YMEP 2021 (21-021 Placer)

Placer gold occurrences in the surroundings of West Ridge, around Rhosgobel, Pukelman and other intrusions.

Maps 115P14-115P15

By Sandro Frizzi, geologist and prospector of Dawson City

Driving our excavator toward the upper part of Big Creek

Introduction:

The two exploration seasons of 2020-21 have been seriously compromised by the outbreak of Covid-19, the nasty pandemic that forced most of the Countries around the world to close their borders in order to reduce the spreading of the virus.

Since the beginning of the infection, the Yukon government decided to apply a radical lock-down which lasted until the middle of July 2021. Unfortunately these necessary measures of public health prevented part of our regular workers from entering into Canada (the ones from overseas) or into the Yukon: for the ones coming from B.C. two weeks of mandatory quarantine in "special-designated facilities" (= expensive hotels) were way too expensive to afford for the modest finances of our little exploration company. So, this year we lost the support of our best helpers and we had to hire inexperienced labors, because every decent local operator was already taken or simply not interested to be hired for short term.

In spite of the many difficulties brought up by this bloody 2021, we managed to drive our excavator beyond the Western Ridge and to walk it along the very upper part of Big Creek, right by the foot of Rhosgobel Stock, where we achieve what we're considering to be an important discovery for placer miners, for hard-rock exploration companies and for a better geological understanding of this area.

Later in the season we explored Josephine Creek Watershed, where a placer operation conducted by Schmidt Mining Ltd exposed an interesting portion of bedrock...

Sadly, due to a shortage of operators and field-helpers we couldn't manage to drive our equipment along the harsh floodplain of South Little Klondike, toward Jamie Creek, the left limit watercourse which runs down the northern slope of Saddle Stock. Here we were planning to finish our fieldwork.

Although we have been forced to reduce our 2021 exploration campaign, we are still determined to complete the original program during 2022. For the moment you will find the results of our summer-work in the next pages: enjoy the reading!

Sandro Frizzi

1. Satellite view of West Ridge area

2. Location of explored areas

The West Ridge is a ± 15 kilometers-long mountain range with NNW-SSE direction, located in the central part of the Yukon and well visible on maps **115P14** and **115P15.** It roughly lies between Mayo (located 65km straight south-east) and Dawson City (120km straight north-west).

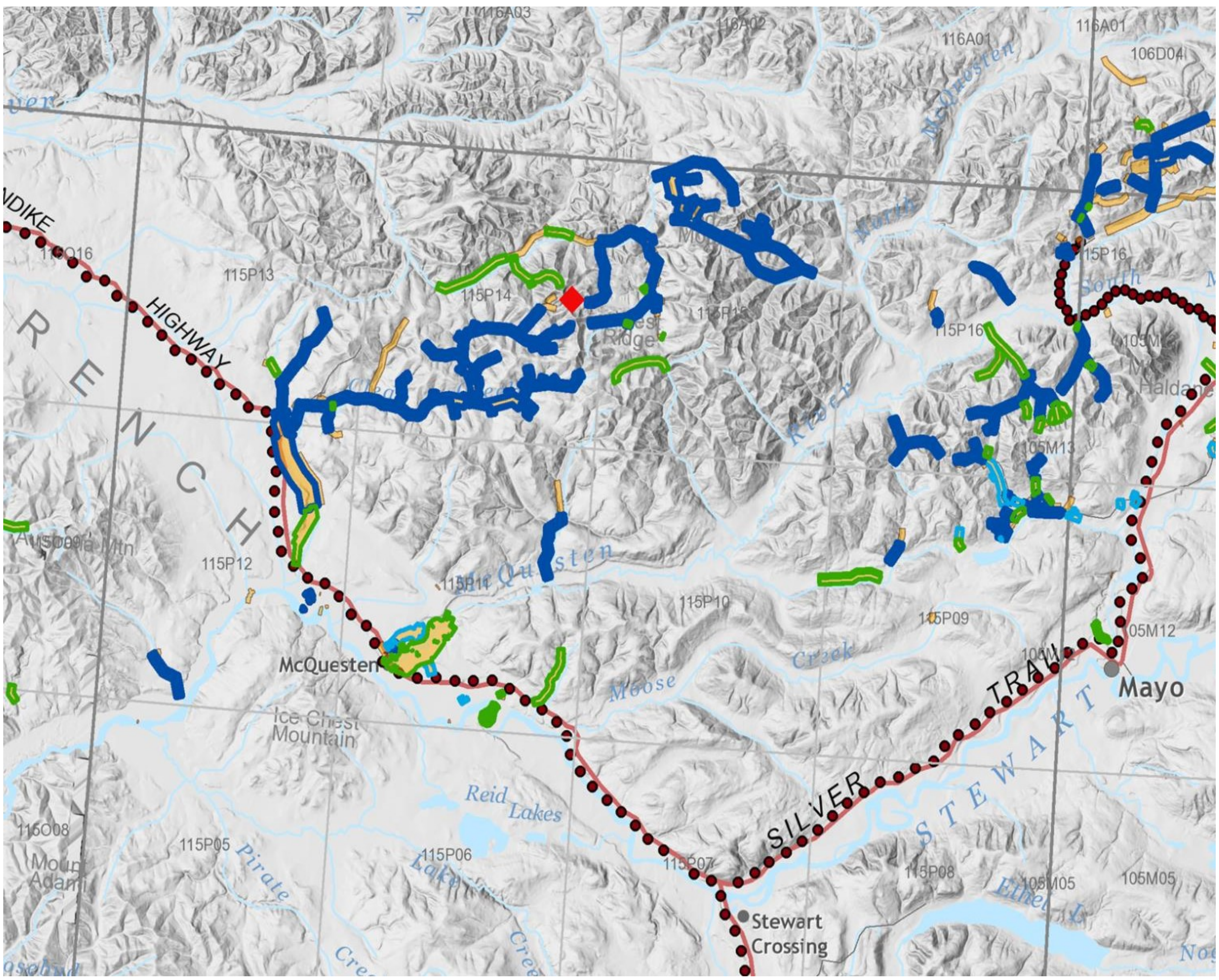
This mountain chain is the natural divide for three important placer-goldfields: Clear Creek, Josephine Creek, and Big Creek. These creeks have their headwaters springing from the western slope (Clear Creek) and from the eastern one (Josephine and Big Creek). From the north slope also runs Jamie Creek, another underexplored placer.
The West Ridge hosts two of the most targeted granitic intrusions in the region: Rhosgobel and Puckelman and four minor stocks: Saddle, Eiger, Josephine and Big.

This area is accessible by road: from Dawson City it's necessary to drive south on the Klondike highway until the junction with Clear Creek road (at km 609 of Klondike Highway), then turn on Clear Creek road until the mouth of 65 Pup (±36 km) where the road splits in two: the left one goes along Left Fork of Clear Creek and right one goes up Right Fork and then toward Big Creek. The two roads are both crossing the West Ridge to join later at Big Creek. The left branch is shorter but the right one is in much better shape and more comfortable to drive: the drive takes less than 3 hrs from Dawson.

Road to Big Creek with forest fire in early August

3. Map location of West Ridge

Scale : 1:640,000



Red diamond indicates the center of our explored area

4. Gold exploration history and mining activities

The region surrounding the watershed of Clear Creek has been explored for placer gold since the second half of 1800. As soon as signs of 'good gold' were found by beginning of 1900 on the upper part of the creek (upstream from from left fork) mining activities immediately started with hand-digging operations and later with monitors.

“In 1939, the first steel sluice boxes to be used in the Yukon were set up on the left fork of Clear Creek. These steel sluice boxes, 40 in (1.02 m) wide and 60 ft (18.3 m) long, were set into bedrock. The gravel was moved to the boxes by hydraulicking and a tractor with a dozer plough. The 11/2 yd3 diesel drag-line scraper was to be stationed at the lower end of the boxes to stack the tailings with an expected capacity of 1500 cubic yards (1146 m3) per day”. (Bostock, 1941).

The first dredge owned by Clear Creek Placers Ltd. (formerly Canadian Placers Ltd.) starts to operate on left fork in 1942 and it was active until 1952 (Debicki 1983). “Each season, bulldozers stripped approximately one mile (1.6 km) ahead of the dredge to thaw the ground for the following season, from 1942 to 1952, the dredge worked 4.5 miles (~7.2 km) starting below Barney Pup and going upstream to the confluence of Lewis Gulch” (Bostock, 1990).

In 1979, Queenstake Resources acquired the old dredge on Clear Creek and, after over a million dollars worth of renovations and ground preparation, the dredge was back into operation on the right fork of Clear Creek in 1981. The dredge operated seasonally full-time from 1981 to 1987 (in 1987 the dredge terminated mining due to low gold prices).

With the end of the 'dredging era', a new generation of mining enterprises toke over the business with modern equipment: dozers, excavators, water pumps, generators and trommels, starting the modern way of placer mining in the Yukon!

Since then, thousands of ounces of raw gold have been produced, to add to those official numbers (129,000 ounces from 1900 to 1987) which are probably just a fraction of what has been mined in reality.

In 2014 our exploration company (Yukon Exploration Green Gold Inc.) found good gold along central Big Creek and opened new goldfields for the placer mining industry of the Yukon. From 2017 to these days, substantial quantities of gold have been produced from our former Oz Property (now owned by Schmidt Mining Ltd) and also from Josephine Creek. More gold is expected to be produced in the next years from these areas.

Hard-rock exploration:

The first serious hard-rock research started only in the late 1970s, mostly dedicated to tin-tungsten by Canada Tungsten Mining Corp, United Keno Hill Mining, and Asarco.

From 1980-81 most of the exploration consisted in mapping, stream and soil sampling. Just a minor part of samples were analyzed for gold. Thanks to those samples the potential for intrusive hosted gold bearing quartz veins at the Rhosgobel stock was recognized. Cantung dropped the property in 1982 due to the lack of tin mineralization and declining tungsten prices (gold price was also going down).

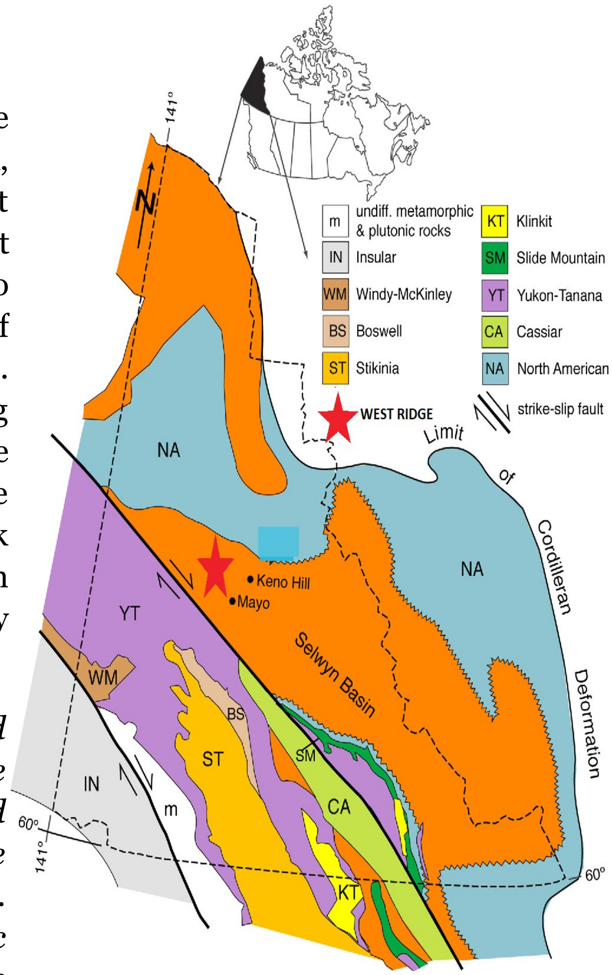
Since this initial effort, various companies have conducted limited campaigns including programs by Gold Rite Mining Corp., Noranda Exploration Ltd., Ivanhoe Goldfields Ltd. /First Dynasty Mines Ltd., Kennecott Canada Inc., Newmont Exploration Limited, Redstar Resources Corporation, and StrataGold Corporation (related to Victoria Gold Corp.). Following up on results by previous explorers, Noranda Exploration Ltd. conducted extensive soil and rock chip sampling, ground geophysical surveys, trenching, road building, and a six hole reverse circulation ("RC") drilling program in 1991 and 1992. Two holes drilled on each of the Eiger, Saddle, and Pukelman stocks for a total of 654 m. In 1995, Kennecott Canada Inc. completed drilling, soil sampling and 320 m of bulldozer trenching. The 27 hole (1971 m) RC program on the Rhosgobel stock identified an east-west trending zone 1200 m long, 200 m wide and 65 m deep. The average grade of the gold mineralization in this 40 Mt zone is at least 300 ppb Au, with a higher grade core zone of approximately 1.5-2.0 Mt grading from 0.75-1.25 g/t Au (Coombes, 1995).

In 1998, Newmont Exploration Limited conducted magnetic and radiometric airborne geophysical surveys. Interpretation of the data by Newmont suggests that the Eiger, Saddle, Josephine and Pukelman stocks may be part of a single larger intrusive body, and the Rhosgobel and Far stocks are themselves a separate body.

Golden Predator Canada Corp. conducted an exploration program in 2010 which included drilling 42 holes for a total of 3,662.4 m. The company also staked additional claims to supplement the property's holdings and compiled a GIS database of all available historical data. In 2011, Golden Predator completed 18 HQ diamond drill holes for a total of 3,629.4m to test the Contact and Bear Paw areas with the objective to collect sufficient drill data to support an initial resource estimate at Bear Paw. A soil sampling program consisting of 1,026 samples was also undertaken in the northern part of the property. The Clear Creek property returned to StrataGold in 2012 and the exploration activities ceased for a few years. Since 2018-19 a new wave of hard-rock exploration is dedicating attentions to the Pukelman and Rhosgobel stocks, with an increasing of drilling activities in the area.

Today, a world economy seriously affected by the new 'pandemic era' induces many economist to promote an easily-predictable boost of precious metals prices, which will most likely open the door to a new exploration rush around these intriguing areas.

5. Geology around West Ridge



The West Ridge is a mountain range which hosts the headwaters of our targeted gold creeks: Big Creek, Josephine and Clear Creek. It's located in that geological region called "Selwyn Basin", an ancient continental margin basin (late Precambrian to Middle Devonian) characterized by the deposition of thick sequences of black carbonaceous shales. Sandstone has also been commonly deposited along this basin, in shallower water. Today in the surrounding of Big and Josephine Creek it's possible to find packages of schist or quartzite overlying black shale or phyllite. The West Ridge itself has been intruded and uplifted in the late Cretaceous by granitic/granodioritic stocks all closely related.

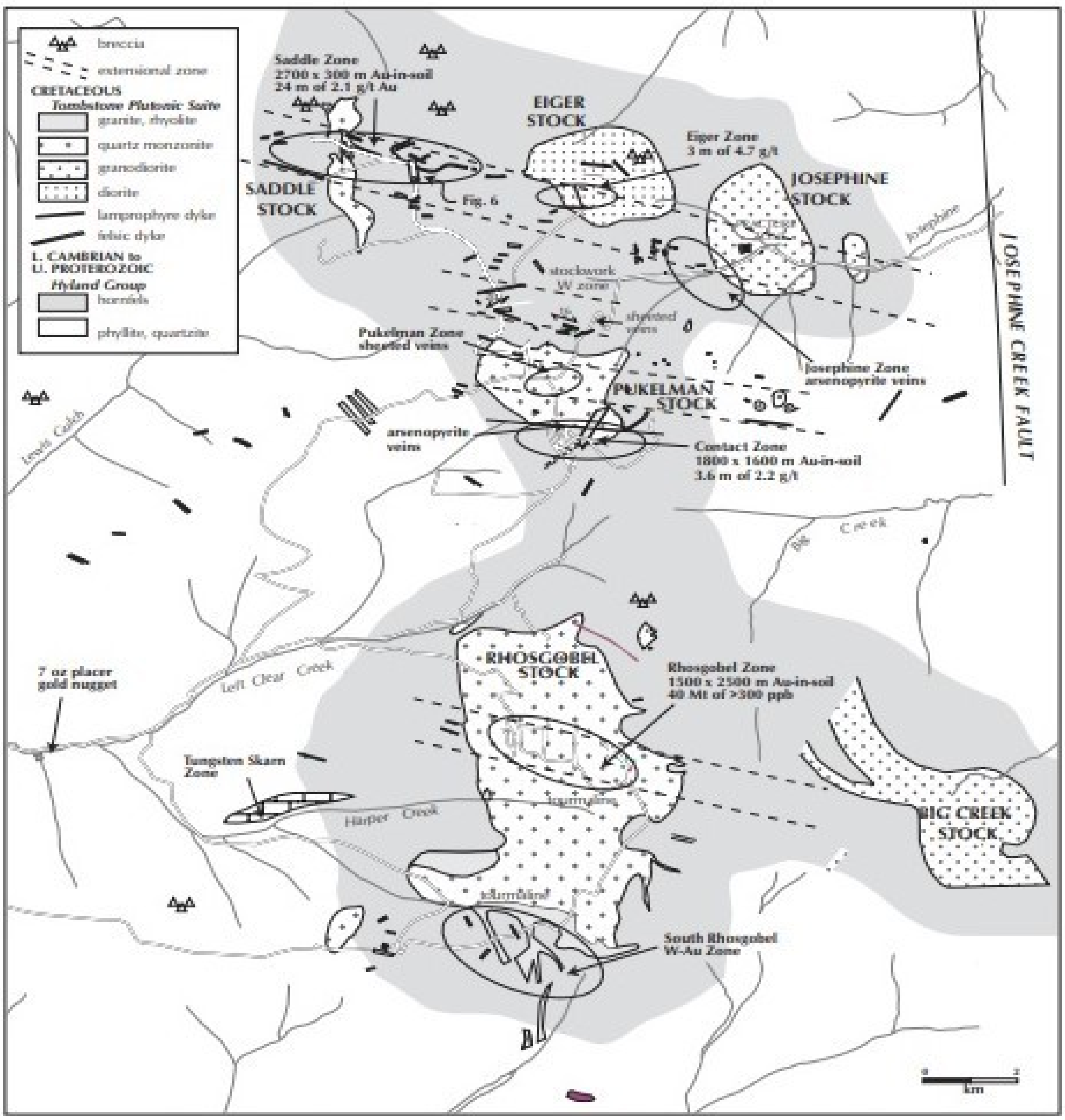
"*Selwyn Basin strata form a strongly deformed and thrust-faulted package located between the Mackenzie foreland fold-and-thrust belt, and accreted terranes and displaced elements of the ancient North American continental margin. Orogeny commenced in the Jurassic as exotic elements of the composite Yukon-Tanana terrane overrode the ancient continental margin. Collision-related deformation had ceased by ca. 100 Ma, and was followed by a Late Cretaceous (post–85 Ma) dextral transcurrent regime, which laterally displaced elements of the newly assembled continental margin along the orogen-parallel Tintina fault. In western Selwyn Basin, more than 100 km of structural overlap was accommodated on two main detachments, the Robert Service and underlying Tombstone thrust faults. Internal deformation within the thrust sheets is intense, characterized by shear-related folds and fabrics. Metamorphic grade reaches lower to middle green schist facies at the deepest structural levels exposed, and is characterized by chlorite-muscovite schists. The onset of deformation is constrained by the Late Jurassic age of the youngest units deformed during orogeny. The end of ductile deformation is constrained by new 40Ar/39Ar ages for metamorphic muscovite that range from 104 to 100 Ma. Due to the low metamorphic grade, these ages are interpreted to closely follow the waning of deformation. At ca. 93 ± 3 Ma, isolated granitic intrusions of the Tombstone-Tungsten magmatic belt were emplaced across the western Selwyn Basin in a tensional, postcollisional regime*" (John L. Mair; Craig J.R.Hart; Julian R. Stephens; 2006).

Said this, for what concerns our research for placer-gold we will try to simplify as much as possible the geological pattern of our prospected area:

– The hillsides forming these valleys are mostly made by a solid and thick layer of foliated quartzite.

– Under the quartzite, to form the valley-bottoms there are layers of much softer phyllite and black shale, deeply carved by the action of water and ice.

– The West Ridge has been uplifted by granitic/granodioritic stocks intruded during the late Cretaceous through slightly metamorphosed materials. Some of these intrusions are responsible for the gold occurrences in the area.



Stocks locations along the West Ridge (Marsh et. Al, 1999)

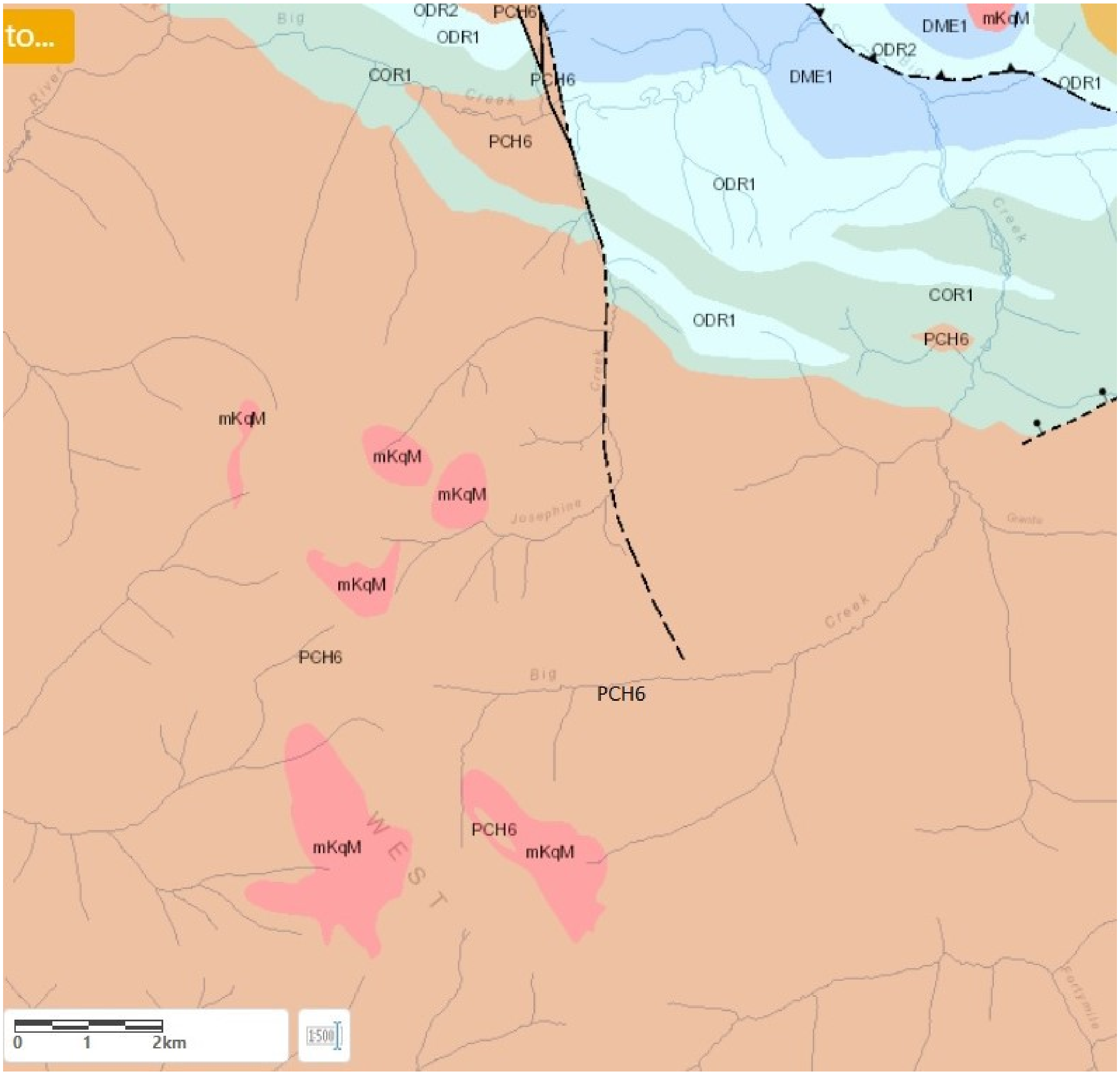
In January of 2018 Patrick J. Sack, Ross R. Large and Daniel D. Gregory wrote this interesting article:

"*Selwyn basin area strata contain sedimentary pyrite with Au above background levels when analyzed by laser ablation-inductively coupled mass spectrometry. Hyland Group rocks contain framboidal pyrite contents of 670 ppb Au, 1223 ppm As, and 5.3 ppm Te; the mean of all types of sedimentary pyrite in the Hyland Group is 391 ppb Au, 1489 ppm As, and 3.8 ppm Te. These levels are similar to sedimentary pyrite in host lithologies from major orogenic gold districts in New Zealand and Australia. Comparison of whole rock and pyrite data show that rocks deposited in continental slope settings with significant terrigenous input contain pyrite that is consistently enriched in Au, As, Te, Co, and Cu. Although data are limited, whole rock samples of stratigraphic units containing Au-rich pyrite also contain high Au, indicating that most of the Au is within sedimentary pyrite. Based on geologic characteristics and comparison of pyrite chemistry data with whole rock chemistry, Selwyn basin area strata have the necessary ingredients to form orogenic gold deposits: Au-enriched source rocks, metamorphic conditions permissive of forming a metamorphic ore fluid, and abundant structural preparation for channeling fluids and depositing ore*".

The similarity pointed by these researchers with the gold-enriched pyrite goldfields of New Zealand and Australia is opening an interesting chapter about the possible genesis of placer gold found along this region, especially after the discovery done by our group of remains of a gold-bearing paleoplacer mostly composed by subangular and subrounded gravel and pebbles of local rocks cemented by sand and silt and deeply stained by iron hydroxides, possibly formed by weathering of Pyrrotite/Pyrite. This paleoplacer has been exposed on the very upper part of Big Creek, but traces of its remains are scattered along the entire floodplain.

Gold-bearing conglomerate found at pit 7

6. Geological map of explored region



Legend:

- PCH6: Hyland group (Proterozoic to Cambrian). Coarse turbiditic clastic units. Pale green shale, quartz rich sandstone, grit, phyllite, limestone, mafic volcanic rocks.

- COR1: Rabbitkettle (upper Proterozoic to lower Cambrian). Basinal limestone. Silty limestone, gray lustrous calcareous phyllite, black slate, quartzose Siltstone, chert.
- ODR1: Road-River group (Ordovician and lower Devonian). Black shale and chert, resistant gray weathering, thin to medium bedded, light gray to black, greenish-gray chert; minor argillaceous limestone.
- DME1: Earn group (Devonian and Mississippian). Assemblage of submarine fan and channel deposits. Thin bedded, laminate slate with interbedded chert-quartz arenite and wacke; black siliceous silt stone.
- mKqT: Tombstone suite (mid-Cretaceous). Plutonic suit of felsic composition. Coarse grained granite, quartz monzonite and granodiorite.

Greyson Unrau sampling an outcrop on upper Big Creek

7. Location (UTM) of tested areas

Pit 1 = 404271 – 7082998

Pit 2 = 403571 – 7083050

Pit 3 = 403071 – 7083022

Pit 4 = 402410 – 7082994

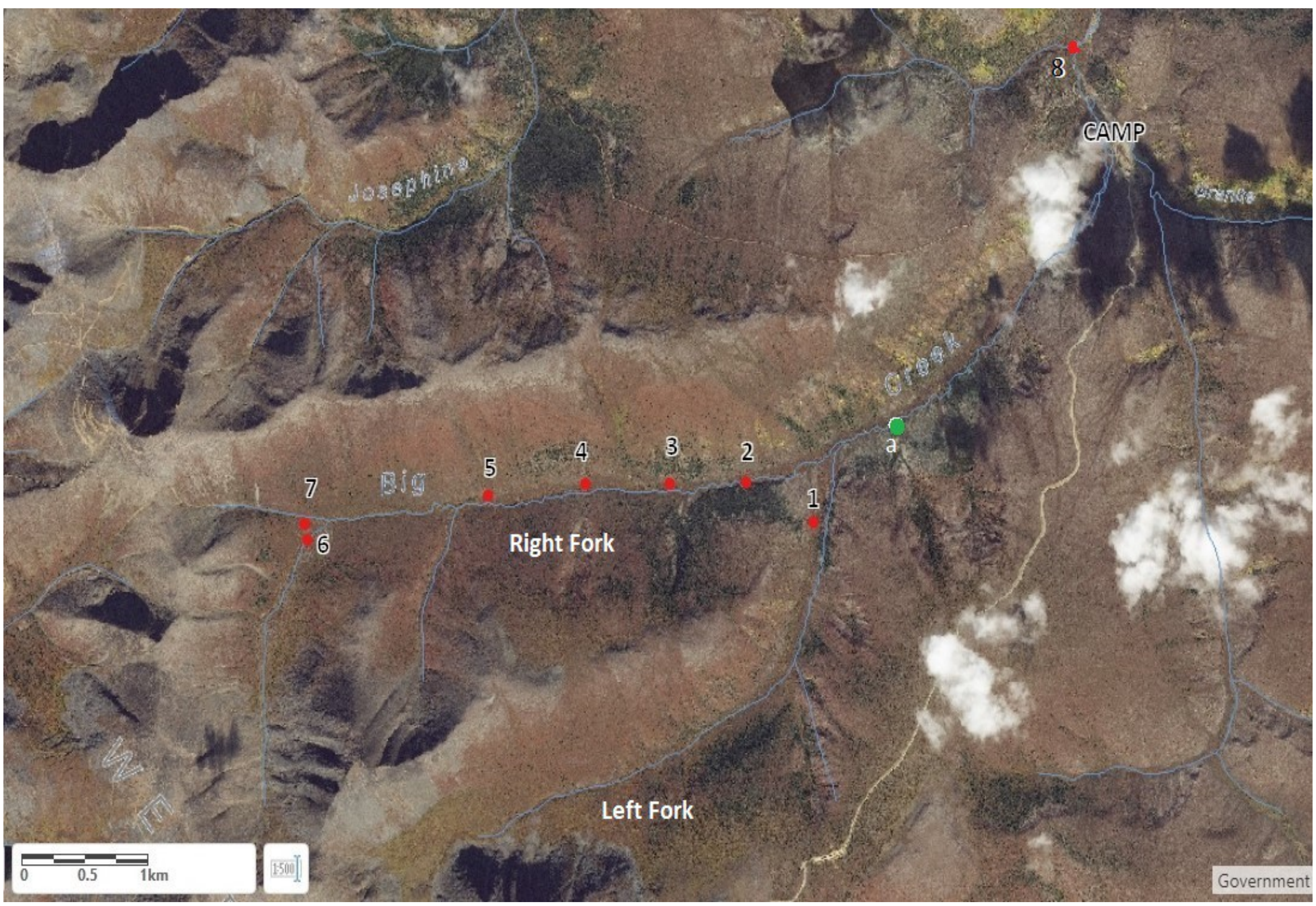
Pit 5 = 401631 – 7082867

Pit 6 = 400158 – 7082531

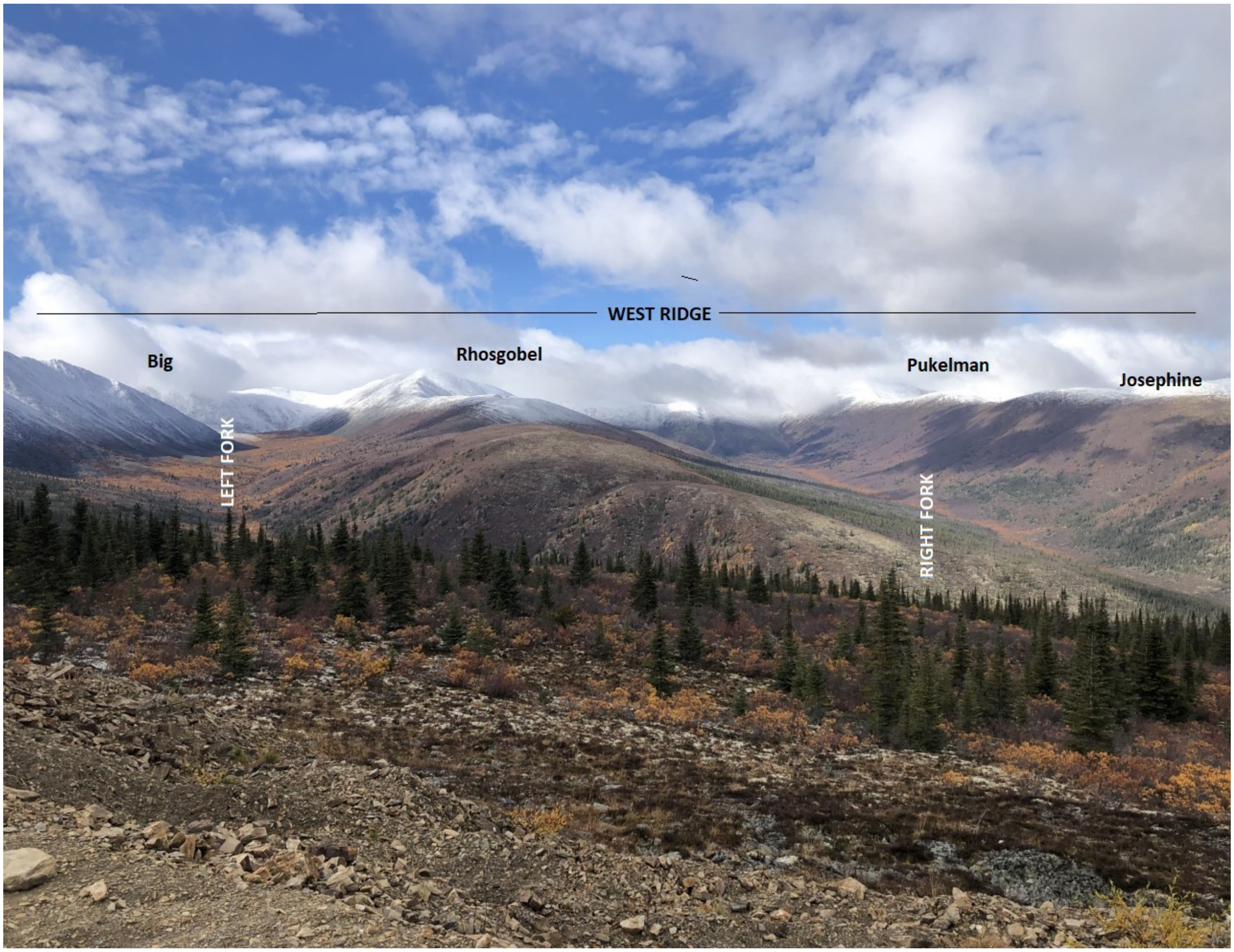
Pit 7 = 400177 – 7082570

Pit 8 = 406009 - 7086272

Drill-hole 'a' = 404887 - 7083619



Locations of tested pits (red dots) and drilled hole (green dot)



The West Ridge seen from North: Stocks locations and Big Creek Forks

8. Description of excavated pits

Pit 1: UTM 403571 – 7083050.

10m x 7m x 5m (depth). Groundwater at -100cm. No permafrost.

Pit 1 has been dug just few meters away from the left-fork creek, few hundred meters upstream from its junction with the right fork. We excavated in the middle of a a thick alluvial fan, where the bedrock would obviously be too deep to be reached by our 20 tons excavator. The left-fork creek runs through a consistent package of materials deposited by a former alpine glacier (its cirque is well visible above the present headwaters).

Test pit 1 was meant to classify the rock-variety among the gravel deposited along this left-fork and to determine the origins of its sediments: all the loose rocks here are autochthon (locals). Their sizes are variable: under a thin layer of overburden (<0.5 m), we exposed angular and subangular big boulders (>50 cm) randomly mixed with cobbles, gravel and a minor amount of sand an silt.
Gold recovery was not expected from this hole: in alluvial fans eventual placer gold could be found on the upper tip, rarely in the middle.

Pit 2: UTM 403571 – 7083050.

12m x 3.5m x 4m (depth). Groundwater at -60cm. No permafrost.

This is a trench located along a former creek-bend which runs along a quartzitic cliff, on the right limit of the valley.

We dug beside the cliff to quickly reach the bedrock, located at – 3.5 meters.
At -2 meters the solid bedrock is gently sloping toward the middle of the valley, carved by the watercourse, and create a very homogeneous and smooth floor. We removed all the deposited gravel as much as we could, by using an excavator, then we tested it (by panning) for placer gold.
That gravel is mostly made by angular slabs of quartzite mixed with few subangular and subrounded pebbles mixed with smaller rocks (mostly phyllite) all from local sources.
We didn't recover any gold but we also didn't expect to find much in the external limit of a river-bend. No substantial heavies have been recovered, to indicate that we're definitely far from the right placer deposit.

Pit 3: at UTM 403071 – 7083022.

6m x 5m x 4.5m (depth). Groundwater at -60cm (note: very poor drainage, the water took almost 12 hrs to fill up the hole!). No permafrost.

Under a thin coverage of organic soil, this small pit exposed a diamicton made by chaotic assemblage of materials deposited in thick layers hard to differentiate: angular and subangular quartzitic cobbles and pebbles are mixed with fractured/flat pieces of phyllite and small, rounded gravel. These rocks are immersed in a dense matrix of clayey sand and silt. Classification barely visible.

At -3 meters of dept there is a black spot (see picture on left) made by loose gravel stained by a black coating, which after meticulous analysis under the microscope revealed to be composed by iron hydroxides.

Bedrock not reached.

Pit 4: at UTM 402410 – 7082994.

7m x 5m x 5m (depth). Groundwater at -70cm. No permafrost.

Organic soil (30cm), then a similar situation to what observed at pit 3 : mix of rocks (all indigenous) of different sizes, angular, subangular and rounded (smaller fraction) randomly immersed in thick clayey sandy-silty matrix. Classification barely noticeable. Two pockets of gravel stained with iron hydroxides are located at different levels (-1.5m and -3.5m).

Bedrock not reached.

Pit 5: at UTM 401631 – 7082867.

10m x 6m x 5.5m (depth). Groundwater at -80cm. No permafrost.

This pit revealed a slightly dissimilar trend from what has been observed at pit 3 and pit 4: here the different layers are more defined and the amount of black-coated materials is definitely greater.

The picture on the left shows two distinct levels of stained loose-gravel: the first one is located at -1m and is actually more a pocket than a layer, while the second (> half meter below) seems to be a part of an homogeneous layer with thickness of 30-60cm. More of these black-coated gravel have been recovered from greater depth: going upstream we are recording a substantial increasing of that stained gravel!

As in the previous pits, the rocks are all autochthonous and well representative of the local geology. They have different size, from boulders to silt, and different grades of rounding: angular to subangular (quartzite), subangular to rounded (phyllite and shale) or just finely grinded.

Bedrock was not reached.

Pit 6: at UTM 400158 – 7082531.

8m x 6m x 4.5m (depth). Groundwater at -90cm. No permafrost.

This one has been dug right in the internal bend of the creek, where the valley turns of 90 degrees (from EW to NS) toward its headwaters, which are located 1.5 km upstream. Here the depositional pattern changes: the diamicton exposed in the previous pits drastically decreases to leave room to a more conventional creek-type of alluvium: the rocks are angular and subangular, with sizes varying from boulders to fine gravel, packed in classified layers immersed in a minor fraction of sand and silt; the ground is extremely permeable.
From a depth of -3.5 meters we recovered few chunks of a solid conglomerate coated by iron hydroxides. **Note**: at this pit we are not dealing anymore with loose black-stained gravel: the black coated clasts are now cemented into a solid conglomerate broken into pieces by our excavator!
Unfortunately, during this significant discovery we had to quit digging because around -4 meters of depth the pit-walls began to rapidly collapse and there was not enough room to dig toward the creek.

We decided to move our excavator hundred meters away, across the watercourse to start pit number 7.

Pit 7 : at UTM 400177 – 7082570.

10m x 6m x 4m (depth). Groundwater at -60cm. No permafrost.

The last pit dug on the upper end of Big Creek is located on its left limit, 70 meters downstream from the previous one, just before the bend, basically at the end of the main valley (see map on page 13).

In the first 3.5 meters of depth this pit seems to be similar to pits 3, 4 and 5. The depositional trend is still made by barely recognizable layers of a predominant matrix of clayey sand and silt, chaotically mixed with subangular and subrounded boulders, cobbles and pebbles made of local quartzite and phillite.
The scenario drastically changes around -3.5 meters of depth, where an hard layer of conglomerate suddenly appears, to confirm what already experienced at pit 6: below the deposits of this present-day creek it seems to be a 'fake bedrock' made by solid, well cemented conglomerate.
As we insisted to dig, chunks of black conglomerate started to come out from the pit.
Our 20 ton excavator couldn't go much deeper than 4.5 meters, but we managed to dig out enough samples of conglomerate to perform a bunch of different analysis.
The test-results are in the next chapter...

Chunks of conglomerate from pit 7

Pit 8 : at UTM 406009 – 7086272.

5m x 4mx 4.5m.

This pit has been dug 200 meters upstream from the mouth of that left limit tributary that flows into Big Creek 800 meters downstream from camp. This small creek runs along a valley located in the neighborhood of Josephine Creek.
The testing performed by panning on site the extracted gravel, confirmed the presence of placer gold along that little tributary.
During the next summer we will perform here a bulk-sampling campaign.

9. Gold-bearing paleoplacer on upper Big Creek.

After the discovery of a black-coated conglomerate at pits 6 and pit 7, we collected samples to be crushed and tested with XRF (X-ray fluorescence) and then panned for heavy minerals to be analyzed under the microscope.

In order to properly determine the nature of that black coating we sent a representative sample of that conglomerate to PhD-mineralogist Tim Liverton.
Here is what he observed under his microscope:

" *The conglomerate has angular clasts of foliated, slightly micaceous, fine-grained (<0.2mm) quartzite. No contained pyrite was noted. It has a coating on the matrix that is is very iridescent which is a thin layer of iron hydroxides. I did not see anything suggestive of manganese. With this amount of iron, the rock is very similar to the ferricrete developed on the massive-sulphide "Mod" mineralization at Swift Rive. If the conglomerate isn't sitting on rock, then there was likely a source of much iron upstream. The iron could have been introduced after the deposition of this conglomerate if it was a paleoplacer: it could have formed an aquifer. The iron may well have been from weathering of pyrrhotite / pyrite, so there may be sulphides in the underlying rock close upstream. It is worth some hard-rock prospecting* ".

Polished cut of gold-bearing conglomerate from pit 7

As second step we partially crushed two kilos of conglomerate to be analyzed by XRF (x-ray fluorescence) by senior geologist William D. Mann. His device revealed a significant presence of zinc, a substantial amount of copper, an expected high level of iron and not much about manganese.

To complete our test we panned that crushed material and we recovered a surprising amount of gold: chunky/angular grains of 1-3 mm with black and reddish stains.
The features of this placer gold are indicating a close proximity to its primary source (orogenic veins?). On the contrary, the specimens mined few kilometers (> 8km) downstream by Schmidt Mining Ltd are well rounded (longer transportation) but still deeply coated by iron hydroxides (**Note**: when that gold was first found in 2018, Harold Schmidt called it "**m&m gold**", because it reminds the famous chocolate-coated candies. It was also hard at the beginning to recognized it as gold!).
The specimens found in the conglomerate at pit7 could be smaller in size due to the fact that have been found in a peripheral area (side-pay).

Gold from crushed conglomerate at pit 7

Angular specimens (closer view)

Average size of gravel in conglomerate at pit 7

nuggets of "m&m" gold found 8km downstream

10. Considerations about the surficial geology exposed along upper Big Creek during this summer of 2021.

Along the upper end of Big Creek the discovery of a gold-bearing conglomerate changed part of our previous interpretation about the events occurred in this area during the Quaternary (see YMEP 14-058: "Second Target Evaluation Campaign at Big Creek").

Here what we wrote on our field-book during this past summer:

1)"*Toward the central part of the main valley, starting few hundred meters North (downstream) from the actual Schmidt Mining Camp (± from UTM 406682 - 7087392) and going upstream all the way to our pit 5, the bedrock is anomalously deeper than what's expected: the drilling campaign conducted by "Northern Sonic Drilling" in 2019 revealed an average depth of 30ft, while downstream from the airstrip it become shallow again (± 16-20 ft). The hole drilled at UTM 404887 – 7083619 indicates the bedrock depth at -32.5 ft. Our current digging campaign confirms the presence of a deepening bedrock on the upper part of this creek, which around pits 6 and 7 suddenly decreases. At pits 2, 3, 4, and 5 we failed to reach the bedrock in the middle of the floodplain: that valley floor was probably carved by glacial events.*

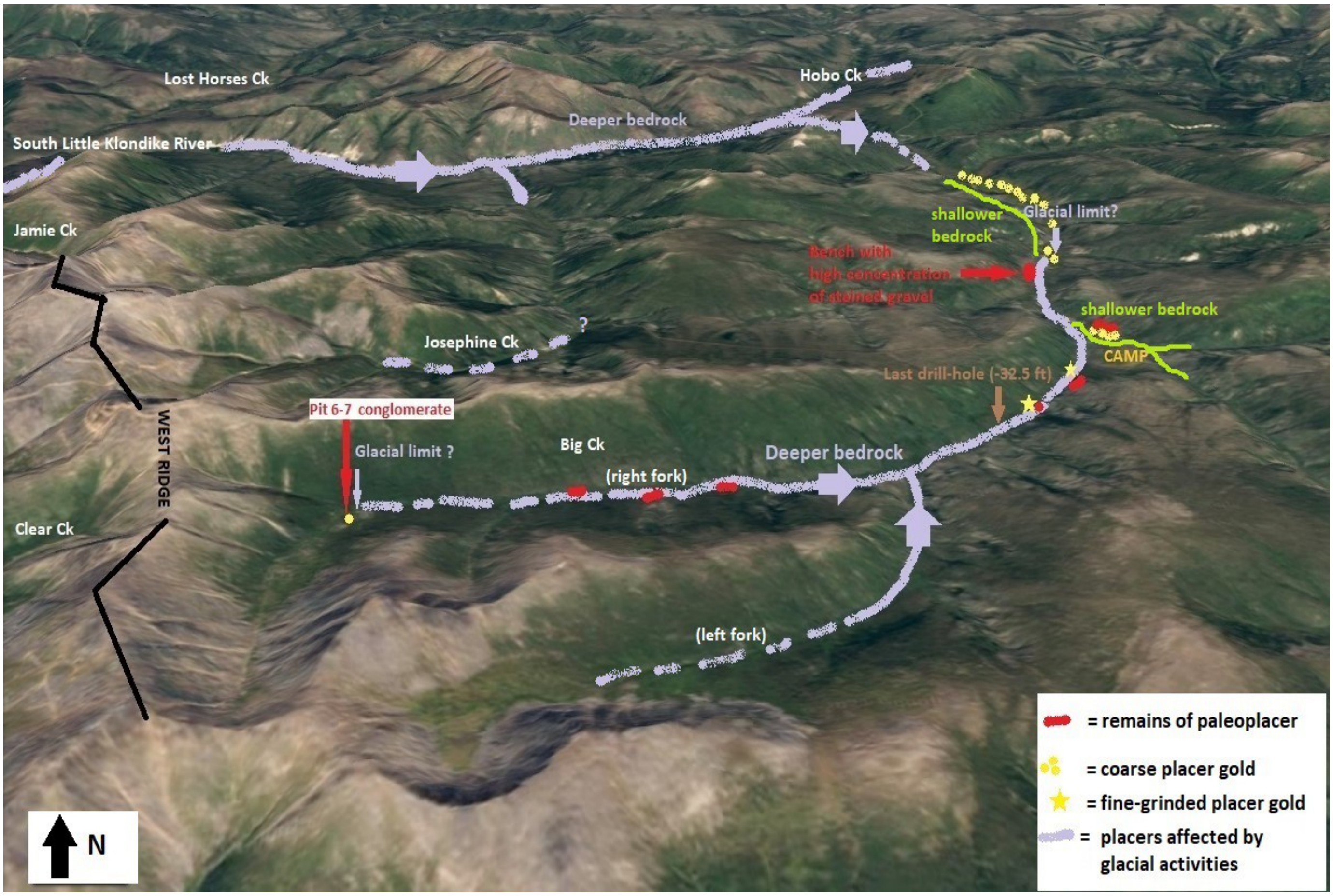
2) "*The sections of alluvium exposed at pits 3, 4 and 5 are very similar and composed by a blend of autochthon angular and subrounded rocks of different sizes, from boulders to fine gravels. Could this assemblage of poorly classified materials immersed in an overabundant clayey sand-silt matrix be part of a glacial-related diamicton? During our digging we also found pockets, sometime layers of loose gravel deeply coated with iron hydroxides".*

3) "*From a depth of ~3 m, at pits 6 and 7 we extracted chunks of conglomerate composed by angular and subrounded rocks of different sizes, cemented by sandy/silty matrix and coated by black iron hydroxides. We crushed and panned few pieces of this conglomerate and recovered small chunks of angular gold with visible remains of crystallization".*

Clasts from crushed conglomerate at pit 7

4) "Together with t*he changing of bedrock-depths recorded at pits 6 and 7 we observed substantial changes in the composition of the alluvium, which*

from a previous random amalgam of rocks, clayey sand and silt, is now changing into cleaner (with less sand and silt, and no clay) sequences of better classified gravel, more similar to a regular creek-type of deposition.
Are pits 6 and 7 marking a glacial limit?".



3D summary map of upper Big Creek area

Let's now draw some conclusions based on our field-observations:

a) At pit 6 and 7 we ran into an interesting discovery: an iron-hydroxide coated conglomerates composed of angular and subangular local rocks (mainly quartzite) and cemented by a sandy-silty matrix, which seems to be the remain of a paleoplacer.
Unfortunately at this time we are not able to determine the age of that conglomerate, but it's well evident that those remains have been spared from the latest invasive (glacial?) activities occurred in the area.

From pit 7, where that conglomerate has been found intact, pockets and layers of black coated gravel have been traced, scattered downstream for almost 10 kilometers (but they are probably going further down).
The first time we found signs of black gravel dates back to 2014, on the upper benches where we dug pits J (UTM 406342-7085118), L, M-M1 (UTM 406815-7085811), O (UTM 406443-7087117), and P (UTM 406857-7087563). You can find these information on YMEP 14-058 : “Second Target Evaluation Campaign at Big Creek”.
At that time we didn't care enough for that loose, black-stained gravel and we classified it as “portion of paleosol stained by manganese oxide during an interglacial episode”. By the end of this summer we actually realized that those black layers of loose materials probably are remains of a paleoplacer.

Pockets of black-gravel exposed at pit O in 2014

b) Gold.
As already wrote in the previous chapter, we crushed and panned the conglomerate recovered from pit 7 and we found gold. From two kilos of crushed sample we recovered a significant number of specimens (see pictures on page 20). Here the gold is grainy, chunky, angular and shows traces of crystallization, to testify its proximity with primary sources.
Each grain shows black stains.
In the previous page our 3D map shows the distribution of the gold found in the central and central-upper part of Big Creek (the gold distribution along the very upper portion of this creek is still unknown). It's quite evident that the gold mined between 2017-2020 has been mostly recovered from areas (marked in green on that map) with shallower bedrock, which appear to have been neglected by the past glacial activities. That gold is mostly coarse (great

Black-coated (“m&m”) gold mined at Big Creek number of nuggets came out from this mine!), grainy and mostly well rounded, sometime with traces of their original crystallization.

For its big majority, this gold is well coated by iron hydroxides ('m&m gold').

On the contrary, the gold recovered from areas that seems to have been affected by glacial or glaciofluvial activities (in lilac on the map) is much finer, flattened and not coated, similar all the specimens commonly recovered from 'reworked' placers.

What come out from the pits dug along Big Creek suggest that most of the mined gold was originally part of an extended paleoplacer, which solid remains have been found in place at pits 6 and 7 (see page 19).

Fine gold recovered from pit J in 2014

We still don't have enough exposed bedrock to locate all the possible sources of this gold, but as already wrote, the shapes of the specimens recovered from pit 7 are clearly indicating their proximity to one the most proven hard-rock gold-bearing intrusion present in the neighborhood of upper Big Creek: the Rhosgobel stock.

c) It will be nice at this point to be able to determine the age of our conglomerate and the time when it was eventually crumbled and re-sedimented downstream.

Was that paleoplacer removed by glacial activities?

According with what we observed in the field, the intervention of glacial-related activities is the most logical explanation for the re-arrangement of this paleoplacer: a regular watercourse couldn't have pushed entire packages of materials down the valley in that same way but it would instead have dispersed that black gravel.

Today we know that the area surrounding the West Ridge was interested by peripheral glacial activities occurred at different ages: the most powerful events are dating back to pre-Reid glacial ages (2.6 Ma – 200 Ka) and contributed to shape the morphology of the majority of these places: U-shapes valley-sides, smoothed hills, high benches and big/rounded erratic blocks of granite could be easily observed here and there, starting from the Little South Klondike Valley and going all the way up to Big Creek and Hobo Creek lower ends. Reid-age related activities (< 130 Ka) also occurred in the area, maybe along upper Big Creek as well.

Beside these extensive events, dating back to early- and middle- Pleistocene, according with our observations collected during years of digging the floodplain of Big Creek, the surficial geology suggests that more recent glacial events toke place in the surrounding of the West Ridge, ...possibly during McConnell ice-age (~18 Ka)?

These last events would have definitely been less invasive than the previous ones, and probably limited to be represented by the modest activities of an alpine glaciers located in the surrounding of Big Creek stock (the remains of a glacier cirque are well visible in the upper end of the left fork).

The range of action of those glaciers could have affect the upper placer of our creek for just 8-10 kilometers down from its headwaters, to end roughly around UTM 406786-7089235 where the presence of a glacial limit seems to be evident. That's the point where the bedrock gets shallower again and where the valley suddenly become narrower and steeper (more V shaped). It's also the point where the conspicuous placer gold deposition starts (see map at page 22).

Note: if the observations contained in this chapter are correct, the placer miners active in the area should be using those pockets of black stained gravel as tracer, to located areas where that gold-bearing paleoplacer could have bee pushed and re-sedimented by glacial activities. According to our experience, during our past exploration campaigns those concentrations of black stained gravel were always noticed in the proximity of the best patches of placer gold!

Glacier Cirque on upper Left Fork

11. Prospecting along the watershed of Josephine Creek.

After testing the floodplain of upper Big Creek, our team moved across the ridge to explore the watershed of its natural twin: Josephine Creek .

Like at Big Creek, to which it runs parallel, the headwaters of Josephine are flowing from the eastern sides of West Ridge, just few kilometers (~ 2) further north.

Contact black shale – quartzite at UTM 401657- 7087920

The geological environment is the same for both creeks: gold-bearing granitic/granodioritic intrusions in the surroundings of their headwaters (Rhosgobel Stock around Big Creek and Pukelman Stock at Josephine), hillsides formed by foliated quartzite and bedrock made by packages of phyllite and/or shales (mostly black shales at Josephine) which are both underlying the quartzite.

The placer gold recovered from these creeks also shows identical features with sizes ranging from medium to coarse with ~ 50% portion of fines, and also for purity, from 790 to 820 on both placers.

Part of the gold mined in the proximity of upper Josephine Creek is stained with iron-hydroxides, but not as much as the one mined from Big Creek, where deeply black-coated grains are representing the big majority of the recovered gold.

The coated gold of Josephine allow us to hypothesize the possible existence of another (smaller) paleoplacer eventually located on its upper part, exactly like at Big Creek.

Unfortunately we don't have enough information about the unregistered enterprise that in the 80's performed a medium-size operation along that upper stretch of Josephine Creek, without reporting the results of the work done.

From a close morphological analysis of the gold recovered just below that former mine by Schmidt Mining Ltd during the last two years of activities, we observed that some of the stained grains recovered toward the upper

part of the creek are still preserving traces of the original crystallization. Some of these coarser specimens are hosting quartz intrusions, to confirm a lode-relate genesis.
We also observed that the gold recovered further downstream is cleaner, more shining and flattened, and it also seems to have a bigger percent of fine fraction (see picture in the previous page) and higher fineness (around 810-820).
It seems quite obvious to deduce that one of the main sources of placer gold recovered at Josephine Creek is certainly located around the top end of the creek and possibly related with those well known gold-bearing quartz veins located in the immediate surroundings of Pukelman (and maybe Josephine) stock. Those veins are well visible along the rock-walls beside the steep old road which runs across the West Ridge to connect Josephine with the left fork of Clear Creek.

To conclude: as we observed, Big and Josephine Creek are obviously part of the same geological environment. From a practical (mining) point of view, the main difference between these two is morphological (depth of bedrock and shape of the valley), and related to their glacial history: the ice-activities occurred in the region have been definitely more invasive at Big Creek than at Josephine. Contrariwise of what happened at Big Creek, Josephine was just touched on its very lower end by the those powerful events occurred along the Little South Klondike Valley during pre-Reid ice ages, while the lower three miles of Big Creek have been drastically affected and carved by those glaciers (well visible along our Oz2 Property).

Mining the middle section of Josephine Creek

In a more recent time (McConnell?) an alpine glacier was probably located around the West Ridge and it perhaps occupied the upper part of Josephine Valley as well. According with the shallow depth of bedrock and the morphology of this placer, the presence of an eventual glacier during the last ice-age didn't affect much Josephine Creek and today mining along this creek is way more straightforward than mining along Big Creek!

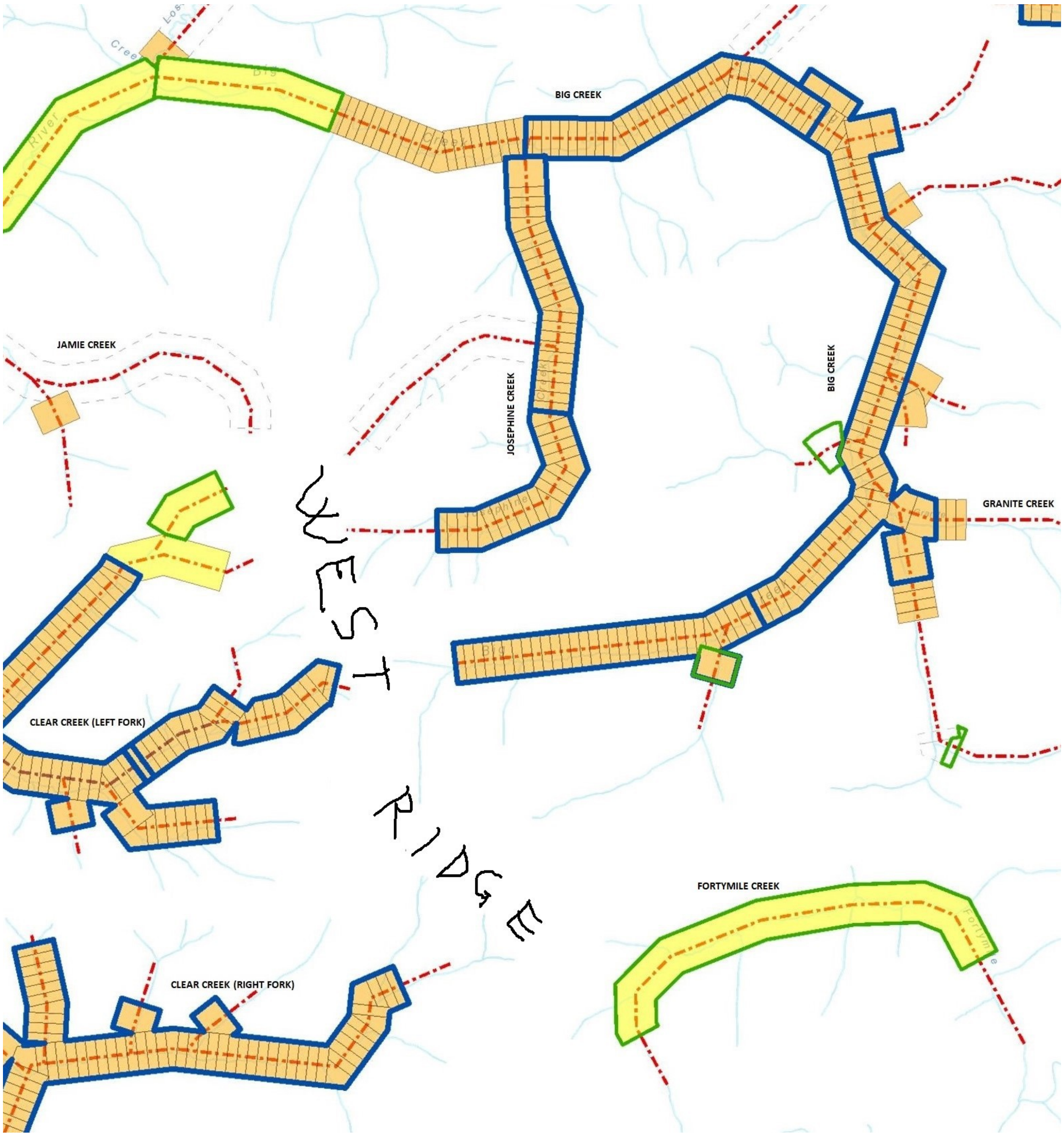
Note:during the end of our exploration-days spent at Josephine Creek, we have been particularly attracted by an intriguing bedrock freshly exposed by Schmidt Mining Ltd. at UTM 401220-7089343 and well visible along the central section of the valley.
Here the geology revealed a well recognizable sequence of black dykes 2-3m wide, which are crosscutting the valley with a SW-NE direction, intruded along a close (2-4m of distance) series of fractures discordant from the local schistosity.

From a first summary analysis these dikes seems to be lamprophyres, interested by a network of quartz-veinletts with < 1cm of thickness (see pictures in the next page).
This area should be carefully sampled and tested for gold!

Sequence of dikes (lamprophyre?) at UTM 401220 – 7089343

Quartz veinletts filling the fractures of a dike.

12. Placer properties around West Ridge in 2021



13. Conclusions

The two exploration seasons of 2020-21 have been deeply compromised by Covid-19 pandemic: a series of public-health related procedures prevented some of our best workers to enter in the Country, while for the same reasons the Yukon Territory experienced a drastic shortage of those laborers that each summer arrive in Dawson City from allover Canada, looking for summer-jobs.
Unfortunately the unusual scarcity of available helpers forced our group to reduce the exploration program planned for 2021.
In spite of this inconvenient and thanks to the help of many good friends and miners, we managed to drive our equipment across the West Ridge and to test two of the main gold bearing placers in the area: Big and Josephine creeks.
Many the valleys located on the eastern side of West Ridge are still under-explored and we are convinced that this mining district definitely deserve more attention for its great potential, well proven by the successful operations conducted along these creeks in the last four years by Schmidt Mining Ltd.

During this summer we finally completed the exploration of upper Big Creek, where for the first time we drove an excavator to test that stretch of placer. After digging a grid of test pits along 5 kilometers of floodplain, we made a significant finding: a gold-bearing conglomerate suspected to be part of an ancient paleoplacer.
The description of our discovery is enclosed in chapters 9 and 10 of this report.

The second part of our exploration campaign has been dedicated to Josephine Creek, where after prospecting its watershed and try to locate the main sources of its placer gold, we ran into another intriguing encounter, this time hard-rock relate: a series of black dikes, possibly lamphrophyres, which are crosscutting the valley in its central/lower part. These dikes also deserve further exploration and an exhaustive rock-sampling campaign!
The description of our journeys along Josephine Creek are enclosed in chapter 11 of this report.

For Gold Pan Corp.:

Sandro Frizzi, geologist and prospector of Dawson City, Yukon.

14. Acknowledgments

This troubled exploration campaign of 2021 could only be completed thanks to the help and the genuine availability of our many friends.
I must admit that I start to appreciate more and more all those challenges that daily life reserve to the inhabitants of this remote part of the world: during my prospecting days, every time I've been forced to seek help from local people I had the chance to realized how lucky I am to be part of this generous, supportive and quite unique northern community!

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