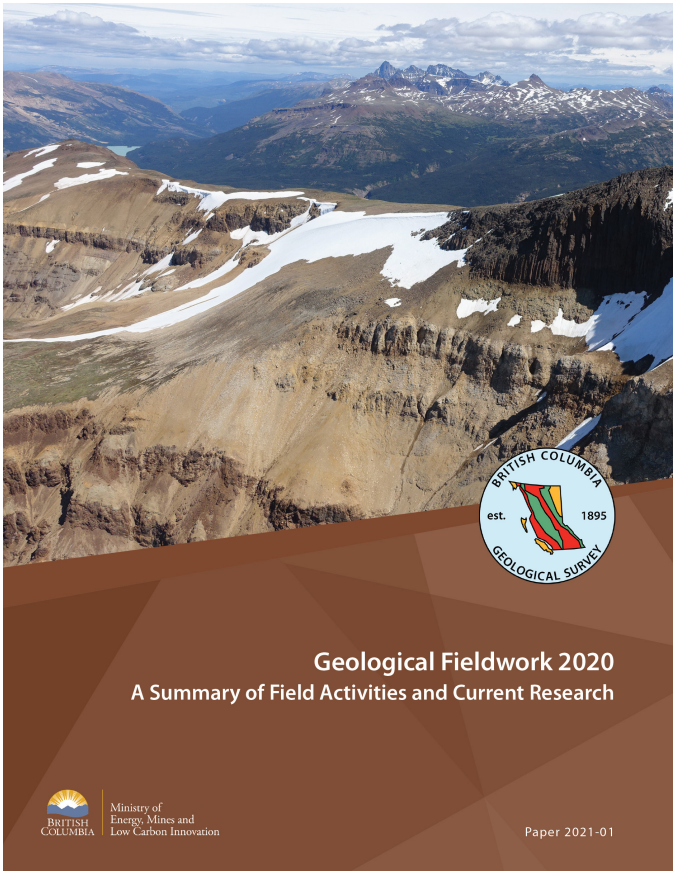

Fig. 16. Geological Fieldwork contains peer-reviewed papers that summarize field activities and current research by the British Columbia Geological Survey.

10.2. The Geological Survey of Canada

The BCGS and the Geological Survey of Canada (GSC) continued to deliver projects through the second iteration of the Geo-mapping for Energy and Minerals (GEM 2) program, and the Targeted Geoscience Initiative 5 (TGI-5) program, both of which were completed in 2020. The GSC is currently launching new multi-year phases of these programs (TGI-6 and GEM-GeoNorth) and is seeking active collaboration with provincial and territorial surveys across Canada.

10.3. Geoscience BC

Geoscience BC (GBC) is a not-for-profit, non-government organization funded by provincial government grants. GBC supports mineral and oil and gas investment in British Columbia through the funding and delivery of geoscience projects contracted to third parties. Major projects include significant geophysical and geochemical surveys, and grants to universities and consultants for targeted geoscience projects submitted in response to requests for proposals. GBC is governed by a volunteer board of directors and receives technical direction from volunteer technical advisory committees (mineral exploration, oil and gas, and geothermal) whose membership is largely drawn from industry.

11. Foreign investment initiatives

Opportunities exist for companies to attract foreign investment using government services and staff. The province participates in international investment missions showcasing mineral and coal opportunities. If you are interested in profiling your projects or investment opportunities in upcoming events, connect with the Mineral Development Office in Vancouver for more information.

12. Concluding remarks

The year 2020 will be remembered for the Covid-19 pandemic. Despite the pandemic, exploration activity in British Columbia rebounded following initial disruptions and mining production remained strong. Likely stimulated by the pandemic, a significant increase in the price of gold and copper spurred financing and exploration for precious metal and Cu-Au projects in the province.

Noteworthy acquisitions and proposed mergers were announced in 2020. Artemis Gold Inc. acquired the Blackwater Gold project from New Gold Inc. for approximately $210 million. The project has both provincial and federal environmental assessment approval. In November, Serengeti

Resources Inc. and Sun Metals Corp. entered into an agreement whereby Serengeti would acquire all issued shares of Sun Metals. The transaction would consolidate the contiguous copper-gold exploration and development assets of the Kwanika and Stardust projects. In December, Seabridge Gold Inc. purchased the Snowfield deposit from Pretium Resources Inc. for $100 million US.

British Columbia may have avoided a decrease in exploration expenditures and activity due to the resourcefulness of British Columbia mineral explorers and the innate mineral endowment of the province coupled with the provincial government declaring exploration and mining as essential services. Reports of new discoveries and significant results continue to date, supporting British Columbia's reputation as a premier jurisdiction for mineral exploration and mine development opportunities.

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Exploration and mining in the Northwest Region, British Columbia

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1. Introduction

The Northwest Region (Fig. 1) has long been known for its history of mining and for its vast endowment of precious and base metals. The region is prospective for a wide range of deposits: large bulk-tonnage porphyry Cu-Au-Mo, high-grade Au-Ag precious metal, Ag-Pb-Zn polymetallic, ultramafic-hosted Ni-Co-Pt-Pd, anthracite coal, placer gold, and jade. Projects this year were again concentrated in a loosely defined area in the northern part of the region popularly known as the 'Golden Triangle'; several other projects were underway to the southeast. High metal prices in 2020 encouraged financing of many projects.

Estimates for exploration expenditures, drilling programs, and other metrics were captured in the British Columbia Mineral and Coal Exploration Survey, a joint initiative of the Province of British Columbia Ministry of Energy, Mines and Low Carbon Innovation, the Association for Mineral Exploration in British Columbia, and EY LLP. For the Northwest Region, exploration expenditures were estimated at $225.3 million and exploration drilling was estimated at 470,060 m (Clarke et al., 2021; EY LLP, 2021).

The Northwest Region contains two operating metal mines (**Brucejack** and **Red Chris**). The **Silvertip** mine produced in the first quarter then went into care and maintenance. The region also contains six proposed metal mines (**Dome Mountain**, **Galore Creek**, **KSM**, **Kutcho**, **Premier**, and **Red Mountain**) and one proposed coal mine (**Tenas**). More than 100 early- to advanced-stage projects were tracked, of which 30 are discussed herein. Large industrial projects in the region are driving demand for aggregate, and placer gold and jade mining continues throughout the region.

Several projects advanced with Preliminary Economic Assessments (PEA; **Dome Mountain**, **Turnagain**), Prefeasibility Studies (PFS; **KSM**), and Feasibility Studies (FS; **Premier**; **Red Mountain**). Updated mineral resources were published for **Brucejack** and **Snip**, and a maiden resource estimate was filed for **Tatogga** (Saddle North). Many purchases and acquisitions were completed this year, most notably the **Snowfield** deposit (Measured and Indicated resources of 25.9 Moz Au, 75.8 Moz Ag, 2.98 Blbs Cu, 258.3 Mlbs Mo, and 22.5 Moz Re), which Seabridge Gold Inc. purchased from Pretium Resources Inc. for $100 million US.

Several companies reported preliminary results from grassroots and early-stage fieldwork, and others reported positive drill results from advanced-stage exploration projects moving towards the feasibility stage. Infill drilling by Skeena Resources Ltd. at the **Eskay Creek** project continues to return high-grade intersections including highlights of 35.42 m grading 21.90 g/t Au and 235 g/t Ag at the 21A zone. Tudor Gold Corp. reported mineralized drill intervals at their **Treaty Creek** project, with highlights including 348 m grading 2.04 g/t Au and 4.13 g/t Ag within 930 m grading 1.06 g/t Au and 2.80 g/t Ag. At Eskay Mining Corp.'s **Corey** project, drilling returned 11.24 m grading 1.23 g/t Au and 201 g/t Ag. At their **E&L** property, Garibaldi Resources Corp. expanded the zone of mineralization from 200 to 650 m and drilled highlights of 151.6 m grading 0.56% Ni and 0.61% Cu.

2. Geological overview

The Northwest Region has an immense mineral wealth that is directly tied to its tectonic evolution (e.g., Nelson et al., 2013). Mineral deposits formed during protracted (Neoproterozoic to Cambrian) breakup of the supercontinent Rodina, accretion of allochthonous terranes to the western flank of Ancestral North America, and post-accretion deformation and magmatism. The Canadian Cordillera is commonly subdivided into five morphogeologic belts (from east to west, Foreland, Omineca, Intermontane, Coast, and Insular; Fig. 1) across which the Northwest Region extends. Late Triassic to Early Jurassic island arc volcanism, plutonism, and tectonics in the Stikine terrane were particularly important to the Northwest Region, generating many porphyry Cu-Au-Mo and Au-Ag vein deposits.

3. Mines and quarries

In 2020, three metal mines operated in the Northwest Region (**Brucejack**, **Red Chris**, and **Silvertip**). One industrial mineral mine and three jade projects operated this year, and numerous aggregate operations supplied large-scale industrial projects and local townships throughout the region. Placer mining is ongoing, predominantly in the Atlin and Turnagain areas.

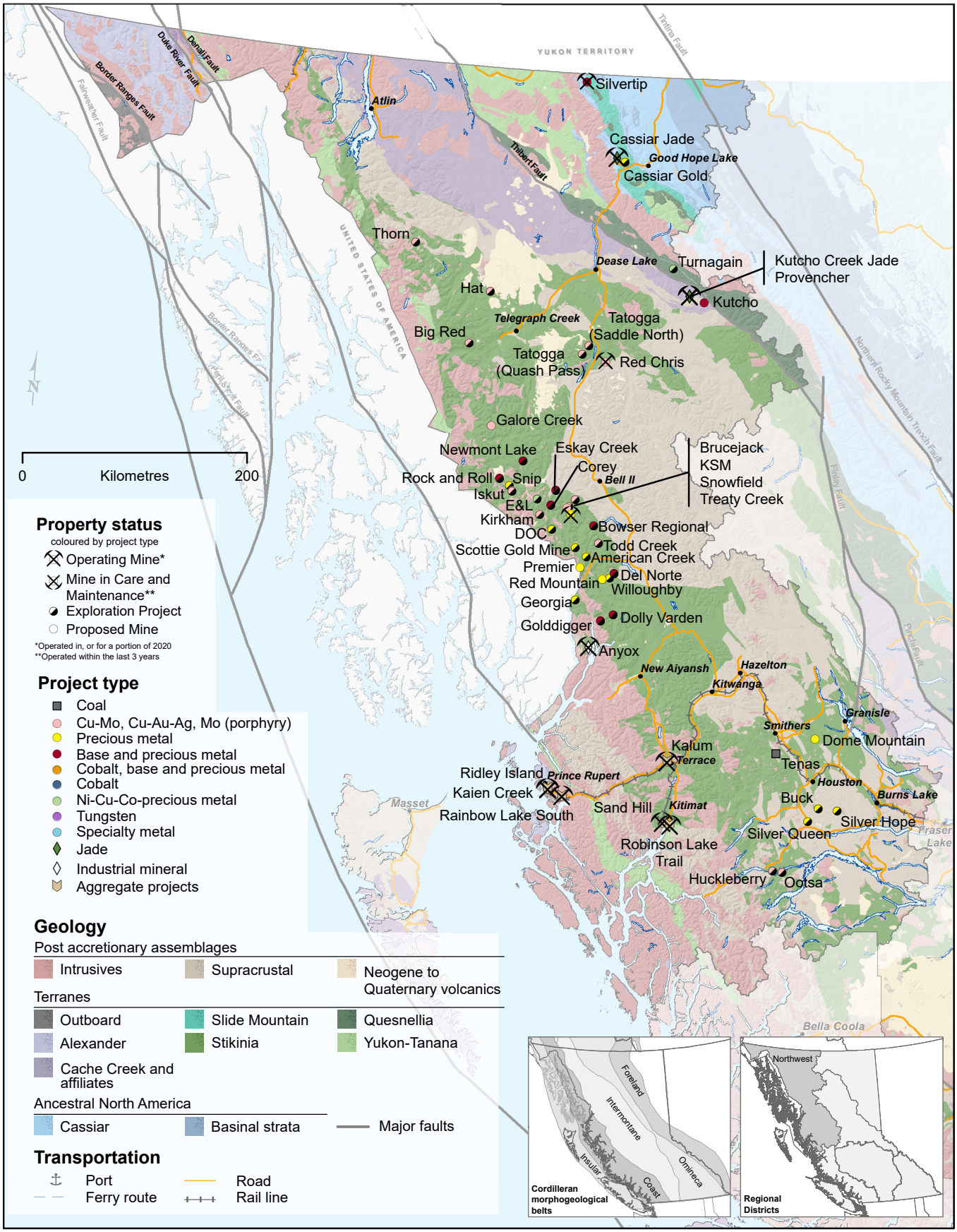

Fig. 1. Mines, proposed mines, and selected exploration projects, Northwest Region, 2020. Terranes after Nelson et al. (2013).

3.1. Metal mines

The **Brucejack** and **Red Chris** mines operated continuously in 2020; the **Silvertip** mine operated at the start of the year but was put into care and maintenance in February (Fig. 1; Table 1).

3.1.1. Brucejack (Pretium Resources Inc.)

The **Brucejack** gold-silver mine operated throughout 2020. Access to the underground mine is via a 75-km all-season mining road off of Highway 37, where the last 16 km is travelled over glacier ice. Power for the site is supplied by a 57 km-long transmission line that was built and commissioned for the mine. Production for the first three quarters totalled 259,443 oz of Au at a head grade of 8.4 g/t Au and 364,233 oz Ag. The mill throughput in the first nine months of the year totalled 3642 tpd for a total of 997,821 t milled. In March, the company filed a technical report with Indicated and Measured mineral resources totalling 23.2 Mt grading 10.1 g/t Au and 65.5 g/t Ag, and Proven and Probable mineral reserves totalling 15.7 Mt grading 8.4 g/t Au and 59.6 g/t Ag.

The Brucejack deposit incorporates the Valley of the Kings (VOK) and West zones. Several other mineralized zones in phyllic alterated rocks extend across an area 5 by 1.5 km (from south to north: Bridge, Waterloo, Shore, SG, Gossan Hill, Golden Marmot, and Hanging Glacier). Interpreted as an intermediate-sulphidation epithermal Au-Ag deposit, mineralized sheeted veins, breccia veins, and vein stockworks cut Lower Jurassic metasedimentary and volcanic rocks of the Hazelton Group. Gold and silver at both the VOK (Fig. 2) and West zones is contained mainly as electrum and lesser

Fig. 2. Gold (present as electrum) in quartz-sericite-pyrite altered fine-grained lapilli tuff at Brucejack.

Table 1. Metal mines, Northwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Brucejack	**Pretium Resources Inc.**	Au, Ag; Intermediate-sulphidation epithermal; 104B 193	345,000 oz Au 485,000 oz Ag	P+Pr: 15.7 Mt at 8.4 g/t Au, 59.6 g/t Ag	M+I: 23.2 Mt at 10.1 g/t Au, 65.5 g/t Ag Inf: 9.4 Mt at 10.3 g/t Au, 44.3 g/t Ag	April 2020 updated mineral reserves and resources; based on VOK and West zone deposits.
Red Chris	**Newcrest Mining Ltd. (70%)**, Imperial Metals Corp. (30%)	Cu, Au, Ag; Hybrid calc-alkalic to alkalic porphyry; 104H 005	66.4 Mlbs Cu and 53,700 oz Au	P+Pr: 301.5 Mt at 0.36% Cu, 0.27 g/t Au	M+I: 1.034 Bt at 0.35% Cu, 0.35 g/t Au, 1.14 g/t Ag Inf: 787.1 Mt at 0.29% Cu, 0.32 g/t Au, 1.04 g/t Ag (These resource figures do not consider any mining since the start-up in 2014)	Infill drilling beneath East Zone intersected discrete high-grade Au-Cu pods of mineralization with highlights including 514 m grading 1.3 g/t Au and 0.77% Cu including 166 m grading 3.0 g/t Au and 1.5% Cu (from hole RC634).
Silvertip	**Coeur Mining Inc.**	Ag, Pb, Zn; Manto carbonate-replacement; 104O 038	139,000 oz Ag 2.46 Mlbs Zn 2.18 Mlbs Pb	P+Pr: 1.61 Mt at 289 g/t Ag, 5.6% Pb, 8.24% Zn	M+I: 1.18 Mt at 222.73 g/t Ag, 4.09% Pb, 8.58% Zn Inf: 0.53 Mt at 271.04 g/t Ag, 5.02% Pb, 9.31% Zn	Mining operations temporarily suspended at the end of February. Exploration included 60,000 m of drilling; early results indicate potential for resource growth along a 3.5 km north-south strike length.

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

sulphosalts. Chalcopyrite, galena, and sphalerite are also common. Gold-silver mineralization appears to have been mainly transported as colloidal suspensions in hyper-enriched gold-bearing hydrothermal fluids. Board et al. (2020) suggested that epithermal veins developed during waning stages of Early Jurassic sinistral transpression when gold-silver colloids may have precipitated due to fluid mixing. Although a possible link between the epithermal-style deposits and an intrusion has not yet been demonstrated, 2019 drilling that targeted a conductive magnetotelluric anomaly beneath the West zone discovered anomalous copper and porphyry-style alteration; follow-up drilling is currently being conducted.

3.1.2. Red Chris (Newcrest Mining Ltd. 70% and Imperial Metals Ltd. 30%)

The **Red Chris** open-pit copper-gold mine is 17 km east-southeast of the community of Iskut. The Northwest Transmission Line powers the site and access is from Highway 37. The area was first explored in 1956, but it wasn't until 2015 that the first copper concentrate was produced. Production to the end of the third quarter of 2020 totalled 40,275 oz Au and 49.8 Mlbs Cu. As of 2014, open pit/block cave Measured plus Indicated resources total 1.034 Bt with grades of 0.35% Cu, 0.35 g/t Au, and 1.14 g/t Ag. Additional Inferred resources total 787.1 Mt with average grades of 0.29% Cu, 0.32 g/t Au, and 1.04 g/t Ag.

The deposit is hosted by the Red stock (U-Pb zircon 203.8 Ma; Rees et al., 2015), which intrudes and alters Upper Triassic Stuhini Group rocks and is faulted against Middle Jurassic rocks of the Bowser Lake Group. Rees et al. (2015) described multiple igneous phases, alteration, and controls on mineralization.

This year, brownfield exploration drilling was carried out at the East, Main, and Gully zones following up on historic drilling along a 3 km porphyry trend. Electromagnetic and gravity surveys were completed to generate future targets. Resource definition infill drilling was also completed and confirmed several discrete high-grade pods in the East zone. Highlights from this infill drilling included 514 m grading 1.3 g/t Au and 0.77% Cu including 166 m grading 3.0 g/t Au and 1.5% Cu (from hole RC634).

3.1.3. Silvertip (Coeur Mining Inc.)

The **Silvertip** property is 8 km south of the British Columbia-Yukon border. Access to the mine is via a 26 km long all-season access road from Highway 1, and power is produced by diesel and liquified natural gas fueled generators stored onsite. At the end of February, Coeur Mining Inc. announced a temporary suspension of mining and processing at the **Silvertip** mine, placing the project on care and maintenance. In the first quarter of 2020 the mill produced 139,000 oz Ag, 2.46 Mlbs Zn, and 2.18 Mlbs Pb from 29,240 t milled. In February 2019, Coeur released an updated mineral resource and reserve estimate. The company reported Proven plus Probable reserves of 1.61 Mt grading 289 g/t Ag, 5.6% Pb, and 8.24% Zn. Measured plus Indicated resources were reported at 1.18 Mt grading 222.73 g/t Ag, 4.09% Pb, and 8.58% Zn. Additional Inferred resources were reported at 0.53 Mt grading 271.04 g/t Ag, 5.02% Pb, and 9.31% Zn. The property is underlain by the Cassiar terrane, including Neoproterozoic-Middle Devonian marine platform carbonate and siliciclastic rocks that were deposited on the western flank of Ancestral North America and overlying Devonian-Mississippian rift-related clastic rocks. Mineral resources and reserves are only reported from bioclastic limestones of the McDame Formation that host manto-style Ag-Pb-Zn-Au in which mineralizing fluids replaced limestone and syngenetic karst structures. Overlying siliciclastic rocks of the Earn Formation host sedimentary exhalate Pb-Zn deposits.

Exploration this year was directed at expanding the resource and extending the mine life. Early drill results indicate the potential for resource growth along a 3.5 km north-south strike length, prompting the company to spend $1 million US towards underground development to facilitate follow-up drilling.

3.2. Coal mines

In 2020, no coal mines operated in the Northwest Region; the **Tenas** project is listed below as a proposed mine.

3.3. Industrial mineral mines and quarries

Tru-Grit Abrasives (Table 2) is recycling the slagheap at the historic **Anyox** site, where slag was created from smelting copper. The slag is mined, cleaned, separated, and barged south and used for making roofing shingles and sand for sand blasting; the material is also used to add iron into Portland cement. The operation has been active for more than 30 years and more than 2.5 Mt has been reclaimed from the 4.5 Mt abandoned by smelting operations in the 1930s. This year, 80,000 t of material was removed from the site, a 30-year mining extension was granted to the company, and $1 million was spent for wharf rehabilitation.

3.4. Nephrite jade

Jade is the provincial gemstone of British Columbia and it is mined from both hard rock and placer deposits north and east of Dease Lake (Fig. 1; Table 2). Operations this year were limited to **Cassiar Jade**, **Kutcho Creek Jade**, and **Provencher** because road closures restricted access to other remote projects and the demand for jade was comparatively low. In May, an executive order from provincial Lieutenant Governor in Council was signed, whereby the issuance or amendment to placer jade permits would not be made. This order indefinitely suspends placer jade operations in the north half of the province.

3.5. Aggregate and industrial rock quarries

Numerous aggregate and quarry operations supply sand and gravel and blasted stone for large-scale industrial projects and towns throughout the region (Table 2). Several large aggregate pits operate near Kitimat (**Robinson Lake** and **Sandhill Pit**) and others operate near Prince Rupert (**Kaien Creek**, **Ridley Island**, and **Rainbow Lake South**). Owned by

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

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Anyox	**Tru-Grit Abrasives**	Slag steel	80,000 t	na	na	Slag is mined, cleaned, and barged for roofing and sand for sand blasting.
Cassiar Jade	**Dynasty Jade Ltd.**	Nephrite jade; Gems and semi-precious stones; 104P 005	unknown	na	na	Placer production; reclaiming jade from Cassiar mine asbestos stockpiles.
Kaien Creek	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, and crushing.
Kalum	**Kalum Quarry Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and others.
Kutcho Creek Jade	**Continental Jade Ltd.**	Nephrite jade; Gems and semi-precious stones; 104I 078	unknown	na	na	Mining and trenching.
Provencher	**Glenpark Enterprises Ltd.**	Nephrite jade; Gems and semi-precious stones; 104I 092	unknown	na	na	Mining and trenching.
Rainbow Lake South	**Spring Creek Aggregates Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Ridley Island	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Robinson Lake Trail	**Haisla & Progressive Ventures Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN Railway and LNG projects.
Sand Hill	**Terus Construction Ltd.**	Industrial rock; Crushed rock	unknown	na	na	Crushing for CN Railway and LNG projects.

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

the Kitsumkalum First Nation's, **Kalum** is an industrial rock quarry. It is the only pit in the region with a rail spur and it supplies the Canadian National Railway Company with ballast.

4. Placer operations

Placer mining operations have been ongoing for more than a century in the Northwest Region and continue today with a focus in the Atlin and Turnagain areas and, to a lesser extent, north of Dease Lake and near Cassiar. Due to the large number of mines and difficulty in obtaining information, these projects are not tracked.

5. Mine development

When a project acquires the necessary permits (Mines Act permit from the Ministry of Energy, Mines and Low Carbon Innovation and an Environmental Management Act permit from the Ministry of Environment) and secures the working capital to begin mine construction, the mine development stage is reached. There were no mine development projects in the Northwest Region in 2020.

6. Proposed mines or quarries

Proposed mines are feasibility-stage projects for which proponents have begun or completed the environmental

certification process (generally for late-stage projects) or have submitted or received approvals for Mines Act permits (for projects below British Columbia Environmental Assessment Act thresholds). The Northwest Region contains six proposed metal mines and one proposed coal mine (Fig. 1; Table 3).

6.1. Proposed metal mines

The Northwest Region contains six proposed metal mines. **Galore Creek**, **KSM**, and **Red Mountain** have been granted an Environmental Assessment Certificate and the **Kutcho** project has begun the environmental assessment process with the Environmental Assessment Office. **Dome Mountain** and **Premier** both have Mines Act permits and are seeking amendments that would enable them to begin development and production.

6.1.1. Dome Mountain (Blue Lagoon Resources Inc.)

The **Dome Mountain** project contains an Indicated resource of 227,276 t grading 10.71 g/t Au and Inferred resources of 530,183 t grading 7.52 g/t Au (with a cut and fill method at 3.42 g/t Au cut-off; Blue Lagoon Resources Inc., 2020). Gold was discovered on the property in the late 1800s and considerable surface and underground mining was conducted in 1923-24. Exploration resumed in the 1980s and led to the discovery of the Boulder Vein. From 1991 to 1993, 43,900 t of ore grading 12.0 g/t Au was mined from shrinkage stopes. The project currently holds both an Environmental Management Act Permit and a Mining Permit, providing for an annual production of up to 75,000 t. The company entered into a milling agreement with Nicola Mining Inc. in which ore will be trucked for processing at a mill west of Merritt.

Orogenic-style gold-silver mineralization, is mainly in two zones (the Boulder vein and Argillite vein systems) in fragmental volcanic rocks of the Telkwa Formation and basalts and altered volcanic rocks of the Nilkitkwa Formation. In addition to the larger vein systems, more than a dozen other mineralized veins are on the property, mostly striking east-west and northwest-southeast. Veins (0.7 to 4.5 m wide) contain quartz±calcite±ankerite with lesser sulphide mineralization (Fig. 3). Alteration, consisting of abundant carbonate-sericite-pyrite, envelopes veins and is positively correlated with gold.

Property-wide radiometric, electromagnetic, and magnetic airborne geophysical surveys were completed this year and identified several anomalies. Approximately 3700 m of drilling was used to upgrade Inferred resources to the Indicated category. Drilling the upper and eastern margins of the Boulder vein system was also completed.

6.1.2. Galore Creek (Galore Creek Mining Corporation)

The **Galore Creek** Cu-Au project is operated by the Galore Creek Mining Corporation and is jointly owned by Teck Resources Limited and Newmont Corporation. The project is 70 km west of the Bob Quinn airstrip adjacent to Highway 37, where a mine access road has been partially constructed.

The Galore Creek alkalic complex includes multiphase syenite, monzonite, and monzodiorite dikes and stocks that cut volcanic and sedimentary rocks of the Stuhini Group. Mineralization is thought to be at the endmember of the silica-undersaturated porphyry Cu-Au deposit type. Novagold Resources Inc. (2011) considered that two periods of hydrothermal activity resulted in gold-copper mineralization in potassium-enriched volcanic rocks and vertical breccias adjacent to syenite intrusions. At the Central zone (the principal economic resource) initial potassic alteration and gold-copper and sulphide mineralization formed from highly oxidized fluids. Hydrothermal processes during the second period generated calcic alteration and brecciation, followed by potassic alteration and mineralization of bornite and chalcopyrite (Micko et al., 2014).

Fig. 3. Ore-grade 'Boulder' quartz vein with disseminated sulphides and Fe-carbonate stringers at Dome Mountain.

The Galore Creek project contains a Measured plus Indicated resource of 1.103 Bt grading 0.47% Cu, 0.26 g/t Au, and 4.2 g/t Ag, with an additional Inferred resource of 198 Mt grading 0.27% Cu, 0.21 g/t Au, and 2.7 g/t Ag (Teck Resources Limited, 2020). Although environmental baseline sampling continued, the company did not conduct exploration in 2020 because of the Covid-19 pandemic.

6.1.3. KSM (Seabridge Gold Inc.)

The **KSM** project consists of four porphyry Cu-Au deposits: Kerr, Sulphurets, Mitchell, and Iron Cap. It is the largest undeveloped gold project in the world by resources: the total KSM Measured and Indicated resource is 3.04 Bt grading 0.52 g/t Au, 0.21% Cu, 2.8 g/t Ag, and 0.0048% Mo and an Inferred resource of 4.59 Bt grading 0.38 g/t Au, 0.32% Cu, 2.4 g/t Ag, and 0.0029% Mo (Seabridge Gold Inc., 2020). A Preliminary Economic Assessment published in April proposes a mine life of 44 years producing 27.6 Moz Au and 17.0 Blbs Cu. The initial capital for mine construction and development is $5.2 billion, with a four-year payback period.

KSM is part of the Sulphurets district, which contains abundant porphyry Cu-Au and related systems along a 200-km-long north-northwest trending corridor in northwestern Stikinia (Febbo et al., 2019). Four phases of calc-alkaline porphyry Cu-Au-Mo mineralization at KSM are genetically related to

Table 3. Selected proposed mines, Northwest Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Dome Mountain	**Blue Lagoon Resources Inc.**	Au, Ag; Au-quartz veins; 093L 276	na	I: 227 kt at 10.09 g/t Au Inf: 530 kt at 7.52 g/t Au (resource based on cut and fill)	Preliminary Economic Assessment filed in July 2020; 3700 m drilling; property-wide airborne radiometric, electromagnetic, and magnetic surveys completed.
Galore Creek	**Galore Creek Mining Corp. (Teck Resources Ltd. 50%, Newmont Corporation 50%)**	Cu, Au, Ag; Alkaline porphyry; 104G 090	P+Pr: 528 Mt at 0.59% Cu, 0.32 g/t Au, 6.02 g/t Ag	M+I: 1.103 Bt at 0.47% Cu, 0.26 g/t Au, 4.2 g/t Ag Inf: 198 Mt at 0.27% Cu, 0.21 g/t Au, 2.7 g/t Ag	Baseline environmental sampling continued. Exploration deferred because of Covid-19 pandemic.
KSM	**Seabridge Gold Inc.**	Cu, Au, 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, 42.6 g/t Mo	M+I: 3.04 Bt at 0.52 g/t Au, 0.21% Cu, 2.8 g/t Ag, 0.0048% Mo Inf: 4.60 Bt at 0.38 g/t Au, 0.32% Cu, 2.2 g/t Ag, 0.0029% Mo (Total for KSM deposits)	Prefeasibility Study and Preliminary Economic Assessment update filed in April 2020. 4000 m of geotechnical drilling completed on Mitchell Treaty tunnels.
Kutcho	**Kutcho Copper Corp.**	Cu, Pb, Zn; Noranda/Kuroko VMS; 104I 060	Pr: 10.4 Mt at 2.01% Cu, 3.19% Zn, 34.61 g/t Ag, 0.37 g/t Au	M+I: 17.26 Mt at 1.85% Cu, 2.72% Zn, 0.49 g/t Au, 33.9 g/t Ag Inf: 10.71 Mt at 1.18% Cu, 1.76% Zn, 0.26 g/t Au, 21.5 g/t Ag	Reserves collected from 2017 Prefeasibility Study and resources updated separately in 2019. Feasibility Study has begun and will be completed by the second quarter in 2021.
Premier	**Ascot Resources Ltd.**	Au, Ag; IS-epithermal; 104B 054	P+Pr: 3.63 Mt at 5.45 g/t Au, 19.11 g/t Ag	I: 4.14 Mt at 8.01 g/t Au, 35.1 g/t Ag Inf: 5.06 Mt at 7.25 g/t Au, 28.7 g/t Ag	Feasibility Study filed in May 2020. 12,000 m of drilling tested Premier West, Day, Silver Hill, and Woodbine zones. Company targeting construction beginning in 2021.
Red Mountain	**Ascot Resources Ltd.**	Au, Ag; Subvolcanic and precious metal veins; 103P 086	P+Pr: 2.54 Mt at 6.52 g/t Au, 20.60 g/t Ag	M+I: 3.19 Mt at 7.63 g/t Au, 21.02 g/t Ag Inf: 0.41 Mt at 5.32 g/t Au, 7.33 g/t Ag	Feasibility Study filed in May 2020.
Tenas	**Allegiance Coal Ltd. 95%**, Itochu Corp. 5%	PCI; Bituminous coal; 093L 156	P+Pr: 62.9 Mt coal	na	Entered provincial environmental assessment in November of 2018 proposed to produce about 775,000-825,000 t of metallurgical coal annually, with a mine-life of 22 years.

P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred
HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal

dioritic intrusions of the Sulphurets suite (Febbo et al., 2015), with the deposits disrtibuted along a 12 km-long north-striking linear array. The intrusions cut volcanosedimentary rocks of the Stuhini Group (Upper Triassic) and sandstones, conglomerates, and andesitic rocks of the Jack Formation, a basal unit of the Hazelton Group (Upper Triassic to Lower Jurassic). Mineralization is found disseminated in sheeted quartz veinlets and clustered quartz-vein stockworks, and is open at depth.

Exploration late in 2019 using ZTEM and 3D IP geophysics identified four targets with signatures similar to those of the

known deposits. These anomalies are below the Sulphurets thrust and, unlike the other KSM deposits, are not exposed at surface. This year no exploration was done on the project, although 4000 m of geotechnical drilling was completed along the proposed route of the Mitchell Treaty tunnels, which will serve to supply consumables and electricity to the mine and transfer ore to the mill.

6.1.4. Kutcho (Kutcho Copper Corp.)

The Kutcho project is accessible by a 100 km-long seasonal gravel road suitable for off-highway vehicles and an airstrip 10 km from the deposit. Kutcho Copper Corp. (then Desert Star Resources Ltd.) acquired 100% interest in the project in 2017. The company entered the environmental assessment process late in 2019 and has received a Section 11 Order that defines the scope of the assessment and the Indigenous Nations that the company will engage with. The project is not required to undertake a federal environmental assessment.

The project includes three main zones of mineralization: Main, Esso, and Sumac. Considered to be Kuroko-type volcanic massive sulphides, the Cu-Zn-Au-Ag deposits are in felsic and largely fragmental volcanic rocks in the upper part of the Kutcho Formation, a Permian-Triassic unit of bimodal volcanic rocks (MINFILE 104I 060). The absence of lead and barite is anomalous and may be due to the low potassium content of the volcanic host rocks (Kutcho Copper Corp., 2017).

A Prefeasibility Study completed in 2017 proposed a mine life of 12 years, processing 2500 tpd with a life-of-mine production totalling 378 Mlbs Cu and 473 Mlbs Zn. A mineral resource was published in 2019 with Measured and Indicated resources of 17.3 Mt grading 1.85% Cu, 2.72% Zn, 0.49 g/t Au, and 33.9 g/t Ag and with an Inferred resource of 10.7 Mt at 1.18% Cu, 1.76% Zn, 0.26 g/t Au, and 21.5 g/t Ag. The average annual production is expected to be 33 Mlbs of Cu and 42 Mlbs of Zn. A Feasibility Study has begun.

6.1.5. Premier (Ascot Resources Ltd.)

The **Premier** underground mine operated between 1918 and 1952 and was one of the largest gold mines in North America, producing 2 Moz Au and 45 Moz Ag. Mineralization is hosted by andesitic tuffs, lapilli tuffs, and andesitic flows of the Unuk River Formation (Hazelton Group) that are cut by early Jurassic calc-alkaline plutons of the Texas Creek suite. Electrum is the principal gold-bearing mineral and is in quartz breccias, veins, and stockworks generally surrounded by an alteration envelope of quartz-sericite-pyrite. Base metal mineralization, as sphalerite and galena associated with argentite and freibergite, is also in quartz veins. The nature of mineralization and metal composition suggest an intermediate-sulphidation epithermal genesis.

The focus of exploration this year was prospecting, geophysics, and approximately 12,000 m of diamond drilling. Drilling tested the Premier West, Day, Silver Hill, and Woodbine zones. Seventeen diamond-drill holes were completed at Premier West to test the western extension of mineralization. Highlight results included 6.0 m grading 40.78 g/t Au. Nine drill holes were completed at Woodbine to test mineralization across the Cascade Creek fault, and the Day zone was drilled to test extensions of the Province zone and Big Missouri zone to the west. Results included 4.0 m grading 20.62 g/t Au. An IP anomaly at the Silver Hill target was tested with 1767 m of drilling. Results included 1.0 m grading 1320 g/t Ag.

Ascot is targeting construction to begin as early as 2021. Major projects will include mill refurbishment, construction of a tailings dam and water treatment plant, and underground development. Recently a SAG and Ball mill was bought for $6.5 million and is expected to be delivered to site at the end of the second quarter of 2021. In the last two years, the company completed additional environmental baseline monitoring and collected data for supporting permit amendments to the Mines Act (originally issued in 2018), the Environmental Management Act, and several ancillary permits. Construction depends on receiving these approvals. The company targeted permit amendments and submission to the province in the fourth quarter of 2020.

6.1.6. Red Mountain (Ascot Resources Ltd.)

Red Mountain is a proposed underground mine 18 km east-northeast of Stewart. The deposit was first discovered in 1989 and has been extensively explored since, with 466 diamond-drill holes and more than 2000 m of underground development. A provincial and federal Environmental Assessment Certificate was received in 2018. The project was purchased by Ascot Resources from IDM Mining in 2019 for $45 million. Earlier this year a Feasibility Study was completed. Red Mountain is estimated to contain Measured and Indicated resources of 3.19 Mt grading 7.63 g/t Au and 21.02 g/t Ag and an additional Inferred resource of 405,000 t grading 5.32 g/t Au and 7.33 g/t Ag (reported at 3.0 g/t Au cut-off for long hole stoping; Ascot Resources Ltd., 2020).

The property is underlain by Upper Triassic-Lower Jurassic metasedimentary and volcanic rocks that were intruded by a multi-phased intermediate intrusive complex. Gold is in pyrite-rich brecciated bodies and stockworks along the margins of the intrusive rocks, with low-temperature quartz-sericite-pyrite (phyllic) alteration containing high-grade gold and high-temperature K-feldspar alteration.

Environmental baseline monitoring continued this year, although no exploration work was done. An application for road access from Highway 37A to the site, which will first be used for exploration and an underground bulk sample.

6.2. Proposed coal mines

There is currently one proposed coal mine, Allegiance Coal Limited's **Tenas** project.

6.2.1. Tenas (Allegiance Coal Ltd. 95%, Itochu Corp. 5%)

Telkwa Coal Ltd., a subsidiary of Allegiance Coal Ltd., is proposing to develop the **Tenas** project, which is road accessible, approximately 17 km south of Smithers. The project entered

the provincial environmental assessment process in 2018 and the project proposes to produce approximately 775,000-825,000 t of steelmaking coal annually with a mine-life of 22 years. In 2017, Allegiance Coal Ltd. released a reserve estimate of Proven plus Probable reserves of 62.9 Mt of coal.

At least 14 coal seams have been recognized in the Skeena Group (Lower-Upper Cretaceous) with individual seams up to 7.6 m thick (MINFILE 093L 156). Currently there are four conceptual pits (from south to north: Tenas, Goathorn West, Goathorn East, and Telkwa North) on approximately 1050 ha. The current environmental assessment application is only for production of metallurgical coal from the Tenas pit.

This year, no exploration was completed. In June, Allegiance Coal Ltd. and the Environmental Assessment Office held a virtual open house to explain the environmental assessment process and to answer questions from the public.

7. Selected exploration activities and highlights

Exploration projects are described on a continuum from early to advanced stages. The earliest stages are considered grassroots. Typically, where the collection of rock and soil samples are collected for geochemical analysis, commonly in conjunction with regional mapping and geophysical surveys. This preliminary work is predominantly benign and is used to generate targets to test, usually by drilling. At these early stages it is a common practice to establish base-line environmental testing and engage with communities and First Nations. As a project progresses, drilling may delineate a mineral resource and establish baseline economics. Later stages of exploration generally coincide with mine evaluation, feasibility, and economic studies, which include environmental, social, engineering, and financial considerations.

7.1. Selected precious metal projects

The Northwest Region has numerous precious metal deposits (Fig. 1; Table 4), many of which are in the area popularly known as the Golden Triangle.

7.1.1. American Creek (Mountain Boy Minerals Ltd.)

The **American Creek** project is approximately 22 km north of Stewart, immediately adjacent to the past-producing Premier mine. This year more than 2000 m of drilling targeted three areas (MB Silver, Wolfmoon, and Dorothy) and tested the extent of epithermal mineralization. Drilling at the MB Silver target was designed to test a high-grade silver intersection (5.18 m grading 5258 g/t Ag) drilled in 2006. The Maybee zone and untested Upper Ruby zone at Dorothy were drilled to better understand mineralized structures that extend from the MB Silver veins to the south. Grab samples collected in 2019 from a structurally controlled alteration zone that coincides with an IP anomaly at Wolfman yielded assays of 28 g/t Au and 1200 g/t Ag; drilling this year tested this zone.

7.1.2. Buck (Sun Summit Minerals Corp.)

Sun Summit Minerals Corp. (previously San Marco Resources Inc.) is exploring the 15,000 ha **Buck** property, which lies on an all-season access road 12 km south of Houston. The property is underlain by andesitic to rhyolitic tuffs, flows and breccias of the Hazelton Group (Upper Triassic to Lower Jurassic). Sulphides are in veinlets, disseminations, or coarse fracture fillings, mainly in rhyolitic breccias (MINFILE 093L 009). In preparation for drilling, early season fieldwork included geological mapping, rock sampling, and IP geophysics. Highlights from grab samples include 13.3 g/t Au and 44.1 g/t Ag at the Trench zone. Drilling (1806 m) completed earlier this year targeted potential depth extensions from a known mineralized zone and yielded highlights including 91 m of 0.75 g/t Au. Later in the year the company drilled an additional 4200 m to test the lateral extent of epithermal mineralization at the Buck breccia. In later drilling, most holes intersected vein pyrite-sphalerite-marcasite ±chalcopyrite±galena mineralization, which appear spatially related to pervasive silica-sericite-carbonate-clay alteration.

7.1.3. Cassiar Gold (Cassiar Gold Corp.)

Margaux Resources Inc. changed its name in September to Cassiar Gold Corp. and operates the **Cassiar Gold** project. Historical workings along a 15 by 10 km trend produced approximately 350,000 oz Au between 1979 and 1997; tailings at Table Mountain (approximately 600,000 t) have an estimated grade of 1 g/t Au. The tailings can contain large fragments of vein material (Fig. 4). Exploration this year focussed on Taurus and Table Mountain and included geological mapping, sampling, and drilling. Approximately 5000 m of drilling was used for infill and extension at the Taurus resource (Inferred: 21.83 Mt grading 1.43 g/t Au with a 0.7 g/t Au cut-off) and highlights include 32.79 m grading 1.78 g/t Au. Exploration targets were also drilled to test the lateral and vertical continuity of gold-bearing veins.

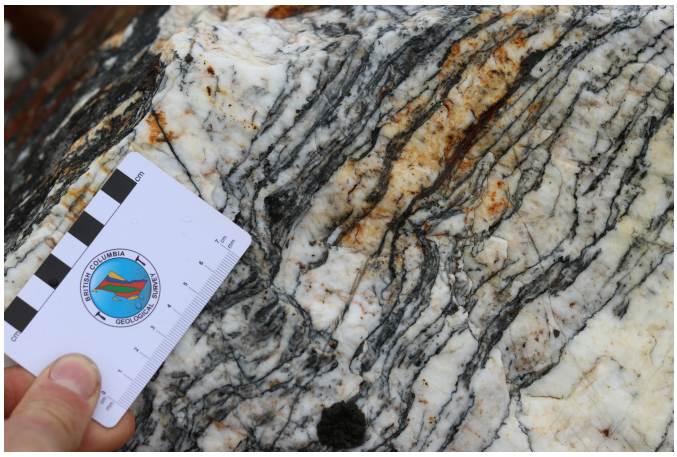

Fig. 4. Gold-bearing quartz vein with pyrite and tourmaline stylolites; from tailings at Table Mountain, Cassiar Gold project.

7.1.4. DOC (Hanstone Gold Corp.)

The **DOC** project is underlain by deformed and metamorphosed Upper Triassic volcanic rocks of the Stuhini Group that are locally cut by coeval intrusions of the Bronson

Table 4. Selected exploration projects, Northwest Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
American Creek	**Mountain Boy Minerals Ltd.**	Ag, Pb, Zn, Au; Polymetallic veins; 104A 011	na	2000 m of drilling at MB Silver, Wolfmoon, and Dorothy zones.
Big Red	**Libero Copper & Gold Corp.**	Cu, Au; Alkalic porphyry; 104G 208	na	Mapping and sampling with a grab sample highlight of 104 g/t Au at the Ridge zone and 19.1 g/t Au at ME-18; 3500 m drilling.
Bowser Regional	**Pretium Resources Inc.**	Au, Cu, Pb, Zn; Epithermal vein and VMS	na	More than 25,000 m of drilling to test A6, Hanging Glacier, Koopa, Snowfield East, Haimila. Hanging Glacier highlight: 13 m with 9.5 g/t Au in 102 m with 2.1 g/t Au.
Buck	**Sun Summit Minerals Corp.**	Au, Ag, Zn, Pb, Cu; Polymetallic veins; 093L 009	na	6000 m of drilling. Highlights from early drilling included 91 m of 0.75 g/t Au.
Cassiar Gold	**Cassiar Gold Corp.**	Au; Precious metal veins; 104P 012	Inf: 21.83 Mt at 1.43 g/t Au (0.7 g/t Au cut-off)	5000 m of infill and extension drilling at Taurus resource; exploration targets also drilled.
Corey	**Eskay Mining Corp. (80%)** and Kirkland Lake Gold Ltd. (20%)	Au, Ag, Cu, Zn; Noranda/Kuroko massive sulphide; 104B 385	na	Drilling (4000 m) at the TV and Jeff targets; highlights at TV include 11.24 m of 1.23 g/t Au and 201 g/t Ag. Airborne and ground-based geophysics.
Del Norte	**Decade Resources Ltd.**	Ag, Zn, Pb; Polymetallic veins; 104A 176	na	Drilling 5975 m in 31 holes at the Argo and Eagle Nest zones.
DOC	**Hanstone Gold Corp.**	Au, Ag; Intrusion-related, mesothermal; 104B 014	na	Drilling (2724 m) to test six of twelve prospective zones.
Dolly Varden	**Dolly Varden Silver Corporation**	Cu, Pb, Zn, Ag, Au; Kuroko VMS with polymetallic veins; 103P 188	I: 3.42 Mt at 299.8 g/t Ag Inf: 1.29 Mt at 277.0 g/t Ag	Resource expansion and step-out drilling (10,000 m). Step-out drilling intersected 2.70 m of 1083 g/t Ag in 12.75 m of 351 g/t Ag.
E&L	**Garibaldi Resources Corp.**	Ni, Cu, Co, Pt, Pd, Au; Tholeiitic intrusion hosted; 104B 006	na	Drilling extended the strike length of the mineralized E&L intrusion from 200 to 650 m and to 578 m at depth.
Eskay Creek	**Skeena Resources Limited**	Au, Ag, Cu, Pb, Zn; VMS and precious metal veins; 104B 008	I: 12.7 Mt at 4.3 g/t Au, 110 g/t Ag (pit constrained) Inf: 14.4 Mt at 2.3 g/t Au, 47 g/t Ag (pit constrained) I: 819 kt at 6.4 g/t Au, 139 g/t Ag (underground) Inf: 295 kt at 7.1 g/t Au, 82 g/t Ag (underground)	The company exercised its option to acquire 100% of the project; Barrick Gold Inc. expected to still own 12.4%. Highlights from drilling include 56.34 m grading 2.17 g/t Au and 234 g/t Ag. Company raised $46 million late in 2020.

Table 4. Continued.

Georgia	**AUX Resources Corporation**	Au, Ag, Pb, Zn, Cu; Intrusion-related Au pyrrhotite veins; 103O 013	na	Area of past producing Georgia River mine tested by 3700 m in 24 diamond drill holes.
Golddigger	**Goliath Resources Limited**	Au, Cu, Pb, Zn; Polymetallic veins	na	Channel sampling (179 m); highlights, 10.0 m of 14.11 g/t Au.
Hat	**Doubleview Capital Corp.**	Cu, Au; Alkalic porphyry; 104J 021	na	4000 m of follow-up drilling to test Cu and Au mineralization.
Huckleberry	**Imperial Metals Corporation**	Cu, Mo, Ag, Au; Calc-alkaline porphyry; 093E 037	M+I: 180 Mt at 0.32% Cu, 0.01% Mo Inf: 48 kt at 0.46% Cu (for Main Zone; resource published 2011)	Drilling (~2500 m) to test mineralized extent below the East zone pit. Highlights include 361 m at 0.35% Cu.
Iskut	**Seabridge Gold Inc.**	Cu, Au; Porphyry; 104B 694	na	Anomalous surface samples and coincident IP and magnetic anomalies guided 8961 m of drilling. Preliminary results of 158 m at 0.16 g/t Au, 0.16% Cu.
Kirkham	**Metallis Resources Inc.**	Cu, Au; Porphyry; 104B 209	na	Field mapping, drill core relogging, an IP survey, and short-wave-infrared analysis guided 3820 m of drilling.
Newmont Lake	**Enduro Metals Corporation**	Au, Cu, Ag; Intrusion-related Au pyrrhotite veins; 104B 126	na	IP geophysics, hyperspectral, geochemical surveys, lithological and alteration mapping, and 6000 m of drilling.
Ootsa	**Surge Copper Corp.**	Cu, Au, Ag, Mo; Calc-alkaline porphyry; 093E 105	M+I: 224 Mt at 0.22% Cu, 0.15 g/t Au, 0.021% Mo, 2.8 g/t Ag Inf: 5.2 Mt at 0.18% Cu, 0.09 g/t Au, 0.019% Mo, 2.6 g/t Ag (2016 Prefeasibility Study)	Late-season drilling included 10,000 m to test IP chargeability anomaly on the Seel trend. Highlights include 176.1 m grading 0.35% Cu, 0.40 g/t Au, 1.7 g/t Ag including 126.0 m grading 0.43% Cu, 0.50 g/t Au, 2.0 g/t Ag.
Rock and Roll	**Etruscus Resources Corp.**	Cu, Zn, Pb, Au; Besshi VMS and intrusion-related precious metal veins; 104B 377	Inf: 2.02 Mt at 0.71 g/t Au, 87.1 g/t Ag, 0.23% Cu, 0.23% Pb, 0.98% Zn	Mineralization around the Black Dog deposit was drilled (~2000 m).
Scottie Gold Mine	**Scottie Resources Corp.**	Au, Ag, Cu; Intrusion-related and polymetallic veins; 104B 034	na	Drilling (>7000 m) focussed on the Blueberry and Bow veins, Domino zone and the Scottie Gold mine. Highlights from the O-zone at the Scottie Gold mine include 2.53 m of 109.4 g/t Au, 32.4 g/t Ag.
Silver Hope	**Finlay Minerals Ltd.**	Cu, Ag, Au, Zn, Pb, Mo; Subvolcanic Cu-Ag-Au (As-Sb); 093L 056	na	700 soil and rock samples collected above a magnetic anomaly. Drilling (900 m) tested the Main horizon.

Table 4. Continued.

Silver Queen	**Equity Metals Corporation**	Ag, Pb, Zn, Au; Transitional porphyry-epithermal; 093L 002	I: 815 kt at 6.35% Zn, 3.24 g/t Au, 201.4 g/t Ag, 0.26% Cu, 0.96% Pb Inf: 801 kt at 5.21% Zn, 2.49 g/t Au, 184.3 g/t Ag, 0.31% Cu, 0.88% Pb (resources at NSR cut-off of C$100/t)	Drilling (3000 m) tested epithermal-style mineralization. Highlights of 56,115 g/t Ag across 0.3 m were intersected.
Snip	**Skeena Resources Limited**	Au, Ag; Intrusion-related Au pyrrhotite veins; 104B 250	I: 539 kt at 14.0 g/t Au Inf: 942 kt at 13.3 g/t Au	An independent Technical Report was filed September 2020. 5000 m was drilled for resource expansion.
Tatogga; Quash Pass	**GT Gold Corp.**	Cu, Au, Ag, Pb, Zn; Polymetallic veins; 104G 161	na	Drilling (4841 m) tested Au and Cu geochemical trends coincident with IP chargeability anomalies.
Tatogga; Saddle North	**GT Gold Corp.**	Cu, Au, Ag; Porphyry; 104G 432	I: 298 Mt at 0.28% Cu, 0.36 g/t Au, 0.8 g/t Ag Inf: 543 Mt at 0.25% Cu, 0.31 g/t Au, 0.7 g/t Ag	A maiden resource was filed in August.
Thorn	**Brixton Metals Corporation**	Ag, Au, Cu, Zn, Pb; Subvolcanic Cu-Ag-Au (As-Sb); 104K 031	Inf: 7.4 Mt at 35.54 g/t Ag, 0.51 g/t Au, 0.13% Cu, 0.32% Pb, 0.59% Zn (2014 Technical Report)	Drilling (>5000 m), rock (1200) and soil (5000) sampling. Land size of project increased by optioning adjacent properties.
Todd Creek	**P2 Gold Inc. (70%)**, ArcWest Exploration Inc. (30%)	Cu, Au, Pb, Zn; Porphyry, volcanogenic, hydrothermal; 104A 001	na	Drilling (1027 m) with near-surface intersections of 1.8 m grading 4.19% Cu, 0.19 g/t Au, 4.90 g/t Ag. Airborne magnetic and radiometric surveys.
Treaty Creek	**Tudor Gold Corp. (60%),** Teuton Resources Corp. (20%), American Creek Resources Ltd. (20%)	Cu, Au; Porphyry; 104A 004	na	Drilling (~40,000 m) focussed on Goldstorm zone and newly discovered Perfect Storm zone. Highlights of 348 m of 2.04 g/t Au, 4.13 g/t Ag within 930 m of 1.07 g/t Au, 2.80 g/t Ag.
Turnagain	**Giga Metals Corporation**	Ni, Co, Pt, Cu, Mo; Alaskan-type, magmatic; 104I 014	M+I: 1.073 Bt at 0.220% Ni, 0.013% Co Inf: 1.142 Bt at 0.217% Ni, 0.013% Co	A Preliminary Economic Assessment (PEA) was completed in October.
Willoughby	**Strikepoint Gold Inc.**	Au, Ag, Zn, Pb; Precious and polymetallic veins; 103P 006	na	Surface sampling of newly exposed mineralization; results included up to 37.3 g/t Au and 263 g/t Ag; 1700 m drilling.

M = Measured; I = Indicated; Inf = Inferred

stock. The most significant gold and silver grades are in sulphide-bearing quartz veins. This year, 2724 m was drilled to test six of twelve prospective areas. Prospecting, geological mapping, and satellite analysis were also completed.

7.1.5. Georgia (AUX Resources Corporation)

The **Georgia** project is at tidewater, approximately 16 km south of Stewart. The property is prospective for intrusion-related gold deposits because several areas are close to rocks of the Texas Creek plutonic suite (Bulldog Creek pluton, Colling Ridge porphyry, and Outram Lake porphyry). This year, 3600 m of drilling was completed in 24 diamond-drill holes to test the mineralized system around the past-producing Georgia River mine and to assess previous non-compliant resource estimates. Preliminary observations indicate that historic Southwest vein mineralization extends beyond the known historic limits and

remains open in both directions. Drilling was also used to test newly developed targets outside of the known deposit.

7.1.6. Newmont Lake (Enduro Metals Corporation)

The 55,000 ha **Newmont Lake** project contains four main zones (Burgundy, McLymont, Cuba, and Chachi) and is prospective for epithermal Au-Ag, skarn Cu-Au-Ag, and alkalic porphyry Cu-Au deposits. This year, exploration included IP geophysics, hyperspectral, and geochemical surveys in conjunction with lithological and alteration mapping. Previously unsampled core from a former operator was also assayed and returned 144 m grading 3.18 g/t Au and 3.66 g/t Ag. Approximately 6000 m of diamond drilling was also completed to test for new gold mineralization. Step-out drilling at the newly discovered NE extension assayed 8.85 m grading 31.09 g/t Au and 1.07% Cu.

7.1.7. Scottie Gold (Scottie Resources Corp.)

The **Scottie Gold** project is 35 km north of Stewart and is assessible from the Salmon Glacier road. The project is centred on the past-producing Scottie Gold mine, which operated from 1981 to 1985, producing 95,426 oz of Au at 16.2 g/t Au. The property is transected by north-striking and locally abundant east-striking faults (MINFILE 104B 034). Gold is in steeply dipping pyrrhotite-pyrite-quartz-calcite veins that cut the Unuk River andesite unit in the lower part of the Hazelton Group adjacent to the Summit Lake stock, which is part of the Texas Creek plutonic suite (Early Jurassic). More than 7000 m of diamond drilling was completed this year, focussing on the Blueberry vein, Scottie Gold mine, and Domino zone. At the Scottie Gold mine, the O-zone is one of six parallel mineralized structures; the drilling was used to test interpreted orientations. Highlights from the O-zone include 2.53 m grading 109.4 g/t Au and 32.4 g/t Ag. Airborne magnetic and electromagnetic surveys and IP geophysical surveys were also completed.

7.1.8. Silver Queen (Equity Metals Corp.)

The **Silver Queen** project is on an all-season road 43 km south of Houston. Since its discovery in 1912, the propery has seen more than 500 drill holes and 9 km of underground workings. Although the current focus of exploration is on epithermal veins, porphyry Cu-Mo-Ag-Au and epithermal Au-Ag-(Cu-Pb-Zn) deposits have been identified. This year, approximately 3000 m of core was drilled; step-out drilling intersected a pyrargyrite (ruby-silver), quartz-barite vein containing 0.3 m grading 56,115 g/t Ag. An additional 1500 m of late-season drilling was used to test lateral and down-dip step-outs from this mineralization.

7.1.9. Snip (Skeena Resources Ltd.)

The **Snip** deposit is another past-producing mine with renewed exploration interest. Between 1991 and 1999 the mine produced at an average grade of 27.5 g/t Au. The deposit is a southwest-dipping vein system in Upper Triassic metasedimentary rocks of the Stuhini Group that are cut by Early Jurassic stocks and plutons. An independent technical report was filed in September containing an Indicated resource of 539,000 t grading 14.0 g/t Au (containing 244,000 oz Au). The company began a 5000 m drill program in the fall that could be used to expand the resource.

7.1.10. Willoughby (Strikepoint Gold Inc.)

The **Willoughby** project is on a mountain peak surrounded by glaciers. The east side of the property is underlain by Triassic volcaniclastic rocks of the Stuhini Group, the western half by Hazelton Group rocks. Between 1989 and 1996, more than 12,000 m of drilling was completed and 110 m of underground workings were excavated. This year, 1700 m of drilling was used to test disseminated gold and silver mineralization identified from previous drilling and surface sampling, and to improve continuity of high-grade mineralization. Surface sampling focussed on outcrops newly exposed by glacier retreat; results included up to 37.3 g/t Au and 263 g/t Ag.

7.2. Selected porphyry projects

The Northwest Region hosts many significant porphyry deposits (Fig. 1; Table 4), and the region is highly prospective for Au-Cu-Mo bulk-tonnage mineralization related to Triassic-Jurassic island arc assembly and post accretionary intrusive complexes.

7.2.1. Big Red (Libero Copper & Gold Corp.)

The **Big Red** project is 45 km southwest of Telegraph Creek along the Barrinton Tote road. Porphyry Cu-Au-Mo, epithermal Au-Ag, and VMS-style mineralization have all been recognized on the property. This year, exploration focussed on three main zones: Ridge, ME-18, and Terry. The Ridge zone is 1 km long and has anomalous gold, silver, and copper that coincides with a ZTEM conductivity high. At ME-18, altered Stuhini Group volcanic rocks have been intruded by a diorite plug containing crosscutting gold-bearing quartz veins. The Terry zone is a previously identified porphyry Cu-Au target. Detailed mapping and geochemical sampling was continued from the previous year and surface sampling returned assays of 104.0 g/t Au at Ridge and 19.10 g/t Au at ME-18. A 3500 m drill program tested these targets.

7.2.2. Hat (Doubleview Capital Corp.)

The **Hat** project is prospective for alkalic porphyry Cu-Au mineralization. Since 2014, the property has been explored by magnetic and IP surveys, soil and rock geochemistry, geological mapping, and drilling (300 drill holes totalling 10,281 m). The property is underlain by porphyritic andesites and bedded tuffs of to Stuhini Group (Upper Triassic) that are cut by a dioritic-monzonitic stock. Approximately 4000 m of drilling was used to test gold and copper mineralization identified at surface and coincident with a 3D induced polarization anomaly at the Lisle-North zone and to expand known deep mineralization at the Lisle zone. The final drill hole in 2019 intersected 612 m grading 0.19 g/t Au, 0.25% Cu, and 84 ppm Co including 235 m

grading 0.51 g/t Au, 0.51% Cu and 105 ppm Co. Follow-up drilling this year intersected an interval containing visible gold.

7.2.3. Huckleberry (Imperial Metals Corporation)

Huckleberry was an open-pit mine until shutting down in 2016 (Fig. 5), and has since been on care and maintenance status. This year, 2491 m of exploratory drilling to test the extent of copper mineralization below the East zone pit was completed. Initial results include 361 m grading 0.35% Cu from 368-729 m below surface.

Fig. 5. Huckleberry mine looking south at the Main zone pit; East zone pit can be seen in the top left, along with the mill and other infrastructure.

7.2.4. Iskut (Seabridge Gold Inc.)

The **Iskut** project contains the former Johnny Mountain mine and the Bronson Slope copper-gold deposit. Previous drilling below the Quartz Rise lithocap discovered a mineralized diatreme containing clasts of veined diorite porphyry with copper-gold mineralization. This year, anomalous surface gold and copper concentrations and a large IP anomaly coincident with magnetic anomalies have guided the drilling of 8961 m in 11 holes to test 750 m of strike and greater than 800 m of vertical extent below and west of the lithocap. Initial results include intervals up to 158 m grading 0.16 g/t Au and 0.16% Cu. Higher grade (31.8 m grading 0.62% Cu) intersections were also recovered.

7.2.5. Kirkham (Metallis Resources Inc.)

The **Kirkham** property is on the western margin and adjacent to the Eskay rift. Metallis acquired the project in 2013 and has since conducted regional mapping and sampling, geophysics (IP, EM, Magnetics, Radiometric, VTEM), and greater than 10,000 m of drilling. Work early in the year included field mapping, drill core re-logging, an IP survey, and short-wave-infrared analysis. Late-season drilling (3820 m) tested the depth potential along the 4 km strike-length Cliff porphyry system, which was first highlighted by resistivity highs outlined in recent IP surveys. Early results from this drilling indicate continuous Cu-Au mineralization from surface to 850 m depth.

7.2.6. Ootsa (Surge Copper Corp.)

The **Ootsa** project is at the southeast end of a southeast-trending belt of porphyry Cu-Au deposits and prospects including (from northwest-southeast) the Lucky Ship, Berg, Whiting Creek, Huckleberry, Ox, and Seel deposits. Similar to other deposits in the region, mineralization at Ootsa is temporally associated with the Bulkley suite intrusive rocks (Cretaceous). Calc-alkaline mineralization is reported as mineral resources for three separate deposits: Ox, East Seel, and West Seel. This year a 3D deep-penetrating IP geophysical survey was first conducted over the Seel trend that provided a new chargeability anomaly, which in part was drilled with 10,000 m of core. The upper portion of hole S20-218 interesected the East Seel deposit as it progressed towards the deeper chargeability target. Assays for the portion of the hole in the East Seel deposit included 176.1 m grading 0.35% Cu, 0.40 g/t Au and 1.7 g/t Ag including 126.0 m grading 0.43% Cu, 0.50 g/t Au, and 2.0 g/t Ag. Drilling was also completed to test expanding the East and West Seel deposits.

7.2.7. Tatogga (GT Gold Corp.)

This year work was completed at **Tatogga** on the Saddle North deposit and Quash Pass zone. A maiden resource was completed for Saddle North and fieldwork was done at Quash Pass. Saddle North includes an Indicated resource containing 1.81 Blbs Cu and 3.47 Moz Au and an Inferred resource containing 2.98 Blbs Cu and 5.46 Moz Au (combined open-pit and underground mining methods). A Preliminary Economic Assessment is currently being completed for Saddle North and is targeted for release in the first quarter of 2021. Quash Pass is 7 km south of known mineralization at the Saddle North and South deposits. This year 4841 m of drilling was completed in nine diamond-drill holes that tested two anomalous geochemical trends spanning 6 km. District-scale west-northwest trending faults and coincident IP chargeability anomalies also guided exploration. Greig et al. (2021) summarize the results of recent geologic mapping, new U-Pb zircon and Re-Os molybdenum geochronology, and intensive drilling to establish the geologic framework of both the Saddle North porphyry Cu-Au deposit and the nearby older Saddle South epithermal Au-Ag vein system.

7.2.8. Thorn (Brixton Metals Corporation)

Approximately 5291 m of drilling was completed in 19 holes at the **Thorn** project. Drilling focussed on the West and Central Outlaw gold targets and several deep holes were drilled at the Camp Creek porphyry copper-gold target. More than 5000 soil and 1200 rock samples were collected for geochemical analysis and early results from rock samples yielded highlights of 68.8 g/t Au from West Outlaw and 7.21% Cu from Camp Creek. Additionally, the company increased the overall land package of Thorn by optioning adjacent properties from Stuhini Exploration Ltd. (Metla) and Kodiak Copper Corp. (Trapper). Prospecting this year at Trapper yielded five rock samples assaying greater than 20 g/t Au.

7.2.9. Treaty Creek (Tudor Gold Corp. 60%, Teuton Resources Corp. 20%, American Creek Resources Ltd. 20%)

The **Treaty Creek** project is hosted by Jurassic volcanic and intrusive rocks that also host the KSM deposits 5 km to the southwest. The Sulphurets thrust fault continues along trend from KSM to Treaty Creek and is considered a reactivated basin structure (Kyba and Nelson, 2015) that may have influenced the emplacement of mineralization. The area has been explored for almost 40 years, during which several high-grade gold and silver surface samples were found and more than 190 diamond-drill holes were completed. The project is now uncovering potential for large-scale porphyry mineralization. Highlights from drilling include near-surface intersections of 348 m grading 2.04 g/t Au and 4.13 g/t Ag within 930 m of 1.07 g/t Au and 2.80 g/t Ag (drill hole GS-20-65) and 229.5 m grading 1.34 g/t Au and 11.94 g/t Ag within 775.5 m of 0.84 g/t Au and 5.47 g/t Ag (drill hole GS-20-73). It is anticipated that more than 40,000 m of core will be drilled by the end of 2020, focussing on the Goldstorm zone and the newly discovered Perfect Storm zone.

7.3. Selected polymetallic base and precious metal projects

Many polymetallic base and precious metal projects are active throughout the Northwest Region (Fig. 1; Table 4). Base metals are explored for primarily as polymetallic vein and VMS deposits and to lesser extent SEDEX and manto-style replacement deposits.

7.3.1. Bowser Regional (Pretium Resources Inc.)

In 2020, more than 25,000 m of core was drilled on the **Bowser** claims, which are prospective for epithermal Au-Ag, porphyry Cu-Au, and volcanogenic massive sulphides. At Hanging Glacier (4.5 km NW of the Brucejack mine), 9800 m of drilling tested anomalous surface samples. A highlight includes 13 m with 9.5 g/t Au in an interval of 102 m with 2.1 g/t Au. Work continued at A6 (14 km NE of the mine) with 11,900 m of drilling in search of volcanogenic massive sulphides. The remaining 3980 m of drilling followed up epithermal Au and porphyry Cu- Au mineralization at Koopa, Snowfield East, and Haimila.

7.3.2. Corey (Eskay Mining Corp. 80% and Kirkland Lake Gold Ltd. 20%)

Eskay Mining Corp. is the operator at the **Corey** project. This year, approximately 4000 m of core was drilled at the TV and Jeff prospects and almost all of the 20 holes intersected VMS mineralization. A review of historic diamond drill core from various prospects across the greater land tenure also revealed VMS mineralization: stratiform sulphide mineralization (TV and Jeff prospects), feeder-style mineralization (Cumberland, Red Lightening, SIB, and Lulu prospects), and sulphate mineralization (indicative of white smoker origin; C10 prospect). The TV and Jeff targets are approximately 1.5 km apart and historically have been interpreted to be isolated VMS targets. However, recent geophysical data (SkyTEM, magnetotelluric, and IP) suggest these prospects form a single, larger VMS system. Airborne and ground-based geophysics completed this year suggest several other VMS targets. Highlight drill results from this year include 11.24 m grading 1.23 g/t Au and 201 g/t Ag and 1.32 g/t Au and 0.99 m of 507 g/t Ag.

7.3.3. Del Norte (Decade Resources Ltd. 55% and Teuton Resources Corp. 45%)

The **Del Norte** property was optioned to Decade Resources Ltd. early in the year. In the 1930s, a creek that transects the property was mined for placer gold. Recent exploration has led to the discovery of several prospects along a minimum strike length of 4 km. Exploration this year focussed on drill testing the Argo and Eagle Nest zones with 5975 m of drilling in 31 holes; intervals of pyrite, sphalerite, galena, and tetrahedrite were recorded.

7.3.4. Dolly Varden (Dolly Varden Silver Corp.)

The immediate area of the **Dolly Varden** property has a long history of mining. The Dolly Varden mine, discovered by four prospectors in the early 1900s, produced more than 20 Moz of Ag between 1910 and 1959. The property is underlain by Hazelton Group volcanic and volcaniclastic rocks and historic and recent exploration suggest the potential for epithermal precious metal and volcanogenic massive sulphide deposits. This year more than 10,000 m of core was drilled focussing on resource expansion and step-out targets. Step-out drilling intersected highlights that included 2.70 m of 1083 g/t Ag within 12.75 m of 351 g/t Ag.

7.3.5. Eskay Creek (Skeena Resources Ltd.)

Since 1932, **Eskay Creek** has been the focus of considerable exploration. In 1988, the news of drilling intersecting stratiform stibnite-realgar rich mineralization (Roth, 1989) in 21A zone sparked a staking rush throughout the region. An underground mine operated from 1994 to 2008 and produced 3.3 Moz of Au and 160 Moz of Ag (average grades of 45 g/t Au and 2224 g/t Ag). Barrick Gold Inc. has owned mineral rights to the project since 2002, and this year Skeena exercised its option to acquire 100% of the property. Barrick is expected to retain 12.4% of the project and has waived its back-in right on the project. This year, six to twelve ground-based and helicopter-supported drills focussed on infill drilling (approximately 88,000 m) at the 21A, 21B, and 21C zones and will be used for the Preliminary Feasibility Study resource category conversions. Highlights from infill drilling include 42.59 m grading 7.19 g/t Au and 665 g/t Ag in 21C zone, 35.42 m grading 21.90 g/t Au and 235 g/t Ag in 21A zone, and 56.34 m grading 2.17 g/t Au and 234 g/t Ag in 22 zone. Exploration drilling was also completed to test the Water Tower and Lower Mudstone zones. The company raised $46 million late in 2020 enabling financing for a Prefeasibility and Feasibility Study. The company is also permitting 137,000 m of exploratory drilling to test both brownfield and greenfield targets.

7.3.6. Golddigger (Goliath Resources Ltd.)

The **Golddigger** property, which extends across 18,658 ha, is 7 km west of the Dolly Varden mine access road. At the Sure Bet and Main zone, stratabound massive sulphide mineralization (galena-sphalerite-pyrite) and silica alteration are in highly folded Hazelton Group sedimentary rocks along northwest-trending faults. The 2020 exploration program focussed on delineating the full extent of mineralization identified in the previous year. A total of 179 m of channel samples were taken from outcrops containing massive and semi-massive sulphide mineralization at the Sure Bet zone; one channel sample returned 10.0 m grading 14.11 g/t Au.

7.3.7. Rock and Roll (Etruscus Resources Corp.)

The **Rock and Roll** property is approximately 7 km northwest of the past-producing Snip mine. Access to site is by helicopter from the Forest Kerr hydroelectric facility. The property includes the Black Dog VMS deposit and the SRV zone. Early season exploration consisted of sampling, prospecting, mapping, and a VTEM survey, which guided generating targets and drill planning. The company drilled approximately 2000 m to test new areas, the depth potential of the Black Dog deposit, and mineralization surrounding Black Dog. Three separate intervals of massive and semi-massive sulphide were intersected.

7.3.8. Silver Hope (Finlay Minerals Ltd.)

The **Silver Hope** mineral claims surround the past-producing Equity Silver mine, which operated from 1980 to 1994, producing 33.8 Mt grading 0.4% Cu, 64.9 g/t Ag, and 0.46 g/t Au (MINFILE 093L 001). In 2006, Finlay Minerals Ltd. purchased 100% interest in the property and since then have generated several targets through coincident ZTEM, IP, and gravity anomalies, drilling, prospecting, mapping, and sampling. The Main Deep horizon is considered the southern extension of the copper-silver Equity Silver system, containing (from north to south) the Hope, Superstition, and Gaul zones. A copper- molybdenum-mineralized monzonite (West horizon) was discovered southwest of the mine. This year a 4 km north-northeast trending magnetic anomaly was identified east of the Equity Silver mine, and 700 reconnaissance soil and rock samples were taken to geochemically test the new target. A 900 m drill program was also completed and tested the Main horizon, where drilling in 2016 intersected 10.25 m grading 319 g/t Ag, 0.88% Cu, and 0.19 g/t Au.

7.3.9. Todd Creek (P2 Gold Inc. 70% and ArcWest Exploration Inc. 30%)

The **Todd Creek** property is east of and adjacent to Pretium Resources Inc.'s Bowser mineral claims. It is prospective for VMS, epithermal, and porphyry deposits. A 12 by 3 km alteration zone on the western side of the property has at least four zones of copper-gold mineralization (Fall Creek, Yellow Bowl, Ice Creek, and South). Previous field programs completed by ArcWest Exploration Inc. identified copper-gold mineralization from rock chip and soil samples collected along an IP chargeability anomaly at the Yellow Bowl zone. This year, 1027 m of drilling tested a prominent gossan at Yellow Bowl, which hosts a number of structurally controlled copper-gold showings. Near-surface drill intersection highlights include 1.8 m grading 4.19% Cu, 0.19 g/t Au, and 4.90 g/t Ag within 3.3 m grading 3.03% Cu, 0.20 g/t Au, and 7.15 g/t Ag (TC-002). An additional drill hole tested closely spaced copper-gold showings 5 km south of Yellow Bowl. Airborne magnetic and radiometric surveys were also flown over the property and a satellite hyperspectral survey was completed.

7.4. Selected mafic- and ultramafic-hosted projects

The Northwest Region contains only a few mafic- and ultramafic-hosted prospects (Fig. 1; Table 4).

7.4.1. E&L (Garibaldi Resources Corp.)

The **E&L** property is one of only two known high-grade magmatic Ni-Cu-(PGE) massive sulphide projects in the Canadian Cordillera. The property is in the Eskay rift (Jurassic), approximately 80 km northwest of Stewart. Vandenburg (2020) considered that combined trace element and Pb isotopic signatures are consistent with post-collisional decompression melting of a metasomatized mantle source that was tapped during rift development. The deposit contains pyrrhotite, pentlandite, and chalcopyrite in an olivine gabbro stock that intrudes Lower Jurassic sedimentary and volcanic rocks. Drilling in 2020 extended the strike length of the E&L intrusion from 200 to 650 m to a depth of 578 m. Highlights from this drilling included 151.6 m grading 0.56% Ni and 0.61% Cu (EL-20-89).

7.4.2. Turnagain (Giga Metals Corp.)

The **Turnagain** nickel-cobalt project is hosted in an Alaskan-type Pt-(Os-Rh-Ir) ultramafic hosted deposit. The zoned deposit has maximum dimensions of 3 by 8.2 km and displays a dunite core surrounded by peripheral peridotites, pyroxene-rich peridotite, wehrlite, and olivine pyroxene (MINFILE 104I 119). Sulphide mineralization includes pyrrhotite, pentlandite, chalcopyrite, and trace bornite. In October, a Preliminary Economic Assessment was completed. The project is expected to produce 37,149 t of Ni per year (years 6-20) and, during its 37-year mine life, produce 1.2 Mt Ni concentrate. A resource estimate was completed in 2019 with Measured plus Indicated resources of 1.073 Bt grading 0.22% Ni and 0.013% Co, and an Inferred resource of 1.142 Bt grading 0.22% Ni and 0.013% Co.

8. Geological research

Nelson and van Straaten (2020) described how repeatedly reactivated and long-lived deep structural corridors controlled sedimentation, intrusions, and mineralization in the Late Triassic to Early Jurassic, particularity in the northern part of the region. A series of papers were written about the KSM deposits including those by: Savell and Campbell (2020), who described

fault-bounded panels of wall rocks and narrow intrusions at the Sulphurets deposit; Rosset et al. (2020) who described the giant porphyry Cu-Au Kerr deposit and the associated alteration complexity; Febbo et al. (2020) who detailed the thrust fault-bounded Mitchell deposit; and Campbell et al. (2020) who summarized the Early Jurassic Iron Cap deposit. The Snowfield porphyry Cu-Au-Mo deposit was detailed by Laycock et al. (2020). Board et al. (2020) discussed the multi-stage porphyry-epithermal alteration, mineralization, and deposit formation of the Brucejack Au-Ag deposit and Peddle and Johnston (2021) reviewed the structural geology of the deposit. Greig et al. (2021) detailed the geological framework, including new geochronologic data, of the Saddle North porphyry Cu-Au deposit and the Saddle South epithermal Au-Ag vein system at the Tatogga property.

9. Summary

The Northwest Region has several producing mines and an abundance of proposed and advanced-stage projects. In 2020, the region saw numerous early- to advanced-stage projects that focussed mainly on precious, base metal, and porphyry deposits. Exploration activity increased for the fourth consecutive year in the region and expenditures this year represent close to half of British Columbia's total. Many companies reported positive exploration results, and many new targets were generated.

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Exploration and mining in the North Central and Northeast regions, British Columbia

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1. Introduction

From northeast to southwest, a transect from the Northeast Region though the North Central Region provides a cross section from undeformed rocks deposited above Precambrian basement to allocthonous terranes accreted to Ancestral North America (Fig. 1). Platformal sedimentary rocks in the Northeast Region transition to deep-water basin strata as the eastern limit of Cordilleran deformation is approached, close to the border of the North Central Region. The North Central Region shows a history of ocean opening and closing, island arc volcanism, and terrane accretion onto the western margin of Ancestral North America. Terrane emplacement was followed by continued orogeny, magmatism and sedimentation. Both regions were extensively glaciated.

The Northeast Region is prospective for coal and industrial minerals and, at present, has two producing coal mines, Conuma Coal Resources Limited's **Brule** and **Wolverine** operations. Conuma's **Willow Creek** operation shut down in July. In the far north of the region, Fireside Minerals Ltd. produces barite from its **Fireside** mine to supply the oil and gas drilling industry.

The North Central Region is prospective for copper, gold, silver, zinc, lead, specialty metals, and rare earth elements, mostly in porphyry, vein and stockwork, SEDEX, and carbonatite settings. The **Mt. Milligan** copper-gold operation (Centerra Gold Inc.) is the only producing mine in the region. Both regions also saw numerous exploration projects (Fig. 1). Companies quickly adapted with appropriate protocols after initial disruptions due to Covid-19. Significant results included those reported for Benchmark Metals Inc.'s **Lawyers** project, Kwanika Copper Corporation's **Kwanika** project, and Sun Metals Corp.'s **Stardust** project.

Noteworthy acquisitions and proposed mergers were announced in 2020. Artemis Gold Inc. acquired the **Blackwater Gold** project from New Gold Inc. for approximately $210 million. The project has both provincial and federal environmental assessment approval. BW Gold Ltd. (a wholly owned subsidiary of Artemis) plans to move the project forward with construction starting in Q2, 2022. In November, Serengeti Resources Inc. and Sun Metals Corp. entered into an agreement whereby Serengeti would acquire all issued shares of Sun Metals. The transaction would consolidate the contiguous copper-gold exploration and development assets of the **Kwanika** and **Stardust** projects. A financing of $10.35 million connected with the merger transaction was completed.

Estimates for exploration expenditures, drilling programs, and other metrics were captured in the British Columbia Mineral and Coal Exploration Survey, a joint initiative of the Province of British Columbia Ministry of Energy, Mines and Low Carbon Innovation, the Association for Mineral Exploration in British Columbia, and EY LLP. For the North Central Region, exploration expenditures were estimated at $57.0 million and exploration drilling was estimated at approximately 168,960 m. For the Northeast Region, exploration expenditures were estimated at $11.7 million and exploration drilling was estimated at approximately 14,380 m (Clarke et al., 2021; EY LLP, 2021).

2. Geological overview

The Canadian Cordillera records a protracted history of supercontinent rifting followed by collisions between the westward-driven North American continental plate and a succession of island arc volcanosedimentary and intrusive assemblages (terranes), developed outboard of Ancestral North America and accreted to each other and to the continental margin (e.g., Nelson et al., 2013). Terrane evolution continues today as the Juan de Fuca plate slides beneath Vancouver Island. In the Northeast and Central regions, the most easterly rocks are platformal sedimentary units that thicken westward and transition to deep-water basin strata. These rocks are deformed mainly by eastward-vergent thrust faults and folds along northwest-southeast trends. The Rocky Mountain trench marks the site of about 800 km of post-accretion dextral strike slip along the Tintina fault system.

Deformed deep-water basin sedimentary rocks immediately west of the Rocky Mountain Trench are referred to as the Cassiar terrane (Fig. 1). Outboard of the Cassiar terrane is a group of volcanic assemblages referred to (roughly from east to west) as the Slide Mountain terrane, the Quesnel and Stikine terranes (Quesnellia and Stikinia), and the Cache Creek

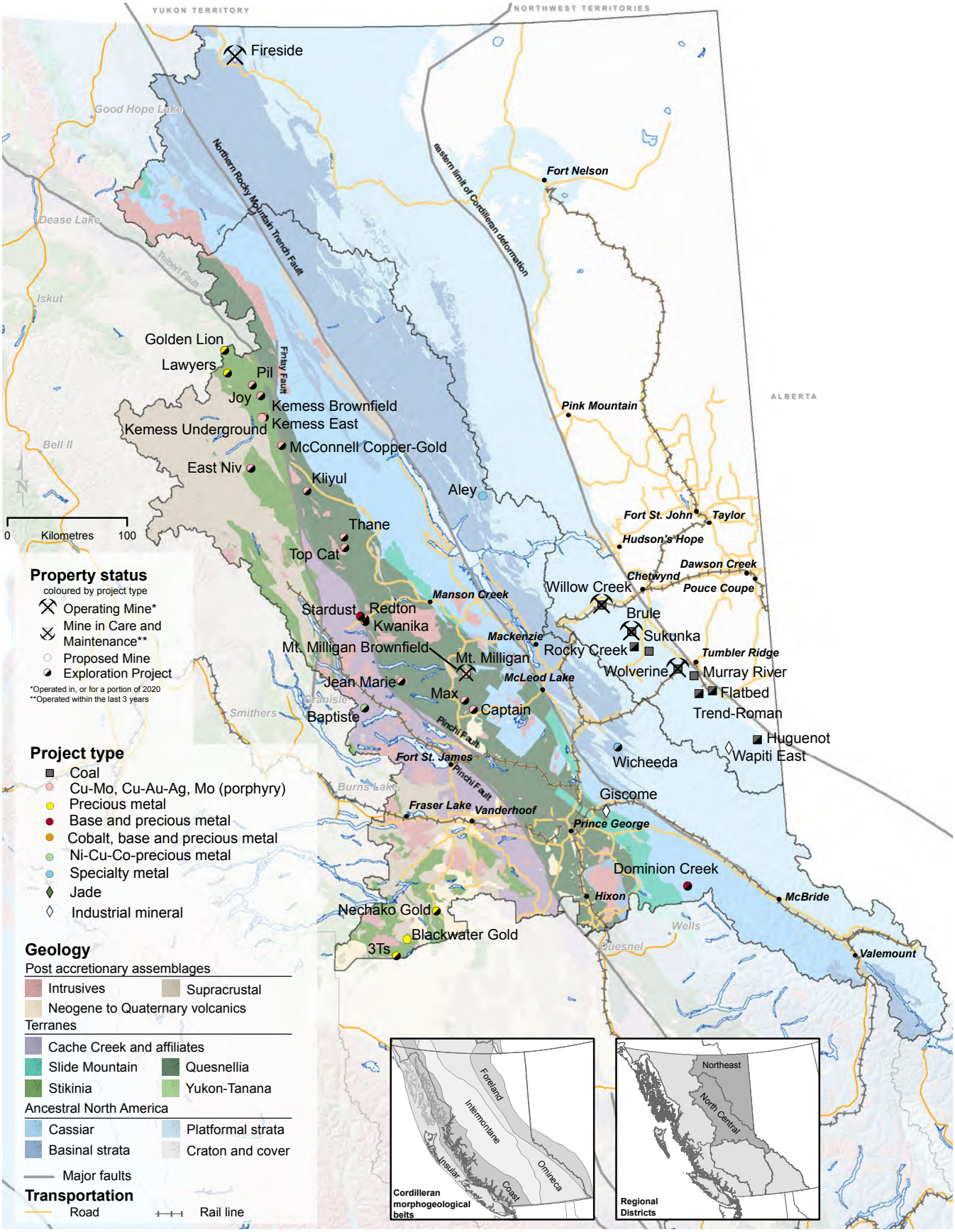

Fig. 1. Mines and selected projects, North Central and Northeast regions, 2020. Terranes after Nelson et al. (2013).

terrane. The Cache Creek terrane is separated from Quesnellia by another major crustal break, the Pinchi fault, along which areas of ultramafic rocks are locally exposed. These terranes are intruded by intermediate to felsic plutonic and volcanic rocks and are in turn overlain by later sedimentary and volcanic rocks.

Mineral deposit types and distributions are intimately related to the geologic evolution of the terranes (e.g., Nelson et al., 2013). Thus, platformal rocks deposited above ancestral North America host coal and potash deposits, and post-accretionary sedimentary rocks overlying the Stikine terrane host coal deposits. Deep-water basin strata host SEDEX and Mississippi Valley-type lead-zinc deposits and are intruded by carbonatite bodies hosting niobium and rare earth elements (REE). The island arc assemblages of Quesnellia and Stikinia host the known large polymetallic porphyry and orogenic precious metal deposits in the region.

3. Mines and quarries

During 2020, one metal mine operated in the North Central Region, three coal mines operated in the Northeast Region (one shut down in July) and one industrial mineral mine operated in the Northeast Region (Fig. 1; Tables 1-3).

3.1. Metal mines

The only producing metal mine in 2020 is in the North Central Region; **Mt. Milligan** (copper-gold) wholly owned by Centerrra Gold Inc. (Fig. 1; Table 1).

3.1.1. Mt. Milligan (Centerra Gold Inc.)

The **Mt. Milligan** mine, in the Quesnel terrane (Fig. 1), is hosted by mafic to intermediate volcanic and pyroclastic rocks of the Takla Group (Triassic to Lower Jurassic) that are intruded by Lower Jurassic monzonite porphyry stocks. The ore body (2500 x 1500 m) is a silica-saturated alkalic porphyry deposit in which copper and gold (with accessory silver) mineralization is in sulphides. The deposit consists of two principal zones. At the Main zone, mineralization is mainly in volcanic rocks; at the Southern Star zone, mineralization is in a monzonite stock and volcanic rocks.

The mine was commissioned in 2013. Ore is initially processed through primary and secondary crushers, before milling and flotation in a 62,500 tpd design capacity concentrator. The concentrate, averaging about 23% Cu, is moved by truck to Mackenzie, where it is transferred to rail cars and shipped to North Vancouver for transport to markets. Year-end (2019) combined Measured and Indicated mineral resources were

Table 1. Metal mines, North Central Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Mt. Milligan	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 093N 194, 191	83.2 Mlbs Cu 159 Koz Au	P+Pr: 191.0 Mt 0.23% Cu, 0.39 g/t Au	M+I: 125.4 Mt 0.19% Cu, 0.35 g/t Au (additional to reserves)	Concentrator design capacity 62,500 tpd. Estimated mine life +20 years. More than 350 employees.

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

Table 2. Coal mines, Northeast Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Brule	**Conuma Coal Resources Limited**	PCI; Bituminous coal; 093P 007	2.1 Mt	P+Pr: 12.26 Mt	na	About 230 employees.
Willow Creek	**Conuma Coal Resources Limited**	HCC, PCI; Bituminous coal; 093O 008	700,000 t	P+Pr: 11.04 Mt	na	Placed on care and maintenance in July.
Wolverine	**Conuma Coal Resources Limited**	HCC; Bituminous coal; 093P 025	1.19 Mt	P+Pr: 26.99 Mt	na	About 300 employees, mine and plant.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal; ULV = ultra low volatile
P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

Table 3. Selected industrial mineral mines and quarries, North Central and Northeast regions.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Fireside (Northeast Region)	**Fireside Minerals Ltd.**	Barite; Vein barite; 094M 003, 19	na	na	na	Product is bagged and trucked to Fort St. John and to Alberta, where it is used to produce high-density drilling mud.

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

reported as 125.4 Mt at 0.19% Cu and 0.35 g/t Au. Year-end (2019) combined Proven and Probable Mineral reserves were reported as 191.0 Mt at 0.23% Cu and 0.39 g/t Au. The mine has a projected +20-year mine life.

3.2. Coal mines

Conuma Coal Resources Ltd. produced from the **Brule**, **Willow Creek**, and **Wolverine** mines (Fig. 2; Table 2). The Willow Creek mine suspended operations in July.

3.2.1. Brule Mine (Conuma Coal Resources Ltd.)

Forecast production for the **Brule mine** was 2.1 Mt of pulverized coal injection (PCI) coal. The coal is contained in folded and thrust-faulted rocks. The coal product is moved by rail to the wash plant at the Willow Creek mine site before being shipped by rail for export at Ridley Terminal in Prince Rupert.

3.2.2. Willow Creek Mine (Conuma Coal Resources Ltd.)

The **Willow Creek** mine produced 700,000 t of hard coking coal (HCC) and pulverized coal injection (PCI) product before suspending operations in July due to low prices.

3.2.3. Wolverine Mine (Conuma Coal Resources Ltd.)

Forecast production for the **Wolverine** mine was 2.1 Mt of hard coking coal (HCC). Coal from the mine is trucked to Conuma's rail facility at the Brule mine, where it is loaded for rail transport to the company's wash plant at Willow Creek. Coal is mined from the Perry Creek pit, which is nearing the end of its resources. Conuma has applied to the Environmental Assessment Office for an amendment that would allow them to mine coal from the Herman pit and use the existing Wolverine processing plant and loadout facilities. The proposed Herman pit is approximately 16 km from the Wolverine mine Perry Creek pit and coal processing plant.

3.3. Industrial mineral mines and quarries

In 2020, only the **Fireside** barite mine was in operation in the Northeast Region (Fig. 1; Table 3). In the North Central Region, there may have been some minor jade production, but it was not monitored.

3.3.1. Fireside (Fireside Minerals Ltd.)

At the **Fireside** mine, Fireside Minerals Ltd. quarries massive white barite from veins cutting Paleozoic sedimentary rocks of the Kechika Group near the Yukon border. The barite veins are steeply dipping, trend north to northeast, and have a combined true thickness of 6.5 m. Barite concentrations in the veins range from 96.0 to 99.4% $BaSO_4$. The product is bagged and trucked to Fort St. John and to Alberta, where it is used to produce high-density drilling mud.

4. Placer operations

Placer exploration is a widespread activity in parts of British Columbia, and permits are required only when surface disturbance is proposed. In the North Central Region, operations are distributed primarily in the Manson Creek, Fort St. James to Mackenzie, and Hixon areas. Larger scale operations are generally sited on abandoned stream channels and benches, and use backhoes and hydraulic excavators to extract gravel, which is then processed through a wash plant, either on-site or at a remote location. Because of the number of operations and because production is not reported, these operations are not tracked.

5. Mine or quarry development

There were no mines or quarries under development in the North Central and Northeast regions in 2020.

6. Selected proposed mines or quarries

Projects at the proposed mine stage (Fig. 1; Table 4) in the North Central Region include three proposed metal mines, Taseko Mines Limited's **Aley** project, Artemis Gold Inc.'s **Blackwater Gold** project, and Centerra Gold Inc.'s **Kemess Underground** project. Also, in the North Central Region, Greymont Western Canada Inc.'s **Giscome** project is a proposed industrial mine. Proposed mine coal projects in the Northeast Region (Fig. 1; Table 4) include, HD Mining International Ltd.'s **Murray River** project and Glencore plc's **Sukunka** project. Fertoz International Inc.'s **Wapiti East** project is a proposed industrial mineral mine in the Northeast Region (Fig. 1; Table 4).

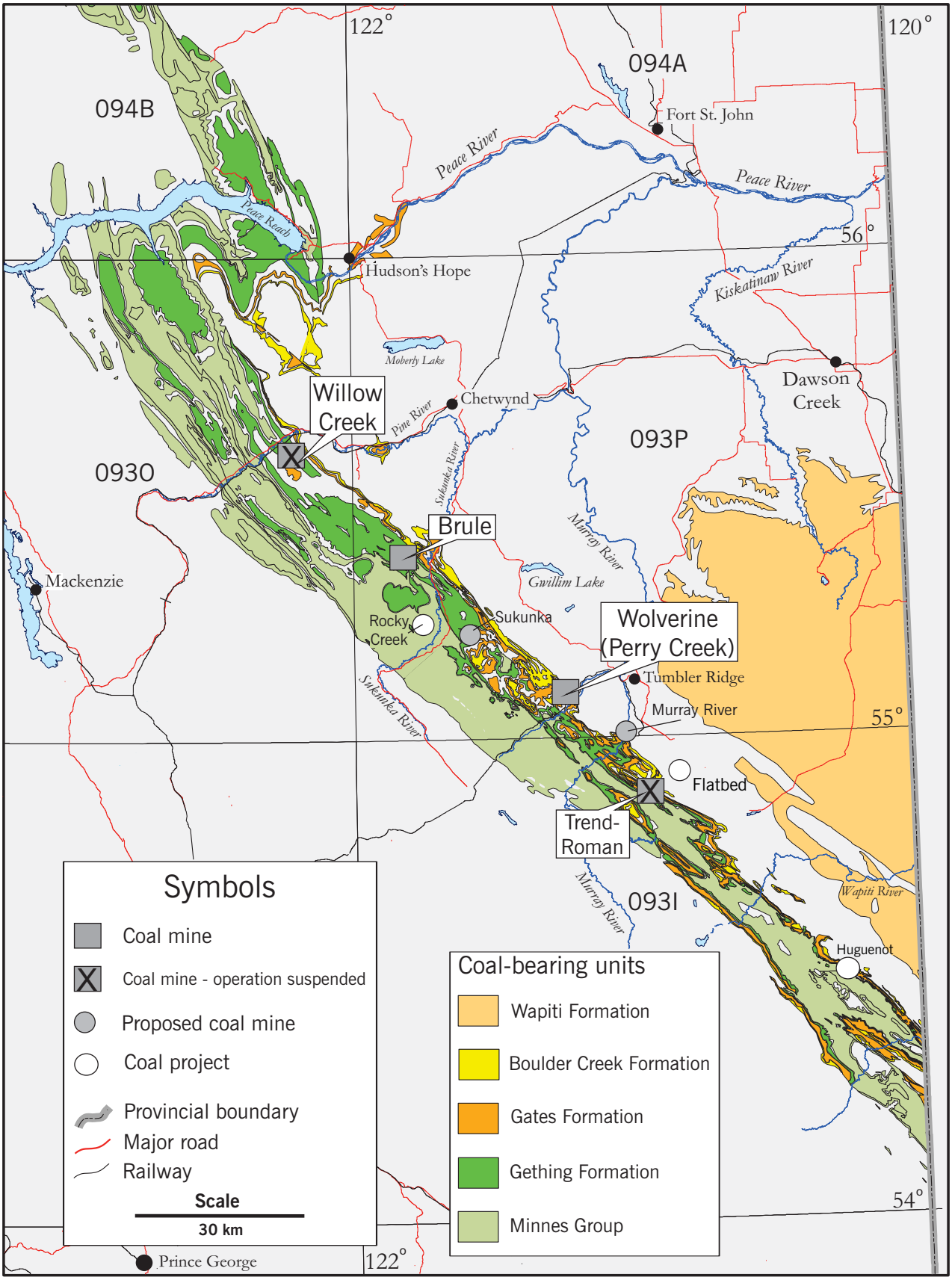

Fig. 2. Coal mines, proposed coal mines and coal exploration projects, northeastern British Columbia, 2020. After British Columbia Geological Survey (2021).

Table 4. Selected proposed mines and quarries, North Central and Northeast regions.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Aley (North Central Region)	**Taseko Mines Ltd.**	Nb; Carbonatite-hosted; 094B 027	P+Pr: 83.8 Mt 0.50% Nb_2O_5 (at 0.30% Nb_2O_5 cut-off)	M+I: 285.8 Mt 0.37% Nb_2O_5 (at 0.20% Nb_20_5 cut-off)	Proposed open-pit mine with 10,000 tpd ore processing rate and average annual production of 9000 t Nb over a 24-year mine life.
Blackwater Gold (North Central Region)	**Artemis Gold Inc.**	Au, Ag; Epithermal Au-Ag-Cu, intermediate sulphidation; 093F 037	P+Pr: 334.4 Mt 0.75 g/t Au, 5.8 g/t Ag at a 0.20 g/t AuEq cut-off containing 8.0 Moz Au, 62.3 Moz Ag	M+I: 597 Mt (including reserves) 0.61 g/t Au, 6.4 g/t Ag at a 0.20 g/t AuEq cut-off containing 11.7 Moz Au, 122.4 Moz Ag	Federal and Provincial Environmental Assessment certificates in place. Project acquired by Artemis from New Gold Inc. for approximately $210 million. A 35,000 m grade control reverse circulation drill program began in late fall.
Giscome (North Central Region)	**Graymont Western Canada Inc.**	$CaCO_3$; Limestone; 093J 041, 25	na	I: >100 Mt of limestone (>95% calcium carbonate, <5% magnesium carbonate) in situ	Environmental Assessment in place. Proposed 600,000 tpy limestone quarry to feed a vertical lime kiln producing 198,000 t of lime annually over a 50+ year mine life.
Kemess Underground (KUG) (North Central Region)	**Centerra Gold Inc.**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 094E 021	Pr: 107.38 Mt 0.27% Cu, 0.54 g/t Au, 1.99 g/t Ag, containing 629.6 Mlbs Cu, 1.87 Moz Au, 6.88 Moz Ag	I: 173.7 Mt (including reserves) 0.182% Cu, 0.3 g/t Au, 1.55 g/t Ag, containing 1195 Mlbs Cu, 3.33 Moz Au, 13.87 Moz Ag	Permitted, proposed underground panel cave mine with 24,600 tpd ore processing rate and life-of-mine average annual production of 106,000 oz Au and 47 Mlbs Cu over a 12-year mine life.
Murray River (Northeast Region)	**HD Mining International Ltd.**	Coal; Bituminous; 093I 035	P: 261.1 Mt Mineable coal	M+I: 314.2 Mt Coal in situ Inf: 373.9 Mt Coal in situ	Provincial and Federal EA certificates in place. Mine plan and reclamation program approved April 2018. Would produce 6 Mtpy from two longwall faces over 25-year mine life with 764 direct jobs.
Sukunka (Northeast Region)	**Glencore Canada Corporation**	Coal; Bituminous; 093P 014	na	145.0 Mt Coal in situ	20+ year mine life at 1.5-2.5 Mt saleable coal per year, 250 permanent jobs once operational. Permitting in progress.
Wapiti East (Northeast Region)	**Fertoz International Inc.**	P_2O_5; Sedimentary phosphate deposits; 093I 008, 22, 15	na	I+Inf: 1.54 Mt 21.6% P_2O_5	Permitting in progress. Proposed seasonal shallow open pit mine with annual production of less than 75,000 t over a +20year mine life.

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

6.1. Proposed metal mines

There are three proposed metal mines, all in the North Central Region: Taseko Mines Ltd.'s **Aley** Niobium project; Artemis Gold Inc.'s **Blackwater Gold** Au-Ag project; and Centerra Gold Inc.'s Cu-Au-Ag **Kemess Underground** project.

6.1.1. Aley (Taseko Mines Ltd.)

Taseko Mines Ltd.'s wholly-owned **Aley** niobium-bearing carbonatite project is near the western extremity of platformal strata. The carbonatite intrusion is oval in map view, measuring about 2.0 by 2.8 km. Within that body, reserves stand at 84 Mt grading 0.5% Nb_2O_5. An open-pit mine is proposed, processing 10,000 tpd and producing ferroniobium. The projected mine life is 24 years with an output of about 9 Mkg of niobium annually, making it among the largest niobium deposits in the world. Environmental assessment is underway. In 2020, Taseko continued with technical work, environmental monitoring, and product marketing initiatives.

6.1.2. Blackwater Gold (Artemis Gold Inc.)

Artemis Gold Inc. acquired the **Blackwater Gold** project from New Gold Inc. for approximately $210 million. At a 0.20 g/t AuEq cut-off, the total Measured and Indicated mineral resource is estimated at 597 Mt at 0.65 g/t AuEq (0.61 g/t Au, and 6.4 g/t Ag) for a total of 12.4 million AuEq oz. Revised pre-feasibility study results included an unlevered after-tax Net Present Value of $2.2 billion, an after tax Internal Rate of Return of 35% and payback on initial capital costs of two years. The project has both provincial and federal Environmental Assessment approval. BW Gold Ltd. (a wholly owned subsidiary of Artemis) plans to start construction in Q2, 2022. The project is accessible by existing roads, but development would require construction of a 140-km power transmission line from a substation south of the community of Endako. In the fall, Artemis began a planned 35,000 m reverse circulation grade control drill program and continued with metallurgical test work.

The Blackwater deposit is hosted by a sequence of intermediate to felsic volcanic rocks in the Kasalka Group (Upper Cretaceous; Stikine terrane). In this intermediate sulphidation, epithermal system, the host rocks are pervasively fractured and sericitized. Sulphides include pyrite, sphalerite, marcasite and pyrrhotite occuring as disseminations and pore fillings that are strongly controlled by a set of northeast- and northwest-trending faults.

6.1.3. Kemess Underground (Centerra Gold Inc.)

The **Kemess Underground** (KUG) project is a calc-alkaline porphyry Cu-Au-Ag deposit in the North Central Region. The deposit comprises a low-grade ore zone at a depth of 150 m on its western flank, and a higher-grade zone, at 300 m depth, 550 m to the east. KUG is hosted by a porphyritic monzodiorite-diorite pluton and related dikes that intrude potassically altered Takla Group volcanic rocks and Black Lake plutonic rocks. Secondary biotite alteration in the volcanic rocks and the eastern plutonic rocks characterize the higher-grade copper-gold mineralization.

The deposit is estimated to contain an Indicated resource of 173.7 Mt grading 0.182% Cu, 0.3 g/t Au, and 1.55 g/t Ag. Within this resource are Probable reserves of 107.4 Mt grading 0.27% Cu, 0.54 g/t Au, and 1.99 g/t Ag. The former Kemess South mine closed in 2011. However, infrastructure remains in place, and both the camp and ore processing plant will be used to service KUG, which is about 6.5 km north of the former processing plant. KUG is considered a stand-alone operation, to be mined by panel caving, with crushed ore conveyed underground to the processing plant. Processing rate would be 24,600 tpd with a life of mine average production of 106,000 oz Au and 47 Mlbs Cu over a 12-year mine life.

Kemess East (KE), about 1 km east of KUG, is an underground operation that could be integrated into the KUG project and use facilities developed for KUG. KE has an Indicated resource of 177.5 Mt grading 0.36% Cu, 0.4 g/t Au, and 1.97 g/t Ag and an Inferred resource of 29.3 Mt grading 0.314% Cu, 0.3 g/t Au, and 2.00 g/t Ag.

Waste rock and tailings from KUG will be placed in the former open pit modified by a 25 m high dam, along with a small amount of KE tailings. Non-acid generating tailings from KE would be placed in dry-stack storage. The KUG project has approval for development, but Centerra has not declared a timeline.

6.2. Selected proposed coal mines

HD Mining International's **Murray River** project received its Mines Act approval in 2018 and awaits a final investment decision. The British Columbia Environmental Assessment Office lists Glencore plc's **Sukunka** project as 'in progress'.

6.2.1. Murray River (HD Mining International Ltd.)

Murray River is a proposed underground mine that would extract metallurgical coal from the Gates Formation. In 2015, HD Mining International Ltd. completed bulk sampling for testing coal quality, processing, and marketability. In April 2018, the company received its Mines Act permit. An adit, driven to collect the bulk sample in 2015, but also to be used for the mining conveyor, descends 1.3 km down a decline. Two vertical shafts are to be completed, one for moving staff and equipment and the other for ventilation. HD Mining plans to construct its own wash plant and use existing rail facilities. The project is expected to provide about 764 jobs in direct employment during a 25-year mine life. Chinese miners experienced in longwall methods would start production but would be replaced within 10 years once Canadian miners are trained. In 2020, HD Mining applied for and received an Environmental Act Certificate extension to October 2025. Murray River awaits a final investment decision by HD Mining's parent company, China Huiyong Holdings.

6.2.2. Sukunka (Glencore plc and JX Nippon Oil and Energy Corporation)

The **Sukunka** project has been planned as both an open-pit and underground operation, extracting coal from the Gething Formation. The project is listed on The British Columbia Environmental Assessment Office website as 'in progress'.

6.3. Selected proposed industrial mineral mines or quarries

Proposed industrial mineral mines or quarries include Graymont Western Canada Inc.'s **Giscome** project in the North Central Region and Fertoz Ltd.'s **Wapiti East** project in the Northeast Region.

6.3.1. Giscome (Graymont Western Canada Inc.)

At the **Giscome** project, Graymont Western Canada proposes to exploit a high-purity limestone deposit in basaltic rocks of the Antler Formation (Triassic; Slide Mountain Group). Crushed stone would be transported about 5 km by truck to lime kilns at a former stone quarry, owned and operated by CN Rail, in the community of Giscome. An existing CN Rail line would be used for transporting the product. The project has environmental assessment approval, but due to weak markets for lime in the region, Graymont has not yet decided to initiate construction.

6.3.2. Wapiti East (Fertoz Ltd.)

Fertoz Ltd.'s **Wapiti East** project is a proposed phosphate mine. Combined Indicated and Inferred resources are 1.54 Mt grading 21.6% P_2O_5 (at a 7% cut-off). Permitting is ongoing but has faced delays due to caribou issues.

7. Selected exploration activities and highlights

Exploration activity and expenditures in 2020 for both the North Central and Northeast regions (Fig. 1; Tables 5, 6) increased compared to 2019. Companies adapted quickly to implement Covid-19 protocols. Large programs included drilling at **Lawyers** (Benchmark Metals Inc.), Kwanika Copper Corporation's **Kwanika** project, Sun Metals Corp.'s **Stardust** project and CTI Plus Resources Ltd.'s **Rocky Creek** coal project.

7.1. Selected precious metal projects

In 2020, the Northeast Region saw no precious metal projects; all were in the North Central Region (Fig. 1; Table 5). Projects included **3Ts** (Independence Gold Corp.), **Golden Lion** (Evergold Corp.), **Lawyers** (Benchmark Metals Inc.), and **Nechako Gold** (Tower Resources Ltd.).

7.1.1. 3Ts (Independence Gold Corp.)

Independence Gold Corp. announced that approximately 2200 m in 11 holes would be drilled in the fall at its **3Ts** project. Drill collar location selection was largely based on an extensive compilation and a 3D geological model of the known epithermal vein system, in addition to magnetic and spectral surveys that were completed in 2019. Highlight results included 3.0 m grading 30.94 g/t Au and 130.0 g/t Ag and 67.6 m grading 3.63 g/t Au and 132.83 g/t Ag.

7.1.2. Golden Lion (Evergold Corp.)

At their **Golden Lion** project, Evergold Corp. reported broad intersections of epithermal mineralization from more than 2500 m of drilling in ten holes at the GL1 "Main" prospect. The company also carried out an IP survey that defined a resistivity and chargeability anomaly encompassing 100s of m of strike length, broad widths, and untested down-dip potential. Results included 73.12 m grading 0.69 g/t Au and 61.70 m grading 0.76 g/t Au.

7.1.3. Lawyers (Benchmark Metals Inc.)

Benchmark Metals Inc. planned to complete up to 100,000 m of diamond drilling in 2020 at their **Lawyers** project (Fig. 3). The project is a regional-scale prospect that follows northwest-trending linear magnetic and radiometric anomalies with multiple gold-silver showings for more than 20 km. The project has four discrete zones (Cliff Creek, Duke's Ridge, Phoenix and AGB) targeted for their bulk tonnage potential. Highlight results included: 57.91 m grading 1.90 g/t Au and 91.96 g/t Ag; 31 m grading 2.98 g/t Au and 72.77 g/t Ag; 128.10 m grading 1.65 g/t Au and 110.02 g/t Ag; and 15 m grading 7.01 g/t Au and 307.9 g/t Ag. Results will be used to prepare a global resource estimate and a preliminary economic assessment in early 2021.

Fig. 3. Lawyers project, drill pad setup. Photo courtesy of Benchmark Metals Inc.

7.1.4. Nechako Gold (Tower Resources Ltd.)

Tower Resources Ltd. completed 1590 m of diamond drilling in 11 holes and 350 m of reverse circulation drilling in 41 holes on epithermal gold and silver targets at their **Nechako Gold** project. Results included 7.1 m of core grading 2.75 g/t Au and 40.2 g/t Ag.

7.2. Selected porphyry projects

Porphyry projects continued to be the principal focus of mineral exploration in the Quesnel and Stikine terranes of

Table 5. Selected exploration projects, North Central Region.

Project	Operator (partner)	Commodity; Deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
3Ts	**Independence Gold Corp.**	Au, Ag; Epithermal Au-Ag: low sulphidation; 093F 055	Tommy and Ted-Mint veins Inf: 5.45 Mt 2.52 g/t Au, 71.5 g/t Ag (at a cut-off grade of 1 g/t Au)	Drilling, 11 DDH, 2200 m. Results included 3.0 m grading 30.94 g/t Au and 130.0 g/t Ag and 67.6 m grading 3.63 g/t Au and 132.83 g/t Ag.
Baptiste (Decar)	**FPX Nickel Corp.**	Ni, Fe; na; 093K 116	Baptiste deposit I: 1996 Mt 0.122% Ni, DTR (Davis Tube Recoverable) Inf: 593 Mt 0.114% Ni, DTR Ni (0.06% Ni cut-off)	New Preliminary Economic Assessment released. Potential for robust operating margins.
Captain	**Orestone Mining Corp.**	Cu, Au; Alkalic porphyry Cu-Au; 093J 026, 094C 180	na	Drilling, three DDH, 942 m.
Dominion Creek	**High Range Exploration Ltd.**	Au, Ag, Zn, Pb; Polymetallic veins Ag-Pb-Zn+/-Au; 093H 133	na	Plans to extract a 10,000 t bulk sample. Nicola Mining Inc. has entered into a mining and profit-sharing agreement with High Range. As part of their due diligence Nicola collected a 9.7 kg grab sample and chip sampled at the Number 16 vein. The grab sample graded 62.1 g/t Au, 320 g/t Ag, 23.4% Pb, and 12.4% Zn. Chip sample results included 0.5 m grading 34.9 g/t Au, 176 g/t Ag, 12.7% Pb, and 8.6% Zn and 0.75 m grading 13.2 g/t Au, 46 g/t Ag, 2.7% Pb, and 2.7% Zn.
East Niv	**Serengeti Resources Inc.**	Cu, Au; Alkalic porphyry Cu-Au	na	Mapping, sampling, and IP geophysical surveys. Data identified a 3.5 km^2 porphyry Cu-Au target area.
Golden Lion	**Evergold Corp.**	Au, Ag; Epithermal Au-Ag: low sulphidation; 094E 077	na	Drilling, 10 DDH, 2500 m and IP surveying. Drill results included 73.12 m grading 0.69 g/t Au and 61.70 m grading 0.76 g/t Au.
Jean Marie	**Pacific Empire Minerals Corp.**	Cu, Au, Ag, Mo; Porphyry Cu±Mo±Au; na	na	Rock sampling, ground geophysics, airborne geophysics and reverse circulation drilling (15 holes, 1692 m). Rock sample results included 8.79 g/t Au, 86.6 g/t Ag, and 1.75% Cu from the newly identified Leap target area, and continuous chip sampling results of 4 m grading 1.37% Cu, 0.08 g/t Au, and 67.4 g/t Ag at C zone south.

Table 5. Continued.

Joy	**Amarc Resources Ltd.**	Cu, Au; Porphyry Cu±Mo±Au; 094E 016, 57	Pine I: historic non NI 43-101 compliant: 70 Mt 0.15% Cu, 0.57 g/t Au (Stealth Mining Corporation 1997)	Project contains the historic Pine deposit and MEX target. Amarc filed a 43-101 report providing details on the project's exploration potential.
Kemess Brownfield	**Centerra Gold Inc.**	Cu, Mo, Au; Porphyry Cu±Mo±Au; 094E 315	Kemess East I: 177.5 Mt 0.36% Cu, 0.4 g/t Au, 1.97 g/t Ag Inf: 29.3 Mt 0.314% Cu, 0.3 g/t Au, 2.00 g/t Ag	Potential to be integrated into the Kemess Underground project. Diamond drilling, 4257 m at Kemess East and 3302 m at Nugget target.
Kliyul	**Pacific Ridge Exploration Ltd.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 094D 023	I: historic non NI 43-101 compliant: 2.3 Mt 1.30 g/t Au, 0.45% Cu, 6.9 g/t Ag	IP and ground magnetic geophysical surveys, sampling and core relogging. Geophysics defined potential to expand Kliyul Main zone and two new targets, Kliyul East and Kliyul West.
Kwanika	**Kwanika Copper Corporation (67% Serengeti Resources Inc., 33% Posco International Corporation)**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 093N 073	Central zone pit M+I: 104.6 Mt 0.23% Cu, 0.21 g/t Au, 0.78 g/t Ag (at a cut-off grade of 0.13% CuEq) Central zone underground M+I: 118.9 Mt 0.30% Cu, 0.29 g/t Au, 0.96 g/t Ag (at a confining shape basis of 0.27% CuEq) South zone pit Inf: 33.3 Mt 0.26% Cu, 0.08 g/t Au, 1.64 g/t Ag, 0.01% Mo	Drilling, nine DDH, 4350 m. Results included 698 m grading 0.40% Cu, 0.65 g/t Au, 1.9 g/t Ag and new deep mineralization that graded 0.15% Cu, 0.2 g/t Au, 0.6 g/t Ag over 150 m.
Lawyers	**Benchmark Metals Inc.**	Au, Ag; Epithermal Au-Ag: low sulphidation; 094E 066	Inf: Cliff Creek N zone 550 Kt 4.51 g/t Au, 209.15 g/t Ag Duke's Ridge zone 58 Kt 4.30 g/t Au, 139.13 g/t Ag	Highlight drilling results included 57.91 m grading 1.90 g/t Au, 91.96 g/t Ag, 31 m grading 2.98 g/t Au, 72.77 g/t Ag, 128.10 m grading 1.65 g/t Au, 110.02 g/t Ag and 15 m grading 7.01 g/t Au, 307.9 g/t Ag.
Max	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 093K 020	na	Drilling, 11 DDH, 5441 m.
McConnell Copper-Gold	**GGL Resources Corp.**	Cu, Au, Ag; Porphyry Cu±Mo±Au; 094D 030	na	20 line-km of IP and ground magnetic surveys over a known porphyry Cu-Au zone.
Mt. Milligan Brownfield	**Centerra Gold Inc.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 093N 194	na	Drilling, 69 DDH, 32,671 m.
Nechako Gold	**Tower Resources Ltd.**	Au, Ag; Epithermal Au-Ag: low sulphidation; 093F 060, 4	na	Drilling, 41 RCH, 350 m, 11 DDH, 1590 m. Results included 7.1 m of core grading 2.75 g/t Au and 40.2 g/t Ag.

Table 5. Continued.

Pil	**Finlay Minerals Ltd.**	Cu, Au, Ag; Porphyry Cu±Mo±Au, Alkalic porphyry Cu-Au; 094E 310, 377	na	Geological mapping and soil and rock sampling. Targets included the Pil South, Copper Ridge, WG, Gold and Spruce zones.
Redton	**Pacific Ridge Exploration Ltd.**	Cu, Au, Ag; Porphyry Cu±Mo±Au	na	Drilling, one DDH, 434 m.
Stardust	**Sun Metals Corp.**	Cu, Au, Ag, Zn; Cu skarn; 093N 009	Canyon Creek I: 985,000 t 1.34% Cu, 1.59 g/t Au, 36.8 g/t Ag, 0.62% Zn	Drilling, 17 DDH, 11,988 m. Results included 1.57% Cu, 1.08 g/t Au, 28.2 g/t Ag over 44 m and 4.45 m grading 5.58% Cu, 5.99 g/t Au, 190.5 g/t Ag.
Thane	**International Mining Corp.**	Cu, Au, Ag; Alkalic porphyry Cu-Au; 094C 181, 72	na	Ground geophysics, alteration mapping, rock, soil, and silt sampling.
Top Cat	**Serengeti Resources Inc.**	Cu-Au; Alkalic porphyry Cu-Au; 094C 174	na	Mapping, sampling, IP surveying and data compilation.
Wicheeda	**Defense Metals Corp.**	Nb, REE; Carbonatite-hosted deposits; 093J 014	I: 4.89 Mt 3.02% LREO Inf: 12.1 Mt 2.90 % LREO Resources at a cut-off grade 1.5% total metal LREO=sum of Ce_2O_{3+} $+La_2O_3+Nd_2O_3+Nd_2O_3$ $+Pr_2O_3+Sm_2O_3$ Total metal % = sum of Ce+La+Nd+Pr+Sm+Nb percentages	Baseline environmental studies, flotation pilot plant studies and a 43-101 report updating resources.

M = Measured; I = Indicated; Inf = Inferred

Table 6. Selected exploration projects, Northeast Region.

Project	**Operator** (partner)	**Commodity; Deposit type; MINFILE**	**Resource (NI 43-101 compliant unless indicated otherwise)**	**Comments**
Flatbed	**Colonial Coal International Corp.**	Coal; Bituminous coal; 0931 049	na	Permitting, First Nations consulting, environmental monitoring and data review.
Huguenot	**Colonial Coal International Corp.**	Coal; Bituminous coal; 093I 036	M+I: 132.0 Mt (in situ surface mineable)	Permitting, First Nations consulting, environmental monitoring and data review.
Rocky Creek	**CTI Plus Resources Ltd.**	Coal; Bituminous coal; 093P 004	na	Drilling, 50, DDH, 818 m, 19 RCH, 3154 m. Coal quality testing. Trench sampling and mapping.
Trend-Roman	**Peace River Coal Inc. (subsidiary of Anglo American plc)**	Coal; Bituminous coal; na	na	Drilling, six DDH, 3204 m. Testing for underground potential near the former Trend-Roman mine.

M = Measured; I = Indicated; Inf = Inferred

the North Central Region (Fig. 1; Table 5). Projects included Orestone Mining Corp.'s **Captain** project, Serengeti Resources Inc.'s **East Niv** and **Top Cat** projects, Pacific Empire Minerals Corp.'s **Jean Marie** project, Amarc Resources Ltd.'s **Joy** project, Centerra Gold Inc.'s **Mount Milligan Brownfield**, **Kemess Brownfield** and **Max** projects, Pacific Ridge Exploration Ltd.'s **Kliyul** and **Redton** projects, Kwanika Copper Corporation's **Kwanika** project, GGL Resources Corp.'s **McConnell Copper-Gold** project**,** Finlay Minerals Ltd.'s **Pil** project and International Mining Corp.'s **Thane** project.

7.2.1. Captain (Orestone Mining Corp.)

Orestone's **Captain** project is 30 km south of the Mt. Milligan mine. Mineralization is hosted in an altered akalic monzonite porphyry. Target areas are outlined by strong magnetic anomalies with spatially associated moderate IP chargeability anomalies that are potentially related to mineralized monzonite porphyries and breccias. In late 2020, a total of 942 m of diamond drilling was completed in three holes.

7.2.2. East Niv (Serengeti Resources Inc.)

Serengeti carried out mapping, sampling, and IP geophysical surveys at their **East Niv** project. New data identified a 3.5 km^2 target area for porphyry Cu-Au mineralization and a drilling program is planned for 2021.

7.2.3. Jean Marie (Pacific Empire Minerals Corp.)

Pacific Empire carried out rock sampling, ground geophysics, airborne geophysics and reverse circulation drilling at their **Jean Marie** project. Rock sample results included 8.79 g/t Au, 86.6 g/t Ag, and 1.75% Cu from the newly identified Leap target area. At the C zone south target area, continuous chip sampling results returned 4 m grading 1.37% Cu, 0.08 g/t Au, and 67.4 g/t Ag. A ground magnetic survey was carried out over C zone south. A total of 1692 m of reverse circulation drilling in 15 holes was carried out at the A zone. A high-resolution airborne magnetic survey along 100 m spaced lines was flown over most of the property.

7.2.4. Joy (Amarc Resources Ltd.)

Amarc Resources Ltd. filed a 43-101 report providing details on the exploration potential of the company's **Joy** porphyry Cu-Au project.

7.2.5. Kemess Brownfield (Centerra Gold Inc.)

Centera drilled at the Kemess East (4257 m) and Nugget (3302 m) targets that are part of their **Kemess Brownfield** project.

7.2.6. Kliyul (Pacific Ridge Exploration Ltd.)

At their **Kliyul** project Pacific Ridge carried out 9.1 line-km of IP and ground magnetometer surveys, surface and drill core sampling to identify alteration and geochemical trends, and historical core re-logging to identify porphyry-style veining. Geophysics outlined potential to expand the Kliyul Main zone and defined two new targets, Kliyul East and Kliyul West. Targets are defined by moderate to high chargeability and resistivity and variable magnetic signatures along a strike length of 1.5 km.

7.2.7. Kwanika (Kwanika Copper Corporation)

Kwanika Copper Corporation (67% Serengeti Resources Inc., 33% Posco International Corporation) was formed in 2017 to continue exploration on the **Kwanika** property. Since 2006, about 82,650 m of drilling has been done on Kwanika (Central and South zones). In 2020, Serengeti completed a nine-hole 4350 m diamond drilling program to test exploration targets and expand the known resource. Posco elected not to participate in the 2020 program and their ownership diluted to 33%. Highlight results included an infill hole that intersected 698 m grading 0.40% Cu, 0.65 g/t Au, and 1.9 g/t Ag, and new deep mineralization that graded 0.15% Cu, 0.2 g/t Au, and 0.6 g/t Ag along 150 m.

7.2.8. Max (Centerra Gold Inc.)

Centerra Gold Inc. drilled 5441 m in 11 holes at their **Max** property. The Max project consists of 12 mineral claims (4869 ha) under option from Jama Holdings Inc., 21 km south of the Mount Milligan mine.

7.2.9. McConnell Copper-Gold (GGL Resources Corp.)

GGL Resources carried out 20 line-km of IP and ground magnetic surveys over a known porphyry Cu-Au zone at their **McConnell Copper-Gold** project. The IP survey follows up on an older reconnaissance IP survey. New work was designed to better define the known chargeability target, and to expand geophysical coverage to evaluate the potential for other nearby targets under overburden cover.

7.2.10. Mt. Milligan Brownfield (Centerra Gold Inc.)

Centerra carried out a 69-hole 32,671 m diamond drilling program.

7.2.11. Pil (Finlay Minerals Ltd.)

At their **Pil** project, Finlay carried out detailed geological, alteration, and structural mapping, and soil and rock sampling. Targets included the PIL South, Copper Ridge, WG, Gold and Spruce zones.

7.2.12. Redton (Pacific Ridge Exploration Ltd.)

At Pacific Ridge's **Redton** project, one 434 m diamond drill hole tested a 550 by 250 m magnetic and IP chargeability anomaly and coincident 500 by 100 m copper-molybdenum soil survey anomaly. The drill hole encountered a magnetite-bearing mafic intrusion and returned no significant copper or gold assays. Sources for the chargeability and the copper-molybdenum soil survey anomalies remain unexplained.

7.2.13. Thane (International Mining Corp.)

IMC International carried out ground geophysics, alteration mapping, and rock, soil, and silt sampling at their **Thane** property to guide future diamond drilling.

7.2.14. Top Cat (Serengeti Resources Inc.)

Mapping and sampling were carried out at the Nova zone at Serengeti's **Top Cat** project. In addition, IP surveying was carried out over the Nova and Cat Mountain zones. Cat Mountain is an advanced gold-copper prospect that has seen more than 10,000 m of historical drilling, with results including grades of 1.15 g/t Au and 0.15% Cu along 95.4 m. Serengeti completed data compilation and 3D modelling for Cat Mountain and interpreted that mineralization potential remains open to the northwest and that there is a potential offset to the southeast.

7.3. Selected polymetallic base and precious metal projects

Active projects included High Range Exploration Ltd.'s **Dominion Creek** project and Sun Metal Corp.'s **Stardust** project, both in the North Central Region (Fig. 1; Table 5).

7.3.1. Dominion Creek (High Range Exploration Ltd.)

High Range Exploration Ltd. announced plans to extract a 10,000 t bulk sample from its **Dominion Creek** property. The sample would be shipped to Nicola Mining Inc.'s mill and Nicola would be responsible for negotiating the sale of concentrate to a smelter or third-party purchaser. Nicola entered into a mining and milling profit share agreement with High Range and signed a letter of intent to acquire 50% of the property and a 75% economic interest. As part of their due diligence, Nicola collected a 9.7 kg grab sample and chip sampled at the Number 16 vein. The grab sample graded 62.1 g/t Au, 320 g/t Ag, 23.4% Pb, and 12.4% Zn. Chip sample results included 0.5 m grading 34.9 g/t Au, 176 g/t Ag, 12.7% Pb, and 8.6% Zn and 0.75 m grading 13.2 g/t Au, 46 g/t Ag, 2.7% Pb, and 2.7% Zn.

7.3.2. Stardust (Sun Metals Corp.)

The **Stardust** property was acquired by Sun Metals in 2017. Historically regarded as a skarn deposit, it was explored intermittently for many years. Historic work included more than 80,000 m of drilling, 5800 soil samples, airborne magnetic surveys, mapping, and prospecting. Mineralization is hosted by the Sowchea, Pope and Copely successions west of the Pinchi fault, in the Cache Creek terrane. In 2018, Sun Metals reported discovering a new zone (421 zone) and drilling results included a 100 m intersection grading 2.51% Cu, 3.03 g/t Au, and 52.5 g/t Ag. In 2020, Sun Metals continued drilling, completing 11,988 m in 17 holes. Work also included geophysical surveys, geotechnical work, and core logging and sampling. Drilling results established continuity between the 421 and Canyon Creek zones along a 900 m corridor of continuous high-grade copper-gold mineralization. Results included 1.57% Cu, 1.08 g/t Au, and 28.2 g/t Ag along 44 m. The 421 zone was also expanded to the south with drilling intersecting 4.45 m grading 5.58% Cu, 5.99 g/t Au, and 190.5 g/t Ag.

7.4. Selected Ni-Cu-Co-precious metal projects

FPX Nickel Corp.'s **Baptiste** project is in the North Central Region (Fig. 1; Table 5).

7.4.1. Baptiste (FPX Nickel Corp.)

FPX Nickel's **Baptiste** project (Fig. 4) contains ultramafic rocks mineralized with a naturally occurring nickel-iron alloy called awaruite. In 2020, FPX Nickel released a new Preliminary Economic Assessment. The project has the potential to be an operation with an average annual production of 99 Mlbs of contained nickel. Baptiste's large scale, combined with operating costs of US$2.74/lb, has the potential to generate average earnings (before royalties, taxes and depreciation) of US$481 million per year and an after-tax Net Present Value of US$1.7 billion. Tailings produced by the proposed mining and milling process have potential to sequester significant quantities of CO_2.

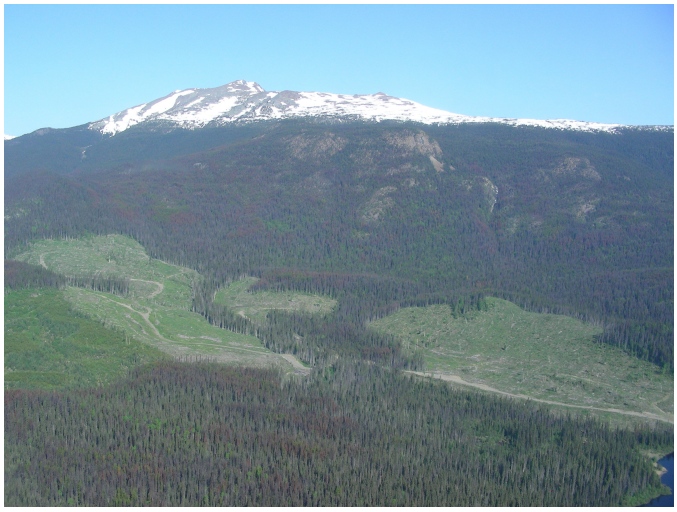

Fig. 4. Baptiste project area. Photo courtesy of FPX Nickel Corp.

7.5. Selected specialty metal projects

Deep-water basin strata east of the Rocky Mountain Trench host a number of specialty metal projects, including Taseko Mine Ltd.'s **Aley** niobium-bearing carbonatite proposed mine (see section 6.1.1.) and Defense Metals Corporation's **Wicheeda** light rare eaarth element (LREE) project (Fig. 1; Table 5).

7.5.1. Wicheeda (Defense Metals Corp.)

Defense Metals Corp. filed an updated 43-101 technical report, began baseline environmental studies, and carried out flotation pilot plant studies for its **Wicheeda** rare earth element project. The updated report includes an Indicated mineral resource of 4.89 Mt averaging 3.02% Light Rare Earth Oxide (LREO) and an additional Inferred mineral resource of 12.1 Mt averaging 2.90% LREO. LREO % equals sum of light rare earth elements expressed as oxides

$Ce_2O_3 + La_2O_3 + Nd_2O_3 + Nd_2O_3 + Pr_2O_3 + Sm_2O_3$. Resources reported at a cut-off grade of 1.5% total metal. Total metal % equals the sum of Ce+La+Nd+Pr+Sm+Nb percentages.

The Wicheeda carbonatite is a deformed intrusion that hosts light rare earth elements (LREE) in the Kechika Group. The core of the intrusion is a dolomite carbonatite, which transitions outward to a calcite carbonatite. Hydrothermal veins and plugs in the dolomite carbonatite are mineralized with REE flourocarbonates, ancylite (cerium, lanthanum) and monazite (cerium, lanthanum, neodymium). Minor concentrations of niobium are present as well.

7.6. Selected coal projects

In 2020, coal exploration in the Northeast Region included Colonial Coal International Corp.'s **Flatbed** and **Huguenot** projects, CTI Plus Resources Ltd.'s **Rocky Creek** project, and Peace River Coal Inc.'s **Trend-Roman** project.

7.6.1. Flatbed and Huguenot (Colonial Coal International Corp.)

Colonial Coal's **Flatbed** project is adjacent to the former Trend mine; the **Huguenot** project is south of Trend. In 2020, work on these projects consisted primarily of permitting, First Nations consulting, environmental monitoring, and data review.

For **Huguenot**, Measured and Indicated surface mineable coal resources total 132.0 Mt, with an additional Inferred resource of 0.5 Mt. A conceptual open pit would yield 72 Mt of product coal during a mine life of 27 years.

7.6.2. Rocky Creek (CTI Plus Resources Ltd.)

At their **Rocky Creek** project, CTI Plus Resources Ltd. drilled 50 diamond-drill holes totalling 818 m and 19 reverse circulation holes totalling 3154 m. Diamond drilling included both HQ and PQ core. Coal seams were sampled and sent for testing. Also, ten trenches were geologically mapped and sampled. Data will be used for a feasibility study.

7.6.3. Trend-Roman (Peace River Coal Inc.)

Peace River Coal Inc. (a subsidiary of Anglo American plc) carried out a six hole diamond drilling program totalling 3204 m near the **Trend-Roman** mine, which closed in 2014. The program was designed to test underground potential near the former mine.

7.7. Selected industrial mineral projects

Apart from the proposed **Giscome** limestone quarry (see section 6.3.1.), no significant industrial mineral exploration projects were tracked.

8. Geological research

Logan et al. (2020) reviewed the geology of Hogem batholith and related porphyry deposits. Work on a multi-year mapping project in the northern part of Hogem batholith designed to better understand the origin and timing of batholith emplacement and base- and precious-metal mineralization continued with the release of geochemical, isotopic, and geochronologic data by Ootes et al. (2020) and Jones et al. (2021) and a surficial geology summary by Ferbey and Elia (2021). Nixon et al. (2020a) reviewed magmatic Ni-Cu-PGE deposits hosted by Alaskan-type ultramafic-mafic intrusions in the Canadian Cordillera, including Polaris and Turnagain. Nott et al. (2020) published a detailed (1:15,000) map of the Polaris intrusion, and Nixon et al. (2020b) reported new U-Pb zircon and $^{40}Ar/^{39}Ar$ ages from the Turnagain intrusion.

9. Summary

The North Central and Northeast regions are highly prospective for discovering mineral deposits. The North Central Region has three proposed metal mine projects and one proposed industrial mineral mine project. The Northeast Region has several proposed coal mine projects and one proposed industrial mineral mine project. The North Central Region has several active mineral exploration projects whereas in the Northeast Region the predominant commodity explored for is coal. In 2020, despite initial interruptions due to Covid-19, exploration expenditures increased in both regions.

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Exploration and mining in the South Central Region, British Columbia

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1. Introduction

With four major mines in operation, the South Central Region is currently the most productive copper mining district in Canada. The region's varied geology, well-established infrastructure, and access to markets also make it an important industrial minerals centre. The Cariboo area is the province's largest placer gold camp, with active permits numbering in the hundreds. Thermal coal resources in Cenozoic basins were last mined in 2013.

The region has four major proposed metal mines and a proposed small gold mine re-start. About 80 exploration projects were tracked in 2020, although this represents a minimum because not all exploration work is recorded.

Estimates for exploration expenditures, drilling programs, and other metrics were captured in the British Columbia Mineral and Coal Exploration Survey, a joint initiative of the Province of British Columbia Ministry of Energy, Mines and Low Carbon Innovation, the Association for Mineral Exploration in British Columbia, and EY LLP. For the South Central Region, exploration expenditures were estimated at $69.3 million and exploration drilling was estimated at approximately 212,010 m (Clarke et al., 2021; EY LLP, 2021).

After a pause in the spring, as industry and regulators developed Covid-19 protocols, exploration activity resumed at many projects, while others deferred work. Gold exploration for selected projects was well funded, and the discovery of porphyry mineralization in the Aspen Grove area demonstrated that a fresh geological interpretation in a relatively well-explored district can still generate significant new targets. The total area under tenure in the region increased about 14% between November 2019 and November 2020 to nearly 2.96 million ha.

2. Geological overview

The tectonic and metallogenic evolution of the Canadian Cordillera are intimately linked (Fig. 1, e.g., Nelson et al., 2013). The South Central Region straddles three of British Columbia's five morphogeological belts (from west to east: Coast; Intermontane; Omineca). The mid-Mesozoic and older geological framework is represented by cratonic and pericratonic rocks in the east, and a series of Late Paleozoic through mid-Mesozoic arc and oceanic terranes to the west (Fig. 1). Younger rocks include Jura-Cretaceous siliciclastic and local volcanic rocks, Eocene volcanic rocks, Neogene and Quaternary basalt, and Middle Jurassic to Eocene granitic intrusions.

The oldest rocks in the region are Paleoproterozoic basement gneiss complexes at the eastern boundary, such as in the Monashee complex. These are interpreted as parts of the North American craton (Armstrong et al., 1991), overlain by Neoproterozic to Paleozoic cover deposited following rifting that formed the western margin of Ancestral North America (McDonough and Parrish, 1991; Murphy et al., 1991). To the northwest, the Cassiar terrane consists of Neoproterozoic to mid Paleozoic siliciclastic and carbonate rocks interpreted as distal facies of the North American platform (Struik, 1988a). Also affiliated with Ancestral North America, the Kootenay terrane (deep-water basin strata on Figure 1) include Neoproterozoic to mid-Paleozoic deep-water facies equivalents deposited west of the North American platform. Lower Cambrian and older rocks are similar to North American strata to the east, but the overlying lower Paleozoic succession is characterized by units of coarse siliciclastic and mafic volcanic rocks that may reflect intermittent crustal extension (Colpron and Price, 1995). This belt also includes Devono-Mississippian calc-alkaline to alkalic volcanic rocks and associated granitoid intrusions, found mainly in the Eagle Bay assemblage (Schiarizza and Preto, 1987), which reflect the initiation of east-dipping subduction beneath the North American plate margin. These rocks host polymetallic volcanogenic massive sulphide (VMS) occurrences, and the **Yellowhead** bulk tonnage copper deposit. Slide Mountain terrane is the easternmost tract of oceanic rocks in the Canadian Cordillera. These rocks may be the remnant of a Late Paleozoic marginal basin that formed behind a westward-retreating volcanic arc in Quesnel terrane. The Fennell Formation hosts copper-zinc-silver massive sulphide mineralization at the **Chu Chua** occurrence.

Quesnel terrane is a Late Triassic to Early Jurassic island arc complex (e.g., Mortimer, 1987; Struik, 1988a, b; Unterschutz et al., 2002). It also includes a Late Paleozoic arc sequence,

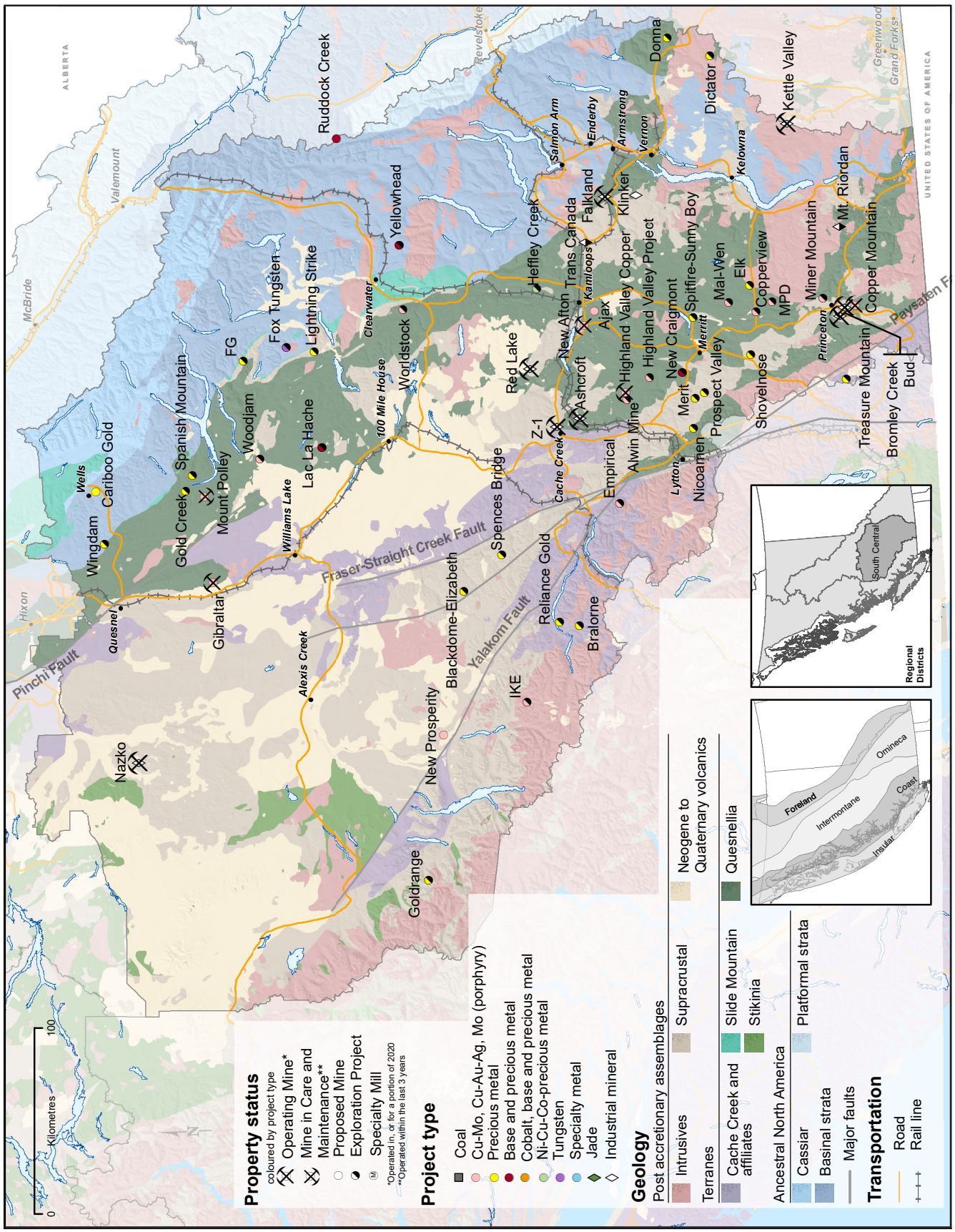

Fig. 1. Mines, proposed mines, and selected exploration projects, South Central Region, 2020. Terranes from Nelson et al. (2013).

represented by the Harper Ranch Group (Beatty et al., 2006) and, in the south, assemblages of oceanic rocks (Tempelman-Kluit, 1989). The Mesozoic rocks are represented mainly by Middle to Upper Triassic volcanic and sedimentary rocks of the Nicola Group, together with abundant Upper Triassic to Lower Jurassic calc-alkaline to alkaline intrusions (Preto, 1977, 1979; Mortimer, 1987; Panteleyev et al., 1996; Schiarizza et al., 2013). The Nicola Group consists mainly of volcanic and volcanic-derived sedimentary rocks, but also includes siltstone and slate intercalated with quartzite and limestone (Bloodgood, 1990; Schiarizza et al., 2013; Mihalynuk et al., 2015; Schiarizza, 2019; Mihalynuk and Diakow, 2020). The volcanic rocks are mainly augite-phyric shoshonitic basalts, but the western part of the group locally includes a belt of calc-alkaline volcanic rocks with substantial amounts of rhyolite and dacite (Mortimer, 1987; Preto, 1977, 1979). A younger stratigraphic component of Quesnel terrane consists of Lower to Middle Jurassic sedimentary rocks that unconformably overlie the western parts of the Nicola Group (Travers, 1978; Logan and Moynihan, 2009; Schiarizza et al., 2013).

Quesnel terrane is metallogenically important for its porphyry copper deposits (e.g., Logan, 2013; Logan and Mihalynuk, 2014). The plutons that host these deposits conform, in part, to a pattern defined by parallel belts of calc-alkaline and alkalic plutons that become progressively younger from west to east (Schiarizza, 2014). The western (Late Triassic) calc-alkaline belt includes the Guichon Creek batholith, host to the **Highland Valley Copper** copper-molybdenum mines, and the Granite Mountain batholith, host to the **Gibraltar** copper-molybdenum mine. A well-defined belt farther east comprises younger, latest Triassic alkalic plutons, which host alkalic porphyry copper-gold deposits, including producing mines at **Copper Mountain** and **New Afton** and the **Mount Polley** mine, which is currently on care and maintenance. A third belt, younger and farther to the east, is defined by several large, Lower Jurassic calc-alkaline plutons.

Cache Creek terrane, consisting of Carboniferous to Early Jurassic chert, argillite, basalt, limestone, sandstone, gabbro, and serpentinized ultramafic rocks of the Cache Creek complex, forms a belt to the west of Quesnel terrane in the central and northern parts of the region. It is interpreted, at least in part, as a subduction complex responsible for generating the Quesnel magmatic arc (Travers, 1978; Struik et al., 2001).

Cadwallader terrane, as interpreted by Schiarizza (2013), underlies parts of the Intermontane and eastern Coast belts, west of Cache Creek and Quesnel terranes. It includes a Late Permian-Early Triassic primitive oceanic arc complex, and an overlying Late Triassic-Middle Jurassic arc complex and associated siliciclastic apron.

Bridge River terrane occurs in the eastern Coast belt, west of Lytton and Lillooet, where it is partially enveloped by Cadwallader terrane. It is represented mainly by the Bridge River complex, comprising structurally interleaved slivers of chert, argillite, basalt, blueschist, gabbro, serpentinite, limestone, and sandstone (Schiarizza et al., 1997). Both Cadwallader and Bridge River terranes are shown as 'Cache Creek affiliates' on Figure 1.

Stikine terrane is a mid-Paleozoic to Middle Jurassic arc terrane that is markedly similar to Quesnel terrane, and forms a predominant component of the Cordillera in central and northern British Columbia. It is represented in the northwestern part of the South Central Region by a few scattered exposures of volcanic and sedimentary rocks correlated with the Hazelton Group (Upper Triassic to Middle Jurassic; Tipper, 1959, 1969). Younger stratigraphic units overlap older terranes and cover large parts of the region. These units include: Upper Jurassic to Upper Cretaceous siliciclastic rocks of the Tyaughton-Methow basin, which overlap Cadwallader and Bridge River terranes in the eastern Coast belt (Schiarizza et al., 1997); and mid-Cretaceous arc volcanic rocks of the Spences Bridge Group, which form a northwest-trending belt that overlaps Quesnel and Cache Creek terranes in the Merritt-Lillooet area (Monger and McMillan, 1989), and continues westward across the Fraser River where it overlaps Cadwallader and possibly Stikine terranes (Mahoney et al., 2013). Eocene volcanic and subordinate sedimentary rocks (e.g., Kamloops Group, Penticton Group, Princeton Group) are predominant in some locations. Neogene basalt of the Chilcotin Group overlaps Quesnel, Cache Creek, Cadwallader, and Stikine terranes throughout much of the central part of the region (Dohaney et al., 2010). Granitic plutons, ranging from late Middle Jurassic to Eocene, occur throughout the region and, in some cases, are responsible for significant mineralization (e.g., **IKE**, **New Prosperity**).

3. Mines and quarries

The region produces copper, molybdenum, gold, and silver from four large mines, and a variety of industrial minerals (bentonite, zeolite, diatomaceous earth, gypsum, pumice, opal, and dimension stone) from about ten quarries. Almost 1000 placer mines and gravel pits have active permits, but not all produce in any given year.

3.1. Metal mines

The South Central Region hosts five of the province's metal mines (Fig. 1; Table 1). These include the province's two largest copper-molybdenum producers (**Gibraltar** and **Highland Valley Copper**) and two major copper-gold mines (**New Afton** and **Copper Mountain**). A third copper-gold producer, **Mount Polley**, has been on care and maintenance since 2019, awaiting a sustained improvement in copper prices. The region hosts one precious metal mine, **Bonanza Ledge**, which is undergoing development and permitting for its next phase of production.

3.1.1. Bonanza Ledge (Osisko Development Corp.)

Barkerville Gold Mines Ltd. (now under Osisko Development Corp.) restarted the **Bonanza Ledge** mine (Fig. 1; Table 1) in 2017 as an underground long-hole and cemented fill operation below the existing pit. The mine operated in 2018 but mining and milling were suspended in December of that year.

Table 1. Metal mines, South Central Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Bonanza Ledge	**Osisko Development Corp**.	Au; Au-quartz veins; 093H 140	nil	na	Bonanza Ledge M: 240,000 t 5.1 g/t Au I: 86,000 t 3.9 g/t Au BC Vein I: 1,192,000 t 4.7 g/t Au Inf: 472,000 t 3.9 g/t Au	Phase II in development and permitting.
Copper Mountain	**Copper Mountain Mining Corporation 75%**, Mitsubishi Materials Corporation 25%	Cu, Au, Ag; Porphyry Cu-Au, Alkalic; 092HSE001	70-75 Mlb Cu+Au, Ag (management's guidance)	P+Pr: 462.339 Mt 0.23% Cu, 0.10 g/t Au, 0.72 g/t Ag	M+I: 645.395 Mt 0.20% Cu, 0.10 g/t Au, 0.50 g/t Ag Inf: 323.502 Mt 0.20% Cu, 0.10 g/t Au, 0.50 g/t Ag	Deep drilling intersected mineralization at Ingerbelle. New 21-year life of mine plan with higher throughput Nov. 2020. Resources inclusive of reserves.
Gibraltar	**Taseko Mines Limited 75%**, Sojitz Corp. 12.5%, Dowa Holdings Co. Ltd. 6.25%, Furukawa Co. Ltd. 6.25%	Cu, Mo; Porphyry Cu+/-Mo+/-Au; 093B 012	130 Mlb Cu (±5%) + Mo (management's guidance)	P+Pr: 564 Mt 0.25% Cu, 0.008% Mo	M+I: 1081 Mt 0.25% Cu, 0.007% Mo	Resources inclusive of reserves. Exploration drilling in 2020.
Highland Valley	**Teck Resources Limited**	Cu, Mo; Porphyry Cu+/-Mo+/-Au; 092ISW012, 45	120,000-125,000 t Cu and 3.4-4.0 Mlbs Mo (management's guidance)	P+Pr: 484 Mt 0.31% Cu, 0.007% Mo	M: 552.3 Mt 0.29% Cu, 0.008% Mo I: 861.6 Mt 0.23% Cu, 0.009% Mo Inf: 270.5 Mt 0.20% Cu, 0.008% Mo	2040 extension plan under consideration.
Mount Polley	**Imperial Metals Corporation**	Cu, Au, Ag; Porphyry Cu-Au, Alkalic; 093A 008	nil	P+Pr: 53.772 Mt 0.34% Cu, 0.90 g/t Ag	M+I open pit: 186.9 Mt 0.27% Cu, 0.28 g/t Au, 0.49 g/t Ag Inf: 4.6 Mt 0.18% Cu, 0.21 g/t Au, 0.39 g/t Ag M+I underground: 7.42 Mt 0.94% Cu, 0.35 g/t Au, 6.57 g/t Ag Inf: 1.019 Mt 1.25% Cu, 0.58 g/t Au, 10.29 g/t Ag	Estimates were effective 2016. On care and maintenance since May 2019. Current reserves would support about 6 years operation. Exploration ongoing (drilling, IP in 2020).

Table 1. Continued.

New Afton	**New Gold Inc.**	Au, Ag, Cu; Porphyry Cu-Au, Alkalic; 092INE023	Approximately 65-75 Mlbs Cu and 62,000-72,000 oz Au including Ag by-product (management's guidance)	P+Pr: 47.301 Mt 0.66 g/t Au, 1.9 g/t Ag, 0.77% Cu	M+I: 57.008 Mt 0.61 g/t Au, 2.1 g/t Ag, 0.74% Cu Inf: 14.022 Mt 0.38 g/t Au, 1.3 g/t Ag, 0.42% Cu	M+I resources are exclusive of reserves. Exploration is ongoing at Cherry Creek 3 km west of mine and regionally.

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

Underground development and permitting have been underway for the Bonanza Ledge Phase II project since mid-2019. Phase II will exploit the BC vein for a projected two years at a targeted rate of 650 tpd. About 2600 m of development are necessary, some of which will be in ore. In addition to the development, they require Mines Act and Environmental Management Act permit amendments at both the mine and mill to re-commence production. As of mid 2020 they expected to produce in 2021 with a two-year mine plan. Bonanza Ledge is part of the larger **Cariboo Gold** project, a proposal for a larger 15-year mining operation to the north.

Two types of mineralization are of interest at Bonanza Ledge: pyrite replacement and vein, which consists of native gold in quartz veins cutting pyrite-bearing, carbonaceous and chloritic phyllite of the Snowshoe Group (Proterozoic- Paleozoic).

3.1.2. Copper Mountain (Copper Mountain Mining Corporation 75%; Mitsubishi Materials Corporation 25%)

The **Copper Mountain** copper-gold open-pit mine (Fig. 1; Table 1), has produced since August 2011 and mills at a rate of close to 40,000 tpd. Addition of a third ball mill in 2020 is to increase the rate to 45,000 tpd in 2021. Expected production in 2020 is 70-75 Mlb Cu. In the first three quarters it produced 54.5 Mlbs Cu, 20,268 oz Au and 247,560 oz Ag. Mill expansion, to 65,000 tpd, is to be commissioned in 2024. The new projected mine life is 21 years based on current reserves.

Exploration drilling at the New Ingerbelle pit included about 4000 m in five holes. The holes tested the depth of mineralization; one hole returned 585 m grading 0.33% Cu, 0.21 g/t Au, and 0.45 g/t Ag, and another 120 m grading 0.69% Cu, 0.37 g/t Au, and 1.55 g/t Ag. New Ingerbelle reserves were added to Copper Mountain's mine plan in 2019.

The **Copper Mountain** ore bodies are Late Triassic alkalic porphyry Cu-Au deposits, mainly in Nicola Group rocks (Triassic) intruded by the high-level Copper Mountain intrusions (Upper Triassic). Holbek et al. (2015, 2020) described the deposit as an alkalic porphyry Cu-Au system with strong vertical continuity.

3.1.3. Gibraltar (Taseko Mines Limited 75%; Cariboo Copper Corp. 25%)

The **Gibraltar** copper-molybdenum open-pit mine (Fig. 1; Table 1) is operated by Taseko Mines Limited and Cariboo Copper Corp., whose 25% interest is divided between Sojitz Corp. (12.5%), Dowa Holdings Co. Ltd. (6.25%) and Furukawa Co. Ltd. (6.25%). Production began in 1972 but was suspended from 1999 to 2003. Taseko restarted the mine in 2004 and carried out modernization between 2009 and 2012, which included expanding mill capacity to 85,000 tpd, and building a separate molybdenum circuit. In 2013, the mine completed its first full year of operation after this modernization.

Gibraltar is projected to produce 130 Mlb (±5%) Cu in 2020. By the end of the third quarter, the company had produced 98.1 Mlb Cu and 1.72 Mlb Mo. Reserves as of December 2019 (Table 1), support a 20-year projected mine life. Taseko has a multi-year permit for exploration north and northwest of the mine. They reported about 4000 m of mostly diamond drilling in 2020 (Table 1).

Ore comes from five pits (Connector, Gibraltar, Granite, Extension, and Pollyanna), but not all operate each year. Granite and Polyanna produced in 2020 and the Gibraltar pit is scheduled for mining in 2021. The calc-alkaline porphyry Cu-Mo deposit is in the Granite Mountain batholith (Upper Triassic; van Straaten et al., 2013; Schiarizza and Friedman, 2021a) in a fault-bounded section of Nicola Group and Dragon Mountain succession volcanic and sedimentary rocks (Quesnel terrane; Schiarizza 2014, 2015, van Straaten et al., 2020) bounded by Cache Creek terrane rocks to the east and west.

3.1.4. Highland Valley Copper (Teck Resources Limited)

Ore from the **Highland Valley Copper (HVC)** copper-molybdenum mine (Fig. 1; Table 1) comes from the Highmont East, Valley and Lornex pits, three of seven in the camp. Projected 2020 production is 120,000-125,000 t Cu and 3.4-4.0 Mlbs Mo in concentrate. Three-year guidance (2021-23) is 145,000-165,000 tpy Cu and 3.0-4.5 Mlbs/y Mo. After 2023, copper production is to average about 150,000 tpy to the end of the current mine plan in 2027.

Mining in the Highland Valley camp began at the Bethlehem Mine in 1962. Bethlehem was last active in 1982 but Teck proposes to return to the area as an extension project, with pushback and deepening of the Jersey and Iona pits and extracting 137 Mt of ore with average grades of 0.287% Cu and 0.0048% Mo. The HVC Bethlehem Extension now has a Mines Act permit.

The HVC 2040 extension project is at the pre-feasibility

stage. If implemented, it could extend mine life 13 years to 2040 or beyond and raise the average production rate to 175,000 tpd. Annual production of copper would increase 25% to 182,700 Mt and production of molybdenum would increase 93% to 8.5 Mlbs. Pre-feasibility level engineering suggests the project is viable and it entered the environmental assessment process in 2019.

All mineralization at Highland Valley is calk-alkaline Cu-Mo type in the Guichon Creek batholith (Upper Triassic), which has been divided into several pre-, syn- and post-mineral phases (see Byrne et al., 2013, 2020).

3.1.5. Mount Polley (Imperial Metals Corporation)

Mount Polley is a 20,000 tpd open-pit operation that also has underground resources (Fig. 1; Table 1). Opened in 1997, operations were suspended in 2001 when copper prices were low. It reopened in 2005, but a tailings dam breach forced another suspension in 2014-15. It has been on care and maintenance since May 2019 because of low copper prices. Current reserves would sustain six to seven years of mining at previous rates.

Rehabilitation work on Hazeltine Creek is ongoing. Exploration in 2020 included an 81.5 line-km IP survey and fall-winter drilling in the Frypan/Morehead area northwest of the mine. An IP survey over the mine site guided interpretation of the exploration area survey. Magnetic and soil surveys also helped prioritize targets. The company has a multi-year permit for drilling and completed approximately 4000 m in 6 holes in 2020.

The deposits at **Mount Polley** are alkalic porphyry Cu-Au in the syenitic to monzodioritic Polley stock (Upper Triassic-Lower Jurassic), which intrudes Nicola Group volcanic rocks. At least eight discrete mineralized zones have contributed to production or host resources (see Rees, 2013, Brown et al., 2016; Rees et al., 2020).

3.1.6. New Afton (New Gold Inc.)

The **New Afton** gold-copper mine (Fig. 1; Table 1) is a block cave operation that opened in mid-2012 (Hall and May, 2013). The known New Afton deposits form a high-grade keel beneath the past-producing (1978-1997) Afton open-pit mine, an alkalic porphyry in the Iron Mask batholith (Upper Triassic). In 2015, the company installed a 14,000 tpd mill. The mine produced 53.6 Mlbs copper and 47,858 oz Au in the first three quarters of 2020. Guidance for the year is 190,000 to 220,000 Au equivalent oz, or approximately 65-75 Mlbs Cu and 62,000-72,000 oz Au including Ag by-product. As of the end of Q3 they expected to finish in the middle of this guidance range.

Underground drilling included delineation of the East Extension zone. Surface drilling started in late October on the Cherry Creek trend, 3 km west of the mine's mill. Phase 1 is a 10,000 m program to test both epithermal and porphyry targets along a 12 km trend. New Gold also carried out soil surveys and mapping on the broader claim block. The main targets are alkalic porphyry Cu-Au hosted by the Iron Mask batholith and volcanosedimentary rocks of the Nicola Group (Upper Triassic; Lipske et al., 2020).

3.2. Selected industrial mineral mines

More than a dozen industrial mineral quarries and processing plants are in the region (Fig. 1; Table 2). In addition, nearly 300 sand and gravel pits and 45 quarries have active Mines Act permits, although many are intermittently active.

3.2.1. Ashcroft (IG Machine and Fiber Ltd.)

IG Machine and Fiber Ltd, a subsidiary of IKO Industries Ltd, operates the **Ashcroft** basalt quarry and roofing granule plant. They began production in 2001 and now typically produce around 300,000 tpy. The quarry is permitted to mine 500,000 tpy and about 60% is processed into granule products. It has reserves of about 13.3 Mt.

3.2.2. Harper Ranch and Falkland (Lafarge Canada Inc.)

After operating intermittently for many years supplying cement to western Canada, the Kamloops cement plant and **Harper Ranch** limestone quarry of Lafarge Canada Inc. are now on care and maintenance. The facility will continue to serve as a distribution point for cement produced in Alberta. Apart from limestone, the cement plant used gypsum and anhydrite mined at the **Falkland** quarry, which still supplies gypsum for other uses including agriculture.

3.2.3. Kettle Valley quarries (Kelowna Sand and Gravel Ltd.)

Decorative rock and dimension stone are produced from small quarries throughout the region. Kelowna Sand and Gravel Ltd. mines gneiss, dacite tuff, and basalt at the Nipple Mountain, Kettle Valley, Canyon, and Gemini quarries and has been issued permits to explore other sites. Kettle Valley Stone Company of Kelowna produces flagstone, ashlar, facing stone, and landscape rock.

3.2.4. Nazko (Canlava Mining Corp.)

Canlava Mining produces red and black scoria from the **Nazko** quarry for geotechnical and other applications requiring lightweight fill. It is also sold for landscaping.

3.2.5. Red Lake and Bud (Absorbent Products Ltd.)

Absorbent Products Ltd. produces diatomaceous earth from the **Red Lake** quarry, and bentonite from the **Bud** quarry to manufacture cat litter, barn deodorizer, industrial absorbents, and carriers for agricultural products at their plant in Kamloops.

3.2.6. Bromley Creek (International Zeolite Corp.)

In 2014, Canadian Mining Company Inc. a subsidiary of International Zeolite, concluded its option agreement with Heemskirk Canada Ltd and regained control of the **Bromley Creek** zeolite quarry. Absorbent Products Ltd. mines zeolite

Table 2. Selected industrial mineral mines and quarries, South Central Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Ashcroft	**IG Machine and Fibers Ltd. (IKO Industries Ltd.)**	Basalt (roofing granules); 092INW104	300,000 t (approx. target)	na	Approx. 13.3 Mt in 2002	Typically mines 500,000 t with 60% processed into granule products.
Bromley Creek (Zeotech)	**Absorbent Products Ltd. (owner International Zeolite Corp.)**	Zeolite; Open system zeolites; 092HSE243	na	na	M+I: (as of 2013-06-30): 550,000 t	
Bud	**Absorbent Products Ltd.**	Bentonite; 092HSE162	na	na	na	
Falkland	**Lafarge Canada Inc.**	Gypsum; 082LNW001	na	na	na	Finding alternate uses since closure of Lafarge's Kamloops cement plant.
Kettle Valley Quarries	**Kelowna Sand and Gravel Ltd./Kettle Valley Stone Company**	Ashlar, flagstone, thin veneer; 082ENW109, 111, 112	na	na	na	
Klinker	**Opal Resources Canada Inc.**	Opal; 082LSW125	Intermittent operation	na	na	
Nazko	**CanLava Mining Corporation**	Lava Rock; Cinder cone; 093B 060	na	na	Historical: 45 Mt	
Red Lake	**Absorbent Products Ltd.**	Diatomaceous earth; Lacustrine diatomite; 092INE081	na	na	na	
Z-1	**Progressive Planet Solutions Inc.**	Zeolite; Open system zeolites; 092INW095	na	na	Approx. 800,000 t	Historical resource.

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

with agricultural and absorbent applications from the quarry. International Zeolite reported a decrease in sales, which they attribute to the Covid-19 pandemic.

3.2.7. Z-1 (Progressive Planet Solutions Inc.)

The **Z-1** mine is now owned by Progressive Planet Solutions, formerly Ashburton Ventures Inc. ZMM Canada Minerals Corp. is the operator. Their product is currently used as an agricultural feed additive, a growth medium, a filtration medium, a component of lightweight concrete, and for soil remediation.

4. Placer mines

The region has more than 650 placer mines. Most of these operations are small, intermittent or seasonal, and production data are not available.

5. Mine development

Mine development projects are those that have a positive production decision and key government approvals and on-site construction has begun. No major projects meet these criteria in the South Central Region.

6. Proposed mines

Proposed mines are defined as feasibility-stage projects for which the process of formal socioeconomic and environmental review has begun. For projects that exceed thresholds set by the British Columbia Environmental Assessment Act (or its federal equivalent), reviews are coordinated by the British Columbia Environmental Assessment Office and Canadian Environmental Assessment Agency. Smaller projects are reviewed by an interagency Mine Development Review Committee (MDRC) chaired by the Ministry of Energy, Mines and Low Carbon Innovation. Four projects are in this category: **Ajax**, **Cariboo Gold**, **New Prosperity**, **Ruddock Creek** (Fig. 1; Table 3). Two projects, Taseko Mines Limited's **Yellowhead** and Spanish Mountain Gold Ltd.'s **Spanish Mountain** are active but have terminated or withdrawn environmental assessments. **Ajax** was rejected by both provincial and federal levels of government, and New Prosperity's provincial certification may expire in early 2021, having been extended 12 months. In none of these cases has the operator abandoned their project.

6.1. Ajax (KGHM Ajax Mining Inc.)

The **Ajax** porphyry copper-gold project, owned by KGHM Ajax Mining Inc., is an 80:20 joint venture between KGHM Polska Miedź S.A. and Abacus Mining and Exploration Corporation. Mineralization is in the Iron Mask batholith, a multi-phase Triassic alkalic intrusive complex. A revised Feasibility Study released in 2016 modelled Ajax as a 65,000 tpd open-pit mine with a projected 18-year life. In December 2017, the project was denied certification by the British Columbia Ministries of Environment and Climate Change Strategy and Energy, Mines and Petroleum Resources. In June 2018, the Ministers of Natural Resources and Fisheries, Oceans and the Canadian Coast Guard denied federal certification. Although KGHM Ajax has not announced plans for the site, Abacus issued an update stating that the project remains a priority and that they have begun re-engaging those potentially affected by it and considering whether to reapply for environmental certification.

6.2. Cariboo Gold (Osisko Development Corp.)

Barkerville Gold Mines Ltd., operator of the **Cariboo Gold** project, became a subsidiary of Osisko Gold Royalties Ltd. in 2019. In 2020, Osisko placed the project in a new company, Osisko Development Corp. and raised funds to advance its projects.

The project entered the early engagement phase of the

Table 3. Selected proposed mines or quarries, South Central Region.

Project	**Operator** (partner)	**Commodity; deposit type; MINFILE**	**Reserves**	**Resource**	**Comments**
Ajax	**KGHM Ajax Mining Inc. (KGHM Polska Miedź SA 80%, Abacus Mining and Exploration Corporation 20%)**	Cu, Au; Alkalic porphyry; 092INE012, 13	P+Pr (NSR cut-off US$7.10/t): 426 Mt 0.29% Cu, 0.19 g/t Au, 0.39 g/t Ag	M+I (NSR cut-off US$7.10/t): 568 Mt 0.26% Cu, 0.18 g/t Au, 0.35 g/t Ag	Environmental certification denied by provincial (2017) and federal ministers (2018). Proponents are investigating a possible re-submission.
Cariboo Gold Project	**Osisko Development Corp.**	Au; Au-quartz veins; 093H 140, 139, 19, 6	na	M+I: 21.441 Mt 4.6 g/t Au Inf: 21.649 Mt 3.9 g/t Au	Updated project description has average production rate of 4750 tpd and mine life up to 15 years. Ongoing exploration drilling.
New Prosperity	**Taseko Mines Limited**	Cu, Au; Porphyry; 092O 041	P+Pr (NSR cut-off $5.50/t): 831 Mt 0.23% Cu, 0.41 g/t Au containing (recoverable) 3.6 Blb Cu, 7.7 Moz Au	M+I (cut-off 0.14% Cu): 1010 Mt 0.24% Cu, 0.41 g/t Au	Granted provincial environmental certificate and time extensions but denied federal approval. Taseko and Tŝilhqot'in Nation in discussion.
Ruddock Creek	**Ruddock Creek Mining Corporation (Imperial Metals 45.3%, Mitsui Mining and Smelting Co. 30%, ITOCHU Corp. 20%, JOGMEC 4.7%)**	Pb, Zn, Ag; Broken Hill-type; 082M 082	na	M+I (cut-off 4.0% Pb+Zn): 6.2 Mt 6.50% Zn, 1.33% Pb Inf: 6.678 Mt 6.33% Zn, 1.20% Pb	Project at environmental assessment pre-application stage. Feb 2013 resource, prior to 2018-2019 drilling.

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

provincial environmental assessment process in 2019. In 2020, Osisko submitted a revised project description to the British Columbia Environmental Assessment Office. Proposed average production rate is 4750 tpd with a projected mine life up to 15 years. Revised resource estimates in all zones at a 2.1 g/t Au cut-off total was 21.441 Mt at 4.6 g/t Au in Measured and Indicated categories, and 21.649 Mt at 3.9 g/t Au in Inferred category. A concentrator on site would serve as a pre-concentrator to reduce transportation costs to the QR mill, 111 km away. Tailings generated at the mine site would be disposed of as paste backfill. Tailings at the mill site would be dry stacked. The QR mill currently has a capacity of 850 tpd and would require modification to process the higher feed grades of the pre-concentrated material.

A large exploration project was carried out in 2020, with six to eight drill rigs operating late in the year. The company expected about 59,000 m in 216 core holes by the end of the year. To date, the highest-grade intersection is 6530 g/t Au along 0.50 m. An underground bulk sample is in permitting stages. This drift would provide access to Cow Mountain through a portal on the Bonanza Ledge access road and create platforms for underground drilling.

Bonanza Ledge (see section 3.1.1.) is a smaller, near-term producer, part of Osisko's larger Cariboo Gold project. They expect to resume mining in 2021 with a two-year mine plan.

Mineralization is orogenic vein and replacement type (Fig. 2). Allan et al. (2017) reported $^{40}Ar/^{39}Ar$ muscovite ages, considered to mark the time of mineralization, of 148-135 Ma.

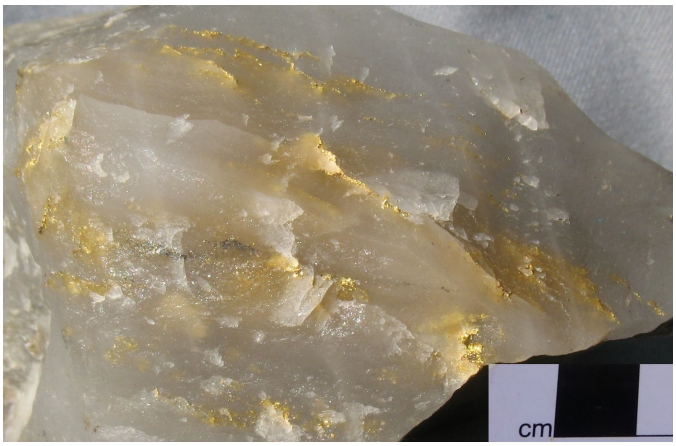

Fig. 2. Free gold in quartz from the historic Cariboo Gold Quartz mine, now part of Osisko Development Corp.'s Cariboo Gold project.

6.3. New Prosperity (Taseko Mines Limited)

The **New Prosperity** project is a porphyry gold-copper deposit with Proven and Probable reserves of 830 Mt grading 0.42 g/t Au and 0.23% Cu. In 2014, the federal government issued a decision to deny the project. Taseko was later unsuccessful in seeking a judicial review of this decision. British Columbia extended the expiry date of the project certificate that was granted to Taseko in 2010 to early 2021. In 2017, the British Columbia Ministry of Energy, Mines and Petroleum Resources issued a permit for a detailed site investigation of the proposed mine infrastructure.

The most recent activity concerning this project has been in the courts. The Tsilhqot'in Nation challenged the 2017 permit arguing the province breached its duty to consult and accommodate. In 2019, the case reached the Supreme Court of Canada, which ruled that Taseko could proceed with investigative work. However, before the work could begin, the Tsilhqot'in Nation filed a complaint on different grounds, infringement of aboriginal rights, and a new injunction halted work. Taseko and the Tsilquot'in Nation, facilitated by the provincial government, have since agreed to suspend litigation and regulatory matters as they discuss the conflict in confidence.

6.4. Ruddock Creek (Imperial Metals Corporation 45.3%; Mitsui Mining and Smelting Co. Ltd. 30%; Itochu Corporation 20%; Japan Oil, Gas and Metals National Corporation 4.7%)

The **Ruddock Creek** project remains in the pre-application phase of environmental assessment. A mineral resource estimate, released in March 2012, reported 4.65 Mt grading 6.77% Zn and 1.38% Pb (Indicated) and 5.38 Mt grading 6.69% Zn and 1.31% Pb (Inferred), using a 4.0% combined Pb+Zn cut-off. Ruddock Creek Mining Corporation is the operator and manager of the joint venture.

The deposit is described as sedimentary exhalative, Monashee or Broken Hill-type, in marble, gneiss, and calc-silicate rocks. The joint venture operators reported positive 2018 and 2019 drill results on deep targets at the western edge of the deposit. They did not report 2020 exploration.

7. Selected exploration activities and highlights

Exploration spending in 2020 was predominantly for gold. The largest exploration project was Barkerville Gold Mines Ltd.'s **Cariboo Gold**, now a proposed mine (see section 6.2.). Companies working in the Cariboo gold fields have expanded and consolidated their tenure holdings and there were significant programs by Kore Mining Ltd. at **FG** and Omineca Mining and Metals Ltd. at **Wingdam**. Talisker Resources Ltd. continued drilling at **Bralorne**, (see section 7.1.2.). Westhaven Gold Corp. followed 2018 and 2019 programs with a larger drill program at **Shovelnose**. Exploration continued for other gold targets, porphyry copper deposits, skarn deposits (copper, tungsten), stratiform base and precious metals, mafic- and ultramafic-hosted sulphides, and industrial minerals (Fig. 1; Table 4).

7.1. Selected precious metal projects

The South Central Region has many precious metal deposit types including: orogenic veins; transitional veins; epithermal veins; hot spring systems; replacement deposits; skarns; sediment-hosted deposits; and intrusion-related breccias. Several more properties were active than listed below.

Table 4. Selected exploration projects, South Central Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
Alwin Mine	**GSP Resource Corp.**	Cu, Ag; Cu; ±Ag quartz veins; Porphyry Cu+/-Mo+/-Au; 092ISW010, 21	Historical: 390,000 t 11.7 g/t Ag, 0.69 g/t Au, 2.5% Cu	Drilling, approximately 2000 m in 10 holes. Initial result 12.1 m grading 2.27% Cu.
Blackdome-Elizabeth	**Tempus Resources Ltd.**	Au, Ag; Au quartz veins, Epithermal Au-Ag-Cu low sulphidation; 092O 053, 12	I: 144,500 t 11.29 g/t Au, 50.01 g/t Ag Inf: 90,600 t 8.79 g/t Au, 18.61 g/t Ag	Drilling, 5087 m in 26 holes at Blackdome; 2400 m in 12 holes at Elizabeth.
Bralorne	**Talisker Resources Ltd.**	Au; Au-quartz veins; 092JNE001	M+I: 260,000 tons 0.351 oz/ton Au Inf: 317,000 tons 0.231 oz/ton Au	Drilling, 23,000 m planned by year end. Updated resources estimate not including latest drilling. Example highlight intersection 995 g/t Au along 0.5 m within 227.55 g/t Au along 2.25 m.
Copperview	**Golden Lake Exploration Inc.**	Cu, Au; Porphyry Cu-Au (alkalic); 092HNE296, 320	na	Prospecting, geological mapping, rock and soil sampling.
Dictator	**Eagle Plains Resources Ltd.**	Au, Ag; Polymetallic veins Ag-Pb-Zn±Au; 082ENE022, 23, 73, 72	na	Drone magnetic survey (108 line-km). Prospecting and soil sampling. Grab samples up to 39.4 g/t Au, 912 g/t Ag.
Donna	**Eagle Plains Resources Ltd.**	Au, Ag; Polymetallic veins; 082LSE022, 10, 20, 16	na	Airborne magnetic and radiometric survey (211 line-km). Property expanded. Drilling started but suspended due to weather.
Elk	**Gold Mountain Mining Corp.**	Au, Ag; Au quartz veins; 092HNE009, 295, 41, 261	M+I: 2,699,000 t 5.22 g/t Au, 9.23 g/t Ag Inf: 454,000 t 6.4 g/t Au, 14.17 g/t Ag	Preliminary economic assessment, drilling 3200 m 12 holes.
Empirical	**Clarity Gold Corp.**	Cu, Mo, Au; Porphyry Cu+/-Mo+/-Au; 092INW088, 90	na	Technical report, sampling.
FG	**Kore Mining Ltd.**	Au, Ag; Au-quartz veins; 093A 061	M: 5,600,000 t 0.812 g/t Au I: 9,570,000 t 0.755 g/t Au Inf: 27,493,000 t 0.718 g/t Au	Drilling, approximately 7400 m in 23 holes. Expanded land position.
Fox Tungsten	**Happy Creek Minerals Ltd.**	W; W skarns; 093A 259, 260, 261, 211	I: 582,000 t 0.826% WO_3 Inf: 565,400 t 1.231% WO_3	Drilling, approximately 1100 m in 7 holes.
Gold Creek	**Kore Mining Ltd.**	Au, Ag; Au-quartz veins; 093A 127	na	Drilling, 1550 m in 5 holes (early December).
Goldrange	**Kingfisher Resources Ltd.**	Au, Ag; Cu±Ag quartz veins; 092N 058, 59, 47, 57, 48	na	Geological mapping, rock and soil sampling, airborne magnetic and lidar surveys.
Heffley Creek	**Progressive Planet Solutions Inc.**	Au, Ni, Cr, Pozzolan; unknown ultramafic; No MINFILE	na	Rock and soil geochemistry.

Table 4. Continued.

Highland Valley project (West Valley-Rateria)	**Happy Creek Minerals Ltd.**	Cu, Mo, Au, Ag, Re; Porphyry Cu±Mo±Au; 092ISE199	na	Drilling approximately 2400 m in 5 holes.
IKE	**Amarc Resources Ltd.**	Cu, Mo, Ag; Porphyry Cu±Mo±Au; 092O 025, 67	na	Technical report and surface work (geology, geochemistry, geophysics).
Lac La Hache	**Engold Mines Ltd.**	Cu, Au, Ag, Fe; Alkalic porphyry Cu-Au, Cu skarn; 092P 120, 108, 2, 153	Aurizon Inf: 1,073,000 t 2.48 g/t Au, 0.64% Cu, 5.98 g/t Ag Spout zone I: 7.6 Mt 0.28% Cu, 0.05 g/t Au, 1.26 g/t Ag, 11.4% magnetite Inf: 15.8 Mt 0.21% Cu, 0.04 g/t Au, 0.93 g/t Ag, 8.32% magnetite	Drilling at Ann North, G1 and recently discovered Road Gold zone. Highlight intersection 22.4 m grading 1.29% Cu, 0.11 g/t Au 4.36 g/t Ag and 26.91% Fe at G1.
Lightning Strike	**Cariboo Rose Resources Ltd.**	Au, Ag; Au-quartz veins; 093A 250	na	Rock and soil sampling. Approximate 1500 m north-south anomaly.
Mal-Wen	**Victory Resources Corporation**	Cu, Au, Ag; Fe skarns, Cu skarns, Au skarns; 092HNE002, 58, 59	na	Geological mapping, sampling, magnetometer survey.
Merit and Nicoamen (separate properties)	**Independence Gold Corp.**	Au, Ag; Epithermal Au-Ag; 092ISW106, 132, 131	na	Mapping and sampling. Highlight 7.69 g/t Au and 447 g/t Ag.
Miner Mountain	**Sego Resources Inc.**	Cu, Au; Alkalic porphyry Cu-Au; 092HSE203, 78	na	Trenching and drilling 3970 m. Granby mineralization extended 80 m.
MPD	**Kodiak Copper Corp.**	Cu, Au; Alkalic porphyry Cu-Au; 092HNE243, 55, 191, 244	na	Drilling approximately 7000 m in 10 holes, magnetic and ZTEM surveys. Highlight 282 m grading 0.70% Cu and 0.49 g/t Au.
Mt. Riordan	**Garnet Peak Resources Inc.**	Garnet; Garnet skarns; 082ESW102	Historical: 11,848,200 t 78% (west); 17,955,000 t 80% (north); 10,663,380 t 77% (south)	Mainly permitting, community relations. Permit received for drilling and bulk sample.
New Craigmont	**Nicola Mining Inc.**	Cu, Au; Cu skarn; 092ISE035	Inf: 18.669 Mt 0.13% Cu	Portal area and southern waste dump resource estimate. Metallurgical testing.
Prospect Valley	**Westhaven Gold Corp.**	Au, Ag; Epithermal Au-Ag-Cu low sulphidation; 092ISW111, 107	Inf: 10,077,000 t 0.511 g/t Au	Ground magnetic survey (244 line-km).
Reliance	**Endurance Gold Corporation**	Au, Sb, Ag; Au quartz veins, stibnite veins and disseminations; 092JNE033, 136, 191	na	Reverse circulation drilling 978 m in 17 holes. Rock channel sampling highlight of 8.97 g/t Au along 9.6 m.

Table 4. Continued.

Shovelnose	**Westhaven Gold Corp.**	Au, Ag; Epithermal Au-Ag-Cu low sulphidation; 092HNE309, 308	na	Drilling, 43,000 m in 100 holes. Highlights included outcrop discovery of Franz zone (51.10 g/t Au and 165.00 g/t Ag grab, 7.78 m 14.84 g/t Au and 39.4 g/t Ag drill intercept) 2.8 km from South zone. FMN zone discovered between Franz and South zone (5.5 m 4.58 g/t Au, 267.4 g/t Ag). Several other targets identified.
Spanish Mountain	**Spanish Mountain Gold Ltd.**	Au, Ag; Au-quartz veins; 093A 043	M+I: 273.2 Mt 0.47 g/t Au, 0.71 g/t Ag Inf: 52.4 Mt 0.37 g/t Au, 0.67 g/t Ag	Exploration drilling, geotechnical drilling, test pits. Began Preliminary Feasibility Study.
Spences Bridge and Regional	**Talisker Resources Ltd.**	Au, Ag; Epithermal Au-Ag-Cu low sulphidation; 092O 54, 60, 143, 092INW092, 110, 092ISW118, 124, 84	na	Large regional prospecting and sampling program continued in 2020. About 6000 soil samples, mapping, talus fines sampling, rock sampling.
Spitfire-Sunny Boy	**Falcon Gold Corp.**	Au, Ag, Cu, Mo; Polymetallic veins; 092ISE049, 48, 118, 119, 117	na	Reconnaissance exploration. Channel sample grading 122 g/t Au along 1 m.
Trans Canada	**ZMM Canada Minerals Corp.**	Zeolite; Open-system zeolites; 082LNW102	na	Continuing bulk sample.
Treasure Mountain	**Nicola Mining Inc.**	Ag, Pb, Zn; Polymetallic veins; 092HSW066, 117, 48, 116, 092HSE240, 136, 261, 75	I: 33,000 t 828 g/t Ag, 3.8% Zn, 4.16% Pb Inf: 120,000 t 925.6 g/t Ag, 4.36% Zn, 2.79% Pb	Rock and soil sampling. Highlight grab samples of 1300 g/t Ag and 1040 g/t Ag.
Wingdam	**Omineca Mining and Metals Ltd.**	Au; Au-quartz veins; 093H 012	na	Drilling, approximately 300 m in 13 holes (program to continue into 2021). Airborne magnetic survey.
Woodjam	**Consolidated Woodjam Copper Corp.**	Cu, Au; Alkalic porphyry Cu-Au; 093A 269, 78	Inf: 227.5 Mt 0.31% Cu (Woodjam South) Inf: 32.8 Mt 0.22% Cu, 0.59 g/t Au (Deerhorn) Inf: 8.3 Mt 0.22% Cu, 0.26 g/t Au (Takom)	Drilling, 1737 m in 4 holes at Deerhorn. Highlight intersection of 110 m 2.57 g/t Au and 0.44% Cu including 26 m of 5.89 g/t Au and 0.92% Cu. IP survey at Megaton target.
Worldstock	**Pacific Empire Minerals Corp.**	Cu; Porphyry Cu-Au (alkalic); 092P 145	na	Drilling, 1027 m in 10 reverse circulation holes.
Yellowhead	**Taseko Mines Limited**	Cu, Au, Ag; Noranda/Kuroko; 082M 008, 9	M+I: 1292 Mt 0.25% Cu, 0.028 g/t Au, 1.2 g/t Ag Inf: 109 Mt 0.21% Cu, 0.024 g/t Au, 1.2 g/t Ag	Updated Feasibility Study considers a 25-year 90,000 tpd open pit operation. Proven + Probable reserves are 817 Mt 0.28% Cu.

M = Measured; I = Indicated; Inf = Inferred

7.1.1. Blackdome-Elizabeth (Tempus Resources Ltd.)

Tempus Resources Ltd. acquired the **Blackdome-Elizabeth** project when it bought Sona Resources Corp., a subsidiary of Skeena Resources Ltd. in 2019. In 2020, they drilled 5087 m in 26 holes at Blackdome and completed about 2400 m in 12 holes of a planned 6000 m program at Elizabeth before shutting down for winter. Highlight results at Blackdome included 0.6 m grading 28.3 g/t Au and 513 g/t Ag. The linked Blackdome and Elizabeth properties were the subject of a 2010 Preliminary Economic Assessment in which mining would occur at both sites, with processing at an existing mill at Blackdome. Tempus is focussed on verifying and expanding the existing resource (Table 4).

Blackdome (Fig. 3) is a low-sulphidation epithermal deposit in Cenozoic intermediate to felsic volcanic rocks. Elizabeth, 30 km south, is a series of veins in a Paleocene quartz diorite intrusion in the Shulaps ultramafic complex. Historically they have been compared to the Bralorne-Pioneer orogenic deposits.

Fig. 3. Vuggy open-space quartz and limonitic volcanic clasts in a trench exposure of the Giant Vein, one of the drill targets at Tempus Resources' Blackdome epithermal gold property.

7.1.2. Bralorne (Talisker Resources Ltd.)

In December 2019, Talisker Resources Ltd. closed its acquisition of Bralorne Mines Ltd., operator of the past-producing **Bralorne** gold mine, which last operated between 2010 and 2014 when it suspended operation because the tailings storage facility reached capacity. The mine had been operating at a 100 tpd trial basis. The 100 tpd mine permit was updated in 2017, but both the previous and current operator anticipate a larger operation.

Talisker planned 23,000 m of drilling in 2020, continuing into early 2021. Target veins are near the mine. Highlight intersections include 995 g/t Au along a 0.5 m interval within 2.25 m grading 277.55 g/t Au. Between 1928 and 1971, the Bralorne camp produced 4.15 Moz Au at average grades of about 15 g/t Au. Veins have characteristics typical of orogenic gold deposits; the age of mineralization is estimated at ca. 68-64 Ma ($^{40}Ar/^{39}Ar$ muscovite; Hart and Goldfarb, 2017).

7.1.3. Dictator (Eagle Plains Resources Ltd.)

Eagle Plains Resources flew a 108 line-km drone magnetic survey at the **Dictator** (Formerly Lightning Peak) property. Work in October included a soil survey and prospecting, which is to be completed in 2021. Property owner Milo Mielnichuk sampled float up to 5.84 g/t Au, 30.6 g/t Ag, 33,680 ppm Pb, and 674 ppm Zn earlier in the year. Other grab samples from old workings ran as high as 39.4 g/t Au and 912 g/t Ag. Known targets include gold- and silver-bearing quartz veins.

7.1.4. Donna (Eagle Plains Resources Ltd.)

Eagle Plains flew a 211 line-km magnetometer and radiometric survey at the **Donna** project over the St. Paul and Morgan past producers, recently added to the property. Drilling started in October but was suspended after 300 m due to an unusually heavy snowfall. Targets include near-surface intrusion-related gold at a gold-in-soil anomaly and in the Morgan mine area.

7.1.5. Elk (Gold Mountain Mining Corp.)

Freeform Capital Partners Inc. and Bayshore Minerals Incorporated are combining to operate under the name Gold Mountain Mining Corp., a subsidiary of Bayshore which holds the **Elk** property. Before the deal, Freeform reported results of a Preliminary Economic Assessment including an updated resource estimate with Measured and Indicated resources of 2,699,000 t at 5.22 g/t Au and 9.23 g/t Ag, and Inferred resource of 454,000 t at 6.40 g/t Au and 14.17 g/t Ag that support a conceptual 10-year 70,000 tpy mine. Bayshore reported a 3200 m, 21-hole drill program in the fall, before the planned reverse takeover was completed. **Elk** produced about 51,500 oz of Au between 1992 and 1995 from 14,730 t of ore, mainly from an open pit. Bulk sampling resumed in 2012-14 when 7761 t with average grade 14.81 g/t Au were processed. Gold is hosted in quartz-sulphide veins, mainly in the Osprey Lake batholith (Middle Jurassic) near an intrusive contact with Nicola Group volcanic rocks. The quartz veins may be related to later Otter feldspar porphyry dikes and stocks.

7.1.6. FG (Kore Mining Ltd.)

Kore Mining Ltd. drilled 5746 m in 15 holes at the **FG**, reporting highlight intersections including 11.0 m grading 10.0 g/t Au near surface. They also reported a discovery, the Lower Zone, below the existing FG resource where they intersected 52.5 m of 1.1 g/t Au. Highlight intersections in the Lower zone include a step out 215 m down dip returning 31.3 m grading 3.2 g/t Au. The property is underlain by Triassic shale and siltstone mapped as Slocan Group. Kore increased their tenure holdings in the area in 2020. They are considering placing their Cariboo gold properties in a company separate from their more advanced projects.

7.1.7. Gold Creek (Kore Mining Ltd.)

By early December, Kore drilled 1550 m in 5 holes at the **Gold Creek** orogenic gold project, part of their Cariboo land

holdings. Targets are gold-bearing quartz veins and stratabound vein zones in metasedimentary rocks, including a black phyllite. They compare the setting to that of the adjacent **Spanish Mountain** sediment-hosted vein deposit. The company is considering placing its British Columbia exploration properties in Karus Gold Corp., a company separate from its more-advanced US projects.

7.1.8. Goldrange (Kingfisher Resources Ltd.)

Kingfisher assembled the **Goldrange** property and conducted a grass roots program of soil and rock geochemical surveys, backpack drilling, geological mapping, an airborne magnetic survey and property-wide lidar. Targets are orogenic gold veins. Seashore Resources Partners Corp. is in the process of acquiring Kingfisher. The new company is to be named Kingfisher Metals.

The property covers several gold vein targets including possible orogenic and intrusion-related types in thrust-faulted, mainly Lower Cretaceous sedimentary and volcanic rocks at the northeastern margin of the Coast Plutonic complex and southwest of the Tchaikazan fault.

7.1.9. Lightning Strike (Cariboo Rose Resources Ltd.)

Cariboo Rose expanded their **Lightning Strike** property in the Cariboo region. They carried out rock and soil sampling (2000 samples indicating an approximately 1500 x 100 m north-south anomaly) and permitting for eventual trenching and drilling. Like **FG**, the property is underlain by Triassic shale and siltstone mapped as Slocan Group. Shale-hosted gold bearing veins are considered orogenic type.

7.1.10. Merit and Nicoamen (Independence Gold Corp.)

Independence Gold Corp. returned to the **Merit** and **Nicoamen** properties in the Spences Bridge belt, in 2020. They reported mapping and sampling, including a sample at **Merit** that returned 7.69 g/t Au and 447 g/t Ag about 70 m from a high-grade 2019 sample.

7.1.11. Prospect Valley (Westhaven Gold Corp.)

Work at **Prospect Valley** in the Spences Bridge belt included a 244 line-km ground magnetic survey over a 3 x 4 km area called the Bonanza Target, where a 43.34 g/t Au float sample of vein material was collected previously. The property has a 2012 lower-grade Inferred resource of 10.1 Mt grading 0.511 g/t Au.

7.1.12. Reliance (Endurance Gold Corporation)

Endurance carried out mapping and sampling in the Bridge River camp at the **Reliance** property. Work included biogeochemical and rock sampling. Highlight results of channel sampling included 8.97 g/t Au along 9.6 m at the Eagle South showing. Following up on the channel sampling, a reverse circulation drill program was underway in early December at the Imperial, Imperial North, Eagle South, and Eagle targets. They reported 978 m in 17 holes. The **Reliance** targets are orogenic gold veins in shear zones in volcanic rocks and cherts of the Bridge River complex. The property has an historical resource of 410,916 t grading 5.96 g/t Au.

7.1.13. Shovelnose (Westhaven Gold Corp.)

Westhaven continued drilling the **Shovelnose** low-sulphidation epithermal prospect in 2020 with a 43,166 m program. In addition to continued drilling at the South zone, the 2018 discovery area and nearby Lear zone, new targets include the Franz zone, a prospecting discovery in outcrop approximately 2.8 km northwest of the South zone. Initial grab samples returned up to 51.10 g/t Au and 165.00 g/t Ag. Subsequent drill intersections included 7.78 m of 14.84 g/t Au and 39.40 g/t Ag. The company reports 5.50 m of 4.58 g/t Au and 267.40 g/t Ag at another newly discovered zone (FMN) between the South and Lear zones and the Franz zone. Shylock is another drill target, about 1.5 km southeast of the South zone. Westhaven reported several other targets 500 m to 4 km from the South zone emerging from 2019-20 geophysics, soil geochemistry, prospecting, and mapping.

7.1.14. Spanish Mountain (Spanish Mountain Gold Ltd.)

Spanish Mountain Gold Ltd. expects to deliver a Preliminary Feasibility Study for the **Spanish Mountain** gold property in the first quarter of 2021. The current Preliminary Economic Assessment is based on a Measured and Indicated resource of 273.2 Mt grading 0.47 g/t Au and 0.71 g/t Ag. In their phase one scenario, 39 Mt at an average diluted grade of 1.00 g/t Au and 0.74 g/t Ag would feed an 11-year, 10,000 tpd operation with average life of mine production of 104,000 oz/y Au. The new study is considering a 20,000 tpd mill throughput. The resource estimate is to be updated. The project was in the pre-application phase of environmental assessment since 2011 but the company withdrew at the end of 2019. They expect to resume under the new legislation when the project scope is finalized.

The company began drilling in the fall to expand resources in the Main zone. They drilled about 4500 m in 28 reverse circulation holes. There was additional sonic drilling for geotechnical purposes and some core drilling. They also dug 84 test pits. The deposit consists of disseminated gold in graphitic argillite and gold-bearing quartz veins in siltstone, greywacke, and tuff (Fig. 4). Host rocks are Upper Triassic and mineralization is Late Jurassic, older than that at the Cariboo

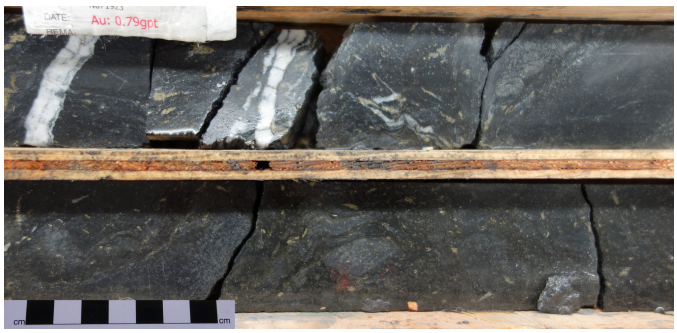

Fig. 4. Argillite with disseminated pyrite and quartz veins at Spanish Mountain. Grade is 0.79 g/t Au as indicated.

Gold project (Allan et al., 2017).

7.1.15. Spences Bridge regional program (Talisker Resources Ltd.)

Prompted by early signs of a significant epithermal gold discovery at Westhaven's **Shovelnose,** Talisker Resources now holds claims covering most of the Spences Bridge belt, which consists of Lower Cretaceous calc-alkaline volcanic rocks extending for 220 km along a northwest trend. The company conducted exploration across its 240,601 ha greenfield property portfolio, which includes about 194,000 ha along the belt.

Talisker resumed its **Spences Bridge** project in 2020 with a crew of 20 geologists collecting stream sediment samples and evaluating more than 100 anomalies found in a 2019 survey. The follow up included about 6000 soil samples from across three broadly prospective areas as well as mapping and stream, talus fine, and rock sampling. By the end of the season they reported generating 13 prospects.

7.1.16. Spitfire-Sunny Boy (Falcon Gold Corp.)

Falcon Gold acquired the **Spitfire and Sunny Boy** properties and carried out reconnaissance exploration. They reported epithermal-style veins and a channel sample grading 122.00 g/t Au along 1.0 m within 2.2 m grading 59.8 g/t Au. This confirms historical results for the Master Vein. They also collected a 22.8 g/t Au grab sample at the Cliff vein, discovered down slope.

7.1.17. Treasure Mountain (Nicola Mining Inc.)

At the **Treasure Mountain** property, Nicola Mining carried out rock and soil sampling, continuing a 2019 survey, and outlining a northwest-trending anomaly. Most work was north of the existing underground development. Highlights of vein grab samples included 1300 g/t Ag and 1040 g/t Ag. Portable drilling intersected several short high-grade zones including 589 g/t Ag along 15 cm and 489 g/t Ag along 34 cm.

The silver-lead-zinc mine produced in 2013 and is currently on care and maintenance. It has a permit for removal of 60,000 tpy to a mill offsite. Silver-lead-copper mineralization is in fault-hosted, sulphide-rich, quartz-carbonate veins.

7.1.18. Wingdam (Omineca Mining and Metals Ltd.)

Omineca, through its subsidiary CVG Mining Ltd., expanded its holdings around the **Wingdam** project and commenced a gold exploration project seeking lode gold sources of paleoplacer gold, which is the target of an underground bulk sampling project. The hard rock program is planned to include 9000 m of drilling in 27 holes, 2-3 km northwest of the placer operation. By the end of 2020, the company completed about 3000 m in 13 holes and flew an airborne magnetic survey.

The placer project had been on care and maintenance since 2012, but now dewatering of the underground workings has begun. Private companies have an option to earn up to 50% of that project by progressing to bulk sampling.

7.2. Selected porphyry projects

Although the focus of financing and exploration in 2020 largely centred on gold, porphyry copper projects also saw advances. Kodiak Copper intersected copper and gold at **MPD**, and work continued at **Miner Mountain**, **Woodjam**, and **Rateria-West-Valley**, and near mine sites described above.

7.2.1. Alwin Mine (GSP Resource Corp.)

GSP Resource Corp. reviewed historical data and commissioned a 3-D model for its **Alwin Mine** Cu-Ag-Au property in advance of drilling in the second half of the year. The first eight holes tested for replacement Cu sulphide mineralization, and subsequent drilling tested for porphyry alteration and mineralization to the north and south. The company drilled about 2000 m in 10 holes. Initial results included 12.1 m grading 2.27% Cu and 39.8 m grading 0.40% Cu near surface. Alwin produced copper, silver, and gold sporadically between 1916 and 1982.

7.2.2. Copperview (Golden Lake Exploration Inc.)

Following September drill results at MPD, Golden Lake Exploration Inc. assembled the **Copperview** property in the surrounding area. They completed initial reconnaissance including prospecting, mapping, and rock and soil geochemistry.

7.2.3. Empirical (Clarity Gold Corp.)

Grab samples at **Empirical** returned up to 1.97% Cu with Au, Mo, and Ag values. A 2020 technical report and historical reports describe sulphide occurrences consistent with porphyry Cu-Au-Mo mineralization. The property is mainly underlain by Cayoosh assemblage turbidic sandstone intruded by quartz diorite.

7.2.4. IKE (Amarc Resources Ltd.)

Amarc prepared a technical report on the **IKE** property and reported surface work (geological, geophysical and geochemical) in 2020. In addition to the porphyry Cu-Mo-Ag prospect, the property has porphyry Cu-Au-Mo-Ag, Cu-Au-Ag replacement, and Au-Ag epithermal targets. (Galicki et al., 2020).

7.2.5. Mal-Wen (Victory Resources Corporation)

Victory Resources Corporation announced a magnetometer survey, mapping, and sampling at its **Mal-Wen** property in September. Alkalic copper-gold mineralization is the target. Mal-Wen is in Nicola Group volcanosedimentary rocks that are intruded by Triassic-Jurassic rocks between Copper Mountain and New Afton where there are other active porphyry Cu-Au projects such as MPD and Miner Mountain.

7.2.6. Miner Mountain (Sego Resources Inc.)

Sego reported trenching at its Southern gold zone, with a highlight result of 30 m of 1.02 g/t Au. Drilling tested other targets in the Granby-Cuba area with four holes totalling 3970 m. A step out extended Granby mineralization by 80 m.

Miner Mountain has several alkalic porphyry Cu-Au and Au targets in a roughly 2 x 3 km area, much of which is under cover (see Britten et al., 2020).

7.2.7. Highland Valley (Happy Creek Minerals Ltd.)

Happy Creek Minerals Ltd. followed up an IP survey and mapping in 2019 with approximately 2400 m of drilling in five holes on their **Highland Valley (West Valley-Rateria)** project. The targets include the PIM, identified in 2019 in a recently logged area as a soil geochemical and IP anomaly with 0.4% Cu sampled in bedrock. Step outs at Zone 1 and Zone 2 were also priority targets. The property is in the Guichon batholith south of the Highland Valley Copper mine and north of the past producing Craigmont mine. It has about 25 known copper occurrences.

7.2.8. MPD (Kodiak Copper Corp.)

Following up on discoveries from work done in 2019, Kodiak Copper Corp. (previously Dunnedin Ventures Inc.), drilled on the **MDP** project, intersecting 282 m grading 0.70% Cu and 0.49 g/t Au at the Gate zone (Fig. 5). Complete results for the hole included 535.1 m of 0.49% Cu and 0.29 g/t Au. Another hole from the setup near the north end of an approximately 1 km long copper-in-soil anomaly had similar results at a depth of 308 to 500 m down the -71° hole. Kodiak is now funded for about 30,000 m of drilling, which will include step outs and other zones on the property. Approximately 7000 m in 10 holes were drilled in fall 2020. The company flew an airborne magnetic and ZTEM survey earlier in the year. MPD is a consolidation of the Man, Prime, and Dillard alkalic porphyry Cu-Au targets, which had historically been explored to about

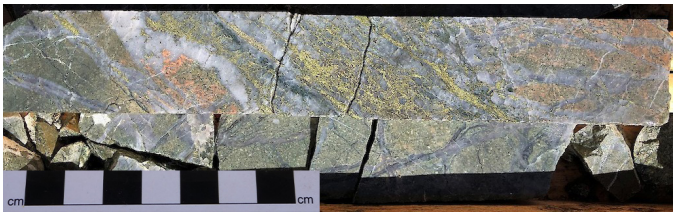

Fig. 5. Core from Kodiak Copper Corp.'s recently discovered Gate zone showing strongly chalcopyrite-mineralized quartz veins. Photo provided by Kodiak Copper Corp.

200 m depth.

7.2.9. Woodjam (Consolidated Woodjam Copper Corp.)

Consolidated Woodjam carried out drilling at the Deerhorn zone of the **Woodjam** project to test grade continuity and mineralization below previous drilling in a steeply dipping system. They also tested a parallel zone to the southwest and infilled and extended an IP survey on the Megaton target. A highlight result included 110 m of 2.57 g/t Au and 0.44% Cu including 26 m of 5.89 g/t Au and 0.92% Cu. Mineralization starts at 96 m down a -75° hole. Weather forced suspension of the program, which was to be extended based on initial results. The Woodjam project has a resource, including 32.8 Mt at 0.49 g/t Au and 0.22% Cu in the Inferred category at the Deerhorn zone (Table 4). Woodjam comprises six zones in a cluster approximately 5 km in diameter. They exhibit both alkaline and calc-alkaline characteristics (see del Real et al., 2020).

7.2.10. Worldstock (Pacific Empire Minerals Corp.)

Pacific Empire has an option to acquire 100% of the **Worldstock** property, an alkalic porphyry Cu-Au target. They drilled 10 reverse circulation holes totalling 1027 m and used a mobile drill rig on tracks to test geophysical anomalies. They intersected copper and gold values in one of the holes. **Worldstock** is an early-stage porphyry Cu-Au target in Nicola Group volcanic and sedimentary rocks intruded by the Thuya batholith and Polaris ultramafic suite to the southwest, and by a small diorite stock to the northeast.

7.3. Selected polymetallic base and precious metal projects

The region has numerous polymetallic massive sulphide prospects, including those hosted by the Eagle Bay assemblage (e.g., Harper Creek, Samatosum, Rea, Yellowhead) and other Paleozoic strata. Few were active in 2020, with the notable exception of Yellowhead.

7.3.1. Yellowhead (Taseko Mines Limited)

The British Columbia Environmental Assessment Office terminated Yellowhead Mining Inc.'s Harper Creek copper project assessment in 2018. However, in early 2019, Taseko Mines Limited acquired Yellowhead Mining, renamed the project **Yellowhead** and is advancing the project. They indicate an intention to re-enter environmental assessment.

Taseko announced results of an updated Feasibility Study in January, including a new development plan and resource estimate (Table 5). Proven and Probable reserves now stand at 817 Mt grading 0.28% Cu at a 0.17% cut-off. In May, Taseko announced an agreement with an unnamed local First Nation regarding the company's intention to restart the project regulatory approval process. Although porphyry-like in tonnage and grade, **Yellowhead** is generally considered a marine volcanogenic and syngenetic deposit. It is hosted by metavolcanic and metasedimentary rocks of the Eagle Bay assemblage (Lower Cambrian to Mississippian).

7.4. Selected skarn projects (tungsten, copper, gold)

Historically, copper skarns have been important sources of high-grade ore. One, the Craigmont mine, has been re-activated as the **New Craigmont** exploration project. One tungsten skarn project, the **Fox**, has recently been active.

7.4.1. Fox Tungsten (Happy Creek Minerals Ltd.)

Happy Creek Minerals Ltd. drilled seven holes (1119 m) at its **Fox Tungsten** project, six of which tested the Nightcrawler zone. Nightcrawler is about 6 km south of the existing resource area at Ridley Creek (Table 4). Happy Creek also reports prospecting discoveries of scheelite approximately 5 km west of Ridley Creek.

7.4.2. Lac La Hache (Engold Mines Ltd.)

Engold Mines Ltd. reported results of drilling at the G1 and Ann North at the **Lac La Hache** project. Notable intersections include 22.4 m grading 1.29% Cu, 0.11 g/t Au, 4.36 g/t Ag, and 26.91% Fe and another longer intersection of 215 m grading 0.25% Cu, 0.04 g/t Au, 1.47 g/t Ag, and 7.51% Fe at G1. Drilling at G1 included 20 m and 50 m step out holes. They also report grab sampling up to 9.65 g/t Au at Aurizon South. Drilling at Ann North returned anomalous copper, gold, and molybdenum values. Late in the year they drilled a recent gold discovery called the Road Gold zone. **Lac La Hache** has several different target types related to alkalic intrusions. Copper skarns have had much of the recent exploration attention, but there are also porphyry targets and the Aurizon Au-Ag-Cu vein and breccia zone which has a maiden resource estimate (Table 4).

7.4.3. New Craigmont (Nicola Mining Inc.)

Nicola announced final 2019 drill results and results of flotation tests on Craigmont waste rock. After processing with an X-ray transmission sorter, material with a feed grade of 0.32% Cu and 6.4% Fe produced a Cu concentrate grading about 30% Cu. Testing using magnetic separation on magnetite concentrate produced a 65% Fe concentrate. The company also began developing a resource estimate for the historic Craigmont mine waste terraces. Inferred resources for the Southern and 3060 Portal dumps total 18,669,000 t grading 0.13% Cu (Table 4).

The Merritt mill is at the Craigmont mine site. It has undergone about $3 million in recent modifications but is not yet recommissioned. The company plans to operate in 2021 with ore from Blue lagoon Resources Inc.'s Dome Mountain mine. The mill is a 200 tpd crushing, grinding, and flotation mill with a gravity jig and table. Originally constructed in 2012 to process ore from Treasure Mountain, Nicola operates it as a custom mill and uses the Craigmont tailings storage facility.

7.5. Selected mafic- and ultramafic-hosted projects

7.5.1. Heffley Creek (Progressive Planet Solutions Inc.)

Progressive Planet Solutions Inc. reported discovering nickel in bedrock at its **Heffley Creek** pozzolan property and then carrying out rock and soil geochemistry. Grab samples returned up to 0.26% Ni and 0.45% Cr. The samples were from altered leucogabbro and serpentinite.

7.6. Selected specialty metals and industrial mineral projects

Exploration for industrial minerals commonly goes unreported. Probably the most common type of exploration is bulk sampling for test marketing purposes. Operators indicated work at pozzolan and zeolite projects among others. A few industrial minerals explorers have reported their work.

7.6.1. Mt. Riordan (Garnet Peak Resources Inc.)

Most of Garnet Peak's effort went toward permitting and First Nation engagement efforts for their **Mt. Riordan** project. They are permitted for exploration drilling and a bulk sample of up to 10,000 t. Depending on results of test marketing, a 25,000 tpy quarry with a 10-year life is contemplated. The product would be industrial garnet, used in water jet cutting and sand blasting.

7.6.2. Trans Canada (ZMM Canada Minerals Corp.)

ZMM indicated continuing sampling at the **Trans Canada** zeolite quarry and an intention to continue quarrying.

8. Geological research

CIM Special Volume 57, a 25-year anniversary update on porphyry deposits of the northwestern Cordillera of North America contains papers on nine porphyry deposits in the South Central Region: Gibraltar (van Straaten et al., 2020), Mount Polley (Rees et al., 2020), Woodjam (del Real et al., 2020), Maggie (Lang et al., 2020), IKE (Galicki et al., 2020), New Afton (Lipske et al., 2020), Highland Valley Copper (Ryan et al., 2020), Copper Mountain (Holbek et al., 2020), and Miner Mountain (Britten et al., 2020).

Geoscience BC's Summary of activities for 2019 contained reports on five projects in the region. Branson et al. (2020) studied magnetic surveys as an exploration tool for podiform chromite. Sacco et al. (2020) reported on surficial mapping to inform surface sediment data and till sample reanalysis. Dunn and Heberlein (2020) reported on spruce treetop sampling near the Blackwater deposit. Lett et al. (2020) tested on-site soil gas carbon dioxide and oxygen analysis over the drift-covered Mouse Mountain and Shiko Lake fault-controlled Cu-Au porphyry occurrences. Grunsky and Arne (2020) used advanced data analytics and machine learning to evaluate QUEST-South stream sediment sample re-analysis data.

Two papers on the Highland Valley district appeared in Economic Geology. Alva-Jimenez et al. (2020) studied the mineral chemistry of hydrothermal white mica in the Highland Valley copper district. Byrne et al. (2020) link lithogeochemical data to mineralogy in the Highland Valley district.

The British Columbia Geological Survey also reported on several South Central Region projects. Lett and Paulen (2021) reported on till and B-horizon soil geochemistry at the Ace property northeast of Likely. Schiarizza and Friedman provided new U-Pb zircon ages from Gibraltar (2021a) and for Eocene rocks (Skull Hill Formation) at Mount Timothy (2021b). As part of a province-wide study of Eocene magmatism, Van Wagoner et al. (2021) summarized the physical volcanology and geochemistry of the Kamloops Group in its type area. Mihaynuk and Diakow (2020) released a 1:50,000-scale map of a multi-year project in the southern Nicola belt and Friedman et al. (2020) reported two new U-Pb zircon ages from the Nicola Group, one the oldest dated thus far, the other the youngest.

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Exploration and mining in the Southeast Region, British Columbia

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1. Introduction

The Southeast Region (Fig. 1) offers a variety of mining and exploration opportunities accessible by well-developed infrastructure. Four metallurgical coal mines that operated in the Elk Valley in 2020 account for most of Canada's coal production and exports. Several industrial mineral mines produce silica, magnesite, and gypsum. Limestone, smelter slag, rock wool, aggregate, rip rap, railroad ballast, flagstone, dimension stone, sand and gravel are quarried, and placer mining occurs throughout the region. The region hosts many historic producers dating back to the mid-1800s, including the lead-zinc-silver Sullivan Mine, and many small producers from the Rossland, Greenwood, Sheep Creek, and Slocan gold and silver camps. Exploration for base metals and precious metals continues to be a focus. The Trail smelter (Teck Resources Ltd.) is still in operation, and produces approximately 305,000 t of refined Zn, 90,000 t of refined Pb, and 16 to 18 Moz of Ag annually.

Exploration became uncertain in early 2020, with several exploration projects shutting down early in the year as a result of Covid-19. However, investment quickly returned to metals, and activity returned to normal. Mine expansion and exploration continued at coal mines in the Elk Valley and exploration took place throughout the region. Estimates for exploration expenditures, drilling programs, and other metrics were captured in the British Columbia Mineral and Coal Exploration Survey, a joint initiative of the Province of British Columbia Ministry of Energy, Mines and Low Carbon Innovation, the Association for Mineral Exploration in British Columbia, and EY LLP. For the Southwest Region, exploration expenditures were estimated at $55.4 million and exploration drilling was estimated at approximately 102,920 m (Clarke et al., 2021; EY LLP, 2021).

2. Geological overview

The Canadian Cordillera is a collage of allochthonous terranes, parautochthonous terranes, and autochthonous basement, containing diverse rocks and structures. Metallogenetic processes generated the varied deposit types that contribute to the mineral endowment of British Columbia (Nelson et al., 2013).

The Southeast Region (Fig. 1) contains elements of Ancestral North America (Laurentia) including: Archean to Mesoproterozoic basement rocks; Proterozoic rift and intracratonic basin successions (Belt-Purcell and Windermere supergroups); Paleozoic to Jurassic passive-margin, shelf, and slope carbonate, and siliciclastic successions that were deposited on the western flank of the ancient continent (Kootenay terrane, and North American platform); and Jurassic to Cretaceous foreland basin deposits. It also contains parts of the Slide Mountain terrane, which records mid- to late-Paleozoic back-arc extension that split the western flank of Ancestral North America to form the Slide Mountain ocean, and Quesnel terrane (Quesnellia) and its basement (Okanagan subterrane; Nelson and Colpron, 2007; Nelson et al., 2013). Magmatic intrusive rocks such as those formed in the Proterozoic (Moyie intrusions) and Devonian (diatremes and volcanic rocks) represent periods of extension along the margin of Ancestral North America, whereas others (Jurassic and Cretaceous) are related to subduction and crustal thickening. Cenozoic magmatic rocks and exhumation of the normal fault-bounded metamorphic complexes occurred during post-orogenic Tertiary extension.

Historically, the Canadian Cordillera has been divided into five northwest-trending physiographic belts. The Southeast Region includes two of these belts: the Rocky Mountain foreland belt, which consists mainly of unmetamorphosed sedimentary successions that were thrust northeastward in thin-skinned sheets; and the Omineca belt, which includes more deformed and higher grade (greenschist to amphibolite) siliciclastic and volcanic rocks and basement-cored gneiss domes (Monger, 1999). For further details about the geology of the Southeast Region see Katay (2017).

3. Mines and quarries

The Southeast Region produces metallurgical coal from four mines in the Elk Valley, and several smaller mines and quarries produce industrial minerals including gypsum, magnesite,

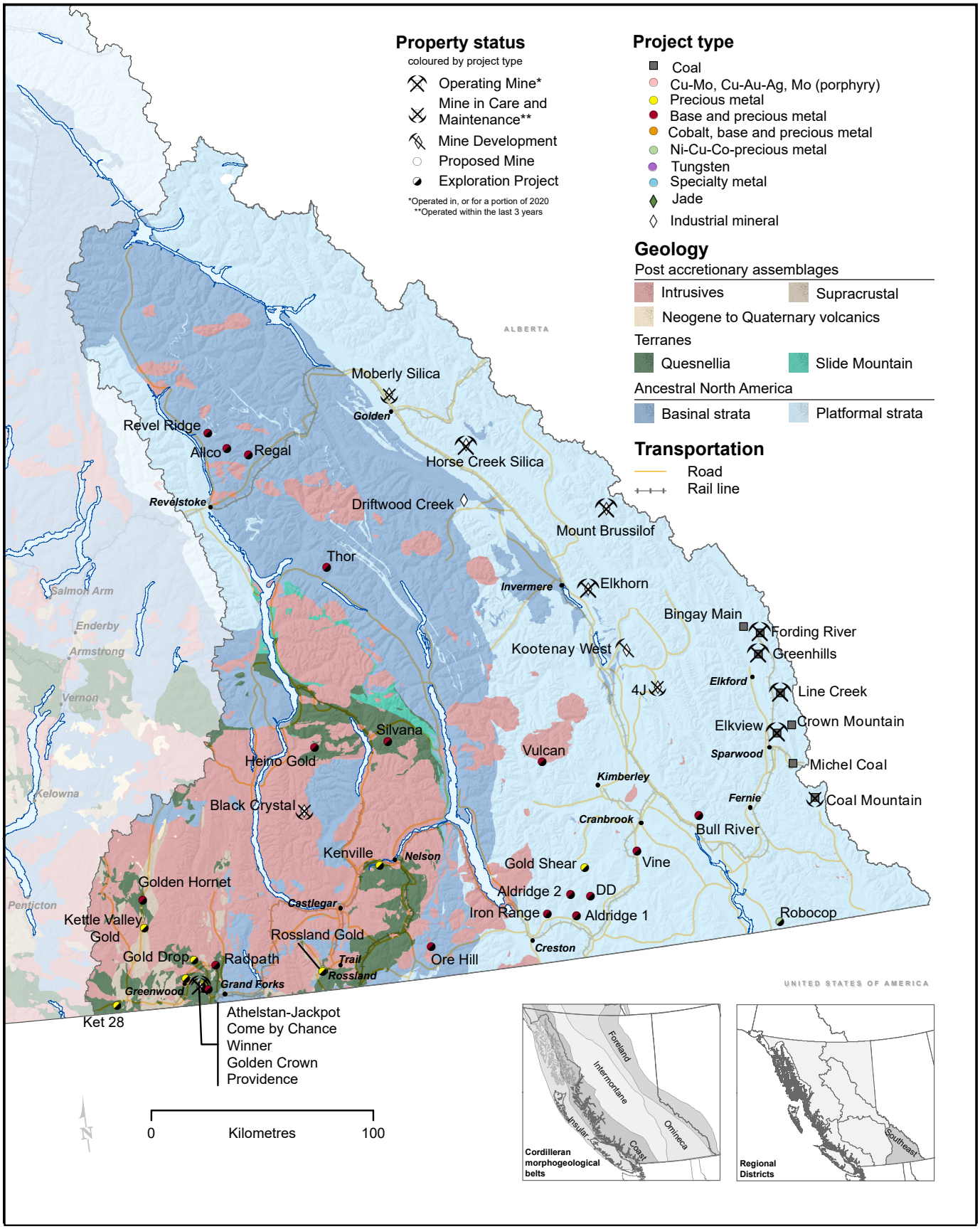

Fig. 1. Mines and selected exploration projects, Southeast Region, 2020. Terranes after Nelson et al. (2013).

silica sand, mineral wool, dolomite, limestone, flagstone, railroad ballast, rip rap, smelter slag, and aggregate (Fig. 1).

3.1. Metal mines

In 2020, no metal mines operated in the Southeast Region.

3.2. Coal mines

In the Southeast Region, coal is produced from structurally thickened seams of the Mist Mountain Formation (Kootenay Group; upper Jurassic to lower Cretaceous; Table 1; Figs. 1, 2). Coal remains British Columbia's most valuable mined commodity with sales forecasted at $2.96 billion USD for 2020, and approximately 41.3% of the mining revenue for the province (British Columbia Geological Survey, 2021). Teck Coal Limited is currently the second largest exporter of steelmaking coal worldwide. They operate four open-pit mines in the Elk Valley (**Fording River**, **Greenhills**, **Line Creek**, and **Elkview**). Pit operations of a fifth mine (**Coal Mountain)** were suspended in 2019, though the plant and load out facilities are being kept on care and maintenance for potential future use. The loss of production from the **Coal Mountain** closure was offset by higher production and improved processing at the other four mines. Approximately 75% of the product is high-quality hard coking coal, though the mines produce lesser quality semi-hard coking coal, semi-soft coking coal, and pulverized coal injection (PCI) products. Thermal coal only accounts for approximately 2% of the sales volumes from the Elk Valley. Coal is shipped via rail to three main terminals on the west coast (Westshore, Neptune, and Ridley), and then by sea to markets in Asia (80%, mainly China and India), Europe and the Americas. Approximately 5% of the coal is shipped eastward for domestic use in North America.

In 2019 and 2020, Teck Coal Limited renegotiated contracts with CN rail that will include infrastructure upgrades to enhance shipment volumes. The current agreement with Westshore Terminals expires at the end of March 2021, and Teck Coal Limited has indicated they will not renew the contract. Teck currently owns a 46% interest in the Neptune Terminal, and in 2018 they began upgrades to increase capacity to around 18.5 Mt. The terminal was shut down for capacity upgrades for five months ending in September. Teck Coal Limited also negotiated an expanded commercial agreement with Ridley Terminals to double their contracted shipping capacity from 3 to 6 Mt, with an option to expand to 9 Mt.

In 2019, steelmaking coal prices averaged $164 US per tonne US (Teck, 2020). Prices fluctuated markedly in 2020 and dropped to less than $100 US per tonne near the end of 2020. Approximately 40% of coal product sales from the southeast coal mines are negotiated on a quarterly basis, with the remainder dependent on market price at the time of sale, thus subject to short-term price fluctuations. Annual production volumes and product specifications are adjusted on site to reflect market demands. Total annual production from the mines in the Southeast Region is estimated at 20.9 Mt of metallurgical coal, down from 2019 as a result of weaker demand and reduced shipping during construction at Neptune.

All mining in the Elk Valley watershed is now subject to conditions laid out in the trans-border Elk Valley Water Quality Plan, which addresses the management of substances released by mining activities in the Elk Valley. It includes water diversion and treatment at mine sites, and establishes water quality targets for selenium, nitrate, sulphate, cadmium, and calcite in the Elk Valley watershed and waters flowing into the Libby reservoir system downstream in Montana. All producing and proposed mine projects are engaged in research to improve technologies for active water treatment facilities and develop alternative and passive treatments. Water quality objectives and target concentrations continue to be the focus of ongoing discussions between provincial, federal, and trans-border working groups.

Teck Coal Limited originally committed to constructing five active water treatment facilities. The first facility has operated at the **Line Creek** mine since February 2016 and is now treating 7.5 million litres of water per day. At **Fording River**, a second facility with a capacity of treating up to 20 million litres of water per day is nearing completion. Passive water treatment trials are underway to reduce the reliance on, and increase the effectiveness of, active water treatment. Saturated rock fill treatment uses biological processes enhanced by the addition of nutrients (methanol and phosphoric acid) to remove nitrate and selenium from the water. The first saturated rock fill pilot project, constructed at **Elkview** in 2018, successfully demonstrated treatment up to 10 million litres of water per day, with near complete removal of nitrate and selenium from mine waters. Teck received government endorsement of the technology in 2019, and approval for expansion at **Elkview**. The expansion was commissioned in Q4 2020, bringing total treatment capacity up to 20 million litres per day (Teck, 2020).

Total capital spending by Teck Coal Limited on water treatment in 2020 was estimated at approximately $290 million, with additional investment in research for treatment options. Capital costs of a saturated rock fill facility are approximately 20% those of an active treatment facility, and annual operating costs are approximately 50%. With the success of the saturated rock fill technologies, Teck expects that the active water treatment facility at Fording River will be the final full-scale version and plans to incorporate a combination of saturated rock fill and other passive technologies. Teck is currently working on two more saturated rock fill facilities at the north end of the Elk Valley (expected to be operational in 2021) and at Line Creek. Other water quality trials are underway, including capping and reclamation techniques and methods for calcite management (Teck, 2020). Jameson Resources Ltd. (**Crown Mountain**) and North Coal Ltd. (**Michel Coal**) are independently designing and testing water treatment methods for their proposed mine projects.

3.2.1. Fording River (Teck Coal Limited)

The **Fording River** mine (Fig. 2) consists of approximately 23,000 ha of coal lands. It produces primarily metallurgical

Table 1. Coal mines, Southeast Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Coal Mountain	**Teck Coal Limited (100%)**	PCI; Bituminous coal; 082GNE001	na	na	PCI M: 56.8 Mt I: 22.9 Mt Inf: 4.8 Mt	Mineable reserves at CMO depleted in 2019; facilities to be placed on care and maintenance; reclamation of the mine has begun; Coal Mountain Phase II (CMO2, Marten Wheeler) would use facilities from CMO, but project currently remains on hold.
Elkview	**Teck Coal Limited (95%)**; Nippon Steel & Sumitomo Metal Corporation (2.5%), POSCO (2.5%)	HCC; Bituminous coal; 082GNE017	6.672 Mt clean	HCC P: 11.9 Mt Pr: 258.0 Mt	HCC M: 320.9 Mt I: 146.8 Mt Inf: 219.0 Mt	Baldy Ridge Extension (BRE) approved (2016); exploration drilling in active pits and expansion areas; coal quality testwork; P+Pr reserves expected to support approximately 36 more years at current production rate.
Fording River	**Teck Coal Limited (100%)**	HCC; Bituminous coal; 082JSE012	6.156 Mt clean	HCC P: 74 Mt Pr: 191.2 Mt	HCC M: 418.3 Mt I: 921.6 Mt Inf: 711.3 Mt	Exploration drilling in active pits and Castle Mountain expansion area; coal quality testing; geophysical work; Project description submitted for provincial and federal environmental assessment reviews of Castle Mountain project; water treatment facility commissioned in Q4; P+Pr reserves are projected to support 43 years of mining at current production rate.
Greenhills	**Teck Coal Limited (80%)**; POSCAN (20%)	HCC; Bituminous coal; 082JSE007	4.918 Mt clean	HCC P: 11.6 Mt Pr: 283.4 Mt	HCC M: 179.5 Mt I: 227.6 Mt Inf: 168.5 Mt	Cougar Pit Expansion (CPX) approved (2016); exploration drilling in expansion areas; coal quality testing; P+Pr reserves are projected to support another 50 years of mining at current planned production rates.
Line Creek	**Teck Coal Limited (100%)**	HCC, TC; Bituminous coal; 082GNE020	3.170 Mt clean	HCC P: 3.2 Mt Pr: 41.9 Mt TC P: 0.5 Mt Pr: 12.7 Mt	HCC M: 305.1 Mt I: 405.3 Mt Inf: 417.9 Mt TC M: 7.2 Mt I: 5.8 Mt Inf: 3.3 Mt	Burnt Ridge Extension (BRX) approved (2016); exploration drilling and coal quality test work in expansion areas; first active water treatment facility commissioned (2016); P+Pr reserves at Line Creek are projected to support another 15 years of mining at planned production rates.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal
P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

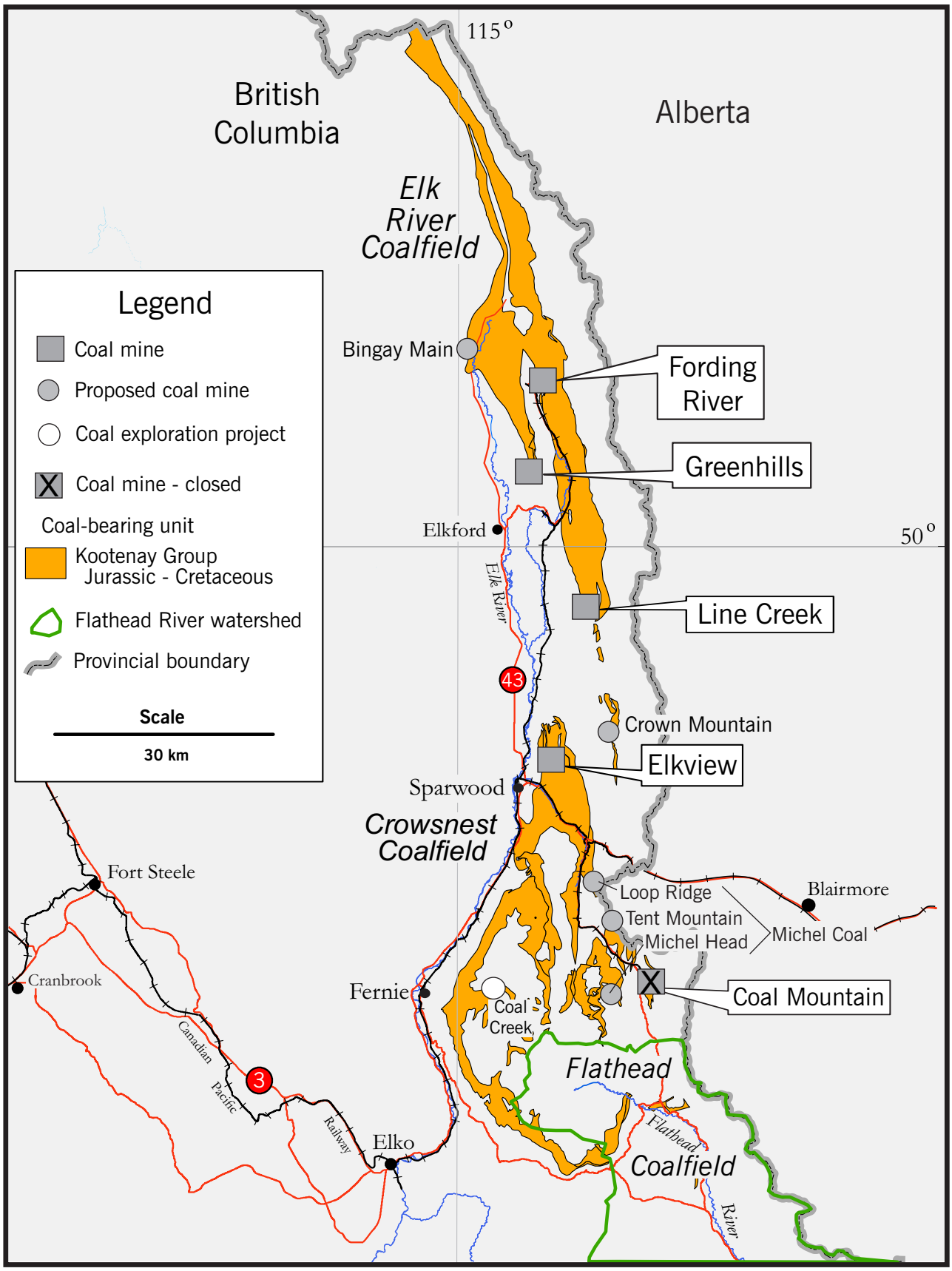

Fig. 2. Map of the Kootenay Group and East Kootenay coalfields, including the major coal mines and projects in southeastern British Columbia. From British Columbia Geological Survey (2021).

coal, with lesser amounts of lower grade hard coking coal. The current annual production capacity of the mine is 9 Mt; the preparation plant has a capacity of 9.5 Mt. In 2020, production at **Fording River** was mainly from the Eagle Mountain and Swift pits. The focus for exploration drilling in 2020 was in the Castle Mountain area, but Teck also did exploration drilling, along with large-diameter core drilling, in their producing pits. Teck carried out bulk sampling on seams in Castle Mountain area for coal quality testing. Proven and Probable reserves at the mine are from the Eagle Mountain, Swift, Turnbull, and Castle Mountain areas, and are projected to support a further 43 years at planned production rates.

The Castle Mountain expansion is southeast of the main **Fording River** area. It would require an extension of the existing Fording mine boundary by approximately 2550 ha, but would use the existing Fording plants, transmission lines, and rail load out facilities. The expansion project will undergo both provincial and federal reviews, with proposed construction beginning in 2023. Teck Coal Limited submitted an initial project description to the British Columbia Environmental Assessment Office in April and to the Impact Assessment Agency of Canada in October. Exploration on the Castle area began in 1969, and the area has been included in the reserves reporting at Fording since 2010. Following depletion of the existing pits at Fording, it is expected that the bulk of production at **Fording River** would eventually come from the Castle Mountain area, with an annual production of 10 Mt extending the mine life by several decades.

3.2.2. Greenhills (Teck Coal Limited 80%; POSCO Canada Limited ('POSCAN') 20%)

The **Greenhills** mine, which produces mainly metallurgical coal and lesser thermal coal, consists of approximately 11,800 ha of coal lands. Coal seams generally grade in rank from medium-volatile bituminous in the lower parts of the section to high-volatile-A bituminous at higher intervals. Currently, the annual production capacity is 5.9 Mt from the mine and 5.4 Mt from the preparation plant. To improve operational efficiency, some of the coal from **Greenhills** is processed at **Fording River**. Production is mainly from the Cougar pit area; Proven and Probable reserves are projected to support another 50 years of mining at planned production rates.

The Cougar Pit Extension project is the expansion area for Greenhills Operations. Approved in 2016, it lies immediately north of the existing operations and, at full development, it will merge with the Fording River Swift expansion. Exploration drilling in 2020 included both in-pit drilling to update structural and seam quality models, and further step-out drilling in their permitted extension areas.

3.2.3. Line Creek (Teck Coal Limited)

The **Line Creek** mine (Fig. 2), consisting of approximately 8200 ha of coal lands, produces mainly metallurgical coal and lesser thermal coal. Coal seams are predominantly medium-volatile bituminous in rank, with some high volatile-A bituminous coals near the top of the section. The current annual production capacity of the mine and preparation plant is approximately 4.0 Mt.

In 2020, production was mainly from the Burnt Ridge extension (BRX), Mount Michael (MTM), and Mine Services extension (MSX) pits. Exploration drilling was mainly in active pits, and at the Burnt Ridge extension (BRX) and Mount Michael. Proven and Probable reserves at Line Creek are projected to support planned production rates for a further 15 years.

First commissioned in 2016, an active water treatment facility has been redesigned to optimize treatment techniques. The facility is now fully operational, but further passive water treatment methods, including a planned saturated rock fill, will be used.

3.2.4. Elkview (Teck Coal Limited 95%; Nippon Steel & Sumimoto Metal Corporation 2.5%; POSCO 2.5%)

The **Elkview** mine (Fig. 2) produces mainly high-quality mid-volatile hard coking coal from thrust repetitions of seams in a southwest-plunging syncline. The mine site consists of approximately 27,100 ha of coal lands. In 2020, work was completed that increased the annual production capacity of the mine and preparation plant from 7.4 to 9.0 Mt. Teck estimates a remaining reserve life of approximately 36 years at the current production rate. In 2020, drilling continued in their active pits and expansion areas; production was primarily from the Baldy Ridge, Natal Ridge, Adit Ridge expansion areas.

In 2020, **Elkview** also received approval to expand their pilot saturated rock fill project after successful trials.

3.2.5. Coal Mountain (Teck Coal Limited)

Coal Mountain (Fig. 2), consisting of approximately 3000 ha of coal lands, produced mainly pulverized coal injection (PCI) and thermal coal. Originally opened around 1905, the mine has now reached the end of its reserve life. It produced a small amount in the first half of 2019 but was placed on care and maintenance later in the year. Reclamation of the mine is well underway on the final lifts of the dry stacked tailings facility and waste dump spoils. The wash plant (with an annual capacity of approximately 3.5 Mt) and load out facilities will be kept operational. Teck Coal Limited plans to maintain production levels by optimizing and expanding production at their other metallurgical coal mines, and from recently approved expansion areas.

3.3. Industrial mineral mines and quarries

The Southeast Region hosts several industrial mineral mines, the largest of which are in the Rocky Mountain foreland belt, where upturned strata are exposed and easily mined (Fig. 1). Throughout the region are a variety of smaller mines and quarries (Table 2).

3.3.1. 4J (Georgia-Pacific Canada Limited)

Georgia-Pacific Canada Limited operates the **4J** gypsum

Table 2. Selected industrial mineral mines, Southeast Region.

Mine	Operator	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
4J	**Georgia-Pacific Canada Limited**	Gypsum; Bedded gypsum; 082JSW009	na	na	Estimated: 20 Mt	Care and maintenance.
Elkhorn	**CertainTeed Gypsum Inc.**	Gypsum, anhydrite; Bedded gypsum; 082JSW021	Gypsum 300,000 t Anhydrite 120,000 t	na	na	Mine expected to remain open until 2023; the company will replace production by developing the Kootenay West mine (EAO certificate granted in 2018).
Horse Creek Silica	**HiTest Sand Inc.**	Silica; Silica sandstone; 082N 043	na	na	Estimated: 3 Mt at 99.5% silica (1987)	Seasonal quarry; variety of aggregate and industrial use products; amending quarry permits; mine planning; geotechnical and environmental baseline studies.
Moberly Silica	**Vitreo Minerals Limited**	Silica; Industrial use silica, frac sand; 082N 001	na	20 to 140 mesh frac sand (dry) P: 8.9 Mt of 64% frac sand + Pr: 4.6 Mt of 64% frac sand (2014)	M + I: 30 to 140 mesh frac sand (dry): 37.5Mt at 70% frac sand + 11.3 Mt silica as frac sand residues (2016)	Care and maintenance; transfer of ownership.
Mount Brussilof	**Baymag Inc.**	Magnesite; Hydrothermal sparry magnesite; 082JNW001	230,000 t	P: 50 Mt	na	MgO, and MgOH; sediment-hosted sparry magnesite.
Winner	**Rockwool Inc.**	Gabbro/basalt; Crushed rock for mineral wool; 082ESE265	Quarrying feed stock for mineral wool plant	na	na	Crushing, screening, stockpiling; environmental monitoring.

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

mine and a rail load-out facility southeast of Canal Flats. The deposit is in Burnais Formation evaporites (Middle Devonian). The quarry is currently on care and maintenance.

3.3.2. Elkhorn (Certainteed Gypsum Inc.)

The **Elkhorn** mine produces gypsum from evaporitic strata of the Burnais Formation (Middle Devonian). Now nearing the end of its reserve life for gypsum, the mine acquired a market interest in a product blended with anhydrite, which was once left behind as waste. This realignment will allow the mine to continue production until 2023. The company plans to replace gypsum production after mine closure with their new **Kootenay West** mine (see section 5.1.), which is currently under construction.

3.3.3. Horse Creek Silica (HiTest Sand Inc.)

At the **Horse Creek Silica** mine, HiTest Sand Inc. operates a seasonal quarry in Mount Wilson orthoquartzites. The orthoquartzites are more consolidated than at Moberly, and HiTest Sand Inc. produces industrial-use and aggregate products. In 2020, the company began amending their quarry permits and updating their mine designs for increased production and completed environmental baseline and geotechnical work.

3.3.4. Moberly Silica (Vitreo Minerals Limited)

The **Moberly Silica** mine was placed on care and maintenance this year while the company amended permits. The deposit has been mined since the early 1980s for silica sand, glass making, and other industrial uses. The silica deposit is in regionally extensive orthoquartzites of the Mount Wilson Formation (Middle to Upper Ordovician). At Moberly Mountain, the formation is ~99% SiO_2, partially de-cemented, and friable along a fault zone. At the mine, the unit is nearly vertical, about 300 m thick, and extends along strike for 800 m.

3.3.5. Mount Brussilof (Baymag Inc.)

Baymag Inc. produces magnesite at the **Mount Brussilof** mine from a deposit in Cambrian carbonate rocks of the Cathedral Formation. The deposit displays characteristics similar to Mississippi Valley-type mineralization (Paradis and Simandl, 2017), and sulphides (mainly pyrite) are removed as impurities from the product. The mine has been in production since 1981, and magnesite ore is transported by truck to the company's processing facilities in Exshaw Alberta. Annual magnesite production is approximately 230 kt.

3.3.6. Winner (Rockwool Inc.)

Rockwool Inc. operates two small seasonal quarries, extracting gabbro from **Winner**, and basalt from **Friday** (North Fork). The material is trucked to the Rockwool Inc. manufacturing plant in Grand Forks, where it is blended with other mineral material to make mineral wool insulation, construction board, blankets, and pipe covering. The product is naturally fire-retardant.

4. Placer operations

Placer mines have operated in southeastern British Columbia since the gold rush began in 1864. Although activities were not tracked in 2020, several placer areas have operations under active Mines Act permits. Prospective placer creeks are generally linked to areas with hard rock exploration for gold.

5. Mine development

In addition to the coal mine expansion projects in the Elk Valley, one new gypsum mine, **Kootenay West** (Certainteed Gypsum Inc.) is currently under construction (Table 3).

5.1. Kootenay West (Certainteed Gypsum Inc.)

The **Kootenay West** mine (Certainteed Gypsum Inc.), is currently under construction. The project was approved by the Environmental Assessment Office in January 2018 and the company has been working through design modifications and conditions in the approval. The quarry will have two pits that mine gypsum from a deformed section of the Burnais Formation. Mineable beds are 20-25 m thick and contain 75-95% gypsum. The mine is expected to produce 16.9 Mt of gypsum at an average blended quality of 83.2%, with a full production rate of 400,000 tpy. The current projected mine life is 42 years. Gypsum would be drilled, blasted, and crushed, then transported by truck to Exshaw, Alberta or Washington State, or by rail to Vancouver. Initial construction, with estimated capital costs of $20 million, began in 2019, and the company has been working on environmental baseline studies and geotechnical work for updated mine plans.

6. Proposed mines and quarries

The Southeast Region has three proposed coal mines, **Bingay Main** (Centermount Coal Ltd.), **Crown Mountain** (NWP Coal Canada Limited), **Michel Coal** (North Coal Ltd.), and two industrial mineral mines, **Black Crystal** (Eagle Graphite Corp.) and **Driftwood Creek** (MGX Minerals Inc.) (Table 4).

6.1. Proposed metal mines

There are currently no proposed metal mines in the region.

6.2. Proposed coal mines

There are currently three proposed coal mines in the Southeast Region. In various phases of environmental assessment, each must demonstrate how they will meet the guidelines set out in the Elk Valley Water Quality Plan.

6.2.1. Bingay Main (Centermount Coal Ltd.)

Centermount Coal Ltd. is proposing an open-pit mine on the **Bingay Main** property (Fig. 2). The mine would produce approximately 1 Mtpy during an estimated 15-year lifespan, with a total resource of approximately 13 Mt. At **Bingay**, the coal-bearing Mist Mountain Formation is preserved in a tight, asymmetric syncline in the immediate footwall of a west-dipping thrust fault (Bourgeau thrust). The coal is medium-volatile to high volatile-A bituminous in rank. Although the

Table 3. Selected mine development projects, Southeast Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Kootenay West	**Certainteed Gypsum Inc.**	Gypsum; Evaporitic bedded gypsum; 082JSW005, 20	na	North and South quarries: Total 16.9 Mt (at average quality of 83-85% gypsum)	Mine construction; granted a conditional EA certificate in January, 2018; environmental baseline and geotechnical work, permitting, and modifications to mine design; construction began in 2019; 400,000 tpy; 43-year mine life.

Table 4. Selected proposed mines, Southeast Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Bingay Main	**Centermount Coal Ltd.**	Coal; Bituminous coal; 082JSE011	na	na	Pre-application stages of EA; letter submitted for project to remain in EA.
Black Crystal	**Eagle Graphite Corp.**	Graphite; Crystalline flake graphite; 082FNW260, 283	na	Regolith + calc-silicate; M + I: 19.23 Mt at 1.35% fixed carbon Inf: 23.92 Mt at 1.3% fixed carbon (2018)	Research and development; possible application for Li-ion batteries.
Crown Mountain	**NWP Coal Canada Limited** (Jameson Resources Limited (80%), Bathurst Resources Limited (20%))	Coal (HCC and PCI); Bituminous coal; 082GNE018	HCC: P: 42.60 Mt Pr: 4.91 Mt PCI: P: 7.13 Mt Pr: 1.19 Mt (2014)	HCC + PCI: M: 68.9 Mt I: 6.0 Mt (2014)	Pre-application of EA (2014); Application Information Requirements (AIR; 2018); water quality and treatment studies; engineering studies and mine design; bankable feasibility study; 15-year mine life; 3.7 M tpy.
Driftwood Creek	**MGX Minerals Inc.**	Magnesite; Sparry magnesite; 082KNE068	na	M + I: 7.847 Mt grading 43.27% MgO Inf: 55.8 Mt (2016; using cutoff grade of 42.5% MgO)	1200 tpd quarry proposed; 169,700 t of MgO, average grade of 43.27% MgO, 19-year mine life; environmental baseline and engineering studies; preliminary test work indicates recovery rates of 93.4% reverse flotation and removal of up to 70% silica and 30% calcium oxides; bulk of resource is within 100 m of surface.
Michel Coal	**North Coal Ltd.**	Coal (HCC and PCI); Bituminous coal; 082GSE050	na	HCC: M: 44.6 Mt I: 42.5 Mt; open-pit and underground (2015)	Entered pre-application of EA in 2015; received AIR requirements in September 2020; geotechnical studies and updates to mine design; coal quality testing indicates coal has similar characteristics to Elk Valley hard coking coal; environmental baseline and mine design.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal
P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

project has been delayed, in 2020 the company requested that it remain in the environmental assessment process.

6.2.2. Crown Mountain (NWP Coal Canada Limited)

The **Crown Mountain** property is along strike with **Line Creek** (Fig. 2) but separated by complex geology and thrust faults. The property contains seven major Mist Mountain Formation coal seams, with combined average thicknesses of 15 to 35 m. NWP Coal Canada Limited is jointly owned by Jameson Resources Limited (80%) and Bathurst Resources Limited (20%). The project entered the environmental assessment process in 2014 and received Application Information Requirements in April 2018. Environmental baseline and mine design work progressed in 2020, with planned submissions for environmental assessment to both federal and provincial agencies in early 2021. A bankable feasibility study completed this year indicates that the project could produce 3.7 Mtpy during a mine life of 15 years and has an estimated net present value of $217 million with an internal rate of return of 27.2%.

Coal quality test work indicates that approximately 84% of the coal is hard coking coal, the remainder PCI coal. Environmental baseline work and geotechnical drilling continued, as did engineering work on spoil pile design and water treatment. The company is exploring the use of biological processes in anoxic waste rock piles as one means to sequester and manage selenium runoff.

6.2.3. Michel Coal (North Coal Ltd.)

North Coal Ltd., a wholly owned subsidiary of CoalMont Pty Ltd., received the Application Information Requirements (AIR) for their **Michel Coal** project (Fig. 2) in September 2020. The project will undergo both federal and provincial reviews, and will include their Loop Ridge, Loop South, Tent Mountain, and Michel Head areas, with two open pits. The project is expected to produce between 2.3 and 4 Mt annually, with a 30-year mine life.

In 2020, work on environmental baseline and monitoring, permitting, and mine design continued, in addition to some trail construction for further drilling. Water treatment options being explored will use diversion, and active and passive techniques to ensure that water quality objectives can be met. Coal seams are 5 to 20 m thick and are characteristic of Elk Valley hard coking coals (HCC). Variations in coal quality characteristics in their different mining areas will allow them flexibility in blending product to client specifications. Structure and spacing of the seams give the project a low (~6:1) strip ratio. The resource estimate (2018) includes 44.6 Mt Measured and 42.5 Mt Indicated (open-pit and underground).

6.3. Proposed industrial mineral mines

The **Black Crystal** graphite quarry (Eagle Graphite Corp.) is on care and maintenance while the company focusses on product research and development. MGX Minerals Inc.'s **Driftwood Creek** project is a proposed magnesite mine. Several small quarries and pits for dimension stone, flagstone, and sand and gravel are not considered here.

6.3.1. Black Crystal (Eagle Graphite Corp.)

Eagle Graphite Corp. operates the **Black Crystal** flake graphite open-pit quarry on Hodder Creek and a processing plant 10 km west of Passmore. The property is underlain by Paleozoic upper amphibolite-grade gneisses that were exhumed during Tertiary extension. Disseminated fine- to coarse-flake graphite is distributed along foliation in organic-rich calcsilicates and marbles, across an area of about 500 m^2. At the quarry location, the graphitic horizon is 30-40 m thick, immediately underlying overburden, and dips sub-parallel to topography. Graphite is in two zones: a 'hard rock' zone, and an overlying 'regolith' zone. The regolith zone, reflecting near-surface weathering, averages 2-4 m thick and has grades of up to 6.95% carbon. Most of the deposit is friable, and blasting is not required. Sand and aggregate are by-products.

6.3.2. Driftwood Creek (MGX Minerals Inc.)

At the **Driftwood Creek** property, cliff-forming, steeply dipping beds of sparry magnesite are interlayered with dolostones and dolomitic limestones of the Mount Nelson Formation (Proterozoic). The deposit is 100 to 300 m wide, extends to a depth of approximately 110 m, and continues along strike for 2000 m. The proposed quarry is a 1200 tpd operation that would produce 169,700 t of MgO at an average grade of 43.27% MgO, with a 19-year mine life. In 2020, the company continued environmental baseline studies, engineering design work, and work on a Preliminary Economic Assessment.

7. Selected exploration activities and highlights

Exploration continued in the Southeast Region in 2020 for numerous targets, including base and precious metals, industrial minerals, and coal (Fig. 1; Table 5).

7.1. Selected precious metal projects

Exploration for precious metals is ongoing in the Southeast Region for vein (epithermal and mesothermal), porphyry-related, and skarn systems.

7.1.1. Gold Shear (PJX Resources Inc.)

PJX Resources Inc. continued work at the **Gold Shear** property in 2020. Steeply dipping north-northeast shear zones on the property cut quartzites and siltstones of the middle Aldridge Formation (Mesoproterozoic; Purcell Supergroup). Multiple phases of quartz veins and carbonate and sericite alteration occur within and adjacent to the main David shear zone. Mineralization occurs as pyrite, galena, chalcopyrite, and sphalerite and includes rare visible gold. The David zone, a gold-mineralized quartz vein, was discovered in 1990 (MINFILE 082FSE108) and has since been traced along strike for 1600 m and 150 m downdip, along with several other splays and veins. High-grade gold mineralization, up to 54.76 g/t, occurs in the main shear, and coincides with increased sulphide mineralization, and/or dilations in the shear zone. VLF ground geophysics done by PJX identified a large conductive target area down-dip of the David zone, below the depth of historical drilling. In 2020, PJX Resources Inc. released results from drilling that tested the downdip extension of the vein to 100 m below surface. Vein intersections were 1.2 to 4.5 m wide, with 2.5 m grading 25.07 g/t Au, 2.1 m grading 14.06 g/t Au, and 1.2 m grading 19.85 g/t Au. Mapping and prospecting in 2020 identified four separate mineralized parallel shear zones along strike with the David zone. Grab samples from two of the veins returned values of up to 250 g/t Au.

7.1.2. Ore Hill (Apex Resources Inc.)

The **Ore Hill** property is in the historic Sheep Creek gold mining camp. Late Jurassic mineralization (pyrite, pyrrhotite, chalcopyrite, galena, sphalerite, and rare visible gold) occurs in steeply dipping quartz veins along northeast-trending structures. Between 1906 and 1940, a total of 3335 t of ore was mined, from which 115,671 g of Au (34.7 g/t), 202,307 g of Ag (60.7 g/t), 93,985 kg of Pb, and 88,639 kg of Zn were recovered (MINFILE 082FSW053).

Gold mineralization occurs in a 10 m wide breccia zone along a north-trending fault that extends for more than 1500 m across the Summit and Ore Hill claims. North-trending magnetic anomalies from an airborne Heliogeotem survey in 2009 coincide with soil anomalies and surface mineralization across an area 950 m by 150 m. In 2020, Apex Resources Inc. followed up on 2019 drilling that intersected zones including

Table 5. Selected exploration projects, Southeast Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
Aldridge 1 & 2	**DLP Resources Inc.**	Pb-Zn-Ag±Au; Polymetallic veins, SEDEX	na	**Aldridge 1**: Drilling (2 DD holes, 2477 m); encountered 200 m of hydrothermally alteration and disseminated sulphides; **Aldridge 2**: Drilling (1 DD hole; 482 m).
Athelstan-Jackpot	**Belmont Resources Inc.**	Au, Ag, Cu, talc; Polymetallic veins Ag-Pb-Zn±Au, Carbonate-hosted talc; 082ESE047	na	Data compilation, mapping, sampling, lidar, drone-based magnetic survey; ground IP.
Bull River mine	**Braveheart Resources Inc.**	Cu-Ag-Pb-Zn±Au; Polymetallic veins; 082GNW002, 6, 15	I: 1.51 Mt grading 1.91% Cu, 0.41 g/t Au, 15.6 g/t Ag at 1% CuEq cut-off Inf: 0.34 Mt grading 1.58% Cu, 0.36 g/t Au, 10.7 g/t Ag at 1% CuEq cut-off (2018)	Drilling (5 DD holes, 831 m); environmental baseline studies; updating mine plan and permitting; design work on the TSF; drill results include 4.24 m grading 1.39% Cu, 1.33 g/t Au, and 9.51 g/t Ag.
Come by Chance	**Belmont Resources Inc.**	Au-Ag-Pb-Zn±Cu; Cu skarn, Au-epithermal, polymetallic veins; 082ESE261, 183, 131	na	Data compilation, mapping, sampling, lidar, drone-based magnetic survey.
DD	**DLP Resources Inc**. (PJX Resources Inc.)	Pb-Zn-Ag±Au; Polymetallic veins, SEDEX; 082FSE110, 082GSW077	na	Drilling (1 DD hole) extended from 1425 to 1711 m; magnetotelluric survey (33 line-km); encountered 24.8 m of distal-style SEDEX mineralization with trace sphalerite.
Gold Drop	**GGX Gold Corp.**	Au, Ag, Te; Alkaline intrusion-associated Au; 082ESE055, 150, 152, 153, 285, 286, 287	na	Drilling (24 DD holes, 2700 m) at C.O.D vein and C.O.D West; trenching; mapping, rock sampling. Two new veins discovered. Results up to 10.15 g/t Au and 142 g/t Ag from trenching at C.O.D South.
Golden Crown	**Golden Dawn Minerals Inc.**	Au-Ag-Pb-Zn±Cu; Cu-Au-Ag skarns, polymetallic veins, epithermal Au-veins, porphyry; 082ESE041, 42, 32, 45, 20, 130, 116	Golden Crown M+I: 163,000 t grading 11.09 g/t Au, 0.56% Cu (2016)	Trenching (2000 m); mapping; sampling.
Golden Hornet	**Talisker Resources Ltd.**	Au, Ag, Cu; Polymetallic veins; 082ESE293, 104, 168, 217	na	Mapping, sampling, soil geochemistry; results include grab samples grading 26.1 g/t Au and 12g/t Au.
Gold Shear	**PJX Resources Inc.**	Au, Cu, Pb, Zn; Polymetallic veins, Au-quartz veins; 082FSE108	na	David zone; vein target 1.2 to 4.5 m width; results include 2.5 m grading 25.07 g/t Au, 2.1 m grading 14.06 g/t Au, and 1.2 m grading 19.85 g/t Au; mapping and sampling identified four parallel mineralized shear zones, traced along strike for 1600 m; grab samples returned up to 250 g/t Au.

Table 5. Continued.

Heino Gold	**MGX Minerals Inc.**	Au-Ag-Pb-Zn; Skarn; 082FNW234, 294, 295, 296, 297, 220	na	Heino-Money and Tillicum zones; data compilation; lidar; mapping; metallurgical test work (94.1% recovery of Au); sample results up to 207 g/t Au.
Iron Range	**Private partner** (Eagle Plains Resources Ltd.)	Pb-Zn-Ag±Cu, Au; Vein, breccia, IOCG; 082FSE014, 15, 16, 17, 18, 19, 20, 21, 22, 23	na	Drilling (10 DD holes, 1000 m); mapping, sampling.
Kenville	**Ximen Mining Corp.**	Ag-Au-Cu±Pb, Zn, Cd, W; Au-veins, polymetallic veins, porphyry; 082FSW086, 87, 85, 254, 354	M: 3312 t grading 31.72 g/t Au I: 21,312 t grading 18.84 g/t Au Inf: 522,321 t grading 23.01 g/t Au (2009; non-compliant)	Rehabilitation of 257 portal; metallurgical testwork indicates up to 98.5% recovery of Au using gravity-flotation; Permitting for underground decline, drilling, and bulk sampling; ML/ARD test work; environmental baseline studies.
Ket 28	**Grizzly Discoveries Inc.**	Au; Au-veins; 082ESW210	na	Drilling (15 DD holes, 1975 m); initial results include 3.08 m grading 7.37 g/t Au.
Kettle Valley Gold	**Goldcliff Resource Corporation**	Au; Au-quartz veins	na	Mapping, sampling; results include 0.25 g/t Au, with values up to 2.38 g/t Au and 43.49 g/t Ag.
Ore Hill	**Apex Resources Inc.**	Au±Ag, Pb, Zn; Au-quartz veins, polymetallic veins; 082FSW040, 48, 50, 51, 52, 53 082FSE 030, 31, 34, 25	na	Drilling (1600 m, 12 DD holes); mapping, rock sampling; two magnetic anomalies coincident with soil geochemical anomalies and historic production; results include 0.30 m grading 32.9 g/t Au; assays pending.
Providence	**Ximen Mining Corp.**	Au±Ag, Pb, Zn; Au-quartz veins, polymetallic veins; 082ESE001, 135, 165	na	Drilling (6 DD holes, 1172 m); mapping, grab and chip sampling, soil geochemistry; two grab samples assayed 884 g/t Ag and 1.36 g/t Au; 436 g/t Ag and 4.4 g/t Au.
Radpath	**KG Exploration (Canada) Inc.**	Au-Cu-Pb-Zn-Ag±Mo; Cu-Au-Ag skarn, VMS, polymetallic veins, Au-vein, porphyry; 082ESE077, 57, 146, 158	na	Drilling (4 DD holes, 1200 m); mapping, sampling, soil geochemistry; following up on targets identified on ground magnetics and airborne geophysics; rock sample results include up to 11.9 g/t Au.
Regal	**Affinity Metals Corp.**	Ag-Pb-Zn±Au; Polymetallic veins, SEDEX; 082N 004, 3, 16	Regal 590,703 t grading 71.6 g/t Ag, 2.66% Pb, 1.26% Zn, 1.1% Cu, 0.13% Sn and 0.015% W (1982; non-compliant)	Drilling at the Allco (19 DD holes, 3443 m); results from 2019 drilling include 11.1 m grading 143.29 g/t Ag.

Table 5. Continued.

Revel Ridge	**Rokmaster Resources Corp.**	Ag-Pb-Zn±Au; SEDEX, Irish-type carbonate-hosted, polymetallic veins; 0825M 003	Main Zone M+I: 4.2 Mt grading 5.59 g/t Au, 53.4 g/t Ag, 1.87% Pb, 3.43% Zn Inf: 4.562 Mt grading 4.36 g/t Au, 61.8 g/t Ag, 1.88% Pb, 2.59% Zn Yellowjacket Zone I: 771 kt grading 0.9 g/t Au, 62.6 g/t Ag, 2.6% Pb, 9.93% Zn Inf: 23 kt grading 0.11 g/t Au, 55.4 g/t Ag, 2.65% Pb, 7.68% Zn	J&L mine; rehabilitation of portal and underground workings at the Main Zone; underground drilling began late in the year, continuing into 2021 (6000 m, 20 DD holes completed); mapping and sampling; metallurgical test work; updated resource estimate; environmental baseline and monitoring; began an updated PEA; grab samples results up to 6.57 g/t Au, 311 g/t Ag, 9.53% Zn, and 7.02 % Pb; chip sample results include 0.3 m grading 5.6 g/t Au, 173 g/t Ag, 0.72% Zn, and 6.65% Pb.
Robocop	**Grizzly Discoveries Inc.**	Co-Cu-Ag; Sediment-hosted; 082GSW019, 20, 1	na	Airborne geophysics (VTEM, magnetics); grab samples of up to 1.46% Cu and 0.036% Co.
Rossland Gold	**Accelerate Resources Ltd.** (Currie Rose Resources Ltd.)	Au±Ag, Cu, Pb, Zn; Au-quartz veins; 082FSW093, 195, 102, 135	na	Drilling (2 DD holes, 150 m); mapping, sampling, VLF-EM survey; option agreement.
Silvana	**Klondike Silver Corp.**	Ag-Pb-Zn±Au; Polymetallic veins; 082FNW050, 13, 082KSW006	na	Underground drilling (10 DD holes); facility upgrades; environmental monitoring; mill on care and maintenance; environmental baseline work.
Thor	**Taranis Resources Inc.**	Ag-Pb-Zn±Au; Polymetallic veins and breccia, stratiform volcanogenic massive sulphide; 082KNW030, 31, 60, 61	I: 640,000 t grading 0.88 g/t Au, 187 g/t Ag, 0.14% Cu, 2.51% Pb, and 3.51% Zn; Inf: 424,000 t grading 0.98 g/t Au, 176 g/t Ag, 0.14% Cu, 2.26% Pb, and 3.2% Zn (2013)	Drilling (8 DD holes, 1200 m); mapping; sampling; geophysics; update of geological model; environmental baseline studies; permitting for 10,000 t bulk sample; channel sample results at Scab zone include: 3.05 m grading 3.72 g/t Au, 345 g/t Ag, 0.07% Cu, 2.24% Pb and 0.38% Zn; and 2.52 m grading 1.29 g/t Au, 72 g/t Ag, 0.02% Cu, 1.40% Pb and 0.71% Zn; initial drill results from the first drill hole include: 0.76 m grading 3.96 g/t Au, and 2.9 m grading 0.5 g/t Au, 252.5 g/t Ag, 0.14% Cu, 1.64% Pb, and 5.3% Zn.
Vine	**PJX Resources Inc.**	Pb-Zn-Ag±Au; Polymetallic veins, SEDEX; 082GSW050, 49, 35	1.3 Mt grading 2.2 g/t Au, 36.3 g/t Ag, 3.12% Pb, 3.12% Zn, 0.11% Cu (1990 on Vine vein; non-compliant)	Drilling (1 DD hole); downhole geophysics; geophysical and geological modeling; drilling on deep magnetotelluric anomaly.
Vulcan	**Eagle Plains Resources Ltd.**	Pb-Zn-Ag±Au; Polymetallic veins, SEDEX; 082FNE103, 101, 102, 104, 93, 160	na	Mapping, sampling, soil geochemistry, geophysical (IP and MT) survey; chip sample 1.6 % Pb+Zn, and 10g/t Ag for 1.5 m.

M = Measured; I = Indicated; Inf = Inferred

0.30 m grading 289.97 g/t Au. They drilled 12 holes (1600 m) along a 500 m zone of the soil anomaly, and encountered 0.3 m grading 32.9 g/t, with assays pending from eight more holes.

7.1.3. Kenville (Ximen Mining Corp.)

Ximen Mining Corp. continued work on the **Kenville** property in 2020. The area is mainly underlain by mafic volcanic rocks of the Eagle Creek plutonic complex (Jurassic) which may be co-magmatic with volcanic rocks of the Elise Formation (Rossland Group). Nelson granodiorites (Late Jurassic) and Tertiary intrusive rocks are common in the area. The predominant regional structural features are broad, north-trending, east-vergent folds. The original past-producing **Kenville** mine, also known as the Granite-Poorman mine (Au-Ag-Pb-Zn-Cu), is a gold-quartz vein deposit and consists of five north-northwest trending veins that can be traced for at least 500 m with an average thickness of 0.6 m. It was the first underground lode gold mine in British Columbia and operated intermittently between 1890 and 1954. Historic production totalled 180,740 t averaging 9.07 g/t Au and 3.96 g/t Ag. In total, the mine produced 65,236 oz of Au, 27,686 oz of Ag, 51,782 lbs of Pb and 33,393 lbs of Zn (MINFILE 082FSW086). Exploration of the property since 1992 included soil sampling, airborne EM geophysics, and both surface and underground drilling to test the southern extension of the veins and to define new targets.

Work in 2020 consisted of rehabilitation work on the 257 portal for a planned new decline and underground exploration work. Expected mine grades are about 17.2 g/t Au and 35.6 g/t Ag. A composite sample of low- and high-grade zones was collected to roughly match the expected grades and sent for metallurgical testing. Approximately 98.85% of the gold was recovered in gravity and flotation circuits. Environmental baseline work and waste characterization is underway for permitting and bulk sampling.

7.1.4. Rossland Gold (Accelerate Resources Ltd., Currie Rose Resources Inc.)

In 2020, Currie Rose Resources Inc. completed and initial geophysical (VLF-EM) survey at the **Rossland Gold** property. The property was then optioned to Accelerate Resources Ltd., who continued exploration work and began drilling late in the year. The Rossland area is underlain by upper Paleozoic (Mount Roberts Formation) and Lower Jurassic (Rossland Group, Elise Formation) volcanic and sedimentary rocks, and Early Jurassic to Eocene intrusive rocks (Rossland monzonite, Rainy Day pluton, Trail pluton, and Coryell suite; lamprophyres and serpentinites). With numerous historical producers, the Rossland camp produced more than 84,000 kg of Au and 105,000 kg of Ag between 1894 and 1941. Three main deposit types occur within the camp: 1) copper-gold veins with minor lead and zinc in fracture zones; 2) gold veins in high-grade shoots; and 3) molybdenum-tungsten, in fractures of the Trail pluton on Red Mountain (Fyles, 1984).

7.1.5. Radpath (KG Exploration (Canada) Inc.)

KG Exploration (Canada) Inc. (a wholly owned subsidiary of Kinross Gold Corporation) is targeting epithermal, skarn, and VMS mineralization in the northern extensions of the Republic and Toroda graben. At the **Radpath**, the area is underlain by: Knob Hill complex (Paleozoic) volcanic and sedimentary rocks and serpentinites; Brooklyn Formation (Triassic) rocks, including angular chert pebble conglomerate (‘sharpstone conglomerate’), calcareous siltstones, limestones, and pyroclastic rocks; and Cretaceous and Eocene intrusions. Eocene sedimentary rocks of the Kettle River Formation and volcanic flows of the Marron Formation unconformably overlie the older rocks. The company began mapping, geophysical and sampling on the property in 2016. In 2020, they drilled 1200 m (4 DD holes) to follow up on 2019 drilling and targets identified on airborne geophysics, ground magnetics, geological mapping, and sampling. Rock samples assayed up to 11.9 g/t Au, with the highest values in rocks along the margins of intrusive rocks that appear as magnetic highs on ground geophysics.

7.1.6. Gold Drop (GGX Gold Corp.)

GGX Gold Corp. continued drilling and trenching at the **Gold Drop** property. The property is underlain by metamorphic rocks of the Knob Hill complex (Paleozoic) intruded by granodiorite and diorite of the Nelson Plutonic suite and by biotite syenite and diorite/andesite dikes of the Coryell suite. The property hosts numerous north-trending, easterly dipping gold-bearing veins, 10 cm to 2 m thick, in steeply dipping strike-slip and normal faults. The veins post-date the Nelson intrusions, pre-date the Coryell suite, and are truncated by low-angle detachment faults. Between 1919 and 1941, the area saw small-scale production (Gold Drop, North Star, Amandy, and Rhoderick Dhu veins), from underground workings.

In 2020, the company drilled a second hole to test a 1834 by 1377 m anomaly from their 2019 airborne geophysics. The first hole encountered calc-silicate altered rocks and magnetite mineralization, with elevated copper, zinc, and iron, interpreted to be weak skarn mineralization. The anomaly is interpreted as an intrusive body at depth, located at the intersection of three structural zones. Trenching uncovered two new quartz veins (the Perky, and Lively) at the COD West area, and at the southern extension of the COD vein samples assayed up to 10.15 g/t Au and 142 g/t Ag. The company drilled at the COD vein to test mineralization at depth and at their new COD West zone. In total, 24 DD holes (2700 m) were drilled. Mapping and chip sampling were also done at the Gold Drop, North Star, Silent Friend, Ken, and Highland Valley veins to determine the next phases of drilling.

7.1.7. Ket 28 (Grizzly Discoveries Inc.)

Grizzly Discoveries Inc. owns a large land package (approximately 61,000 ha) in the Greenwood area and has been actively exploring the area since around 2008 for copper-gold skarns, auriferous VMS sulphides, and polymetallic and epithermal veins. The **Ket 28** property, on their Rock Creek

claim block, is underlain by metasedimentary and metavolcanic rocks of the Anarchist Group (Carboniferous to Permian), and intrusive rocks (Jurassic; Eocene). Gold mineralization occurs in quartz veins and veinlets along northeast- and east-trending structures, and in altered sericite-chlorite-pyrite quartz veined greenstones. In 2020, the company mapped, sampled, and drilled 15 holes (1975 m) to follow up on historic results of 11 m grading 2.77 g/t Au and 3 m grading 8.75 g/t Au, with a higher-grade zone of 2 m grading 11.90 g/t Au. They drill tested the main gold zone and southern faulted extension, encountering variable sericite-pyrite alteration, quartz veins, and silicification. Preliminary results for the first six holes included 3.08 m grading 7.37 g/t Au.

7.1.8. Golden Crown (Golden Dawn Minerals Inc.)

Golden Dawn Minerals Inc. has been evaluating several historic mineralized areas near Greenwood. Their claims cover approximately 15,400 ha, and include the May Mac, **Golden Crown**, Lexington, and Phoenix historic mines, and the Lexington (Greenwood) mill. The area is underlain by rocks of the Knob Hill and Anarchist groups (Paleozoic), the Brooklyn Formation (Triassic), and the Penticton Group (Eocene); Jurassic, Cretaceous, and Eocene intrusions occur throughout the area. Mineralization includes: Cu-Au-Ag skarn; Au-Ag epithermal; Ag-Pb-Zn±Au shear-hosted carbonate replacements, stockworks, and breccias; and alkalic porphyry Cu-Au-Ag.

In 2020, the company focussed exploration at the **Golden Crown**. They mapped, sampled, and trenched along strike between the **Golden Crown** and the JD where numerous steeply dipping sulphide-quartz veins occur in a northwest-trending shear system across an area 130 by 800 m. Trenching was to follow up on 2017 chip sample results of up to 5.87 g/t Au along 4 m, and drill intersections of 4.6 m grading 7.66 g/t Au, 0.13% Cu, and 7 m grading 5.14 g/t Au, 1.18% Cu.

7.1.9. Providence (Ximen Mining Corp.)

Ximen Mining Corp. acquired the **Providence** property in 2019, and continued work in 2020. Located near the town of Greenwood, the property is underlain by: highly deformed Paleozoic Knob Hill complex volcanic and sedimentary rocks; Attwood Group (Permo-Carboniferous) black argillites, conglomerates, greywackes, limestone lenses, and metavolcanic rocks; and Brooklyn Formation (Triassic) chert pebble conglomerate (‘sharpstone conglomerate’), calcareous siltstones, limestones, and volcanic breccias; and Penticton Group (Eocene rocks). Numerous small stocks (ultramafic, granite to diorite, and syenites; Triassic to Tertiary) occur along fault zones. At the historic **Providence** mine, northeast-trending veins contain pyrite, galena, sphalerite, chalcopyrite, tetrahedrite, proustite, native silver and free gold, in quartz-carbonate gangue. The mine operated intermittently from 1893 to 1973 and produced 183 kg of Au, 42,552 kg of Ag, 183 t of Pb, 118 t of Zn and minor Cu, from 10,426 t mined (MINFILE 082ESE001).

In 2020, the company drilled 6 holes (1172 m), mapped, sampled, and conducted soil geochemistry to locate extensions of the vein system. Two grab samples tested 884 g/t Ag and 1.36 g/t Au, and 436 g/t Ag and 4.4 g/t Au.

7.1.10. Athelstan-Jackpot, Come by Chance (Belmont Resources Inc.)

Belmont Resources Inc. worked on their properties in the Greenwood area, including the **Athelstan-Jackpot** and **Come by Chance**. At the **Athelstan-Jackpot** property, ultrabasic rocks and diorite dikes are the main rocks exposed, with talc-carbonate lenses (listwanites) and serpentinites in shear zones. Gold mineralization is in silica-altered zones and quartz veins in the listwanites. Belmont Resources Inc. conducted initial mapping and sampling and flew lidar, a drone magnetic survey, and a ground IP survey. The mineralized trend of the Athelstan and Jackpot historic producers (MINFILE 082ESE047) coincides with resistivity and chargeability anomalies on IP, and the company has prioritized targets for drilling next year.

At **Come by Chance**, the area is underlain by Attwood Group (Permo-Carboniferous) and Brooklyn Formation (Triassic) rocks, and intrusions (diorite; Jurassic and Cretaceous). Compilation of the historic data and field work identified skarn, epithermal, and massive sulphide vein mineralization in outcrop and drilling. The company mapped, sampled, and flew lidar and a drone-based magnetic survey, which revealed several structural features and anomalies for further work.

7.1.11. Kettle Valley Gold (Goldcliff Resource Corporation)

Goldcliff Resource Corporation entered into an option agreement to purchase the **Kettle Valley Gold** property, a newly discovered epithermal gold-silver showing. The area is underlain by Penticton Group volcanic flows (Marron Formation; Eocene) in northern extensions of the Rock Creek graben. Low-sulphidation epithermal-style indicators were mapped in the Marron Formation including widespread chalcedony, quartz and carbonate breccias, sericite alteration, bladed calcite, quartz pseudomorphs, and clay alteration zones. The zone is approximately 800 m long and 400 m wide. Several samples exceeded 0.25 g/t Au, with values up to 2.38 g/t Au and 43.49 g/t Ag.

7.1.12. Golden Hornet (Talisker Resources Ltd.)

Talisker entered into an option agreement for the **Golden Hornet** property in 2020, which is contiguous with their Bluejay claims. The area is underlain by mafic volcanic and metasedimentary rocks of the Wallace Formation (late Paleozoic; Anarchist Group), and Eocene rocks including Kettle River sandstones and alkalic volcanic rocks of the Marron Formation. Intrusive dikes include Jurassic and Eocene granites and granodiorites, and Eocene feldspar porphyry and diabase. Previous work identified of zone of northwest- trending sheet veins, with trench sample results including 2 m grading 27 g/t Au; 5.2 m grading 22.1 g/t Au; 14 m grading 4.17 g/t Au; and 17 m grading 1.32 g/t Au. In 2020, the company completed

soil geochemistry surveys. Grab sampling of the veins returned values of 26.1 g/t Au and 12 g/t Au. The company has submitted applications for drilling.

7.1.13. Heino Gold (MGX Minerals Inc.)

In 2020, MGX Minerals Inc. entered into an option agreement for the **Heino Gold** property, which includes the Tillicum, Heino-Money, and East Ridge showings. The property is on Tillicum Mountain and underlain by a metavolcaniclastic rocks (Upper Paleozoic to Triassic; Slocan and Milford Groups) that are partly overlain by metavolcanic basaltic-andesitic flows and lapilli tuffs (early Jurassic; Elise Formation), and structurally controlled intrusive stocks and sills (Jurassic, Cretaceous) and dikes (Tertiary). Calc-silicate skarn mineralization (with disseminated pyrrhotite, pyrite, sphalerite, galena, and traces of chalcopyrite and tetrahedrite) is in zones 2 to 60 m wide along intrusive contacts. Free gold occurs as fine to coarse disseminations and fracture fillings and in quartz sulphide veins (MINFILE 082FNW234).

In 2020, MGX Minerals Inc. complied historical data and completed a lidar survey. Extensions of the ore zones surrounding historic workings were sampled, with grab sample results of up to 207 g/t Au. Metallurgical test work of composite samples taken from historic drill core and from outcrop indicated recoveries of 94.1% Au in gravity-flotation. The company has applied for drill permits for 2021.

7.2. Selected polymetallic base and precious metal projects

Base metals are explored for throughout the Omineca belt as sedimentary exhalative (SEDEX,) volcanic massive sulphide (VMS), manto, and replacement deposits, and along structures in vein and fault systems.

7.2.1. Vine (PJX Resources Inc.)

PJX Resources Inc. continued drilling at the **Vine** property early this year, targeting SEDEX mineralization. The property is in the Belt Purcell basin, and is underlain by turbiditic argillites and quartzites of the Aldridge Formation. Drilling and geological modeling on the property identified graben structures, soft-sediment deformation structures, isopach changes suggesting syn-depositional faulting, and disseminated and bedded massive sulphides. Gravity, magnetic, and magnetotelluric surveys have identified target zones that are interpreted to have potential for massive sulphide (Pb-Zn-Ag±Au) mineralization. In 2019, drilling encountered a 5.5 m massive sulphide zone with anomalous zinc, copper, lead, and silver. This zone correlates with a 3.4 m zone in a hole drilled 700 m to the south in 1991 that graded 5.6% Pb, 2.7% Zn and 1.2 oz/t Ag for 3.4 m. The 2020 drilling targeted a deep magnetotelluric anomaly, but the program was shut down early in the year due to Covid-19. The company plans to continue drilling and using downhole geophysics to target the massive sulphide zone for greater concentrations of zinc, lead, copper and silver.

7.2.2. DD (DLP Resources Inc., PJX Resources Inc.)

DLP Resources Inc. entered an option agreement with PJX Resources Inc. to acquire a 75% interest in the **DD** property in 2020. The area is underlain by Purcell Supergroup rocks, with extensive stratabound and discordant fragmental units and widespread albite-tourmaline-chlorite-sericite alteration. Recent focus in the Purcell anticlinorium has been on geophysical methods to further identify structures and thickness variations in the Aldridge Formation that may indicate sub-basin development and potential SEDEX mineralization. In 2020, the company re-entered a drill hole that was drilled in 2018 on a magnetotelluric anomaly. They deepened the hole from 1425 to 1711 m and intersected the Sullivan horizon at the base of a faulted contact with a gabbro sill. The zone was moderately to intensely altered, with sericite, garnets, silicification, chlorite and minor albite. Trace sphalerite was noted in a 24.8 m interval. The company optioned additional claims to the east and extended the magnetotelluric survey by an additional 33.7 line-km.

7.2.3. Aldridge 1 and Aldridge 2 (DLP Resources Inc.)

The **Aldridge 1** and **Aldridge 2** properties are underlain by Mesoproterozoic Belt-Purcell basin rocks of the Aldridge Formation in a northerly trending fault system, referred to as the 'Leadville corridor'. In 2019, the company completed a magnetotelluric survey over the properties. In 2020, the company drilled 2 DD holes (2477 m) on the **Aldridge 1** and encountered 200 m of moderate to intense hydrothermally altered (quartz-albite) sedimentary rocks with albite, garnet, silicification and trace tourmaline, along with disseminated and veinlets of sphalerite and abundant pyrrhotite. At the **Aldridge 2** they drilled one DD hole (482 m) on another target from the magnetotelluric survey late in the year.

7.2.4. Iron Range (Eagle Plains Resources Ltd.)

In 2020, Eagle Plains Resources Ltd. optioned the **Iron Range** property to a private company who could earn up to 80% in the property. The property consists of 70,472 ha along the north-trending Iron Mountain fault zone. The zone hosts Ag-Pb-Zn±Au,Cu mineralization along a 90 km strike length. Mineralization occurs with brecciation, tourmalinization, albitization, and intense hydrothermal alteration, including: chloritization, silica flooding and replacement, hematite-magnetite-albite, sericite-carbonate overprinting, and intense argillic alteration. The property is also underlain by felsic intrusive rocks. Some showings display hematite, albite and chlorite, and characteristics of precious metal enriched iron oxide copper gold (IOCG) mineralization (MINFILE 082FSE014; Duncan, 2014). The company has identified three main target zones: Talon/Canyon, O-Ray, and Car. The private company began drilling (10 DD holes, 1000 m) at the O-Ray zone late in the year to further test a zone that returned 7.0 m grading 51.52 g/t Au in 2008 drilling.

7.2.5. Vulcan (Eagle Plains Resources Ltd.)

Eagle Plains Resources Ltd. continued work on their **Vulcan** property in 2020. The property is underlain by argillites and quartzites in the lower and middle parts of the Aldridge Formation, and hosts numerous SEDEX showings. Historic drilling encountered pyrite-pyrrhotite laminations, albite-tourmaline alteration, and fracture/vein-controlled lead-zinc mineralization. A chip sample from the Hilo 3 mineral occurrence (MINFILE 082FNE103) returned 1.6% Pb+Zn and 10 g/t Ag along 1.5 m. In 2020, the company drilled (2 DD holes, 977 m) on targets identified by soil geochemistry and a high-resolution VTEM airborne geophysical survey. They encountered indicators of hydrothermal alteration. The property was subsequently optioned to Brascan Gold Corp. late in the year.

7.2.6. Bull River mine (Braveheart Resources Inc.)

In 2019, Braveheart Resources Inc. purchased the **Bull River mine**, which had been on care and maintenance since 2009. The property is in fault-bounded blocks of the Aldridge Formation. Copper-silver mineralization is in a network of east-trending, near-vertical, sulphide-bearing quartz-carbonate veins, in sheared and brecciated host rocks. The main vein structure and stringer zones range from a few cm to 30 m wide. Mineralization occurs as pyrite, pyrrhotite, and chalcopyrite, with minor galena, sphalerite, arsenopyrite, cobalite, and traces of tetrahedrite and native gold. The historic Dalton mine operated between 1971 and 1974, and produced 7260 t of Cu, 6354 kg of Ag, and 126 kg of Au from 471,900 t milled (MINFILE 082GNW002) from open pits. The property has existing infrastructure, including a 750 tpd conventional mill, 21,000 m of underground development, assay and metallurgical laboratories, tailings impoundment, waste dumps, and two open pits. Historic ore stockpiles on surface currently contain 165 kt grading 1.7% CuEq. In 2020, the company drilled 831 m (5 DD holes) of a planned 3000 m underground drill program but ceased activities in March because of Covid-19. The holes were all drilled from the lowest mine level and tested mineralization downdip of the south vein. Results include 4.24 m (true width) grading 1.39% Cu, 1.33 g/t Au, and 9.51 g/t Ag. The company began design work to upgrade the tailings storage facility and obtain permits to process the stockpiled ore and move towards a mine restart.

7.2.7. Thor (Taranis Resources Inc.)

Taranis Resources continued work at the **Thor** property, which has several targets and showings, including the True Fissure, Great Northern, Broadview, and Blue Bell (Fig. 3) past-producing mines. The **Thor** property is underlain by a thick succession of folded and faulted metasedimentary and metavolcanic rocks of the Badshot Formation and Lardeau Group. Mineralization (Ag-Pb-Zn-Au-Cu) extends along a 2 km strike length, both stratabound and within shear zones along a northwesterly trending anticline. Drilling suggests zonation of the deposit from base-metal enriched lower parts,

Fig. 3. Massive sulphide mineralization at the Blue Bell zone.

grading vertically to more gold-rich zones in vuggy quartz veins higher up. The deposit overlies a magnetic anomaly at depth. Drilling has encountered intersections of weakly mineralized quartz-feldspar porphyry, and it is interpreted that the magnetic anomaly may be an intrusive body at depth. Recent updates to the geological model indicate that mineralization may be epithermal. In 2020, the company drilled eight DD holes (1200 m) at the True Fissure target, and intersected semi-massive to massive sphalerite, tetrahedrite, and pyrite. Initial results from the first hole encountered an upper gold zone (0.76 m grading 3.96 g/t Au), and two zones with lower grades of gold but higher silver, lead and zinc (2.9 m grading 0.5 g/t Au, 252.5 g/t Ag, 0.14% Cu, 1.64% Pb, and 5.3% Zn). The company also completed additional mapping, sampling, and geophysics at the Ridge target for drilling in 2021. Mapping and channel sampling was done at the Scab zone, with results of 3.05 m grading 3.72 g/t Au, 345 g/t Ag, 0.07% Cu, 2.24% Pb, and 0.38% Zn; and 2.52 m grading 1.29 g/t Au, 72 g/t Ag, 0.02% Cu, 1.40% Pb, and 0.71% Zn. Taranis also continued environmental baseline work, tailings storage design work, and other requirements for a 10,000 t bulk sample permit.

7.2.8. Silvana (Klondike Silver Corp.)

Klondike Silver Corp's **Silvana** project consists of 25,000 ha in the silver-rich historic Slocan mining camp, with production that dates back to 1891. The area is underlain by sheared and brecciated metasedimentary rocks of the Slocan Group (Late Triassic) that are cut by granodiorite and quartz monzonite dikes at the edge of the Nelson batholith (Middle Jurassic). Ag-Pb-Zn mineralization occurs in a series of east- to northeast-trending, shear zone-hosted polymetallic veins and as replacements in Slocan Group limestones. Klondike's holdings include 68 past producers in the Sandon, Hewitt, Silverton Creek, Cody Creek, Payne, and Jackson Basin camps, including the **Silvana**, Wonderful and Hinckley past producers. The main vein at **Silvana** is in an eight km-long structure that yielded about 242 t Ag, 28,691 t Pb, 26,299 t Zn and 72 t Cd from 510,964 t mined between 1913 and 1993, at an average grade of 13.87 oz/t Ag,

5.62% Pb, and 5.15% Zn (Hedley, 1952). Data compilation and 3D modeling of the past-producers in the Sandon camp suggests mineralized potential between the mined zones of the historic producers, offset by late-stage post-mineral faulting.

In 2017, the company began rehabilitating the 4625 portal at **Silvana.** They drifted 80 m to construct underground drill stations and began drilling in 2019. In 2020, they continued drilling and drifted an additional 29 m (of a planned 80 m) before the program was suspended because of Covid-19. They encountered sphalerite and galena in every hole, with results including 0.8 m grading 71.73 g/t Ag, 1.09% Pb and 0.21% Zn. Environmental baseline work, monitoring, and engineering upgrades to the tailings facility and mill are ongoing as the company updates their mine plan and permit. The company's mill at Sandon is a 100 tpd flotation mill that operated at an average rate of 40 tpd and has been on care and maintenance since 2003.

7.2.9. Revel Ridge (Rokmaster Resources Corp.)

Rokmaster Resources Corp. entered an option agreement to acquire 100% of the **Revel Ridge** project, which includes the historic J&L mine site, facilities and claims, including more than 3 km of underground workings. The property is at the north end of the Kootenay arc and is underlain by metasedimentary and metavolcanic rocks of the Hamill and Lardeau groups. Mineralization is in the Hamill Group (Badshot and Mohican formations), which consists of sheared and intensely folded impure quartzites, quartz sericite, sericite, chlorite schists and phyllites, and grey banded to carbonaceous limestones. The Main zone is a shear-hosted, sheeted Au-Ag-Pb-Zn vein deposit that averages 2.5 m in thickness. Historical underground drilling and drifting defined the zone along a 1.5 km strike length and for 850 m downdip; on surface the zone has been traced for more than 3 km. The Yellowjacket zone sub-parallels and is in the immediate hanging wall of the Main zone. Stratabound Ag-Pb-Zn is currently interpreted as being a structurally controlled, contact-related replacement deposit. Mineralization occurs at contacts between limestone and metavolcanic rocks. Intense deformation of the J & L deposit has destroyed most original textures and ore-wall rock relationships, and overprinted tectonic fabrics, make interpretation of the timing and environment of deposition difficult (MINFILE 082M 003). Metallurgical test work completed in 2014 indicates recoveries for the Main Zone of approximately 93% Au, 70% Ag, 74% Pb, and 80% Zn; and 94% Ag, 88% Pb, and 93% Zn at Yellowjacket Zone.

In 2020, the company compiled the historical data and updated the NI 43-101 resource estimate. They began mapping and sampling early in the season and rehabilitated the 830 and 832 portals and underground workings at the Main zone. They began underground drilling late in the year and completed over 6000 m (20 DD holes) to test extensions of the Au-Ag zones. Additional metallurgical test work was completed on several samples to improve procedures and grades of gold, silver, zinc and lead in the concentrates. The company began work on a Preliminary Economic Assessment and environmental baseline and monitoring work for permitting. Initial results from surface mapping include grab samples with up to 6.57 g/t Au, 311 g/t Ag, 9.53% Zn, and 7.02% Pb, and results from a 0.3 m chip sample grading 5.6 g/t Au, 173 g/t Ag, 0.72% Zn, and 6.65% Pb.

7.2.10. Regal (Affinity Metals Corp.)

In 2020, Affinity Metals Corp. continued drilling at their **Regal** project (previously known as Allco). The area is underlain by lower Paleozoic quartzites, argillites, and limestones of the Badshot Formation and Lardeau Group. Galena, sphalerite, chalcopyrite, tetrahedrite, and pyrite are in numerous showings as stratiform bodies, replacements, and veins. The property hosts several past producing mines including Regal, Allco and Snowflake, which operated intermittently between 1936 and 1953 following vein structures. Reported reserves (1982; non-compliant) were 590,703 t grading 71.6 g/t Ag, 2.66% Pb, 1.26% Zn, 1.1% Cu, 0.13% Sn and 0.015% W (MINFILE 082N 004).

In 2020, the company focussed their efforts at the Allco property to follow up on drilling in 2019, which intersected 11.1 m grading 143.29 g/t Ag, including 0.55 m grading 2612.0 g/t Ag. Mineralized intersections from the drill program consisted mostly of argentiferous galena, sphalerite, and tetrahedrite in quartz veins and breccias. In 2020, further mapping and sampling was done for several km along a northwest-southeast fault contact. Several gold- and silver-bearing outcrops were mapped along a mineralized trend that coincides with a northwest-trending geophysical anomaly. Drilling was completed late in the year (19 DD holes, 3443 m).

7.2.11. Robocop (Grizzly Discoveries Inc.)

Grizzly Discoveries Inc. entered into an option agreement to acquire the **Robocop** project in 2018. The property is underlain by siliciclastic and carbonate rocks of the Sheppard Formation and volcanic rocks of the Nicol Creek (Purcell Supergroup; Proterozoic). Mineralization includes sediment-hosted Co-Cu-Ag, and polymetallic veins (Ag-Pb-Zn±Au). Soil geochemistry outlined areas of anomalous copper-cobalt-silver, and historic drilling (1990-2000) yielded sample results of up to 1 m grading 0.18% Co, 0.28% Cu, 4.1 ppm Ag; and 1.23 m grading 0.134% Co, 1.19% Cu and 33.8 ppm Ag. Sampling by the company in 2018 returned grades of up to 1.46% Cu and 0.036% Co in grab samples around areas of historic drilling and trenching. In 2020, the company conducted a helicopter-borne VTEM and magnetic survey (approximately 400 line-km) over the property in order to define targets for further exploration.

8. Geological research

Höy et al. (2020) continued research and mapping in the Boundary region and outlined new potential for epithermal style mineralization. Slack (2020) and Slack et al. (2020) released papers focussed on Sullivan-style mineralization in

the Purcell anticlinorium, and Rioseco et al. (2020) released a paper on the age of metamorphism in rocks at the interface between the Kootenay arc and the Purcell anticlinorium.

9. Summary

In 2020, exploration and mining continued in the Southeast Region. Major mine development, expansion plans, and projects in the East Kootenay coalfields continue to advance. The Kootenay West gypsum mine is currently under construction. Exploration for SEDEX base metals continued in the Purcell anticlinorium and for precious and base metals throughout the region. Uncertainty around Covid-19 shut down a few exploration programs early in the year. Nonetheless, exploration resumed, and several drill programs continued late into the year.

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Exploration and mining in the Southwest Region, British Columbia

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1. Introduction

The Southwest Region (Fig. 1) has a long history of mining. This history includes: the use of native copper by First Nations; silver, gold, and coal mining by the mid-19th century; mining of iron in the mid-20th century; and substantial copper production throughout the 20th century. Although mining and exploration for metal and continues in the region, most mining is for construction materials, mainly aggregates for local markets with some exports from the largest coastal quarries.

The area has one major polymetallic metal mine, **Myra Falls** (Nyrstar N.V.), one coal mine on care and maintenance, **Quinsam** (ERP Compliant Fuels LLC), and numerous industrial minerals and aggregate operations. Having been on care and maintenance since 2015, Nyrstar prepared to return **Myra Falls** to production in 2017 and produced some concentrate in 2018. Operations were suspended in 2018 for compliance reasons but restarted in April 2019 and continued in 2020. The **Quinsam mine**, on care and maintenance since 2016, had returned to production in 2017, after being purchased by ERP Compliant Fuels LLC, and produced about 200,000 t in 2018. However, the mine was placed on care and maintenance again in May 2019 and remained so through 2020.

Mine site exploration at **Myra Falls**, which began late in 2017, continued in 2018 through 2020. **Privateer Gold** Ltd. continued a significant exploration program at Zeballos, and more than 30 other exploration projects were tracked, mainly grass roots or early stage and small scale.

Estimates for exploration expenditures, drilling programs, and other metrics were captured in the British Columbia Mineral and Coal Exploration Survey, a joint initiative of the Province of British Columbia Ministry of Energy, Mines and Low Carbon Innovation, the Association for Mineral Exploration in British Columbia, and EY LLP. For the Southwest Region, exploration expenditures were estimated at $4.0 million and exploration drilling was estimated at approximately 23,000 m (Clarke et al., 2021; EY LLP, 2021).

The total area under mineral, placer, and coal tenure in the region was about 689,700 ha in late November 2020, a 10.5% increase relative to November 2019 (624,000 ha). The Chief Gold Commissioner issued a blanket extension order in March, allowing more time to file assessment work, cash in lieu, or lease payments, making a decrease unlikely in 2020.

2. Geological overview

Metallogeny in British Columbia is closely 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 Southwest Region includes parts of the Insular, Coast, and Intermontane physiographic regions. Most of the area is underlain by rocks of the Wrangell terrane and the Coast Plutonic complex (Fig. 1). Wrangellia is a Devonian to Jurassic island arc terrane that underlies most of Vancouver Island and Haida Gwaii. The oldest rocks on Vancouver Island are Devonian volcanic arc andesites, basalts, breccias, tuffs, and tuffaceous sediments of the Sicker Group and allied intrusive rocks, which are overlain by Mississippian-Permian limestones, argillites, and minor conglomerate of the Buttle Lake Group. This Paleozoic basement is exposed in two major uplifts on southern and central Vancouver Island. The Cowichan anticlinorium and the Buttle Lake anticlinorium host the past volcanogenic massive sulphide polymetallic producer at Mount Sicker and the current mine at **Myra Falls**.

Unconformably overlying the Paleozoic rocks are Middle to Upper Triassic oceanic flood basalts and related sedimentary rocks of the Vancouver Group. The upper part of the Vancouver Group contains numerous skarn occurrences adjacent to Jurassic intrusions (Island Plutonic suite). The Tasu past producer on Haida Gwaii is one of the larger examples of numerous iron and iron-copper skarns. Between 1914 and 1983, it produced 12 Mt of iron concentrate as well as copper, gold and silver.

The Vancouver Group is overlain by arc rocks of Bonanza Group (Upper Triassic-Middle Jurassic), which consist of a volcano-sedimentary succession and subaerial basalt to rhyolitic flows and tuffs (Nixon and Orr, 2007). The Bonanza Group north of Holberg Inlet host the past-producing Island Copper Cu-Mo-Au porphyry deposit and other undeveloped

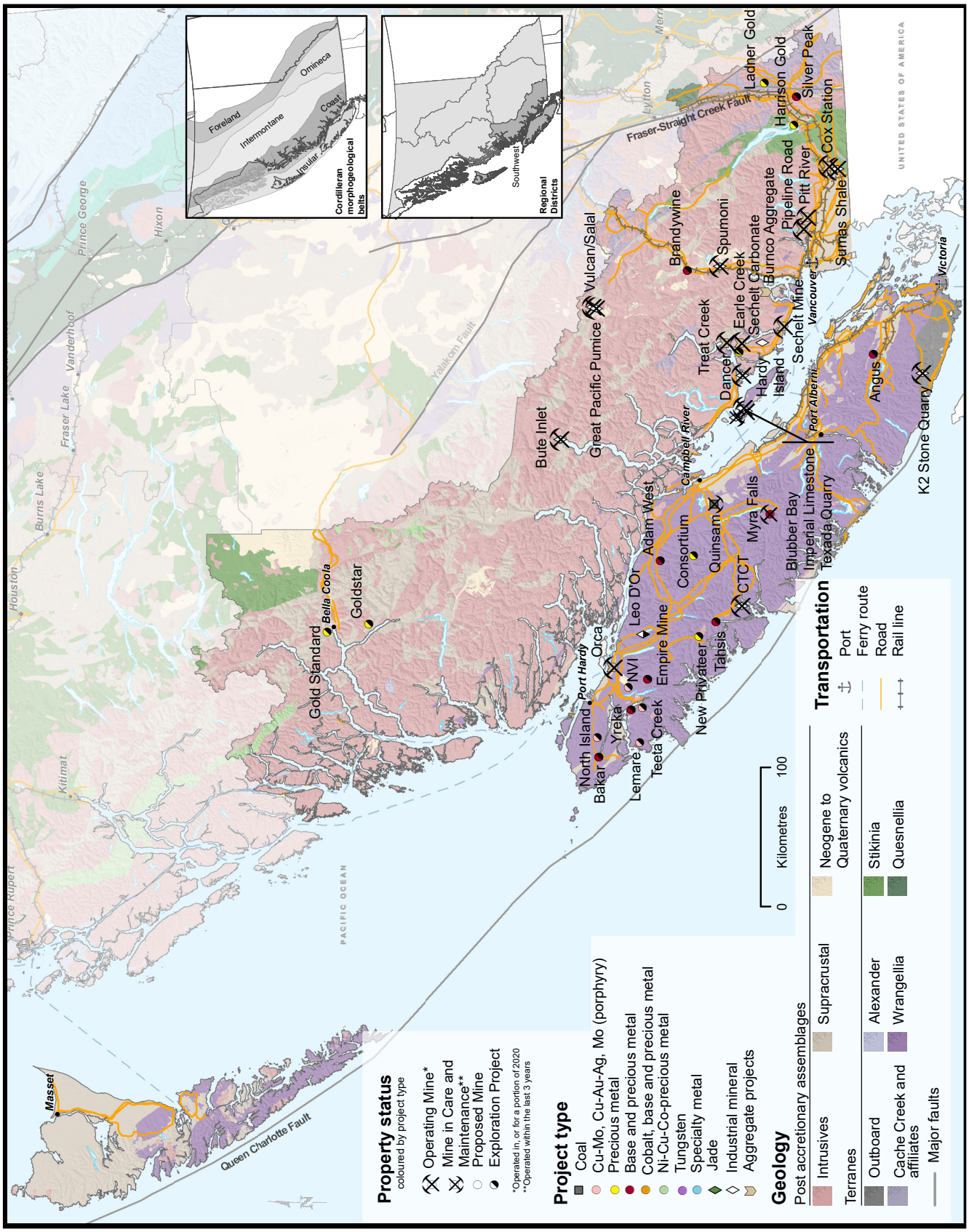

Fig. 1. Mines, proposed mines, and selected exploration projects, Southwest Region, 2020. Terranes from Nelson et al. (2013).

porphyry and epithermal prospects where they are intruded by Island Plutonic suite granodiorite and quartz diorite.

On the east coast of Vancouver Island, in the Strait of Georgia and on the western mainland, Wrangellia is buried by rocks of the Nanaimo Group, an Upper Cretaceous continental to marine molassoid succession containing debris derived from unroofing of the Coast Belt and northern Cascades (Mustard, 1994). The Comox Formation, the basal unit of the Nanaimo Group, hosts economically important coal deposits that were mined historically in the Nanaimo area.

The Coast Mountain range is underlain by the Coast Plutonic complex, a large northwest-trending batholith consisting largely of diorite, quartz diorite, tonalite, and granodiorite calcalkaline rocks with less abundant high-grade metamorphic rocks. For the most part, uplift and erosion have removed the levels at which epithermal and porphyry-style mineralization form, with some exceptions. At the southern end of the Coast Plutonic complex, economically important deposits occur in pendants of the Gambier Group, overlapping Late Jurassic to Mid-Cretaceous arc-related volcanic and sedimentary rocks. The most productive of these deposits was the Britannia mine, a Kuroko-type polymetallic volcanogenic massive sulphide deposit that produced 517,000 t of copper along with zinc, silver, gold, lead, and cadmium between 1905 and 1974. At the southeastern edge of the Coast ranges, the Giant Mascot ultramafic-mafic intrusive suite (Late Cretaceous, Manor et al., 2014, 2015, 2016, 2017) hosts the province's only past-producing nickel mine, Giant Mascot Nickel, which operated between 1958 and 1974.

Eocene to Miocene ancestral Cascades arc magmatism extended as far northward as southwestern British Columbia, as does present day Cascades magmatism. Evidence of forearc Paleocene to Miocene magmatism can be traced from southern Oregon through Alaska (Madsen et al., 2006). Mount Washington Copper (Eocene) produced 3548 t of copper, 131 kg gold and 7235 kg silver. Catface Copper (Eocene) has a significant undeveloped resource. Other presumably Cenozoic targets include **Giant Copper** and **Okeover**. **Harmony**, on Graham Island, Haida Gwaii (Fig. 1) is a Miocene epithermal deposit with a significant undeveloped gold resource. Some recent exploration targets Neogene mineralization along a magmatic belt between the Brooks Peninsula and Alert Bay on northern Vancouver Island (Nixon et al., 2011, a, b; 2020).

Quaternary Cascades magmatism has produced pumice and other volcanic rocks quarried for construction, landscaping, and other applications. The Mount Meager area has also been investigated as a possible source of geothermal energy.

On Vancouver Island, the western and southern margins of Wrangellia are structurally juxtaposed with the Pacific Rim terrane, which consists of possible mélange deposits (Rusmore and Cowan, 1985; Brandon, 1989) and the Leech River complex, an assemblage of greenschist- to amphibolite-grade mudstones, sandstones, and mafic volcanic rocks cut by granitic bodies (Groome et al., 2003). Slate and siltstone are quarried for building stone in the Leech River complex. The Leech River has been an active placer gold camp since 1864. Gold quartz veins have been the subject of recent exploration near the Leech River fault, along the southern margin of the terrane (Fig. 1).

The Crescent terrane represents Eocene accretion of Late Cretaceous or Paleocene to Early Eocene seamounts. The Leech River fault marks the boundary of Pacific Rim and Crescent terranes. The Metchosin Igneous complex, a partial ophiolite and northernmost extent of the Coast Range basalt province (Massey, 1986), contains three tholeiitic intrusion-hosted past producers of copper and precious metals, the most significant of which was the Sunro mine.

The southeastern Coast Belt, north of the international border is underlain by the Nooksack-Harrison and Chilliwack terranes (equivalent to Stikinia; Monger and Struik, 2006), and the Bridge River, Cadwallader, and Methow terranes, allied with the main Cache Creek terrane (Fig. 1). These represent slices of oceanic and arc-related rocks enclosed between Intermontane and Insular terranes during Middle Jurassic to Middle Cretaceous regional sinistral faulting (Bustin et al., 2013; Monger and Brown, 2016). Gambier Group-equivalent overlap deposits and parts of the Nooksack-Harrison terrane are prospective for VMS mineralization. The Coquihalla Serpentine belt, along the Hozameen fault between the Bridge River terrane to the west and the Methow terrane to the east, hosts several gold prospects and five past producers including the Carolin mine, which operated between 1981 and 1984.

Tectonic uplift, erosion, and glaciation produced sand and gravel deposits important to the construction and transportation industries of the Lower Mainland. Most are products of the most recent retreat of the Cordilleran Ice Sheet in the Pleistocene (e.g., Howes, 1983; Clague and Ward, 2011).

3. Mines

The Southwest Region has one metal mine, one coal mine placed on care and maintenance in 2019 and numerous industrial minerals and aggregate operations (Fig. 1; Tables 1-3). Of eight large-scale industrial minerals operations in the region, two entered care and maintenance in 2016 and remained so in 2020. Aggregate operations in the region number in the hundreds and only the most prominent (e.g., those producing at least 1 Mtpy) are reported here.

3.1. Metal mines

3.1.1. Myra Falls Operations (Nyrstar N.V.)

Nyrstar N.V. owns and operates the **Myra Falls** underground Zn-Cu-Pb-Ag-Au mine through a 100% owned subsidiary, Nyrstar Myra Falls Ltd. Trafigura Group Pte. owned 98% of parent Nyrstar after a restructuring arrangement in July 2019. Trafigura is a private company and not required to publish a production forecast for the year or resource and reserve estimates (Table 1). After re-starting following infrastructure upgrades and closing again for compliance reasons in 2018, the mine reopened in April 2019 and continued operation in 2020. The mine has a history of replacing reserves through

Table 1. Metal mines, Southwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves (December 31, 2018)	Resource (December 31, 2018)	Comments
Myra Falls	**Nyrstar Myra Falls Ltd.**	Zn, Cu, Pb, Ag, Au; Noranda/ Kuroko massive sulphide; 092F 330, 71, 72, 73	Not reported	P+Pr: 4.7 Mt 7.11% Zn, 0.78% Pb, 0.92% Cu, 76.55 g/t Ag, 1.78 g/t Au	M+I: 7.64 Mt 6.59% Zn, 0.72% Pb, 0.99% Cu, 72.52 g/t Ag, 1.79 g/t Au	Resumed production in April 2019, continued 2020. Underground drilling, approx. 20,000 m in 42 holes, VTEM survey.

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

Table 2. Coal mines, Southwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Quinsam	**Quinsam Coal Corporation**	TC; Bituminous coal; 092F 319	nil	Not reported	Unofficial, non-compliant resources estimated at 40 Mt in 2013 by mine staff.	Placed on care and maintenance May 2019. Property and assets offered for sale.

HCC = hard coking coal; PCI = pulverized coal injection; TC = thermal coal;
P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

Table 3. Selected industrial mineral and aggregate mines and quarries, Southwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2020 Production (based on Q1-Q3)	Reserves	Resource	Comments
Blubber Bay	**CRH Canada Group Inc.**	Limestone, dolostone; Limestone; 092F 479	Up to 75,000 t dolostone annually	na	100+ years	Opens for contracts.
Bute Inlet	**Ironwood Clay Company Inc.**	Clay; Sedimentary kaolin? (or illite)	na	na	na	Intermittent mining as needed.
Cabin Group	**Northwest Landscape and Stone SupplyLtd.**	Landscaping stone	na	na	na	
Cox Station	**Mainland Construction Materials ULC**	Aggregate; Crushed rock; 092GSE103	Approx. 3-4 Mtpy	na	na	
CTCT	**Vancouver Island Marble Quarries Ltd.**	Marble; Limestone; 092E 020	Typically, about 400 t annually	na	na	Supplies Matrix Marble and Stone Inc.

Table 3. Continued.

Earle Creek	**Lafarge Canada Inc.**	Sand and Gravel	Typically, >1 Mtpy	na	na	
Garibaldi Pumice (Vulcan/ Salal)	**Garibaldi Pumice Ltd.**	Pumice; Volcanic ash; 092JW 039	10,000 m^3, in anticipation of lower demand	na	11,396,000 m^3 pumice 4,990,000 m^3 pumicite (fines)	2014 resource. Additional exploration 2015, 2018, 2019.
Haddington Island	**Adera Natural Stone Supply Ltd.**	Dimension stone, Building stone; 092L 146	na	na	na	Not active every year.
Hardy Island	**Hardy Island Granite Quarries Ltd.**	Dimension stone, Building stone; Dimension stone-granite; 092F 425	3000-5000 tpy	na	na	
Imperial Limestone	**Imperial Limestone Co. Ltd.**	Limestone; Limestone; 092F 394	Approx. 600,000 t	na	75 years	250,000 t high purity product + cement feedstock.
K2	**K2 Stone Quarries Inc.**	Dimension stone, flagstone; Flagstone; 092C 159	15,000-20,000 t annually	na	na	Production number represents material extracted.
Mount Meager Pumice	**Great Pacific Pumice Inc.**	Pumice; Volcanic ash; 092JW 039	na	na	na	
Orca	**Polaris Minerals Corporation** (US Concrete Inc. and Namgis First Nation)	Sand and Gravel	Up to 6 Mtpy	na	na	Planning increased production.
Pipeline Road (2)	**Lehigh Hanson Materials Ltd., Allard Contractors Ltd.**	Sand and Gravel	na	na	na	Two adjacent operating sites.
Pitt River	**Lafarge Canada Inc.**	Aggregate; Crushed rock; 092GSE007	Typically, >1 Mtpy	na	na	
Sechelt	**Lehigh Hanson Materials Limited**	Sand and Gravel	Typically, 5-6 Mtpy	na	Several decades	
Spumoni	**Northwest Landscape and Stone Supply Ltd.**	Flagstone; Flagstone; 092GNW100	na	na	na	Seasonal quarry.

Table 3. Continued.

Sumas Shale	**Sumas Shale Ltd.** (Lafarge Canada Inc., Clayburn Industrial Group)	Shale, clay, sandstone; Residual kaolin; 092GSE024	About 500,000 t annually	na	50+ years	Approximately 55% shale, 45% sandstone for cement production.
Texada Quarry	**Texada Quarrying Ltd.** (Lafarge Canada Inc.)	Limestone, aggregate; Limestone; 092F 395	Typically, approx. 3.5 Mtpy	na	100+ years	Mostly produces limestone for cement manufacture.
Treat Creek	**Lehigh Hanson Materials Limited**	Aggregate; Crushed rock	Approx. 500 ktpy	na	na	

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

exploration, and mine site exploration continued in 2020 with underground drilling and a VTEM airborne survey. The Myra Falls camp hosts Kuroko-type, or bimodal felsic type Zn-Cu-Pb-Ag-Au VMS deposits from which more than 30 Mt of ore have been mined since 1966 (Fig. 2).

Fig. 2. The H-W headframe at Myra Falls, the entrance and exit for personnel, equipment and ore. In 2020, the mine also began to use a portal to haul ore. Limited access was a factor in a workforce reduction in 2020, but production continued through the Covid-19 pandemic. A multi-year exploration campaign continued in 2020.

3.2. Coal mines

3.2.1. Quinsam (ERP Compliant Fuels LLC)

Quinsam is an underground coal mine that began commercial production of thermal coal in 1988 (Table 2). At its peak, it produced approximately 1 Mt clean coal annually. It ceased operation and entered care and maintenance in early 2016. It was then purchased by ERP Compliant Fuels LLC in 2017 and operated by Quinsam Coal Corporation until 2019. In 2018, its last full year of operation, it produced about 200,000 t and employed approximately 50 people.

Quinsam placed the mine on care and maintenance at the end of May 2019. The company subsequently made an assignment into bankruptcy. The receiver and manager Bowra Group Inc. offered the property and assets for sale in 2020.

3.3. Industrial minerals and aggregates

Large quarries on the coast (Table 3) serve the Lower Mainland, Vancouver Island, and U.S. Pacific northwest markets by barge. Those with access to freighter loadout facilities can also supply eastern Pacific international markets and Hawaii. Aggregates are an important part of the mining industry on the south coast, generating many more jobs in the region than metal and coal mining. The area hosts some of the largest aggregate pits and quarries in Canada. Most quarries serve local markets. General sales and production trends follow those of the construction industry. Lafarge North America Inc., Lehigh Hanson Materials Ltd., U.S. Concrete, Inc. and a local company, Mainland Sand and Gravel Ltd., are the largest participants in the coast area, although hundreds of pits and quarries produce in the region.

One of the largest aggregate-only mines is the **Sechelt** mine, operated by Lehigh Hanson. The company no longer makes production figures public, but volumes have been in the 5-6 Mt range in recent years. It is permitted for up to 7.5 Mtpy. They expect reserves to last several more decades. A loading facility capable of accommodating Panamax-class freighters handles most of the shipments.

In addition to the **Texada Quarry**, Lafarge North America operates two of the largest aggregate quarries in the region (**Earle Creek** and **Pitt River**) each of which typically produces more than 1 Mtpy.

Pipeline Road is the site of large operations by Lehigh Hanson Materials Ltd. and Allard Contractors Ltd. Together they produce more than 1 Mtpy. Lehigh Hanson also has a large crushed aggregate operation at **Treat Creek** on Jervis Inlet.

Polaris Minerals Corporation, a subsidiary of U.S. Concrete Inc. operates the **Orca** quarry near Port McNeill, in partnership

with the 'Namgis First Nation, which holds a 12% interest. The owner-operator partnership is Orca Sand and Gravel LP. The quarry produces sand and gravel mainly for export to California. The operation was originally permitted for up to 6 Mtpy, but Polaris plans to increase production to 8.5 Mtpy in 2021-23. In 2017, Polaris applied to the British Columbia Environmental Assessment Office for an amendment to its **Orca** project certificate to allow for producing aggregate at a site approximately 4 km from current operations. The new site was previously known as the **Black Bear** project. This site was to supply 250,000 tpy of a crushed basalt product, but in 2020 Polaris revised the proposal to 3-4 Mtpy.

The **Cox Station** quarry, on the north side of Sumas Mountain, is operated by Mainland Sand and Gravel Ltd. More than 95% of the crushed quartz diorite product goes to the Lower Mainland market via barge on the Fraser River. The quarry also has two CN Rail spur lines, which allow shipment by rail. Production and shipments have recently been on the order of 3-4 Mtpy. The quarry employs 45-50 people.

Small operations produce building stone on Vancouver Island. Island Stone Landscape Supply is a producer and supplier of flagstone, as is San Juan Quarries. Vancouver Island Marble Quarries Ltd. continues to quarry marble on Vancouver Island and fabricate a line of products including countertops, sinks, and tiles at Matrix Marble and Stone Inc. They quarry marbles referred to as 'Tlupana Blue Grey' and 'Vancouver Island White' near Hisnit Inlet (**CTCT** quarry). Pacific West Stone Inc. also has a quarry permit near Tahsis and proposed quarry at the **Leo D'Or** site at Bonanza Lake.

Landscaping stone and dimension stone is quarried in the Squamish-Whistler corridor. The largest operator is Northwest Landscape and Stone Supply Ltd., with the **Spumoni** quarry and their **Cabin Group** property, which now has a Mines Act quarry permit. Others active in the area include Bedrock Granite Sales Ltd., Citadel Stone Ltd., and Alpine Natural Stone Ltd.

Haddington Island and **Hardy Island** have been two regular sources of dimension stone. The Haddington Island product (typically referred to as Haddington Island andesite) is a durable, resistant dacitic volcanic rock (70.5% silica), part of the Alert Bay volcanic belt (Neogene). Adera Natural Stone Supply Ltd. supplies the Haddington Island andesite as needed. Most of the product is used for restoration work on historic buildings, but it has also been used in modern monuments and buildings.

Hardy Island Granite Quarries Ltd. produces up to 5000 tpy from a Coast Plutonic complex granodiorite unit. Like Haddington Island, it is an historic quarry that mainly serves the local market. Hardy Island has opened another quarry on Valdes Island that supplies sandstone from the Nanaimo Group, another rock type common to many older buildings in Vancouver and Victoria.

3.3.1. Texada (Texada Quarrying Ltd.)

The largest limestone quarry on the coast is the **Texada Quarry** operation near Gillies Bay. Texada Quarrying Ltd. is a subsidiary of Lafarge Canada Inc. The quarry also produces aggregate, mainly from quartz monzonite to gabbro dikes and sills, which would otherwise be waste rock. The site also hosts a white carbonate quarry, one of only a few sources on the coast. The quarry, which has operated for more than 60 years, has extensive reserves and, at current rates, could produce for more than 100 years. They produce about 3.5 Mt annually.

3.3.2. Imperial Limestone (Imperial Limestone Co.)

In recent years, the **Imperial Limestone** quarry near Van Anda on Texada Island (Fig. 1) has produced approximately 250,000 to tpy of high-purity product, most of which is shipped to their parent company in Seattle; production was similar in 2020. Imperial Limestone Co. also mine and stockpile a larger quantity of lower quality limestone that goes to local cement plants. Quarrying at the Imperial site dates to the 1930s. The company anticipate reserves will last about 75 years.

3.3.3. Blubber Bay Quarry (CRH Canada Group Inc.)

The **Blubber Bay** limestone quarry on Texada Island has remained mostly on care and maintenance since 2010, after more than 100 years of operation. It reopens for sufficiently large contracts. It can still supply limestone aggregate and continues to supply dolostone periodically. They plan to ship product in 2021.

3.3.4. Sumas Shale (Sumas Shale Ltd.)

The **Sumas Shale** quarry of Sumas Shale Ltd., operated by contractor Fraser Pacific Enterprises Inc., delivers sandstone and shale product to the Lafarge and Lehigh cement plants in Richmond and Ash Grove in Seattle. Sumas Shale Ltd is 50% owned by Lafarge Canada Inc. and 50% by Clayburn Industrial Group. Production and shipments have been approximately 500,000 tpy in recent years. Mining plans include an average 475,000 tpy of approximately 55% shale and 45% sandstone. Because Clayburn's brick and refractory products plant in Abbotsford closed, fire clay is no longer produced separately.

3.3.5. Bute Inlet (Ironwood Clay Company Inc.)

Ironwood Clay Company Inc. mines glacial marine clay on the central coast. Until 2015, production was from the **De Cosmos Lagoon** south of Bella Bella (Fig. 1). The company has a new site at the head of **Bute Inlet**, which is likely to supply future raw material. Mining is intermittent. Ironwood produces cosmetic products using the clay at its Richmond plant, a business that has continued for 30 years. Glacial Bay Organic Clay Inc. is extracting material near the head of Bute Inlet but reported only sampling in 2020. Other individuals and companies supply the growing cosmetic clay market at smaller scales from locations on the central coast and Vancouver Island. Generally, Mines Act permits are not required where material is collected by hand, and these glacial marine clay operations are unreported.

3.3.6. Garibaldi Pumice and Mount Meager Pumice (Garibaldi Pumice Ltd.; Great Pacific Pumice Inc.)

In the Mount Meager area, Garibaldi Pumice Ltd. produces 15,000-20,000 m^3 of pumice annually from their quarry (**Vulcan/Salal**). Exploration on the property consisted of 14 test pits to further delineate the existing resource (Table 3). Neighbouring Great Pacific Pumice Inc. has been producing smaller quantities but have stockpiles in Squamish from which they can ship year-round.

3.3.7. K2 (K2 Stone Quarries Inc.)

K2 Stone is a natural stone product supplier with a quarry near Port Renfrew on Vancouver Island (**K2**). They extract about 15,000-20,000 t annually and expect about the same in 2020. The rock is trucked to Nanaimo for processing into masonry and landscaping products.

4. Placer gold

Historic placer camps include the Lower Fraser River, Leech River, and China Creek. Although short lived, a gold rush in the Fraser Canyon, beginning in 1858 at Hills Bar, led miners farther up the Fraser River into the Chilcotin and Cariboo. In 1864, reports of gold in the Leech River on southern Vancouver Island led to another brief gold rush. Both camps are worked by placer miners to the present day. The Lillooet River was also on a historic route to the Cariboo. It also remains an active placer camp.

5. Mine development

Mine development projects are those for which a decision to produce has been made, key government approvals are in place, and on-site construction has begun. The Southwest Region has no such large-scale projects.

6. Proposed mines

Proposed mines are feasibility-stage projects for which proponents have begun the environmental certification process (in the case of large projects) or have submitted applications for Mines Act permits (in the case of projects below British Columbia Environmental Assessment Act thresholds). The Southwest Region has three such projects (Table 4); several small-scale and inactive larger projects are not covered in this report.

6.1. Proposed metal mines

The Southwest Region had no proposed major metal mine projects active in 2019.

6.2. Proposed coal mines

The region has no active proposed coal mine projects.

6.3. Selected proposed industrial minerals mines

Proposed mines include the **BURNCO Aggregate** Project and the **Sechelt Carbonate** project, which has been inactive apart from a request by the owner to remain in the provincial environmental assessment process. The **Black Bear** aggregate project near Port McNeill is the subject of an application to amend the **Orca** environmental certificate.

6.3.1. BURNCO Aggregate (BURNCO Rock Products Ltd.)

The **BURNCO Aggregate** Project in the McNab Creek Valley (Fig. 1) now has environmental certification and may

Table 4. Selected proposed mines or quarries, Southwest Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Black Bear and Orca	**Polaris Materials Corporation** (US Concrete, Inc. and Namgis First Nation)	Aggregate; na	na	20 years (proposed life)	Orca environmental certificate amendment application. Proposed 250,000 tpy near the Orca quarry revised to 3-4 Mtpy.
BURNCO Aggregate	**BURNCO Rock Products Ltd.**	Aggregate; Sand and Gravel; na	na	Approx. 20 Mt	Has environmental certification, would require Mines Act and other permits.
Sechelt Carbonate	**Ballinteer Management Inc.**	Limestone, dolostone, aggregate; Limestone, dolomite, crushed rock; 093GNW031	na	Carbonate Rock: 76.1 Mt Gabbro: >700 Mt	Proponent requests project remain in environmental assessment pre-application stage.

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

proceed with British Columbia Mines Act and other permitting. Fisheries and Oceans Canada concluded that the project is unlikely to cause significant environmental harm. The proposed sand and gravel mine would ramp up to a 1.6 Mtpy operation, initially barging product to BURNCO Rock Products Ltd.'s ready-mix concrete plants in South Burnaby and Port Kells. BURNCO submitted revisions to the project in 2014, changing production rate, relocating some facilities, and specifying a mine life of 16 years.

6.3.2. Sechelt Carbonate (Ballinteer Management Inc.)

Ballinteer Management Inc. now holds the property comprising the **Sechelt Carbonate** project. They filed engineering, archeological, and baseline environmental studies for assessment in 2016; activity was not reported for 2017-2020. The property contains resources of calcite- and dolomite bearing carbonate rock and gabbroic rock for potential use as aggregate. The original proposal was for a 4-6 tpy carbonate quarry producing both limestone and dolostone. Product was to be shipped from a barge load out on Sechelt Inlet.

6.3.3. Black Bear and Orca (Polaris Materials Corporation)

As noted above, Polaris Materials Corporation is including **Black Bear** near its **Orca** sand and gravel quarry in an environmental certificate amendment for Orca. If the project proceeds, it will be a source of up to 3-4 Mtpy of crushed basalt, an increase over the 250,000 tpy proposed in a 2017 project description.

6.3.4. Eagle Rock (Polaris Materials Corporation)

In January the BC Environmental Assessment Office decided that Polaris Materials had not made a substantial start on its Eagle Rock quarry, for which they had granted an environmental certificate in 2003. In 2020, the EAO gave written notice that the certificate had expired in 2013 and a new assessment would be required for the 3-6 Mtpy project to proceed.

7. Exploration activities and highlights

Exploration projects are categorized as grassroots, early stage, advanced, and mine evaluation, depending upon the nature of recent work. Work directed at discovering new resources away from ore bodies in an existing mine plan can be considered mine-lease or on-site exploration. The Southwest Region had few large exploration programs in 2020 (Table 5).

7.1. Selected precious metal projects

Precious metal prospects are found in a variety of settings in the region. There was one major exploration project in 2020, in addition to several smaller projects.

7.1.1. New Privateer (Privateer Gold Ltd.)

Privateer Gold Ltd. drilled at **New Privateer** (previously called Surespan) in the Zeballos gold camp, completing about 3000 m in 16 holes and an 800-sample soil survey. The target is vein mineralization like that mined historically. Privateer Gold holds a land position including Crown grants covering the Privateer mine (Fig. 3) and other past producers in the historic Zeballos gold camp. As a private company working mainly on Crown-granted mineral claims they are not obligated to release results but indicated success in following drill-targeted veins and an intention to continue the project.

7.1.2. Harrison Gold (Bayhorse Silver Inc.)

Bayhorse Silver Inc. entered into an agreement with Bear Mountain Gold Mines Ltd. to earn a 50% interest in the **Harrison Gold** property. They collected samples for assay and metallurgical testing. Nine chip samples from the Jenner adit ranged from 2.86 to 414.20 g/t Au. Metallurgical testing achieved gravity recovery of 77.6% and gravity tails flotation recovered 17.1% for a total of 94.7% on a sample grading 11.89 g/t Au. Underground development and a bulk sample are permitted. The company mobilized a drill rig in December. An historical (1989) resource estimate has 1.845 Mt 2.79 g/t Au in the indicated category and 0.6 Mt 2.8 g/t Au in the inferred category.

7.1.3. Ladner Gold (New Carolin Gold Corp.)

At the **Ladner Gold** project, New Carolin Gold Corp. reported final results of its 2019 drill program and confirmed a historical 900 m long gold-in-soil anomaly.

7.1.4. Tahsis (Cross River Ventures Corp.)

Cross River Ventures Corp. carried out soil and rock geochemistry at **Tahsis** late in the year. Targets include gold- and copper-bearing skarns and veins. The company has an option to acquire 100% of the property, which is about 12 km south east of the Zeballos camp.

7.1.5. Gold Standard (Juggernaut Exploration Ltd.)

Juggernaut carried out lidar and orthophoto surveys at **Gold Standard** and **Goldstar** properties in 2020. They have a permit to drill at Gold Standard where they plan to target the Goldzilla vein, which they traced for more than 900 m along strike. Both properties contain recently discovered gold veins.

7.1.6. Angus (PeakBirch Logic Inc.)

Kootenay Zinc Corp. (now PeakBirch Logic Inc.) has an option to acquire the **Angus** property from Longford Capital Corp. Kootenay collected rock and soil samples early in 2020. Targets included porphyry style mineralization. PeakBirch Logic is no longer a mineral exploration company.

7.1.7. Brandywine (Bayhorse Silver Inc. 80%; Turnagain Resources Inc. 20%)

Bayhorse Silver Inc. expanded the **Brandywine** property in 2020. The company released results from 2019 resampling of core drilled in 2010, verifying earlier work. Metallic screen assays returned up to 20.2 g/t Au along 1.5 m. They planned a 1500 m 10-hole drill program and applied for a permit. Brandywine has vein targets and massive sulphide targets

Fig. 3. Privateer portal. **a)** in 1939; **b)** in 2017. Topography and rainforest vegetation on the west coast of Vancouver Island make exploration challenging, with the result that some historical deposits remain underexplored.

Table 5. Selected exploration projects, Southwest Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
Adam West	**GoldHaven Resources Corp.**	Au, Ag, Cu; Volcanic redbed Cu; 092L 222	na	Rock geochemistry. Highlight 46.4% Cu, 144 g/t Ag, 16.55 g/t Au.
Angus	**Kootenay Zinc Corp. (now PeakBirch Logic Inc.)**	Au, Ag, Cu, Zn; Polymetallic veins; 092C 192	na	Rock and soil geochemistry.
Bakar	**District Metals Corp., Sherpa II Holdings Corp.**	Cu, Ag; Volcanic Redbed Cu; 102I 010, 7, 6, 15, 16, 17, 092L 080, 462, 247	na	Technical report by Sherpa II.
Brandywine	**Bayhorse Silver Inc., Turnagain Resources Inc.**	Ag, Au, Pb, Zn; Polymetallic veins; 092JW 001, 21, 22	na	Technical report, preparation for drilling.

Table 5. Continued.

Consortium	**Gold Basin Resources Corporation**	Au, Ag, Cu; Au quartz veins, Cu+/-Ag quartz veins; 092K 175	na	Rock and soil geochemistry. Grab samples up to 30.4 g/t Au.
Dancer Group	**AMA Gold Exploration Ltd.**	Au, Ag, Au; Quartz veins, polymetallic veins; 092GNW008, 12, 63	na	Technical report.
Empire Mine	**Roughrider Exploration Limited**	Au, Ag, Cu, Fe, Co; Fe skarn, Cu skarn; 092L 044, 45, 46	M+I: 1,950,000 t 2 g/t Au, 5.6 g/t Ag, 0.34% Cu, 0.013% Co Inf: 120,000 t 1.2 g/t Au, 2.8 g/t Ag, 0.13% Cu, 0.008% Co	Soil and rock geochemistry.
Gold Standard	**Juggernaut Exploration Ltd.**	Au, Ag; Au quartz veins	na	Lidar, orthophotos, permitting for drilling.
Goldstar	**Juggernaut Exploration Ltd.**	Au, Ag; Au quartz veins	na	Lidar, orthophotos.
Harrison Gold	**Bear Mountain Gold Mines Ltd., Bayhorse Silver Inc.**	Au, Ag; Au quartz veins; 092HSW092	Historical I: 1.845 Mt 2.79 g/t Au Inf: 0.6 Mt 2.8 g/t Au	Sampling, metallurgical testing. Underground development, bulk sample.
Ladner Gold	**New Carolin Gold Corp**.	Au, Ag; Au quartz veins; 092HNW003, 7, 18, 092HSW034	Carolin Inf: 12,352,124 t 1.53 g/t Au McMaster Inf: 3,575,000 t 0.69 g/t Au Tailings I: 445,378 t 1.83 g/t Au Inf: 93,304 t 1.85 g/t Au	Final 2019 results released.
Lemare	**Homegold Resources Ltd.; Private co.**	Cu, Mo, Au, Ag, pyrophyllite; Porphyry Cu±Mo±Au; 92L 381, 328, 385, 378, 380, 329, 382, 379	na	IP survey.
New Privateer (Surespan Gold)	**Privateer Gold Ltd.**	Au, Ag; Au-quartz veins; 092L 008, 311, 155	na	Drilling 3000 m in 16 holes, soil survey.
North Island	**Northisle Copper and Gold Inc.**	Cu, Au, Mo, Re; Porphyry Cu±Mo±Au; 092L 185, 240, 200	I: 341,743,000 t 0.24% Cu, 0.29 g/t Au, 0.008% Mo, 0.48 ppm Re Inf: 190,788,000 t 0.19% Cu, 0.24 g/t Au, 0.007% Mo, 0.35 ppm Re	Resource estimate combines Red Dog and Hushamu. 2020 work included metallurgical tests which improved recoveries at Red Dog and Hushamu.
Silver Peak	**Homegold Resources Ltd., M. Nugent**	Ag; Polymetallic veins; 092HSW011	na	Trenching, sampling, drilling.
Tahsis	**Cross River Ventures Corp.**	Au, Cu; Fe skarn, Cu skarn, Au skarn; 092E 010, 85	na	Rock and soil geochemistry.

Table 5. Continued.

Teeta Creek	**Teck Resources Limited, ArcWest Exploration Inc.**	Cu, Mo, Au; Porphyry Cu±Mo±Au; 092L 454, 235	na	Mapping, drilling permitted.
Yreka	**Karmamount Mineral Exploration Ltd.**	Cu, Ag, Au; Cu skarns, porphyry; 092L 052, 104, 451, 336, 236, 105, 452	na	IP survey.

M = Measured; I = Indicated; Inf = Inferred

with precious metals in the Gambier Group, which Bayhorse interprets as volcanogenic. In 1977-78, about 10,000 t of ore from **Brandywine** yielded 23,000 oz Ag and 11,000 oz Au, with Pb, Zn, and Cu co-products.

7.1.8. Silver Peak (Johan Shearer, 15%; Michael Nugent, 85%)

Homegold Resources Ltd., on behalf of the owners, began sampling and drilling at **Silver Peak**, site of the Eureka-Victoria, a past silver producer dating back to 1868. Current operators report silver assays up to 15,000 g/t, consistent with historical high-grade results along intervals of less than 1 m.

7.1.9. Dancer Group (AMA Gold Exploration Ltd.)

AMA did not carry out field work on its **Dancer** claims but prepared a technical report for the project.

7.1.10. Consortium (Gold Basin Resources Corporation)

Gold Basin carried out a mapping, prospecting, and rock and soil sampling at the **Consortium** project. Ten grab samples averaged 4.5 g/t Au and 14 g/t Ag with a high value of 30.4 g/t Au. The area is underlain by Karmutsen Formation tholeiitic basalts. Mineralization is in quartz veins with ankerite alteration.

7.2. Selected porphyry projects

Jurassic porphyry mineralization is a target on Vancouver Island. Southwestern British Columbia also has several advanced Eocene to Miocene porphyry copper targets.

7.2.1. North Island (NorthIsle Copper and Gold Inc.)

NorthIsle Copper and Gold's **North Island** property is divided into eastern and western halves. The eastern half, referred to as the Pemberton Hills project in this report, is an early stage exploration project under option by Freeport McMoRan Minerals Canada Inc. Because of the Covid-19 pandemic, the company did not carry out exploration in 2020. The western half is a more advanced project by NorthIsle Copper and Gold, comprising the **Hushamu** and **Red Dog** Cu-Mo-Au-Re porphyry deposits. Preliminary metallurgical tests for the Hushamu deposit improved relative to the 2017 Preliminary Economic Assessment (PEA) values by 24% for copper, and by 24% for gold. For low-pyrite mineralization, copper recovery is now estimated at 86.6% and gold recovery 50.6%. For high-pyrite mineralization, the estimates are 87.9% recovery for copper and 46.4% for gold. For the Red Dog, recovery improved relative to 2017 PEA values by 5% for copper and by 65% for gold; the new estimates are 89.8% copper recovery and 53.0% gold recovery (Fig. 4). The 2017 PEA considered a project combining the Red Dog and Hushamu deposits (Table 5). The model considered a 22-year operation with a throughput of 27.4 Mtpy and a strip ratio of 0.72.

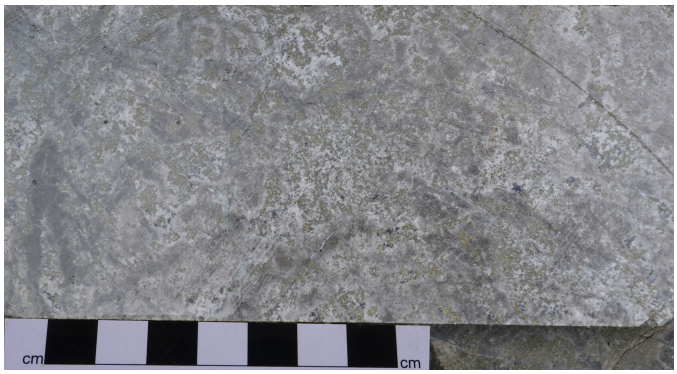

Fig. 4. Silica-clay-pyrite is one of the principal alteration types at Hushamu. This sample has disseminated chalcopyrite and minor bornite.

7.2.2. Teeta Creek (Teck Resources Limited)

Teck Resources Limited has an option to acquire 60% of optioned **Teeta Creek** from ArcWest Exploration Inc. In 2020, Teck began geological mapping ahead of planned drilling. The drilling was permitted in the fall but may be deferred pending improvement in Covid-19 infection rates.

7.2.3. NVI (Teck Resources Limited)

The **NVI** property is approximately 12 km northeast of Teeta Creek, along a newly recognized suite of Neogene intrusions with spatially associated porphyry style Cu-Mo occurrences. It is also subject of an option agreement by which Teck may acquire a 60% interest from ArcWest Exploration Inc.

7.2.4. Yreka (Karmamount Mineral Exploration Inc.)

Karmamount continued an IP survey started in 2019 at their **Yreka** project to test possible porphyry stockwork mineralization west of the Yreka past Cu-Au-Ag producer.

Lines also extended over known Cu-Au skarn mineralization. The Yreka past producer is a Cu skarn that produced Cu, Au and Ag in the early 20th century and late 1960s.

7.2.5. Lemare (Homegold Resources Ltd.; Private Co. optionee)

An unidentified operator conducted an IP survey over porphyry Cu-Mo targets at the **Lemare** property in 2020. The property also hosts pyrophyllite prospects.

7.3. Selected polymetallic base and precious metal projects

Apart from a continuing multi-year program at Myra Falls, volcanogenic massive sulphide deposits in the southwest saw limited exploration in 2020. The precious metals-enriched **Brandywine** is included under the precious metals section, above.

7.3.1. Adam West (GoldHaven Resources Corp.)

GoldHaven Resources Corp. (Formerly Altum Resources Corp.) reported results of rock sampling at **Adam West**. Of 147 grab samples, 102 returned >0.25% Cu. Highlights include 46.4% Cu and 144 g/t Ag and 16.55 g/t Au at the Lucky Jim occurrence. Targets include vein, fracture, and amygdule fillings of bornite, chalcocite and chalcopyrite in Karmutsen Formation basalt, overlain by limestone. The Lucky Jim is described as skarn or metasomatic mineralization.

7.3.2. Bakar (Sherpa II Holdings Corp.)

Sherpa II has an option to acquire 80% of the **Bakar** property from District Metals Corp. The company reported preliminary fieldwork at the site and prepared a revised technical report. Optionor and previous operator District Metals Corp. reported stratabound Cu-Ag mineralization in 2019.

7.4. Selected skarn projects

7.4.1. Empire Mine (Roughrider Exploration Limited)

Roughrider has an option to acquire a 100% interest in the **Empire Mine** property from Mirva Properties Ltd. Initial exploration included a soil survey and rock chip and channel samples. The property includes the past producing Merry Widow, Raven and Kingfisher skarn deposits, which produced iron in the 1950s and 60s. Copper-gold skarn mineralization has been a target of more recent exploration (Fig. 5).

Fig. 5. A pod of massive sulphide (pyrrhotite-pyrite-chalcopyrite) in Cu-Fe skarn at the Empire Mine project.

8. Geological research

Fieldwork by the British Columbia Geological Survey was limited in 2020 because of the Covid-19 pandemic. Several porphyry mineral occurrences on northern Vancouver Island, previously assumed to be related to the Island plutonic suite (Jurassic), are now recognized as part of a much younger (Neogene) mineralizing event (Nixon et al., 2020); sampling for geochronologic continued in 2020. Testing the dispersion of atmospheric mercury above buried deposits as an exploration tool, Rukhlov et al (2021) conducted in-situ measurements at the Lara VMS deposit on southern Vancouver Island using a highly sensitive mercury vapour analyzer.

Partnered with the Geological Survey of Canada and others, Geoscience BC has an ongoing project to assess the geothermal potential at Mount Meager. Grasby et al. (2020) reported on 2019 work that included detailed geological mapping, fracture and rock property studies, a gravity survey, thermal spring geochemistry, and an array of seismometers and magnetotelluric stations. Precision Geosurveys Inc. (2020) published the results of the Geoscience BC-funded airborne magnetic and radiometric survey of northern Vancouver Island. Morris and Canil (2020) provided preliminary results from mapping and sampling at the past-producing Merry Widow magnetite skarn deposit on northern Vancouver Island.

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