2017 YMEP Final Report:

The Focused Regional Raw Geef Project (17-033)

61.156753°, - 134.068479°
Whitehorse Mining District

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Introduction

Work on the Raw Geef project occurred from June 2nd-11th, 2017. Stream sediment samples from a regional Yukon Government database indicated that two streams from adjacent basins shared similar anomalies of base metals, arsenic, and gold. Additionally, a government map-set that outlined individual basins and weighed the geology against basin size and stream sediment geochemical sample assays suggested that the two particular basins in this project were in some of the highest percentiles of likelihood for several deposit types. The general plan of accessing the area for its mineral potential was to gather more stream sediment data to try and confirm the anomalies and to ridge-and-spur prospect across all major peaks in the project area in efforts of finding the source of the stream sediment anomalies.

For the purpose of the project, five sample types were taken:

1) rock chip (RC): an *in situ* sample of outcrop
2) grab (G): a sample that is not *in situ* but that was ultimately determined to have a strong likelihood of being close to source
3) soil sample (SoS): where ridge-and-spur rock chip or grab sampling was not facilitated, soil samples were attempted to be retrieved from ideally the C horizon but occasionally other horizons were samped
4) stream sediment (SS): samples from either of the two main streams or from ephemeral feeder streams
5) heavy mineral (HM): samples of panned concentrate of stream bed materials

Illustration 1: Project area in relation to Whitehorse

The sample naming convention of the project is RG17 followed by the sample type and then the sample number. For example, RG17-SS-003 stands for Raw Geef Project, 2017, stream sediment sample, third sample of stream sediments.

RC and G samples were analyzed with ALS Minerals' ME-ICP41 package with Au by fire assay and a few samples containing significant Mo (RG17-RC-089 to RG17-RC-091) were additionally analyzed for rhenium. 91 rock chip and 20 grab samples were taken, not including duplicates.

Soil samples, stream sediment samples, and heavy mineral concentrates were analyzed with ALS Minerals' Au-ME-TL43 package with the heavy mineral concentrates receiving an additional ME-ICP61a package. 22 soil, 18 stream sediment, and 2 heavy mineral concentrate samples were taken, not including duplicates.

See attached maps for field sample locations of each aforementioned sampling method

Prospecting and Geological/Sample Stations

The area now staked under the Raw Geef claims (Raw Geef 1-66; see attached *Claim Location and Numbers* and *Preliminary Geological Map with Claim Locations)* was indicated to have recently been staked by Golden Predator and evidence in the field was found of other historical staking of unknown extent. Despite being previously staked, searches with the government in their database did not reveal any information in the map sheet of this project (105 E 01) that was directly related to the area of this project. The only geological information known prior to working was a fairly vague geological map (Illustration 2).

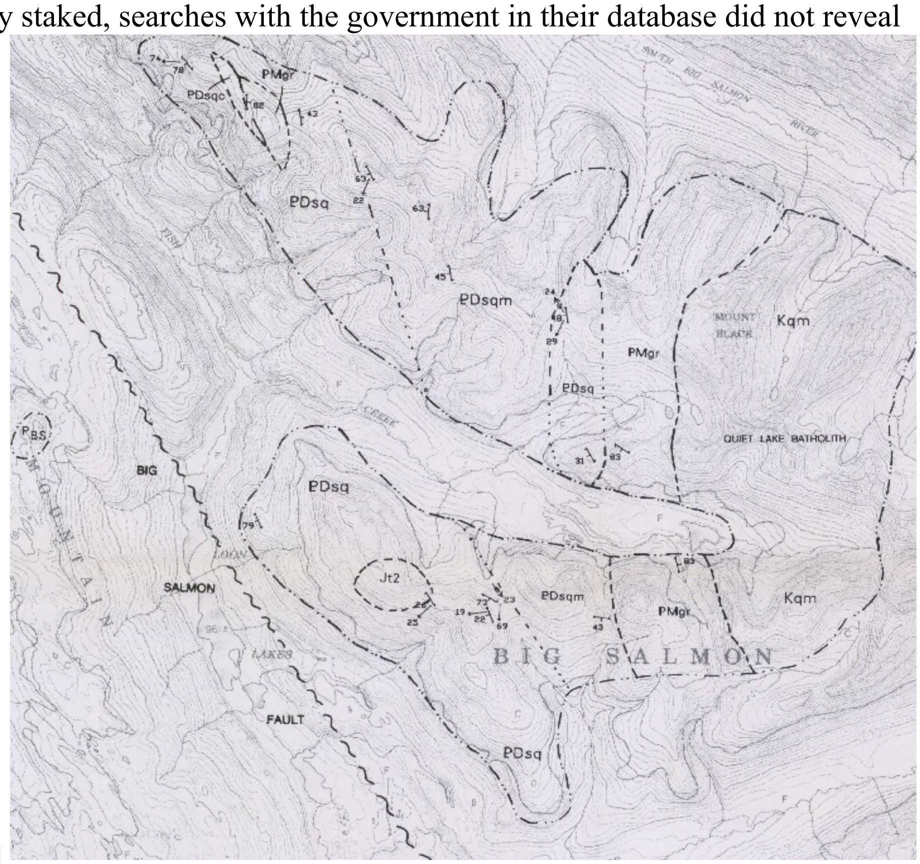

Illustration 2: Screenshot of the only geological information discovered prior to field work

A surface evaluation of the project area revealed geology with discrepancies with prior research in regards to unit boundaries. However, unit descriptions analyzed during pre-field research were generally adequate and represented what was observed in the field. The attached *Preliminary Geological Map* is indeed very preliminary with lots of over-generalizations and assumptions (e.g. Ridge-and-spur sampling was our means of observing *in situ* geology but the map clearly shows the geology from atop of the ridges being extrapolated to represent the lower elevations where exposures were generally absent); With that in mind, the map depicts a massive medium-grained intrusive-dominated east end of the project area that was typically tonalitic to granodioritic and occasionally granitic with very uncommon and cm-scale diabase layers. West of the intrusives are meta-sedimentary rocks that are finely layered and typically psammopelitic or psammitic with occasional pelitic portions. Within these units, a handful of massive intrusions were observed.

Near the centre of the map along the easternmost stream in the project area, is a small intrusive unit that is depicted to be flanked by meta-sedimentary rocks. While travelling down a fairly treacherous river-gorge attempting to get stream samples, “rust bleeds” (Illustration 3 & 4) were observed quite frequently within the aforementioned intrusive unit. Further investigations lead to an obvious association of rust bleeds with thin, discontinuous quartz veining. Fresh samples revealed pyrite, arsenopyrite, and what was originally interpreted to be graphite but what assays have revealed to be molybdenite with low amounts of rhenium. The metallic minerals are fine-grained, euhedral to subhedral, and disseminated, but typically found in clusters. Three samples were taken of these veins (RG17-RC-089 to RG17-RC-091). These veins are interpreted to be intrusion related and may represent a particular zonation of metals within a larger system.

Further work on these veins should include a more comprehensive exploration of the surrounding area (particularly downstream from their location) to understand the extent of their intrusive host Additional sampling should also take place to establish a greater control on their extent and consistency of their values.

In addition to these veins, several veins from 2cm thick to 40cm thick that were massive, barren, and milky white (bull quartz) were sampled out of due diligence and did not provide any interesting assay values.

Illustration 3: Rust bleeds depicted by yellow arrows. Camera-shy field assistant for scale

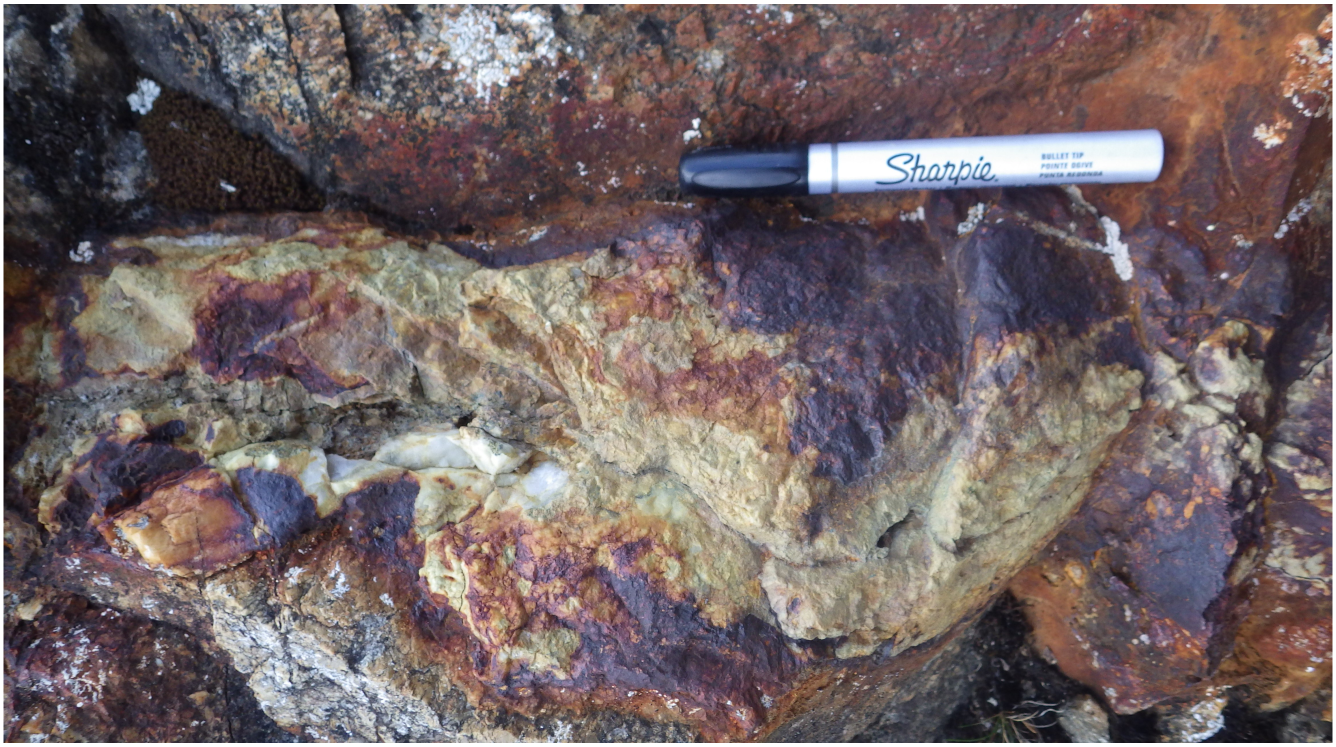

Illustration 4: Close up photo of rust bleed coming off of a discontinuous quartz vein. Yellow to white botryoidal gossan was observed to be quite prominent on some rust bleeds.

In the north-central portion of the project area, satellite images showed a red hue in the area and field observations identified a scree slope with extremely abundant gossanous flakes covering a hillside with an estimated area of at least $2km^2$ (Illustration 5). No sulphides were observed in the gossanous chips and assay results (RG17-G-13) only showed slightly elevated base metal values.

Illustration 5: View looking north with abundant gossanous chips on the mountain-side.

Just over 500m to the southeast a 4-5m thick strongly gossanous unit that appeared to be traceable for at least several hundred meters is exposed on the west side of a steep, north-south trending valley (Illustration 6 & 7). This unit is flanked by more weakly gossanous units on either side. The gossanous units are shallow-dipping and appear to be traceable across to the east side of the valley, albeit significantly higher in elevation and difficult to reach. The units appear to have a sandstone protolith and contain varying remnants of that protolith. Sample results (RG17-RC-070 through -072) did not appear to show any significant anomalies but did show some minor values for Pb, Zn, and Cu.

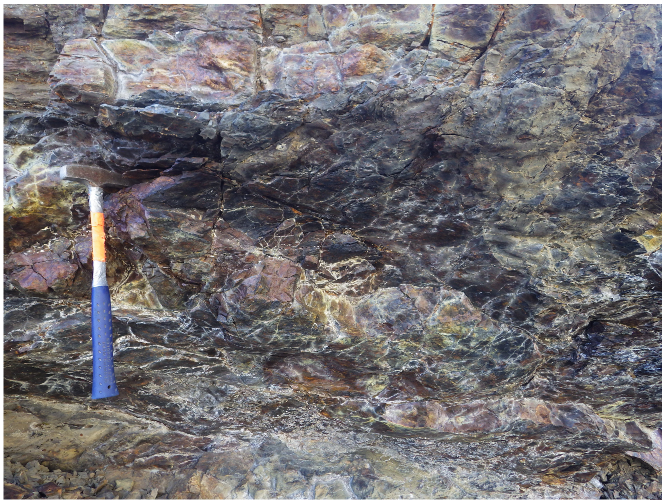

Illustration 6: Close up of strongly gossanous layer.

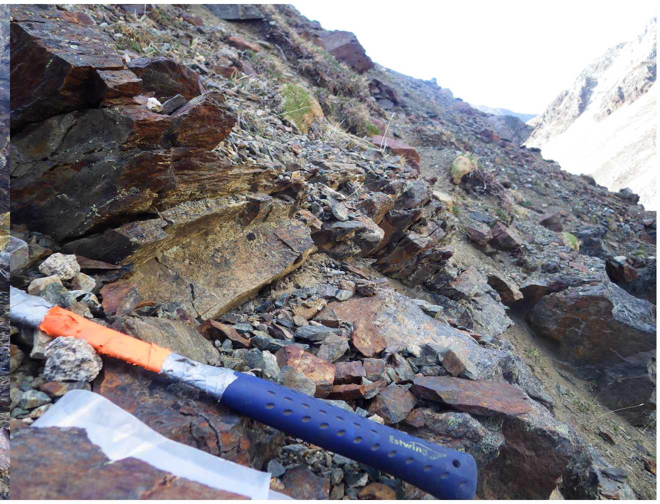

Illustration 7: View looking north attempting to depict the lateral continuity of the gossanous units.

About 700m west of, and in relatively close proximity to, the gossanous units is a unit that was interpreted to be quartzite (Illustration 8). Michel Jevrak and Eric Marcoux mention in their textbook *Geology of Mineral Resources* that metamorphosed SEDEX mineralization can contain a silicified marker horizon that is often misidentified as quartzite. This, in addition to base metal stream anomalies, possible volcanic association with nearby greenstone units, strong and expansive gossan, and proper protolith lithology (e.g. Permeable sandstone protolith for gossan) make a fairly compelling case for SEDEX mineralization.

Illustration 8: Dendritic pattern on unit that was interpreted to be quartzite.

Since fresh samples of the gossanous unit were unable to be obtained, there is a potential that there could be base metals within the unit but that they did not appear as anomalous values in assays due to a strongly weathered sample being taken. Additionally, some geochemical indicators can hide within background values making identification of these indicators hard to identify without additional work (i.e. Isotope analysis). Ultimately, this suggests that although strong anomalies were not detected in assay results, indicators of the presence of SEDEX systems (and potentially mineralization) are quite strong in this particular area.

Future work in this area should focus on retrieving a fresh sample of the gossanous material to determine if there are any minerals of interest that were not observed in the strongly weathered samples. This could be done through blasting but if the gossan is particularly thick the blasting may not provide any further insight; a drill, however, could be placed on the hill above the gossan and be used to gather core from a vertical drill hole which should intersect the unit at a nearly perpendicular angle if the unit's dip is continuous into the hill. Upwards of 200 meters of drilling may be needed to reach the gossan from a level location on the hill above. Due to the very loose natural of the gossan chips, it would likely be difficult to prop a drill pad structure on the side of the valley.

Geochemical Sampling

A handful of soil samples and stream sediment samples were gathered (see attached maps showing their locations). Little was known about ground and water conditions in the project area prior to arrival and thus it was unclear whether or not stream sediment samples and soil samples would be a viable option.

The rivers in each basin were fast-flowing and consequently did not facilitate significant sediment deposition (or *sediment traps*) on the riverbed. Small quantities of sediments were found in little pockets behind rocks but suspicions as to the sediments being sourced from collapsed bank material was relatively high. The stream sediments did not return any values of significant interest. This contrasts the anomalies that were found from each basin in government data sets.

The anomalies from the government data set were in stream sediments sampled at the very lowest elevation with the most shallow pitch in each respective stream; these areas were inaccessible by foot travel and therefore un-replicated in this outing. An argument can be made that the sample locations for this project occurred in areas of steep river pitch with fast flowing water and consequent poor depositional environment, which would not provide good insight relative to a more ideally deposited sample site, like that of the government data sets.

Heavy mineral concentrates did not provide any anomalous results are also interpreted to not be an accurate representation of the basins they are within. As noted before, stream sediment traps/deposition was futile and the concentrates more likely represented collapsed bank materials rather than a more regional coverage.

Soil sampling occurred during ridge and spur sampling as a means of filling in any gaps between rock samples where there was not outcrop exposure. All but a few samples were of the C horizon (see attached Sample Results/Notes). Majority of the time there was a thin cover of organics with a glacial boulder field below that restricted soil sampling and made the task quite tedious. A few soil samples were of till but majority were of '*in situ'* soil horizons.

Soil sample RG17-SoS-008 was not a sample of till and assay results show anomalies in As, Cr, Cu, Fe, Ni, Pb, and Zn when compared to the other soil sample results. Sample notes for this particular station note that the soil contained lots of scree fragments. RG17-SoS-009, however, was sampled nearby 008 but did not contain any significant anomalies relative to other soil samples. Both of these samples were taken nearby the aforementioned gossanous flake-covered hillside (Illustration 5).

Although the results are not consistent with one another, it is interesting to note that RG17-SoS-008 did indeed have elevated concentrations of base metals. Because the gossanous scree slope where these two particular soil samples were taken is a feature likely representative of the *in situ* rock immediately below that location, there is evidence suggesting that base metal concentrations may be related to the gossan.

It is unclear what the relationship is between the gossanous zones exposed in the steep valley that were observed *in situ* and the gossan chips dominating the side of a mountain. A more comprehensive soil sampling grid is suggested for future work around the gossan chips. This would allow background values to be distinguished from anomalous values more readily and confidently and would also provide further confirmation that RG17-SoS-008 was indeed anomalous.

It was mentioned earlier in the document that anomalous values/pathfinder elements can sometimes be masked by background values. In the area of the gossanous chips, elevated base metals were found in soil samples but not in grab samples; it is possible that the rock chip samples are too weathered to contain any elevated assay values but that soil geochemistry retains a high enough concentration of elevated elements to distinguish potential base metal anomalies.