

MINERAL INDUSTRY

Yukon Mining, Development and Exploration Overview, 2003

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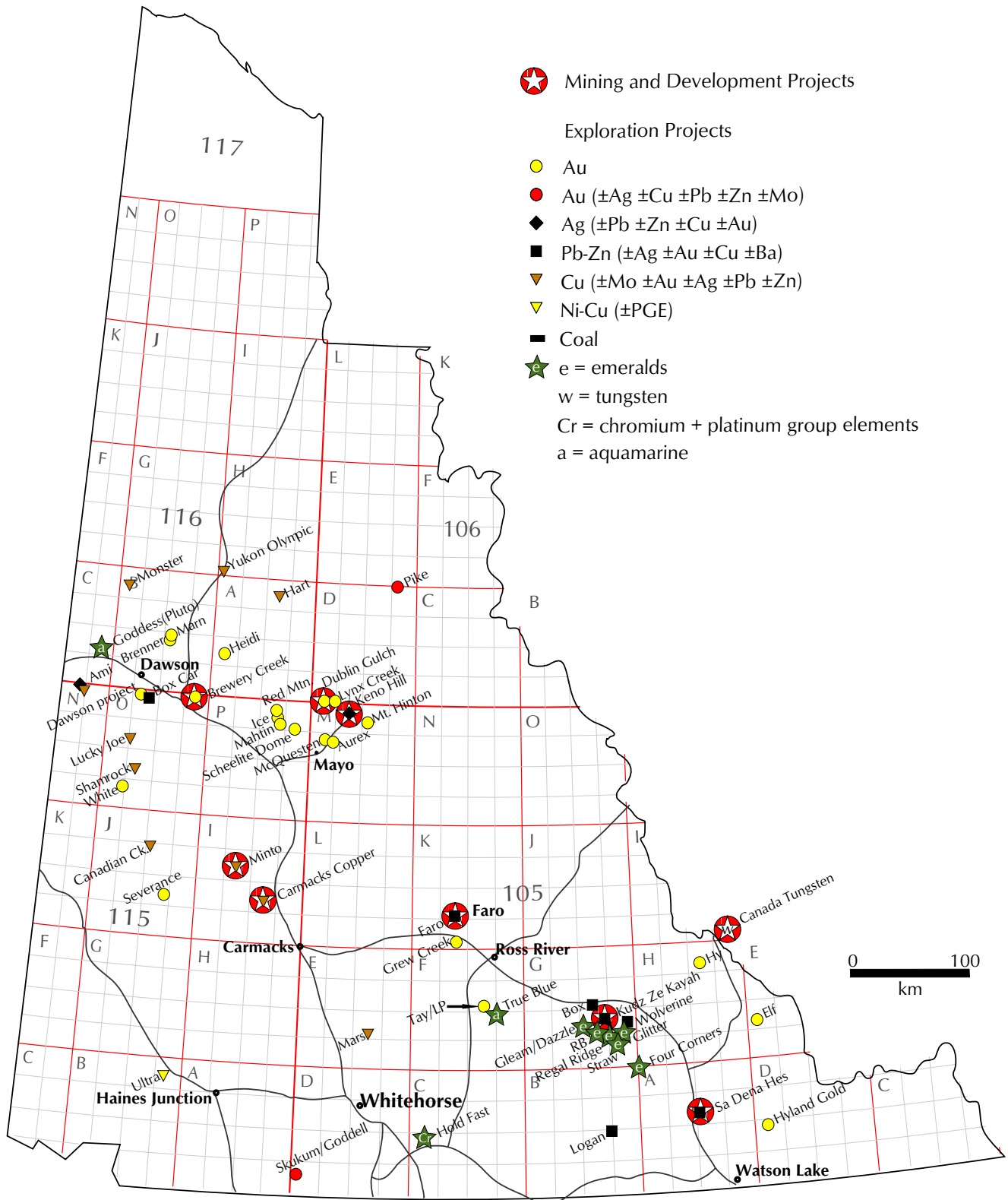


Figure 2. Location of Yukon development projects (permitted or undergoing permitting) and exploration projects in 2003. Not all active projects are shown on the map. Background of the map showing the National Topographic System (NTS) grid.

Yukon Mining, Development and Exploration Overview, 2003

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Yukon Geological Survey

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ABSTRACT

The search for emeralds and the rise in the price of gold has fueled an increase in mineral exploration expenditures in Yukon. Exploration for base metals was directed mainly toward copper (with significant gold credits), while zinc, lead and nickel received little attention. Expenditures are estimated at over \$13 million, up from the \$6.9 million spent in 2002. Claim staking remained healthy in 2003, with 2816 claims staked to the end of October, and for the first time in five years, claims in good standing posted an increase to 43 314 claims to the end of October. Unfortunately there has been no hard-rock mining or development taking place.

The largest exploration program in Yukon was the Regal Ridge project of True North Gems in which \$2.1 million was dedicated to the evaluation of an emerald occurrence first discovered in 1998. Exploration for additional occurrences of emeralds in a similar geologic setting to Regal Ridge (intrusive-related quartz-beryl veins) was conducted mainly in the surrounding Finlayson Lake district. Several new areas have been identified; the most significant being the True Blue prospect. Deep blue-coloured beryl discovered at the True Blue property has been identified as a unique form of aquamarine and is currently being evaluated to determine if the stones may be a new species of gemstone.

Gold exploration in Yukon focused mainly on intrusion-related gold systems within the Tintina gold province, which comprises several mineral-rich districts that are coincident with extensive regions of mid-Cretaceous plutonism. The geological knowledge of intrusion-related gold systems has advanced dramatically over the last ten years while exploration for gold in these systems has been at historical lows. This has resulted in very few advanced exploration programs that have been able to adequately drill test the numerous targets within the Tintina gold province in Yukon.

The continued strengthening of the gold price, recent discoveries and positive results from current exploration programs all indicate that Yukon is poised for a return to healthy exploration levels.

RÉSUMÉ

La recherche d'émeraudes et la hausse du prix de l'or ont contribué à l'augmentation des dépenses d'exploration minérale au Yukon. L'exploration des métaux communs a été axée sur le cuivre (combinée à des crédits importants pour l'or); le zinc, le plomb et le nickel ont été, pour leur part, des cibles peu prisées. On estime les dépenses à plus de 13 millions de dollars, ce qui est 6,9 millions de dollars de plus qu'en 2002. Les jalonnements de claims ont continué d'être nombreux en 2003, 2816 claims ayant été jalonnés à la fin d'octobre, et pour la première fois en 5 ans, les claims en règle ont atteint le nombre de 43 314 à la fin d'octobre. Malheureusement, il n'y a pas eu d'exploitation ou de mise en valeur de mines de roche dure.

Le plus vaste programme d'exploration au Yukon a été celui de Regal Ridge de la société True North Gems qui a consacré 2,1 millions de dollars à l'évaluation de la minéralisation d'émeraude découverte en 1998. Des travaux d'exploration pour trouver des émeraudes dans un contexte géologique semblable à celui de Regal Ridge (filons de quartz-béryl associés à une intrusion) ont été menés principalement dans les environs du district de Finlayson Lake. Plusieurs nouvelles zones ont été relevées, la plus importante étant celle de True Blue. Le béryl bleu foncé découvert à la propriété de True Blue est en cours d'évaluation pour déterminer si les pierres constituent une nouvelle espèce de pierre précieuse.

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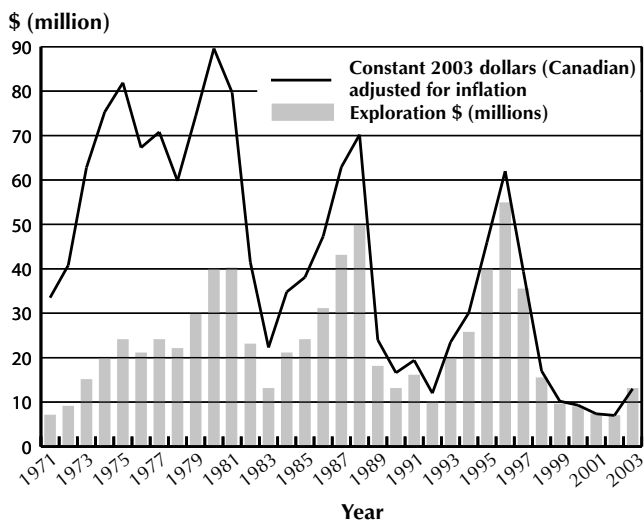
L'exploration de l'or au Yukon a surtout porté sur les systèmes aurifères associés à une intrusion dans la province aurifère de Tintina qui inclut plusieurs districts riches en minéraux qui coïncident avec des grandes régions de plutonisme du Crétacé moyen. La connaissance géologique des systèmes aurifères associés à des intrusions a fait des pas de géant au cours des dix dernières années alors que l'exploration visant à découvrir de l'or dans ces systèmes n'a jamais été aussi faible. C'est pourquoi les programmes d'exploration de pointe ont été peu nombreux à effectuer des forages d'essai dans les nombreuses cibles situées dans la province aurifère de Tintina au Yukon.

Le raffermissement ininterrompu du prix de l'or, les récentes découvertes et les résultats positifs obtenus par les programmes d'exploration indiquent que le Yukon reconnaîtra des activités d'exploration prospères.

INTRODUCTION

Mineral exploration expenditures in Yukon rose to over \$13 million in 2003, nearly double the 2002 total (Fig. 1). The increase in exploration was driven by the rise in the price of gold and the increased activity of companies exploring for emeralds (Fig. 2, page 2). New discoveries continue to be made by companies and prospectors active in Yukon. Hinterland Metals and Firestone Ventures both discovered gold mineralization on their claims while exploring for emeralds in the Finlayson Lake district. Prospector Shawn Ryan rediscovered a high-grade gold vein on his White claims, first noted in an 1897 report by William Ogilvie. True North Gems identified three new emerald-bearing zones on their Regal Ridge property and announced the discovery of a blue-coloured beryl, identified as a unique form of aquamarine, on their True Blue property. The number of projects involving diamond drilling did not increase in 2003, however, the total drilling footage increased by 50% (Appendix 1) illustrating the ability of companies to raise enough funds to complete sizeable exploration programs. No percussion drilling was carried out this year.

Figure 1. Exploration expenditures 1971- 2003 (estimated). Inflation adjustment calculated using Bank of Canada inflation calculator (www.bankofcanada.ca/en/inflation_calc.htm).



Claim staking in 2003 remained healthy with 3571 claims staked, resulting in an increase in the number of claims in good standing to 44 022 (Figs. 3, 4).

The Yukon government continued to support the mineral exploration industry in Yukon by funding the Yukon Mining Incentive Program. In 2003, \$987,000 was offered to 61 successful applicants (Galambos, this volume). The function of the program is to provide a portion of the risk capital required to locate and explore for mineral deposits in Yukon. The Yukon government also supports the industry through the Yukon Mineral Exploration Tax Credit, which provides a 25% tax refund on eligible exploration expenditures (effective until March 31, 2004).

Eight Yukon First Nations (Nacho Nyak Dun, Teslin Tlingit Council, Champagne and Aishihik First Nation, Vuntut Gwichin First Nation, Little Salmon/Carmacks First Nation, Selkirk First Nation, Tr'ondëk Hwëch'in and the Ta'an Kwach'an Council) have finalized their land claims in Yukon, and have final and self-government agreements in

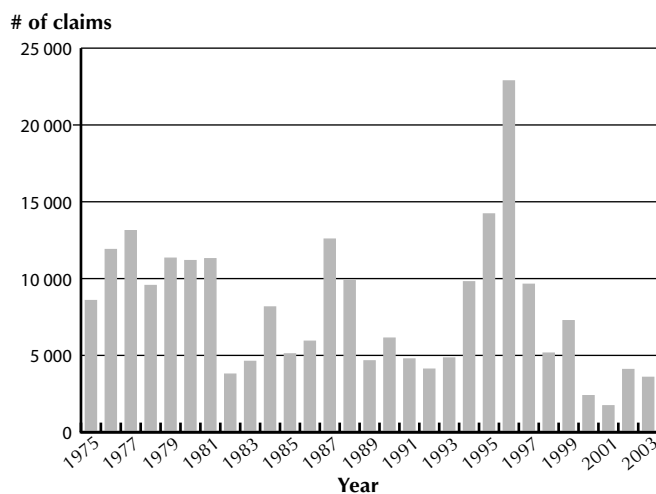


Figure 3. Claims staked 1975 to 2003.

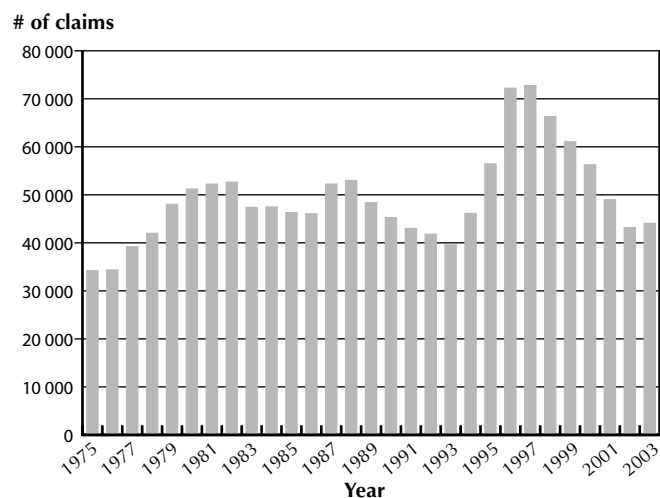


Figure 4. Claims in good standing 1975 to 2003.

effect. The Kluane First Nation has finalized its land claims, and its final and self-government agreements will come into effect on February 2, 2004. The Carcross/Tagish First Nation and the Kwanlin Dun First Nation have finalized their land claims, and will vote on ratification of their final and self-government agreements in 2004. The White River First Nation is working on completing the details of its claims so that it may finalize and move towards ratification in 2004. The Liard First Nation and Ross River Dena Council are not presently negotiating their claims with Canada and Yukon, and there is no timetable for reactivating the tripartite negotiation table, however, Yukon has entered into some interim measures agreements with those First Nations to facilitate development in the southeast Yukon.

This overview highlights a number of exploration projects conducted in Yukon during the 2003 field season, and is by no means a comprehensive review of the geology of the properties and of all exploration conducted in Yukon. Detailed property descriptions are commonly available on company websites, in documents filed electronically for the System for Electronic Document Analysis and Retrieval (SEDAR at www.sedar.com). Yukon MINFILE, the Yukon's mineral occurrence database, also contains detailed descriptions of many of the occurrences described herein (Deklerk, 2003); this is available on CD-ROM, and also on the Yukon Geological Survey's website at www.geology.gov.yk.ca. Several projects have not been included because of restrictions on disclosure for publicly traded companies, and for competitive reasons when companies and individuals choose not to openly share exploration results.

PRECIOUS METALS

GOLD

SpectrumGold Inc. (a subsidiary of NovaGold Resources Inc.) completed a major geologic compilation of the **Brewery Creek** mine property (Yukon MINFILE 2003, 116B 160, Deklerk, 2003). The property ceased heap leach production from oxide gold deposits which produced 8 694 695 g (279,541 troy oz) of gold from

1996 to 2002. Approximately 2 million tonnes of capacity remain on the heap leach pad and the Reserve Trend on the property contains indicated resources of 4.51 million g (145,000 troy oz) and inferred resources of 4.45 million g (143,000 troy oz) of oxide material. Previous work focused mainly on the near surface oxide reserves with very few holes testing the potential for deeper sulphide mineral targets. SpectrumGold feels the property's 15-km-long mineralized trend has similar geologic characteristics to NovaGold's 775 million g (25 million oz) Donlin Creek deposit in Alaska. Detailed structural mapping in 2002 and 2003 is helping to develop a more comprehensive structural model that incorporates known ore-controlling structures in the Reserve Trend into a more regionally consistent context. A program to test drill targets is planned for the 2004 season.

Canadian United Minerals restaked the **Marn** deposit (Yukon MINFILE 2003, 116B 147, Deklerk, 2003) as the Prune claims and conducted 22 km of ground-based magnetometer surveys, soil sampling and prospecting. Sulphide skarn minerals in the Marn deposit are mainly pyrrhotite and chalcopyrite (Fig. 5). The surveys produced a 150 by 400 m magnetic anomaly with coincident soil values up to 200 ppm Cu. Prospecting in the valley bottom near a weak magnetometer anomaly uncovered weak skarn mineralization that assayed up to 580 ppb Au, >10 000 ppm As and 0.6% Cu.

Four kilometres to the south of the Marn, Klondike Exploration (Shawn Ryan) conducted a ground-based magnetometer survey and prospecting on the **Brenner** claims which have potential to host similar mineralization to the Marn.

Regent Ventures Inc. upgraded the access road to their **Red Mountain** property (Yukon MINFILE 2003, 115P 006, Deklerk, 2003) near Mayo in central Yukon. This was followed by drilling a single deep diamond drill hole on the Treadwell structure (Fig. 6) at the south end of the property. Diamond drill hole DD03-39 was drilled to a depth of 442.5 m at a dip of -60° to test this structure. A number of quartz-calcite veins and stockwork zones were intersected within the hornfels aureole of a



Figure 5. Trench on the main Marn Zone.



Figure 6. Drilling the Treadwell structure at Red Mountain.

Cretaceous Tombstone Suite biotite quartz monzonite intrusion, while the intersection from 440 to 441 m depth was in the intrusion itself. The more significant assay results from the drill hole are set out in the following table.

Depth (m)		Interval (m)	Gold (g/t)
from	to		
109.65	110.45	0.80	2.74
235.00	247.00	12.00	1.01
265.00	267.00	2.00	1.20
288.00	289.00	1.00	1.10
300.45	307.00	6.55	2.12
348.00	349.00	1.00	1.20
384.00	385.10	1.10	2.04
415.00	416.00	1.00	1.65
440.00	441.00	1.00	11.3

ASC Industries Ltd explored the **Ice** property (Yukon MINFILE 2003, 115P 006, Deklerk, 2003) which adjoins the Red Mountain property to the north. The program consisted of 1368.39 m of HQ core drilling in 10 drill holes. The drill program was directed at a number of targets associated with the Cretaceous Red Mountain Stock, a biotite quartz monzonite intrusion of the Tombstone Suite. Drilling tested the northwest-trending Jethro structure which was defined over a strike length of approximately 500 m. It is a well defined, wide and steeply dipping fault zone with only limited surface expression. The Midway zone is located in the middle of the Jethro structure and consists of a 500-m-long, 250- to 500-ppb gold-in-soil anomaly with a 250-m core of greater than 500 ppb Au. A number of surface rock samples within this anomalous zone returned values of greater than 1 g/t Au.

Figure 7. Faulted quartz monzonite in Hole 8 on the Ice property assayed 1.12 g/t Au from 31.0 to 42.3 m.



Four diamond drill holes (DD03-04, 06, 08 and 12; Fig. 7) intersected the Jethro structure over a strike length of 500 m. DD03-04 and -06 were drilled at the southeast end of the structure, and DD03-08 and -12 were collared 500 m to the northwest in the Midway zone. DD03-04 intersected a swarm of quartz monzonite sills and hornfelsed siltstone that assayed 311 ppb Au over the entire 171 m length of the hole. Nine intervals of greater than 1 g/t Au were returned in the hole, with the widest intersection returning 1.34 g/t Au over 3.5 m, and the highest grade assaying 4.56 g/t Au over 1.0 m. DD03-08 returned two intersections of 1.12 g/t Au and 1.24 g/t Au over 11.30 and 5.0 m, respectively in biotite quartz monzonite with zones of clay alteration and fault gouge. DD03-12, located 60 m northwest of DD03-08, returned 102 m of 0.88 g/t Au including 2.29 m of 15.35 g/t Au and 16.79 m grading 1.28 g/t Au in clay-altered, sheared, oxidized biotite quartz monzonite.

Klondike Exploration (Shawn Ryan) acquired the **Mahtin** property (Yukon MINFILE 2003, 115P 007, Deklerk, 2003) by staking early in 2003. The claims cover the Cretaceous Sprague Creek stock which intrudes Upper Cambrian-Ordovician limestones of the Rabbitkettle Formation. The property had been previously held since 1994 but had only seen sporadic work, consisting mainly of short property visits. Sheeted quartz-arsenopyrite veins (Fig. 8) occur within the intrusion near the margin; and skarn and mineralized calc-silicate rock is developed in several areas proximal to the intrusion. Ryan conducted a program of geophysics (28 line-km of magnetometer and 9 line-km of Induced Polarization) and geochemistry on a 1 by 2 km grid. Soil sampling outlined an anomalous zone of >40 ppb Au geochemistry, 1 km by approximately 150 m, with peak values in the 400 ppb Au range paralleling the intrusive contact. Geophysics outlined several magnetic highs with high chargeabilities that correspond to areas with skarn in float or subcrop. Grab samples of sheeted quartz-arsenopyrite veins assayed up to 2.8 g/t Au, and skarn/mineralized calc-silicate rock assayed up to 6.5 g/t Au.

Logan Resources conducted a program of geochemistry and geophysics (magnetic and Induced Polarization surveys) on the **Heidi** property (Yukon MINFILE 2003, 116A 037, Deklerk, 2003) northeast of Dawson. The Heidi property is underlain by Neoproterozoic to Lower Cambrian Hyland Group quartzites, sandstone and quartz-pebble conglomerates intruded by Cretaceous biotite-feldspar porphyry dykes. Disseminated to massive sulphide minerals replace calcareous units within the highly folded Hyland Group rocks and occur in quartz-arsenopyrite veins.

Golden Patriot Resources optioned the **Scheelite Dome** property (Yukon MINFILE 2003, 115P 003, Deklerk, 2003) from Copper Ridge Exploration and conducted 7.8 km of line grids, 7.8 km of ground magnetometer and 5.9 km of Induced Polarization surveying, geological mapping and sampling on the Tom Zone, followed by diamond drilling (Fig. 9). Property geology consists of siliciclastic metasedimentary rocks of the Neoproterozoic to Lower Cambrian Hyland Group intruded by the Cretaceous Scheelite Dome intrusion. The Tom Zone is characterized by mineralized calc-silicate skarn hosted within a lens of calcareous rocks and discordant quartz-arsenopyrite veins. Surface sampling of the skarn returned values of up to 32.8 g/t Au. Five holes totaling 310 m were drilled to target skarn and replacement mineralization in the Tom Zone. The final two holes of the program were not completed due to the onset of winter conditions which compromised access to the drill.



Figure 8. Sheeted quartz-arsenopyrite veins hosted in quartz monzonite on the Mahtin property.



Figure 9. Drilling on the Tom Zone on the Scheelite Dome property.

Highlights from drilling at the Scheelite Dome property.

Hole	Interval (m)	Gold (g/t)
SH03-29	1.22	5.06
SH03-30	6.40	7.09
SH03-32	5.80	2.55
SH03-33	0.61	3.53

Four of the holes intersected gold mineralization and one hole was abandoned before reaching the target depth.

StrataGold Corporation conducted a small program of geology, geochemistry and geophysics (ground magnetic and Induced Polarization surveys) on their **Lynx Creek** property (Yukon MINFILE 2003, 106D 020, Deklerk, 2003) north of Mayo in central Yukon. Gold at Lynx Creek is associated with a small granodiorite stock of the Cretaceous Tombstone Plutonic Suite. Previous work on the property partially outlined a quartz-sulphide mineral vein system hosted within the granodiorite which returned drill intersections up to 3.4 m grading 7.37 g/t Au. StrataGold is evaluating the property for a potential gold deposit proximal to the intrusive stock, and previous drilling returned up to 22.2 m grading 1.4 g/t Au in quartzite.

StrataGold Corporation also conducted an exploration program on the **Aurex** property (Yukon MINFILE 2003, 105M 060, Deklerk, 2003) which lies east of Mayo in central Yukon and is accessed by the Silver Trail Highway. Gold occurs in quartz-sulphide mineral veins and distal pyrrhotite skarn and calc-silicate rocks hosted in Neoproterozoic to Lower Cambrian Hyland Group metasedimentary rocks within the Tombstone strain zone. Skarn has returned values up to 8.87 g/t Au, and veins up to 9.31 g/t Au from surface exposures. StrataGold tested a number of targets on the property with 21 diamond drill holes totaling 2417 m. Drilling began in early November (Fig. 10) and results were not yet available by year-end.

Figure 10. Winter drilling at StrataGold Resources' Aurex property near Mayo.



SpectrumGold Inc. (a NovaGold subsidiary) conducted an 18-hole, 3050-m diamond drilling program on the **McQuesten** property (Yukon MINFILE 2003, 105M 029, Deklerk, 2003) optioned from Eagle Plains Resources. The property is adjacent to the Aurex claims. Gold is hosted within calcareous metasedimentary rocks of the Neoproterozoic to Lower Cambrian Hyland Group and a quartz monzonite dyke, likely of the Tombstone Plutonic Suite, within the Tombstone strain zone. Gold occurs with disseminated to semi-massive sulphide minerals in skarn and calc-silicate horizons (Fig. 11). Previous drilling and geophysical surveys by Eagle Plains and Newmont have indicated a mineralized system that has at least a 3-km strike length.

Strategic Metals Ltd. tested the **Pike** property (Yukon MINFILE 2003, 106E 040, Deklerk, 2003) with four diamond drill holes totaling 295 m. The claims located north of Mayo in the Wernecke Mountains cover a large Proterozoic 'Wernecke Breccia' which hosts iron-oxide-copper-gold occurrences. A talus slope on the property contains high-grade float



Figure 11. Gold-bearing semi-massive pyrrhotite in core from the McQuesten property.

specimens with native gold, pitchblende and brannerite in quartz. Drilling targeted the apparent source of high-grade, mineralized quartz fragments that contain up to 10 to 30% Au. Anomalous values of copper and gold were intersected by the drilling but nothing approaching the tenor of the mineralization found at surface.

Klondike Gold Corp. renewed its exploration efforts in the historic Dawson mining district by acquiring additional claims in the area and conducting a first-phase program of trenching and bulk sampling on the **Lone Star** and **Buckland** shear zones (Yukon MINFILE 2003, 115O 072, 077, Deklerk, 2003).

Fjordland Exploration Inc. optioned the contiguous **Flume** and **Ten** properties (Yukon MINFILE 2003, 115N 110, 163, Deklerk, 2003) from Phelps Dodge Corporation and Teck Cominco Ltd. The properties are located approximately 75 km south of Dawson City. Mid-Cretaceous biotite quartz monzonite stocks and later quartz-feldspar porphyry dykes intrude Devonian-Mississippian schist, gneiss and minor marble of the Yukon-Tanana Terrane. Previous exploration by Phelps Dodge and Teck Cominco outlined gold-bearing veins and stockwork within intrusive and metamorphic rocks, as well as skarn. Previous trenching returned up to 1.6 g/t Au over 25 m including 11.1 g/t Au over 3 m from quartz veins hosted in quartz monzonite. Fjordland conducted a short program of geology and geochemistry on the property, but it was cut short by the onset of winter conditions.

Klondike Exploration (Shawn Ryan) conducted a small program of prospecting and soil geochemistry on the **White** claims (Yukon MINFILE 2003, 115O 011, 012, Deklerk, 2003), approximately 100 km south of Dawson. The claims were previously subjected to small exploration programs by Teck Corporation from 1999 to 2000, which concentrated on the Teacher epithermal gold-silver showing hosted by feldspar porphyritic dykes in the northern part of the claim block. Ryan collected a float specimen of massive white quartz with minor limonite and malachite staining



Figure 12. Partially exposed high-grade gold-quartz vein in an old hand trench on the White claims.

MINFILE 2003, 095D 011, Deklerk, 2003) located 70 km northeast of Watson Lake in southeastern Yukon. The property is underlain by phyllites, quartzites, quartz-feldspar pebble conglomerate and limestone of the Neoproterozoic to Lower Cambrian Hyland Group. These rocks are folded into an overturned east-verging antiformal structure. No large intrusive bodies are exposed on the property, however, the property is underlain by a prominent magnetic low feature, and a few narrow intrusive dykes are exposed on the claims. Previous percussion drilling on the property was directed at the near-surface iron-oxidized rock which returned values up to 2.65 g/t Au over 16.7 m and 1.19 g/t Au over 129.7 m. Diamond drilling of 12 holes totaling 2417 m tested approximately 2 km of the north-trending Quartz Lake lineament, a prominent topographic lineament which approximates the axial trace of the antiformal structure. All drill holes intersected significant mineralized rock along the west-dipping structurally controlled zone consisting of intense silicification and silica replacement of phyllites and quartzites with 5 to 20% total sulphide minerals. Sulphide minerals consist of pyrite-arsenopyrite with minor chalcopyrite, sphalerite, bismuthinite and tetrahedrite. Several holes intersected additional mineralized rock hosted by a series of hanging wall splays above the main mineralized structure.

Late in the season, approximately 150 km to the north of the Hyland property, Dentonia Resources optioned the **Hy** property (Yukon MINFILE 2003, 105H 102, Deklerk, 2003) from Phelps Dodge Corporation and staked the **Elf** property (Yukon

which returned just over 50 g/t Au. Follow-up prospecting located a partially exposed quartz vein in what appeared to be a very old hand trench. The vein is exposed for approximately 10 m in strike length and over a 1-m width (Fig. 12). The true thickness of the vein was not determined. Mineralization in the vein consists of trace amounts of galena, tetrahedrite, malachite, limonite and visible gold.

Eagle Plains Resources optioned the **Severance** property (Yukon MINFILE 2003, 115J 003, Deklerk, 2003) located in the Dawson Range approximately 120 km west of Carmacks in south-central Yukon. Results from the property in 2002 outlined a coincident gold-copper-molybdenum-arsenic-in-soil anomaly with gold results up to 2680 ppb. A grab sample of silicified and quartz-veined granodiorite with disseminated pyrite returned 1.2 g/t Au and 0.35% Cu. The 2003 program consisted of prospecting, soil and silt sampling and a small ground electromagnetic survey.

Northgate Exploration funded an exploration program that included two phases of diamond drilling (Fig. 13) on StrataGold Corporation's **Hyland Gold** property (Yukon

MINFILE 2003, 095E 052, Deklerk, 2003) which is 70 km south of Hy. The Hy and Elf claims are underlain by the Neoproterozoic to Lower Cambrian Hyland Group metasedimentary rocks, including quartzite, shale, quartz-pebble conglomerate, phyllite and limestone. No intrusive rocks have been identified on the Hy claims but a mid-Cretaceous Selwyn Suite intrusive stock does exist on the Elf. On the Hy, two areas of anomalous gold geochemistry have been previously outlined on the claims, and a chip sample from a quartz vein in phyllite returned 23.05 g/t Au. The Elf claims cover a 1200 by 400 m soil geochemical anomaly with peak values to 677 ppb Au, 639 ppm As and 323 ppb Bi. Dentonia staked additional claims late in 2003 and plans on commencing exploration on both properties in 2004.

Ross River Minerals Inc. conducted a program of geologic mapping, sampling and prospecting on the **Tay-LP** property (Yukon MINFILE 2003, 105F 121, Deklerk, 2003) in south-central Yukon. Semi-massive to massive sulphide mineralized rock consists of replacement-type pyrrhotite +/- pyrite, arsenopyrite and chalcopyrite in calcareous metasedimentary rocks, and similarly mineralized quartz-sulphide mineral veins. Recent interpretations of the glacial history of the property and area have shown up-valley glacial movement (Kennedy and Bond, this volume). This new information should help in interpreting the source areas of extensive mineralized float boulders found on the claims.



Figure 13. Rob Duncan and Jason Dunning on StrataGold Corporation's Hyland Gold property.

Highlights from drilling at Hyland Gold property.

	Interval (m)	Gold (g/t)	Silver (g/t)
HY03-01	17.22	1.29	13.85
including	3.82	3.56	49.79
HY03-02	28.0 m (oxide)	0.93	2.75
including,	4.89	1.31	6.96
and	9.20	1.68	3.37
including	53.11 (sulphide)	1.38	3.54
	5.54	4.24	4.96
HY03-08	4.10	1.31	1.91
HY03-09	4.73	0.98	19.46
and	12.35	0.98	5.31
HY03-10	6.52	0.63	1.00
and	5.30	0.62	1.52
HY03-11	5.55	0.69	2.96
HY03-12	9.82	0.76	13.35
and	9.63	1.57	43.76

Tagish Lake Gold Corp. continued with the advanced exploration of the **Skukum Creek** (Yukon MINFILE 2003, 105D 022, 025, Deklerk, 2003) gold-silver deposits located in the Wheaton River district south of Whitehorse. At the beginning of the year, Tagish Lake commissioned an independent technical report updating the resources at the Skukum Creek and Goddell Gully deposits. Significantly, at a 5 g/t Au-equivalent cutoff grade, the resources at Skukum Creek increased by 50% to a measured and indicated resource of 800 000 tonnes containing 6.77 g/t Au and 214 g/t Ag, and an inferred resource of 90 000 tonnes grading 6.53 g/t Au and 225 g/t Ag. Utilizing the same 5 g/t Au-equivalent cutoff grade, the following resources were calculated for Goddell Gully: indicated resources of 320 000 tonnes grading 11.02 g/t Au, and inferred resources of 280 000 tonnes grading 9.21 g/t Au, an increase of over 100%. A number of historical drill holes were not available for use in previous estimates because they were not surveyed. Tagish Lake was successful in using a continuous downhole surveying instrument that allowed the holes to be surveyed and included in the latest estimate. Bench-scale testwork conducted on mineralization from the Skukum Creek deposit utilizing extremely fine grinding demonstrated improved gold and silver recoveries. Leaching by cyanidation of the whole ore gave recoveries of over 85% for gold and 44% for silver. Flotation of a bulk sulphide mineral concentrate and fine regrinding of the sulphide mineral concentrate followed by cyanidation resulted in gold recoveries of 90% and silver of 40%.

At the Skukum Creek property, the 1300-m level was extended by 400 m along strike from the deposit to provide access for underground diamond drilling of the Ridge zone. The extension intersected a quartz-sulphide mineral vein (Fig. 14) that is on-strike with zone 2 of the Ridge zone which was intersected 200 metres to the west by surface drilling (8.44 g/t Au, 260 g/t Ag over 11.67 m). Underground chip-sampling of the zone at 3-m intervals over a strike length of 15 m returned a weighted average of 29.39 g/t Au and 280 g/t Ag over an average width of 0.37 m. An additional zone of massive to disseminated pyrrhotite-chalcopyrite-sphalerite not typical of the mineralization at Skukum Creek was intersected in the diamond drill crosscut. Samples from this zone returned 1.0 m of 0.8 g/t Au and 109 g/t Ag; 0.8 m of 4.2 g/t Au and 170 g/t Ag; and 1.5 m grading 21.0 g/t Au and 159 g/t Ag. Underground drilling of the extension vein and the diamond drill crosscut vein to test continuity of the zones with Skukum Creek and the Ridge zone commenced in late November.

Figure 14. Quartz-sulphide mineral vein exposed in the underground extension at the Skukum Creek property.



At the Goddell Gully deposit, a review of core from 1997 revealed unsampled mineralization. Sampling of hole 97-56 increased the previously reported intersection of 0.66 m grading 3.57 g/t Au to 19.82 m grading 2.37 g/t Au including 2.91 m at 8.49 g/t Au. Hole 97-56 is located 225 m to the west of the presently outlined resource block that has a



Figure 15. Intersection from drill hole GG03-1 in the Goddell Gully deposit of Tagish Lake Gold.

strike length of 450 m, as generated in the resource model. This hole demonstrates the potential of the deposit to continue along strike to the west and indicates that a significant increase in resources is possible. Hole GG03-01 (Fig. 15) was drilled from surface and intersected the mineralized zone approximately 25 m below and 10 m west of hole 97-56. GG03-01 intersected 26.92 m grading 2.46 g/t Au, including 9.01 m grading 5.00 g/t Au. Hole GG03-02 intersected the zone approximately 60 m west of hole 97-56 and returned 1.86 m grading 1.38 g/t Au and, at a second intersection, 2.56 m grading 2.03 g/t Au.

PLATINUM GROUP ELEMENTS

Tom Morgan explored his **Ultra** claims (Yukon MINFILE 2003, 115B 008, Deklerk, 2003; Galambos, this volume) near Haines Junction in southwestern Yukon with geophysical surveys (max-min and magnetometer), blast trenching and sampling. The Froberg showing on the claims consists of veins of mainly chalcopyrite with minor pyrite and pyrrhotite near the margin of a mafic sill. Sampling by Morgan returned values up to 5.5 g/t Pt, 13.5 g/t Pd, 4% Cu and 1.7% Ni. Geophysical surveys were directed at helping define a source area for several large zinc-copper boulders with volcanogenic massive sulphide mineralized rocks that have assayed up to 5.1% Zn and 2.1% Cu. The survey produced several good conductors.

Gord Mcleod continued to evaluate his **Holdfast** property (Yukon MINFILE 2003, 105C 012, Deklerk, 2003) located approximately 80 km southeast of Whitehorse and 3 km north of the Alaska Highway. Chromite-bearing dunite hosted in an ophiolitic sequence of mafic to ultramafic rocks on the claims returned values (utilizing NiS fusion analysis) of up to 406 ppb Os, 417 ppb Ir, 683 ppb Ru, 70 ppb Rh, 159 ppb Pt and 5 ppb Pd for a total contained PGEs (platinum group elements) of 1740 ppb.

Figure 16. Kennecott Canada Exploration's Lucky Joe camp.



BASE METALS

Kennecott Canada Exploration optioned the **Lucky Joe** copper-gold property (Yukon MINFILE 2003, 115O 051, Deklerk, 2003; Fig. 16), located 50 km south of Dawson City, from Copper Ridge Exploration. Kennecott conducted a helicopter-supported regional-scale geological mapping and soil sampling program covering an area roughly 10 km by 40 km. Detailed work, including limited mechanical trenching, was also completed in the areas of known mineralized rock identified in 2002 by Copper Ridge. Chalcopyrite with minor pyrite, pyrrhotite and molybdenite at Lucky Joe are hosted in a blanket-like layer in biotite-muscovite schist and orthogneiss overlain by a magnetite-bearing amphibolite. The 2003 work defined two large parallel geochemical trends. The Lucky Joe trend is 11.3 km long and defined by anomalous copper and gold, with peak values of 3060 ppm Cu and 235 ppb Au, and associated silver and molybdenum. The copper-gold zone extends outward into a lead and zinc halo that together outlines a hydrothermal system over 21 km long and up to 3 km wide. The Ryan's Creek trend parallels the Lucky Joe trend approximately 4 km to the southwest. This trend, defined by anomalous copper and gold geochemistry, is 7.2 km long and has peak values of 4400 ppm Cu and 611 ppb Au. The geologic setting, alteration patterns and geochemistry of the rocks and mineral showings at Lucky Joe have outlined a large hydrothermal system representing a porphyry copper-gold or an iron-oxide-copper-gold (IOGC) mineralizing system.

Shawn Ryan, the underlying vendor on the Lucky Joe property, staked several properties in the vicinity of the Lucky Joe based on similar geology and a similar geophysical expression. Ryan conducted geochemistry and a 25 line-km ground magnetic survey on his Australia property. The surveys revealed a geophysical expression and geochemical signature similar to that of the Lucky Joe property.

Canadian Empire Exploration conducted a program of geophysics on the **Yukon Olympic** property (Yukon MINFILE 2003, 116G 082, Deklerk, 2003), an iron-oxide-copper-gold target optioned from Copper Ridge Exploration. The program included detailed gravity surveys, Induced Polarization and magnetic surveys, and mobile metal ion (MMI) geochemical surveys. The Yukon Olympic property is located just off the Dempster Highway, 130 km north of Dawson City. In Yukon, 'Wernecke Breccias' intruding Proterozoic rocks have many similarities to the giant Olympic Dam deposit in Australia. Wernecke Breccias are the same age as the breccias hosting the Olympic Dam deposit and have many of the same physical and mineralogic characteristics. Recent tectonic reconstructions indicate that Yukon and eastern Australia were part of the same landmass 1.6 billion years ago at the time of breccia formation (Thorkelson et al., 2001). Previous work on the Yukon Olympic

has outlined a 2 mGal gravity anomaly flanked by a magnetic anomaly and intermittently outcropping copper-bearing hematite breccia which assayed up to 0.9% Cu.

Monster Copper drilled a single diamond drill hole on the Monster property (Yukon MINFILE 2003, 116B 102, 103, Deklerk, 2003), under option to Orezone Resources, located in the Ogilvie Mountains north of Dawson City. The single hole targeted a gravity anomaly associated with occurrences of copper-gold hosted by hematitic breccia bodies and hydrothermal siderite veining. Drilling intersected intrusive hydrothermal breccia that did not contain any significant mineralized rock.

Copper Ridge Exploration acquired the **Hart River** iron-oxide-copper-gold property (Yukon MINFILE 2003, 116A 009, Deklerk, 2003) in the Hart River area to the east of the Yukon Olympic property (Fig. 17). The claims cover a new occurrence of 'Wernecke Breccia' where preliminary sampling has returned values up to 1.76% Cu in grab samples and 0.83% Cu over 3.2 m in chip sampling. Gold values up to 2.4 g/t have been obtained.

Grid Capital Corp. conducted a five-hole, 800-m diamond drilling program on the **Ami** property (Yukon MINFILE 2003, 115N 039, 040, Deklerk, 2003) located in the Sixtymile River area west of Dawson City. Diamond drilling followed an Induced Polarization survey that produced anomalies coincident with zones of anomalous gold, silver, lead, arsenic, copper and molybdenum soil geochemistry. The property is underlain by a Cretaceous, magnetite-rich, multiphase granitic stock.

Mineralization on the property consists of porphyry-style copper-molybdenum and high-grade silver-lead veins. Drilling intersected weakly altered quartz monzonite mineralized with disseminated pyrite, chalcopyrite and molybdenite, however no significant values were returned. One hole targeted a high-grade lead-silver vein and intersected 0.64 m grading 22.1% Pb, 2085.5 g/t Ag and 1.13 g/t Au.

Wildrose Resources and Sargold Resources completed an exploration program consisting of grid soil sampling on their **Canadian Creek** copper-gold-molybdenum property (Yukon MINFILE 2003, 115J 035, 036, 101, Deklerk, 2003), 150 km south of Dawson. This survey indicates a coherent copper-gold-molybdenum anomaly covering an area of approximately 900 m by 600 m within the bounds of this grid. Soil gold values for the 2003 survey range from 2.0 to 1609.0 ppb, with a mean value of 66.5 ppb; copper ranges from 13.4 to 334.1 ppm with a mean value of 79.6 ppm; and molybdenum ranges from 0.5 to 84.7 ppm with a mean value of 7.8 ppm. The eastern boundary of the grid is approximately 700 m

Figure 17. Hematitic 'Wernecke Breccia' boulder on the Hart River property of Copper Ridge Exploration.



Figure 18. Viewing core at the Logan deposit optioned by Expatriate Resources.



west of the Casino deposit (Yukon MINFILE 2003, 115J 028, Deklerk, 2003) currently owned by Lumina Copper Corp. The Casino deposit has published measured and indicated resources of 103 million tonnes of supergene sulphide material grading 0.35% Cu, 0.32 g/t Au and 0.03% Mo, plus 323 million tonnes of hypogene material grading 0.26% Cu, 0.28 g/t Au and 0.03% Mo (C.M Rebagliati, PEng, and Ross Banner, PEng, Jan. 23, 2003, Qualifying report Casino property, Yukon, prepared for CRS Copper Resources Corp. and First Trimark Ventures Inc. and filed on SEDAR by Lumina Copper Corp. on March 27, 2003).

Expatriate Resources Inc commissioned Hatch Associates Ltd. to undertake preliminary engineering and economic studies into the Yukon Zinc Project. The Yukon Zinc Project consists of the **Wolverine** project (Yukon MINFILE 2003, 105G 072, Deklerk, 2003) located in the Finlayson Lake Massive Sulphide District and the **Logan** deposit (Yukon MINFILE 2003, 105B 099, Deklerk, 2003) located approximately 100 km west of Watson Lake. The combined resources of the two deposits are 18.5 million tonnes containing 1.5 billion kg (3.4 billion lb) Zn, 83 million kg (183 million lb) Cu, 96.6 million kg (213 million lb) Pb, 2.6 billion g (85 million troy oz) Ag and 11 billion g (350,000 troy oz) Au. The project proposes hauling ore from the high-grade Wolverine deposit approximately 200 km to mine and mill facilities at the Logan deposit (Fig. 18). Upon successful completion of the engineering and economic studies, Expatriate is planning extensive exploration, metallurgical, geotechnical and environmental studies at the Logan and Wolverine deposits in 2004.

GEMSTONES

True North Gems Inc conducted an advanced exploration program on their **Regal Ridge** emerald property (Yukon MINFILE 2003, 105G 147, Deklerk, 2003; Neufeld, this volume) located in the Finlayson Lake District of south-central Yukon. Early in the season, True North signed a memorandum of understanding with the Ross River



Figure 19. Portal site at Regal Ridge. The southwest vein is visible in the trench face (dashed line indicates zone).

Dena Council that acknowledged True North’s ownership of the Regal Ridge property, and established a framework for creating economic partnerships with the Kaska First Nation in support of mineral exploration. The 2003 program consisted of construction of an airstrip, upgrading of the camp facilities and the sorting plant, diamond drilling, and underground (Fig. 19) and surface bulk-sampling.

The 2003 exploration resulted in the discovery of 3 new emerald-bearing zones, bringing the total number of zones to 13. The area of mineralization was doubled to 1500 m in length, 500 m in width and over 200 m of vertical section. Underground exploration was successful in following a continuous zone of emerald mineralization in the Southwest zone; and the newly discovered Mattscar zone



Figure 20. Surface bulk sampling under close geological control at Regal Ridge.

produced high concentrations of emerald mineralization including coarse gem and near-gem grade rough emerald crystals ranging in size from 1.4 to 9.9 carats.

Underground bulk-sampling produced 2029 tonnes of mineralized material, and surface sampling (Fig. 20) produced an additional 1781.2 tonnes from the Mattscar zone. From the underground bulk sample, a random sample of 272.7 tonnes of material was processed and produced 1429.2 carats of gem quality emeralds and 2938.94 carats of near-gem emeralds. All emeralds sorted measured in excess of 2 mm. From the underground material, a 2.39 carat emerald was cut from a 16.55 carat rough stone. Eight pits were dug on the Mattscar zone. In Pit 1, 192.4 tonnes of material was processed and produced 1206.5 carats of gem quality emeralds and 11 674.85 carats of near-gem quality emeralds were recovered. Detailed information on gem counts are available on the company's website. The company intends to have a representative parcel of finished gem, near-gem and non-gem material for tendered auction in late January, 2004.

True North also conducted testwork utilizing high-intensity magnetic separation and dense media separation in order to determine the feasibility of automating the extraction of emeralds in concentrates. The magnetic separation was highly successful in recovering 95% of the emeralds from initial testing. Results from dense media separation are pending. Automation of the emerald recovery process is a significant factor in reducing the overhead costs of recovering the emeralds from the Regal Ridge Project.

True North Gems also conducted regional exploration on targets defined through evaluation of proprietary information acquired from Archer Cathro and Associates (1981) Limited and research financed by the company from the University of British Columbia. The regional exploration was conducted by Bill Wengzynowski (discoverer of the Regal Ridge emeralds) of Archer Cathro and Associates and Dr. Lee Groat of the University of British Columbia. The regional exploration was successful in discovering at least one significant new gemstone discovery in 2003. Late in the season, True North announced the discovery of the True Blue beryl, a unique form of aquamarine. A mini-bulk sample was collected from the **True Blue** property (Yukon MINFILE 2003, 105F 081, Deklerk, 2003) which yielded 57.9 g of gem-grade blue beryl with individual crystals up to 38 by 11 mm. The blue beryls have an unusually intense saturation of blue colour and may be a new type of gemstone. A suite of faceted stones will be formally characterized by the Gemological Institute of America.

Firestone Ventures Inc. entered into the gemstone hunt by optioning the **Four Corners** property (Yukon MINFILE 2003, 105A 034, Deklerk, 2003) from Strategic Metals Ltd. and the Meg, Rusty, Lion and Straw properties from True North Gems. The Straw property is located 5 km southeast of Regal Ridge and covers a geological setting that is nearly identical to that at Regal Ridge. Geological mapping, geochemistry and prospecting were successful in delineating a zone of abundant black tourmaline within chlorite schist and alteration of the schist to the distinctive 'golden schist' that is associated with emerald mineralization at Regal Ridge. Anomalous beryllium and chromium in soils are also associated with the zone. Beryl mineralization consisting of white to pale green, opaque crystals up to 1.2 by 4 cm were also discovered in a tourmaline-bearing pegmatite dyke (Fig. 21).

On the Four Corners property, anomalous beryllium and chromium geochemistry was outlined in a 200 by 100 m zone, where rusty-weathering golden schist within



Figure 21. Light green, opaque beryl mineralization from the Straw property (indicated by dashed outline). Close to actual size.

the Fire Lake unit and abundant black tourmaline and quartz-tourmaline veins, similar to mineralization and alteration at Regal Ridge, were noted. In another area on the claims, an opaque to translucent, pale blue-green beryl crystal 1.3 by 1.7 cm was discovered in a tourmaline-bearing pegmatite dyke. Firestone also discovered gold mineralization on the claims. Grey-green siliceous boulders were sampled within a 100-m-long talus train. A chip sample from a 70-cm boulder returned 4.28 g/t Au, 2.64 g/t Ag, 513 ppm Ni, 954 ppm Cr, and elevated arsenic and antimony. Anomalous gold-in-soil samples up to 591 ppb were obtained up to a kilometre to the northeast of the talus train.

Hinterland Metals Inc. also conducted exploration in the Finlayson Lake district searching for gemstones on the **Gleam** and **Dazzle** properties (Yukon MINFILE 2003, 105G 030, 031, 120, Deklerk, 2003) optioned from True North Gems. Hinterland conducted geological mapping and stream sediment geochemistry on the properties originally staked due to their similar geologic setting to the Regal Ridge property located 25 km to the southeast. Anomalous beryllium-in-silt samples were obtained from creeks draining the contact of a mid-Cretaceous granite and Fire Lake metavolcanic rocks on the Dazzle property. During the course of exploration, Hinterland discovered gem-quality chrysoprase hosted in a subhorizontal metavolcanic unit of uncertain thickness that is traceable on surface for 1900 ft. Chrysoprase is a green, potentially gem-quality, cryptocrystalline variety of chalcedony that is used to make beads, cabochons and carved figures. Hinterland is encouraged that it may be able to generate an immediate cash-flow from this discovery. Hinterland also discovered a new gold showing during their exploration program. The showing consists of a vertical zone of massive to semi-massive quartz-sulphide mineralized veins hosted within a granitic intrusion (Fig. 22).



Figure 22. Mark Fekete, President, Hinterland Metals at the new gold-silver vein discovery on the Gleam property.

Chip sampling across the zone returned a weighted average of 3.86 g/t Au and 48.1 g/t Ag over 5.0 m.

International Arrimex Resources Inc. conducted emerald exploration on the **Glitter** property optioned from True North Gems. The Glitter claims are located 12 km east of Regal Ridge. Geological mapping, soil sampling and prospecting were successful in outlining two parallel trends of anomalous beryllium, chromium and fluorine in an area hosting favourable geology.

Arcturus Ventures Inc. conducted a short program of geological mapping, soil and silt sampling and prospecting on their **RB, First Base** and **Fife** properties (Yukon MINFILE 2003, 105G 126, 142, Deklerk, 2003) located near Regal Ridge. The properties host geology with potential for emeralds but also have excellent potential for volcanogenic massive sulphide deposits similar to the nearby Fyre Lake.

Figure 23. Light blue beryl crystals in drill core from the Goddess (Pluto) property.



Strategic Metals conducted exploration for coloured gemstones on a number of properties in the Finlayson district, as well as on other properties such as **Northern Dancer**. Northern Dancer (Yukon MINFILE 2003, 105B 039, Deklerk, 2003) is host to abundant blue beryls (aquamarines) associated with pegmatite dykes and quartz veins. Crystals up to 1 cm in diameter have been previously reported. Results from exploration on Strategic's other gemstone properties, beyond a report of mineralogical studies confirming a green chromium-rich beryl from one property, have not been released.

Aquamarine crystals have also been reported from the **Pluto** property (Yukon MINFILE 2003, 116C 134, Deklerk, 2003) located 50 km northwest of Dawson City. The property was explored by Cominco in the early 1980s for porphyry molybdenum in an early Tertiary quartz porphyry pluton. In drill logs, Cominco geologists noted numerous pegmatites containing blue beryl (Fig. 23) and quartz-tourmaline veins intruding the surrounding ultramafic rocks. The property was restaked by Klondike Exploration (Shawn Ryan) as the Goddess claims.

Patrician Diamonds Inc. revealed in a press release in early November, 2003 that they had been conducting regional till sampling in 2002 and 2003 in Yukon. Sampling in 2002 had yielded four diamonds, the largest measuring 1.04 by 0.80 by 0.72 mm. The samples also contained kimberlitic ilmenites and chromites, plus blue and pink sapphires. A portion of the 2003 sampling that is being processed at the Saskatchewan Research Council laboratories recovered a total of 10 diamonds, G9 pyrope garnets, chrome diopside, Mg-chromite, picroilmenite and forsteritic olivine. The 2003 samples also contained abundant sapphire. Patrician was conducting a staking campaign late in the season covering potential source rocks and geophysical anomalies. Results from a further round of sampling were also pending at year-end.

ACKNOWLEDGEMENTS

This report is based on public information gathered from a variety of sources. It also includes information provided by companies through press releases, property summaries provided to the department by companies and from property visits conducted in the 2003 field season. The cooperation of companies in providing information, as well as their hospitality and access to the property during field tours, are gratefully acknowledged. Editing by Lara Lewis and Diane Emond is greatly appreciated.

REFERENCES

- Deklerk (compiler), 2003. Yukon MINFILE 2003 – A mineral occurrence database. Yukon Geological Survey, CD-ROM.
- Galambos, K., 2004 (this volume). Yukon Mining Incentives Program, 2003. *In: Yukon Exploration and Geology 2003*, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 31-36.
- Kennedy, K.E. and Bond, J.D., 2004 (this volume). Evidence for a late-McConnell readvance of the Cassiar Lobe in Seagull Creek, Pelly Mountains, central Yukon. *In: Yukon Exploration and Geology 2003*, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 121-128.
- Neufeld, H.L.D., Israel, S., Groat, L.A. and Mortensen, J.K., 2004 (this volume). Geology and structural setting of the Regal Ridge emerald property, Finlayson Lake district, southeastern Yukon. *In: Yukon Exploration and Geology 2003*, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 281-287.
- Thorkelson, D.J., Mortensen, J.K., Davidson, G.J., Creaser, R.A., Perez, W.A. and Abbott, J.G., 2001. Early Mesoproterozoic intrusive breccias in Yukon, Canada: The role of hydrothermal systems in reconstructions of North America and Australia. *Precambrian Research, Special Volume III*, p. 31-56.

APPENDIX 1: 2003 DRILLING STATISTICS¹

PROPERTY	COMPANY	DIAMOND DRILL	
		metres	# holes
Ami	Grid Capital Corp.	800	5
Aurex	StrataGold Corp.	3991	25
Goddell Gully	Tagish Lake Gold Corp.	975	3
Grew Creek	Al Carlos	442	7
Hyland Gold	Northgate Exploration/ Stratagold Corp.	2417	12
Ice	ASC Industries Ltd.	1369	10
McQuesten	Spectrum Gold Inc./ Eagle Plains Resources	3050	18
Monster	Monster Copper Resources	194.5	1
Pike	Strategic Metals Ltd.	295	4
Red Mountain	Regent Ventures Inc.	442.5	1
Regal Ridge	True North Gems Inc.	630	14
Scheelite Dome	Copper Ridge Exploration	310	5
Skukum Creek	Tagish Lake Gold Corp.	284	5
TOTAL		15 200	

¹Note: No percussion drilling was carried out this year.

APPENDIX 2: 2003 EXPLORATION PROJECTS

PROPERTY	COMPANY/OWNER	MINING DISTRICT	MINFILE # or (1:50 000 NTS)	WORK TYPE	COMMODITY
1st Base	Arcturus Ventures Inc.	Watson Lake	105G 031	G,GC	Cu-Pb-Zn-Ag-Au
Ami	Grid Capital Corporation	Dawson	115N 039,040	G,GP,DD	Cu-Mo, Ag-Pb-Au
Aurex	StrataGold Corporation	Mayo	105M 060	G,GC,GP,DD	Au
Brewery Creek	Viceroy Resources	Dawson	116B 160	G,Reclamation	Au
Box	Expatriate Resources	Watson Lake	(105G/10)	G,GP	Cu-Pb-Zn-Ag-Au
Box Car	Shawn Ryan	Dawson	115N 071	GC,GPT	Cu-Pb-Ag-Au
Canadian Creek	Sargold Resources/ Wildrose Resources	Whitehorse	115J 035,036,101	G,GC	Cu-Mo-Au
Canadian Olympic	Copper Ridge Exploration/ Canadian Empire Exploration	Dawson	116G 082	G,GC,GP	Cu-Au
Dazzle/Gleam	Hinterland Metals Inc./ True North Gems Inc.	Watson Lake	105G 030,031,120	G,GC,P	gemstones, Au
Dawson project	Klondike Gold	Dawson	115O 072,077	GC,T	Au
Finlayson	Entourage Mining/ Expatriate Resources	Watson Lake	105G various	G,GC,P	gemstones
Four Corners	Firestone Ventures/ Strategic Metals Ltd.	Watson Lake	105A 034, etc.	G,GC,P	gemstones, Au
Glitter	International Arimex Resources Inc./ True North Gems Inc.	Watson Lake	(105G/8)	G,GC,P	gemstones
Grew Creek	Al Carlos	Whitehorse	105K 009	DD	Au-Ag
Goddell Gully	Tagish Lake Gold Corp.	Whitehorse	105D 025	DD	Au-Ag
Hart River IOCG	Copper Ridge Exploration	Mayo	(116A/15)	G,GC,P	Cu-Au
Heidi	Logan Resources	Dawson	116A 037	G,GC,GP,P	Au
Hold Fast	Gordon McLeod	Whitehorse	105C 012	G,GC	Cr-PGE
Hy/Fer	Dentonia Resources	Watson Lake	105H 102		Ag-Pb-Zn
Hyland Gold	Northgate Exploration/ StrataGold Corp.	Watson Lake	95D 011	G,GC,DD	Au
Ice	ASC Industries Ltd.	Mayo	115P 006	G,GC,GP,DD	Au
Lion	Firestone Ventures Inc./ True North Gems Inc.	Watson Lake	(105G/8)	G,GC,P	gemstones
Logan	Expatriate Resources	Watson Lake	105B 099	G	Zn-Pb-Ag
Lucky Joe	Kennecott Canada Exploration/ Copper Ridge Exploration	Dawson	115O 051	G,GC,T	Cu-Au

continued...

Abbreviations:	ES – environmental studies	GP – geophysics	R – reconnaissance
BS – bulk sample	F – feasibility	M – mining	T – trenching
D – development	G – geology	PD – percussion drilling	U/GD – underground development
DD – diamond drilling	GC – geochemistry	PF – prefeasibility	

APPENDIX 2 (continued): 2003 EXPLORATION PROJECTS

PROPERTY	COMPANY/OWNER	MINING DISTRICT	MINFILE # or (1:50 000 NTS)	WORK TYPE	COMMODITY
Lynx Creek	Expatriate Resources	Mayo	106D 020	G,GC,GP	Au
McQuesten	SpectrumGold Inc./ Eagle Plains Resources	Mayo	105M 029	DD	Au
Mahtin	Shawn Ryan	Mayo	115P 007	G,GC,GP,P	Au
Marn	Canadian United Minerals	Dawson	116B 147	G,GP,P	Au-Cu
Mars	Saturn Ventures Inc.	Whitehorse	105E 002	G,GC	Cu-Au
Meg	Firestone Ventures/ True North Gems Inc.	Watson Lake	(105G/7)	G,GC,P	gemstones
Minto	Minto Resources	Whitehorse	115I 021,022	D	Cu-Ag-Au
Monster	Monster Copper Resources/ Orezone Resources	Dawson	116B 103	DD	Cu-Au
Mt. Hinton	Yukon Gold Corporation	Mayo	105M 052	T	Au
Pike	Strategic Metals Ltd.	Mayo	106E 040	DD	Au
Pluto	Shawn Ryan	Dawson	116C 134	G,GC	gemstones
Red Mountain	Regent Ventures Inc.	Mayo	115P 006	G,GC,GP,DD	Au
Regal Ridge	True North Gems Inc./ Expatriate Resources	Watson Lake	105G 147	G,GC,T,DD,BS	emeralds
Rusty	Firestone Ventures/ True North Gems Inc.	Watson Lake	(105G/7)	G,GC,P	gemstones
Severance	Eagle Plains Resources	Dawson	115J 003	G,GC,GP	Au
Shamrock	Copper Ridge Exploration	Dawson	(115O/6)	GC	Cu-Au
Scheelite (Tom)	Golden Patriot Resources/ Copper Ridge Exploration	Mayo	115P 003	G,GP,DD	Au
Skukum Creek	Tagish Lake Gold Corp.	Whitehorse	105D 022,025,158	G,GC,DD	Au-Ag
Straw	Firestone Ventures/ True North Gems Inc.	Watson Lake	(105G/8)	G,GC,P	gemstones
Tay/LP	Ross River Minerals Inc.	Whitehorse	105F 121	G,GC	Au
Ten/Flume	Fjordland Exploration	Dawson	115N 110,163	G,GC	Au
True Blue	True North Gems Inc.	Whitehorse	105F 081	G,GC,P	gemstones
Ultra	Tom Morgan	Whitehorse	115B 008	G,GC	Ni-Cu-PGEs; Zn-Cu-Au-Ag
White	Klondike Exploration	Whitehorse	105O 011,012	G,GC,P	Au, Cu

Abbreviations:

BS – bulk sample
D – development
DD – diamond drilling

ES – environmental studies
F – feasibility
G – geology
GC – geochemistry

GP – geophysics
M – mining
PD – percussion drilling
PF – prefeasibility

R – reconnaissance
T – trenching
U/GD – underground development

YUKON PLACER MINING OVERVIEW, 2003

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Yukon Geological Survey

LeBarge, W., 2004. Yukon Placer Mining Overview, 2003. *In: Yukon Exploration and Geology 2003*, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 27-30.

Placer mining continued to be an important Yukon industry in 2003. Although the number of mines at 125, decreased by 10% since 2002, direct employment held steady in 2003 at around 400. In addition, approximately 600 jobs were generated in related service and hospitality sectors. In small population centres such as Dawson and Mayo, the placer industry is a major contributor to the local economy. The majority of active placer mining operations were in the Dawson Mining District (83) followed by the Whitehorse Mining District (32) and the Mayo Mining District (10).

For 2003, over 85% of the Yukon's placer gold was produced in the Dawson Mining District, which includes the unglaciated drainages of Klondike River, Indian River, west Yukon (Fortymile and Sixtymile rivers and the Moosehorn Range) and lower Stewart River (Fig. 1). The remaining gold came from the glaciated Mayo and Whitehorse mining districts, which include the placer areas of Clear Creek, Mayo, Dawson Range, Kluane, Livingstone and Whitehorse South.

Reported placer gold production from Indian River drainages decreased compared to the previous year, from 23,745 crude ounces (738 550 g) to 16,126 crude ounces (501 570 g). Klondike River area drainages only saw a slight decrease to 16,582 crude ounces (515 760 g) from the 2002 total of 18,613 crude ounces (578 930 g); this was at least partly because Last Chance Creek production remained steady while Hunker Creek production actually increased slightly.

A fairly significant drop in production from both Sixtymile River and Miller Creek resulted in West Yukon (Sixtymile, Fortymile and Moosehorn) recording only 6264 crude ounces (194 800 g) compared to 9515 ounces (295 900 g) in 2002.

Although reported gold recovered from Black Hills Creek nearly doubled, it wasn't enough to offset 50% decreases in Henderson and Mariposa creeks, and a 75% decrease from Thistle Creek. This resulted in a total of only 3912 crude ounces (121 700 g) reported for the Lower Stewart River placer area, compared to 8151 crude ounces (253 500) reported in 2002.

A very small amount of gold was reported from the Clear Creek area, 229 crude ounces (7120 g), which was nearly the same as the 2002 total of 214 crude ounces (6660 g).

In the Dawson Range, reported placer gold production remained steady with 1664 crude ounces (51 760 g) compared to 1720 crude ounces (53 500 g) reported in 2002.

Mayo area drainages also reported similar figures with 1894 crude ounces (58 910 g) compared to 1694 crude ounces (52 690 g) in 2002. While Duncan Creek production reportedly decreased, this was offset by increases on Lightning, Owl and Swede creeks.

In the Kluane area, production in 2003 decreased by ~25% with 1619 crude ounces (50 360 g) reported. The cessation of mining on Fourth of July Creek was the major factor.

The Livingstone area remained inactive with no reported gold production.

In Whitehorse South drainages, the first gold production reported since 1993 came from Iron Creek, a tributary of Sydney Creek. The 25.4 crude ounces of gold (790 g) was derived from a small mining

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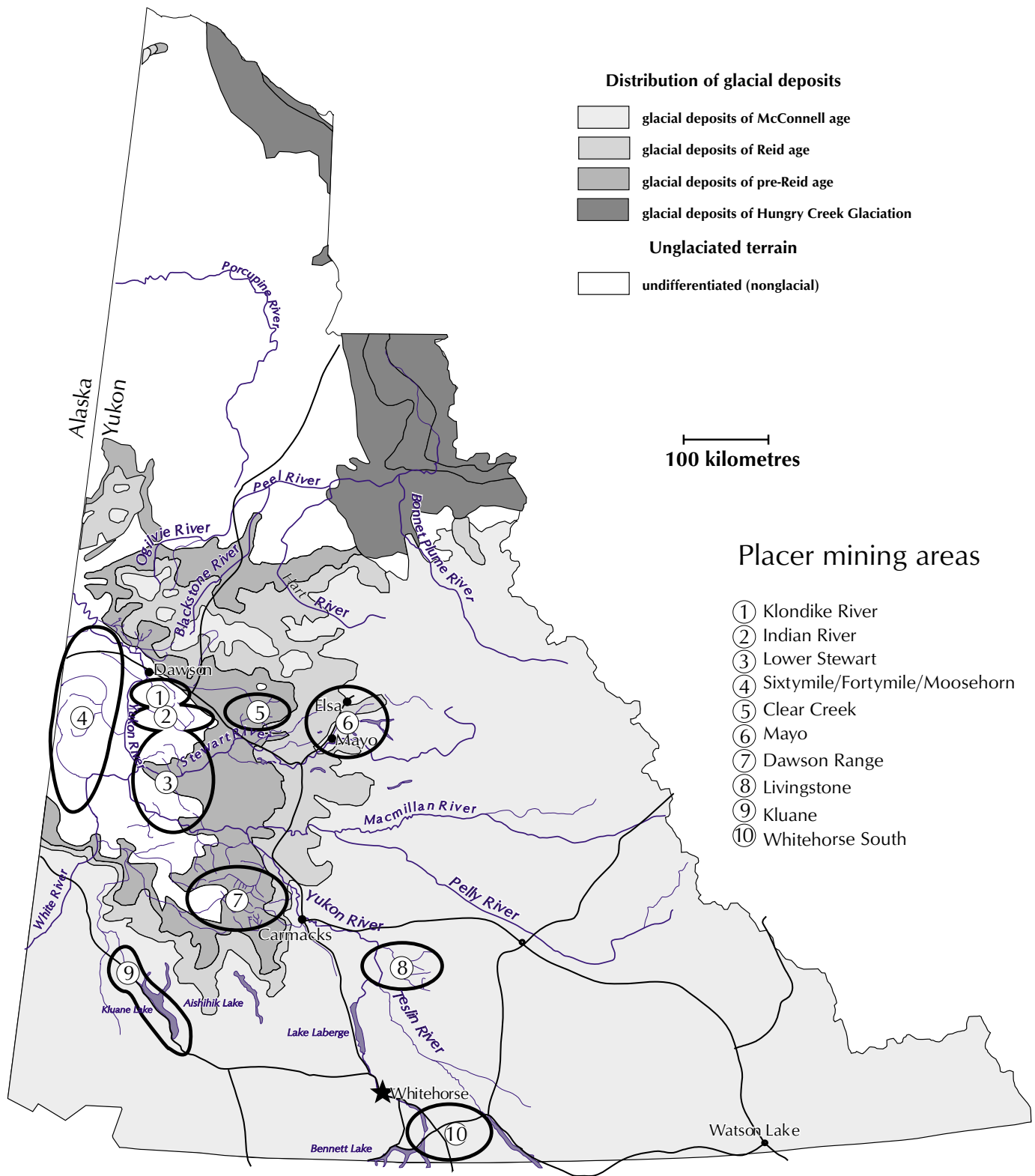


Figure 1. Placer mining areas and distribution of glacial deposits in Yukon.

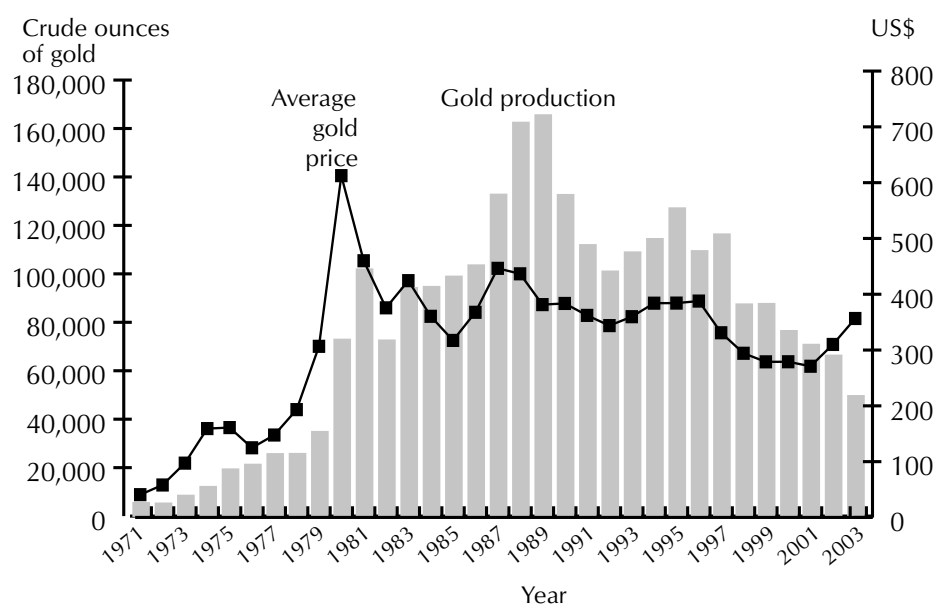


Figure 2. Yearly gold production figures and average US gold price for the Yukon, 1971-2003.

operation at the confluence of Iron and Sydney creeks. In addition, significant testing programs occurred on Moose Brook and Wolverine Creek.

In summary, the Yukon placer gold production in 2003 totalled 50,887 crude ounces (1 582 800 g), compared to 66,347 crude ounces (2 063 600 g) in 2002, which represents a 24% decrease (Fig. 2). Since 1999, placer gold production has dropped 43% to a level not seen since 1979. Although the world market price of gold continued to rise throughout 2002 and 2003, so did the Canadian dollar, and the effective value of gold for Yukon placer miners remained the same. The total dollar value of Yukon placer gold produced in 2003 was approximately \$20.6 million, down from the \$25.8 million generated in 2002.

APERÇU DE L'EXPLOITATION DES PLACERS AU YUKON EN 2003

L'exploitation de gîtes placériens est demeurée importante au Yukon en 2003. Même si le nombre de mines (125) a diminué de 10 % depuis 2002, les employés directs se sont maintenus autour de 400 en 2003. De plus, environ 600 emplois ont été créés dans les secteurs connexes des services et de l'accueil. Dans les petites agglomérations, comme Dawson et Mayo, l'exploitation des placers est un élément important de l'économie locale. La majorité des placers exploités étaient situés dans le district minier de Dawson (83), suivi du district de Whitehorse (32) et du district de Mayo (10).

En 2003, plus de 85 % de l'or placérien au Yukon provenait du district minier de Dawson où se trouvent les bassins de drainage non glaciaires de la rivière Klondike, de la rivière Indian et de l'ouest du Yukon (les rivières Fortymile et Sixtymile et le chaînon Moosehorn) et de la basse rivière Stewart. Le reste de l'or provenait des districts miniers glaciaires de Mayo et de Whitehorse où sont situés les placers de Clear Creek, Mayo, Dawson Range, Kluane, Livingstone et Whitehorse South.

En résumé, la production d'or placérien au Yukon en 2003 a totalisé 50 887 onces brutes (1 582 800 g); elle avait atteint 66 347 onces brutes (2 063 600 g) en 2002, ce qui représente un recul de 24 %. Depuis 1999, la

production d'or placérien a chuté de 43 %, niveau qui n'avait pas été atteint depuis 1979. Comme le prix du marché mondial de l'or a poursuivi son ascension en 2002 et 2003, à l'instar du dollar canadien, la valeur réelle de l'or pour les placers du Yukon est demeurée la même. La valeur totale de l'or placérien au Yukon en 2003 s'est élevée à environ 20,6 millions de dollars, ce qui constitue un glissement par rapport aux 25,8 millions de dollars de 2002.