

• ALASKA

Explorers descend on Kahiltna Terrane

Geologists scour this rugged, mineral-rich, but underexplored Alaska region known to produce huge porphyry copper-gold deposits

By SHANE LASLEY
Mining News

From the enormous Pebble copper-gold-molybdenum project to grassroots gold and copper discoveries, the Kahiltna Terrane of Southwest Alaska is becoming a hot destination for mining companies seeking the mineral wealth of this rugged and underexplored region.

The Kahiltna assemblage was formed when an arc of islands known as Wrangellia thrust up the ocean floor as it collided with North America. This bulldozed seabed created much of the spectacular mountains of the Alaska Range, including Denali, North America's loftiest peak.

Geologists have discovered that the more than 400-mile-, or 650-kilometer-, long section of Alaska has at least twice been infused with copper and gold mineralization since it was pushed up from the ocean floor some 100 million years ago.

"There are great indications of mineralization all around this Kahiltna Terrane, and I think an area play could really break out here," Millrock President and CEO Greg Beischer told Mining News.

Although no staking rush has broken out yet in the highly prospective area, geologists plan to expand known deposits and seek new prospects on at least 10 properties in the region during the 2010 exploration season.

Drilling continues at Pebble

Pebble, one of the largest concentrations of copper and gold on the planet, is one of several known porphyry copper-gold deposits found in the Kahiltna Terrane.

The Pebble Partnership — a 50-50 joint venture between Anglo American plc and Northern Dynasty Minerals Ltd. — has launched its 2010 drill campaign to expand the more than 107 million ounces of gold, 80 billion pounds of copper and 5.6 billion pounds of molybdenum resources estimated to exist in world-class deposit.

This massive amount of copper, gold and molybdenum was deposited at Pebble around 90 million years ago, the same time period as geologists believe much of the gold-rich mineralization was injected into Alaska's eastern Interior.

Bordering the Pebble property to the south and west is Pebble South, another large copper-gold-molybdenum land package being explored by Full Metal Minerals Corp.

The Vancouver B.C.-based junior believes Pebble-style mineralization trends to the southwest from the Pebble Partnership's massive deposit onto its property. Geochemical and geophysical surveys have delineated 11 promising prospects on the property.



Millrock Resources Inc. Vice President of Exploration Phil St. George studies the rocks at the company's 32,511-acre Estelle gold property. In 2009 Millrock geologists scoured the Kahiltna Terrane, staking three additional porphyry and intrusion-related gold occurrences in the mineral-rich region surrounding Estelle.

The junior plans to return to the property in 2010 with a drill program funded by a joint venture partner, according to the company's website.

Multiple porphyrys at Whistler

Kiska Metal Corp.'s Whistler project is another promising Kahiltna Terrane property that was infused with copper and gold at about the same time as Pebble, which lies about 180 miles, or about 290 kilometers, to the southwest.



Crews drill the Island Mountain prospect at Kiska Metal Corp.'s 111,000-acre Whistler copper-gold property in early June. The Island Mountain discovery hole drilled late in 2009 cut two distinct mineralized zones. The upper 150 meters averaged 1.06 g/t gold equivalent (0.72 g/t gold, 2.37 g/t silver and 0.16 percent copper), while the lower 106.9 meters of the hole averaged 1.32 g/t gold-equivalent (1.22 g/t gold 0.69 g/t silver and .05 percent copper).

The 111,000-acre, or 449-square-kilometer, Whistler property hosts multiple prospective porphyry gold-copper targets, the most advanced of which is the 5.75-gold-equivalent-ounce Whistler deposit.

An NI 43-101 resource calculated in 2008 outlined an indicated resource of 30 million metric tons grading 0.87 grams per metric ton gold, 2.46 g/t silver and 0.24 percent copper, or 1.31 million gold equivalent ounces. In addition, the Whistler Zone contains an inferred resource of 134 million tons grading 0.64 g/t gold, 2.18 g/t silver and 0.20 percent copper, or 4.44 million gold equivalent ounces.

Since Rimfire Minerals Corp. and Geoinformatics Exploration Inc. merged to form Kiska Metals in 2009, the new company has completed no further drilling at Whistler. Instead, Kiska has investigated the larger potential of the property.

Late last year, Kiska crews blanketed the Whistler corridor — a 162-square-kilometer, or 62.5-square-mile, region in the northern half of the property that hosts the Whistler zone — with a 3-D induced-polarization survey. This geophysical work provided Kiska geologists with a clearer picture of what lies hidden under the glacial gravels that cover most of this region.

Using the IP signature associated with the resource in the Whistler zone as a guide, Kiska has defined more than 25 distinct new targets with a similar geophysical signature. Ten of these targets, all of comparable scale and geophysical response to that associated with the Whistler deposit are being tested in the current drill program.

"We are extremely pleased to have made additional porphyry discoveries at Whistler. This firmly supports our exploration concept that the Whistler Project is host to several individual gold-copper porphyry systems of which the Whistler resource is but one example," said Kiska President and CEO Jason Weber.

The company has been investigating these prospective porphyry targets with a reconnaissance drilling. This 18-hole program, expected to be completed in June, will trigger a decision by Rio Tinto subsidiary Kennecott

Exploration Inc. as to whether it wants to exercise or waive its back-in rights on the property.

Five holes of this program will investigate Island Mountain, another target on the Whistler, about 23 kilometers, or 14 miles to the south of the Whistler deposit.

IM-09-001, the Island Mountain discovery hole drilled late in 2009, cut two distinct mineralized zones. The upper 150 meters — which averaged 1.06 g/t gold equivalent (0.72 g/t gold, 2.37 g/t silver and 0.16 percent copper) — is similar to the mineralization found at the Whistler deposit. The mineralization in the lower 106.9 meters of the hole — which averaged 1.32 g/t gold-equivalent (1.22 g/t gold 0.69 g/t silver and .05 percent copper) — more closely resembles the gold-dominant mineralization being investigated about 2 kilometers, or 1.2 miles, to the southeast at the Shoeshine Zone on Millrock Resources Inc.'s Estelle property.

The Island Mountain discovery hole bottomed out in mineralization and Kiska plans to test the full extent of the lower gold-rich mineralization with the drilling currently under way.

Once the Kennecott trigger program is complete, Kiska plans to round out its 2010 season with an additional 5,000 meters of drilling at the Whistler deposit and the Island Mountain prospect.

"We wish to expand the existing Whistler resource and collect material for metallurgical studies. Also, we will conduct systematic step-out drilling from the discovery hole at Island Mountain to start to define this new gold target," Weber said.

Kiska optioned a second Kahiltna Terrane property from Kennecott in May. The copper-gold-molybdenum porphyry prospect, Copper Joe, is a 50 kilometers, or 31 miles, south-southwest of Whistler.

"Our option to acquire Copper Joe is a good, strategic fit with our plans to further the development of our flagship Whistler Property and gives us yet another porphyry copper-gold target in the belt. The target was only recently discovered by Kennecott and has yet to be tested by drilling," Weber said.

Since Kennecott staked the Copper Joe property in 2006, it has completed 70.4 line-kilometers of ground magnetic survey, which revealed a northeast trending mineralized showing. Kennecott collected 28 rock samples yielding peak values of 0.73 percent copper, 0.415 g/t gold, 7.9 g/t silver and 0.125 percent molybdenum.

Kiska plans to complete an IP survey this summer as part of its investigation of the prospect.

Millrock's four Kahiltna prospects

To the west of Whistler is Millrock's Estelle property.

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KAHILTNA

Though the two projects are adjacent, geologists believe Estelle was mineralized about 20 million to 25 million years later than its neighbor.

Estelle belongs to a belt of porphyry deposits that stretches from Southwest Alaska along the Alaska Range and into Yukon Territory. It dates from about the time that Donlin Creek was being formed, 65 million to 70 million years ago.

Millrock Vice President of Exploration Phil St. George explained: "There is a series of 65 million-year-old gold occurrences through the Alaska Range, including the Estelle deposit we are working on."

Millrock does not plan to drill the gold project this year; instead its geologists will scour the 32,511-acre, or 132-square-kilometer, property with the goal of identifying targets for an aggressive drill program in 2011.

"The Shoeshine and Oxide Ridge anomalies will certainly be a focus of this year's program; we will flesh those out and prepare ourselves to drill the best possible targets there," Millrock President and CEO Greg Beischer told Mining News.

"A big part of the rest of the program there will be to further prospect the rest of the 35-kilometer-long claim block. I think if we spend half a summer here, doing some good boot-and-hammer prospecting, geochemical work and interpretation of the data, we are going to come up with a lot more drilling targets," he added.

The majority of the funding for the 2010 exploration at Estelle comes from an early May agreement with Teck Resources Ltd. In order to mitigate its risks, and still have the option to own an interest in this promising gold prospect, the diversified global miner bought 1,363,636 units of Millrock at C44 cents per unit, a 25 percent premium over the going price of the junior's shares.

Estelle is not the only project Millrock is investigating in the Kahiltma Terrane. In 2009 Millrock crews explored the mineral-rich region northwest of Anchorage, staking three additional porphyry and intrusion-related gold occurrences.

Millrock's investigation of the Kahiltma Terrane was funded through a strategic alliance struck with Altius Minerals, a project generator and royalty business based in Newfoundland-Labrador.

"Our grassroots exploration alliance with Altius has been very effective thus far in identifying some exciting new gold and copper-gold prospects in Alaska," Beischer said.

To the east of Whistler and Estelle is the Monte Cristo gold prospect and the St. Eugene copper-gold property.

St. Eugene hosts a copper-gold-molybdenum porphyry system initially discov-

ered in the 1970s. Millrock's target at Monte Cristo is a large tonnage intrusion-related gold deposit or gold-rich porphyry. Millrock was drawn to the property by color anomalies caused by iron staining and carbonate alteration.

Revelation, the third Kahiltma Terrane property staked by Millrock in 2009, is a 5,760-acre pluton-hosted gold target is positioned about 30 miles, or 48 kilometers, west of Millrock's Estelle property and about 3 miles, or 4.8 kilometers, northwest of International Tower Hill Mines' Terra gold property.

Equipped with maps and other proprietary information acquired from Gerald Booth, Millrock geologists immediately discovered a 600-meter-long soil anomaly on the property where they retrieved 10 samples returning values ranging between 95 parts per billion and 1,200 ppb gold.

While most of Millrock's work has focused on gold and copper, the project generator is keeping its eye open for other occurrences in the prospective geology of the Kahiltma Terrane.

Beischer said all of the Kahiltma Terrane properties that Millrock staked last year are available for option in this emerging area gold play.

"They are available at any time; we

expect though, to have to put some more money in the ground before we convince someone to put some serious money in the ground," he said.

The company is conducting further investigations of these projects in 2010.

More than porphyry

Though the Kahiltma assemblage is best known for its porphyry and other intrusive related copper and gold projects, the region also is highly prospective for other styles of mineralization.

"All over the Kahiltma Terrane keep your mind open to any style of mineralization — it could be VMS (volcanic massive sulfide), a skarn or a great big vein," Beischer advised.

The Kemuk iron-titanium property, located about 100 miles, or 160 kilometers, west of the Pebble project, is one such project.

The U.S. Geological Survey estimated reserves on the project at 2.2 billion tons grading 15 percent to 17 percent iron and 2 percent to 3 percent titanium. The deposit, hosted in magnetite-bearing ultramafic rocks, also is prospective for platinum group elements.

International Tower Hill's Terra high-grade gold project - located 3 miles, or 4.8

kilometers, southeast of Millrock's Revelation property - is a prime example of the bonanza-grade gold vein potential of the region.

Terra is centered on an 8-kilometer-, or 5-mile-, long trend of high-grade vein occurrences which have returned numerous surface rock samples and drill intersections in excess of 50 g/t gold.

The bulk of Tower Hill's drilling has focused on only a 400-meter-long section of the Ben's Vein, the source of the properties resource of 428,000 metric tons at an average grade of 12.20 g/t gold (168,000 contained ounces) and 23.11 g/t silver (318,000 contained ounces) at a cutoff of 5.0 g/t gold.

Terra was optioned to American Mining Corp. a Nevada-based private mining company. The gold at Terra occurs as coarse native gold and can be recovered by simple gravity methods, and sources tell Mining News that American Mining plans to complete a small-scale gravity bulk-sample of the ore from the Ben's vein in late summer of this year.

Other new and exciting prospects are sure to be discovered as the glaciers recede and geologists continue to comb the promising geology of the rugged and underexplored Kahiltma Terrane. ●

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Underground exploration resumes at Niblack

Millrock Mining Corp. Jan. 15 said underground work on its advanced stage exploration program at the Niblack gold-copper property in the Porcupine Mountains of Alaska is again under way. Drilling crews have returned to the property to continue a 3,000-meter (9,842-foot) phase one underground and program designed to test about 1,500 meters (5,000 feet) of unmineralized zone between the Manitowish and Lookout zones (now known as the North-Lime) and to test about 100 meters of deep extension.

Uncover: U.S. based Niblack said drilling to date has partially tested the Manitowish zone, given its proximity to the porphyry mineralization encountered in surface drilling in 2006. Massive sulfide lenses commonly exhibit strong zoning, from base-metal rich zones to pyrite dominant, base-metal poor margins, and potential for discovery of higher grade mineralization at Manitowish is considered.

As the main stress test activities drilling will continue to test the North-Lime and the Lookout zone.

Deeper drill intercepts from surface known exploration of the Lookout zone include:

- 10.5 percent copper and 0.25 percent silver
- 11.5 percent copper and 0.35 percent silver
- 12.5 percent copper and 0.45 percent silver
- 13.5 percent copper and 0.55 percent silver
- 14.5 percent copper and 0.65 percent silver
- 15.5 percent copper and 0.75 percent silver
- 16.5 percent copper and 0.85 percent silver
- 17.5 percent copper and 0.95 percent silver
- 18.5 percent copper and 1.05 percent silver
- 19.5 percent copper and 1.15 percent silver
- 20.5 percent copper and 1.25 percent silver
- 21.5 percent copper and 1.35 percent silver
- 22.5 percent copper and 1.45 percent silver
- 23.5 percent copper and 1.55 percent silver
- 24.5 percent copper and 1.65 percent silver
- 25.5 percent copper and 1.75 percent silver
- 26.5 percent copper and 1.85 percent silver
- 27.5 percent copper and 1.95 percent silver
- 28.5 percent copper and 2.05 percent silver
- 29.5 percent copper and 2.15 percent silver
- 30.5 percent copper and 2.25 percent silver
- 31.5 percent copper and 2.35 percent silver
- 32.5 percent copper and 2.45 percent silver
- 33.5 percent copper and 2.55 percent silver
- 34.5 percent copper and 2.65 percent silver
- 35.5 percent copper and 2.75 percent silver
- 36.5 percent copper and 2.85 percent silver
- 37.5 percent copper and 2.95 percent silver
- 38.5 percent copper and 3.05 percent silver
- 39.5 percent copper and 3.15 percent silver
- 40.5 percent copper and 3.25 percent silver
- 41.5 percent copper and 3.35 percent silver
- 42.5 percent copper and 3.45 percent silver
- 43.5 percent copper and 3.55 percent silver
- 44.5 percent copper and 3.65 percent silver
- 45.5 percent copper and 3.75 percent silver
- 46.5 percent copper and 3.85 percent silver
- 47.5 percent copper and 3.95 percent silver
- 48.5 percent copper and 4.05 percent silver
- 49.5 percent copper and 4.15 percent silver
- 50.5 percent copper and 4.25 percent silver
- 51.5 percent copper and 4.35 percent silver
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- 54.5 percent copper and 4.65 percent silver
- 55.5 percent copper and 4.75 percent silver
- 56.5 percent copper and 4.85 percent silver
- 57.5 percent copper and 4.95 percent silver
- 58.5 percent copper and 5.05 percent silver
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- 75.5 percent copper and 6.75 percent silver
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- 79.5 percent copper and 7.15 percent silver
- 80.5 percent copper and 7.25 percent silver
- 81.5 percent copper and 7.35 percent silver
- 82.5 percent copper and 7.45 percent silver
- 83.5 percent copper and 7.55 percent silver
- 84.5 percent copper and 7.65 percent silver
- 85.5 percent copper and 7.75 percent silver
- 86.5 percent copper and 7.85 percent silver
- 87.5 percent copper and 7.95 percent silver
- 88.5 percent copper and 8.05 percent silver
- 89.5 percent copper and 8.15 percent silver
- 90.5 percent copper and 8.25 percent silver
- 91.5 percent copper and 8.35 percent silver
- 92.5 percent copper and 8.45 percent silver
- 93.5 percent copper and 8.55 percent silver
- 94.5 percent copper and 8.65 percent silver
- 95.5 percent copper and 8.75 percent silver
- 96.5 percent copper and 8.85 percent silver
- 97.5 percent copper and 8.95 percent silver
- 98.5 percent copper and 9.05 percent silver
- 99.5 percent copper and 9.15 percent silver
- 100.5 percent copper and 9.25 percent silver

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Shane Lasley

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TANGEN

ocean. Instead, it is the unwillingness of state and federal governments to foster oil recovery from more proximate shallow locations or onshore where we would have greater capability to contain a spill. Wouldn't it be nice to imagine a future where CAVE men and CAVE women could join hands with those who actually produce something in the sure and certain knowledge that the resources which originate on our own soil well serves us all.

I must be drinking Kool-Aid. ●