Final Report: Mary Kathleen Domain Gold Analysis from Regional pXRF Soil Samples

Grant Code: CEI0044

Collaborative Exploration Initiative (Round 2)

Tenures: EPM 26182, EPM 26283, EPM 25759, EPM 26367, EPM 14363, EPM 25757, EPM 26595, EPM 14730, EPM 25761, EPM 25760, & EPM 26566

Holder:	**Roseby Copper Pty Ltd, Roseby Copper (South) Pty Ltd & Eva Copper Mine Pty Ltd (all wholly owned subsidiaries of Copper Mountain Mining Pty Ltd**
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Date:	**8 September 2019**
Submitted By:	**Copper Mountain Mining Pty Ltd**

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1. EXECUTIVE SUMMARY

Copper Mountain Mining Pty Ltd (CMM) is a copper focused mining & exploration company with a large exploration permit portfolio within the Cloncurry region of the Mount Isa Inlier. The company also owns the 'Eva Copper Project' mining leases located approximately 65km north of the Cloncurry township.

In December 2018 CMM received confirmation that it had been awarded up to $75,000 in grant funding from the Geological Survey of Queensland through the Collaborative Exploration Initiative (Round 2) for a gold focused exploration project with exploration tenure. This project aimed to test a model for Gold Rich – Copper Poor mineralisation within the Mary Kathleen Domain by completing gold assays upon soil samples that had been collected for portable XRF (pXRF) targeting copper mineralisation.

Several gold deposits have been mined in the Mary Kathleen belt including the high value Tick Hill gold mine. Tick Hill has a very small surface footprint, making discovery of analogous targets very difficult.

Development of pXRF equipment has provided a reliable and cheap method of base metals analysis, however, the method is not suitable for gold analysis. Companies such as Copper Mountain are collecting large volumes of soil samples on regionally extensive grids. To date, Copper Mountain has collected and stored over 54,000 samples for pXRF analysis.

The Company's primary target is copper (with or without gold) mineralisation. Laboratory gold analysis is not normally applied to soil samples due to prohibitive expense. The premise of this project was to utilise the Company's catalogue of stored pXRF samples to test and develop new concepts for gold-only targets.

Almost 8,000 samples were submitted to Intertek for gold analysis via 50 g fire assay. Anomalous gold (>20ppb) was identified at 36 prospects. Six of the targets have been flagged as 'very high' priority and a further ten as 'high' priority. Best results included up to 19.26 g/t at the Companion prospect and 2.8 g/t Au at the Cameron prospect. These and other highly anomalous gold results suggest a successful outcome for the project.

Follow-up exploration activities including rock chip sampling, check repeat soil assays and mapping have already commenced. Drill targets are anticipated to be generated by late 2019.

Beyond the potential for leading to a direct discovery, we believe the data collected during this project represents a material contribution to the region's geochemistry dataset which will benefit researchers and explorers.

With the increased popularity of pXRF analysis from soil samples throughout the Mount Isa Inlier, it is likely that other exploration companies have also accumulated large inventories of dormant samples whose value could be maximised by replication of this CEI project model.

2. INTRODUCTION

Project CEI0044 aimed to test a model for 'Gold Rich – Copper Poor' endmember IOCG mineralisation within the Mary Kathleen Domain. The project would attempt to do this by efficiently assaying soil samples that had been collected for pXRF. Approximately 8,000 samples were selected for gold analysis based on geological and geochemical criteria.

All maps and coordinates discussed within this document are located in GDA94-MGA54.

3. GEOLOGY AND PROSPECTIVITY

The core of CMM's exploration tenure is located within the Mary Kathleen Domain within Queensland's North Western Mineral Province (Figure 1)**Error! Reference source not found.**. The Domain hosts a variety of Proterozoic aged metasediments, metavolcanics and intrusive rocks. Within the extent of the Mount Isa Inlier, Proterozoic rocks frequently outcrop, sub-crop, or are covered by shallow residual soil cover which is amenable to direct detection geochemical methods.

The Mary Kathleen domain hosts many occurrences of base metal, gold, uranium and rare earth element mineralisation. Notable deposits hosted within (or adjacent) to the domain include the Dugald River (Zn-Pb-Ag), Mary Kathleen (U-REE), Little Eva (Cu-Au), Blackard (Cu), Scanlan (Cu), Mt Colin (Cu-Au), Kalman (Cu-Mo-Au) and Tick Hill (Au) (For locations see Figure 2). Past mining and exploration in the Mary Kathleen belt has predominantly focused upon copper(+/-gold) and other base metal deposits. With the exception of Tick Hill, few gold deposits of significance have been mined.

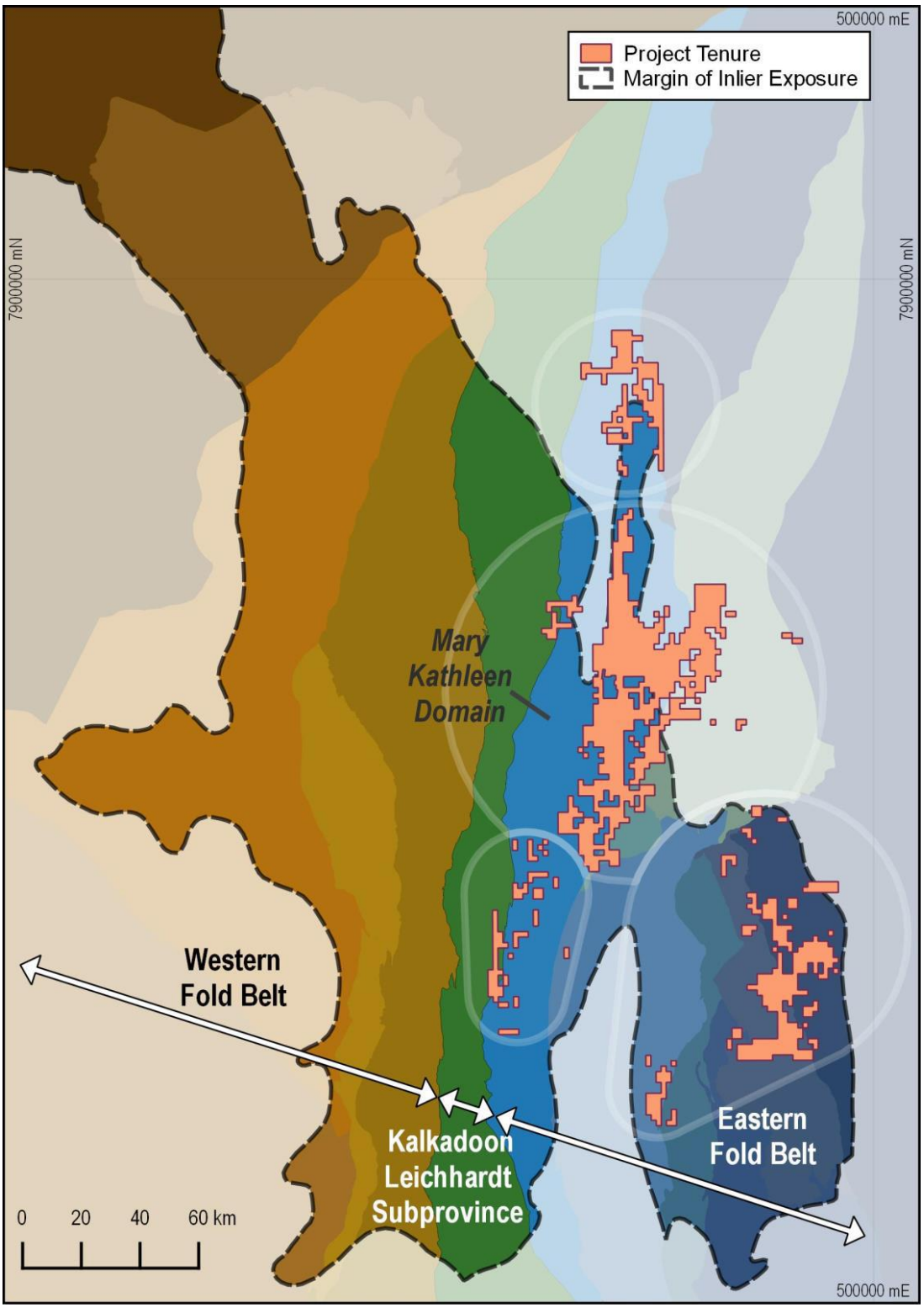

Figure 1: CMM tenure relative to the outcropping Mount Isa Inlier with tectonic domains.

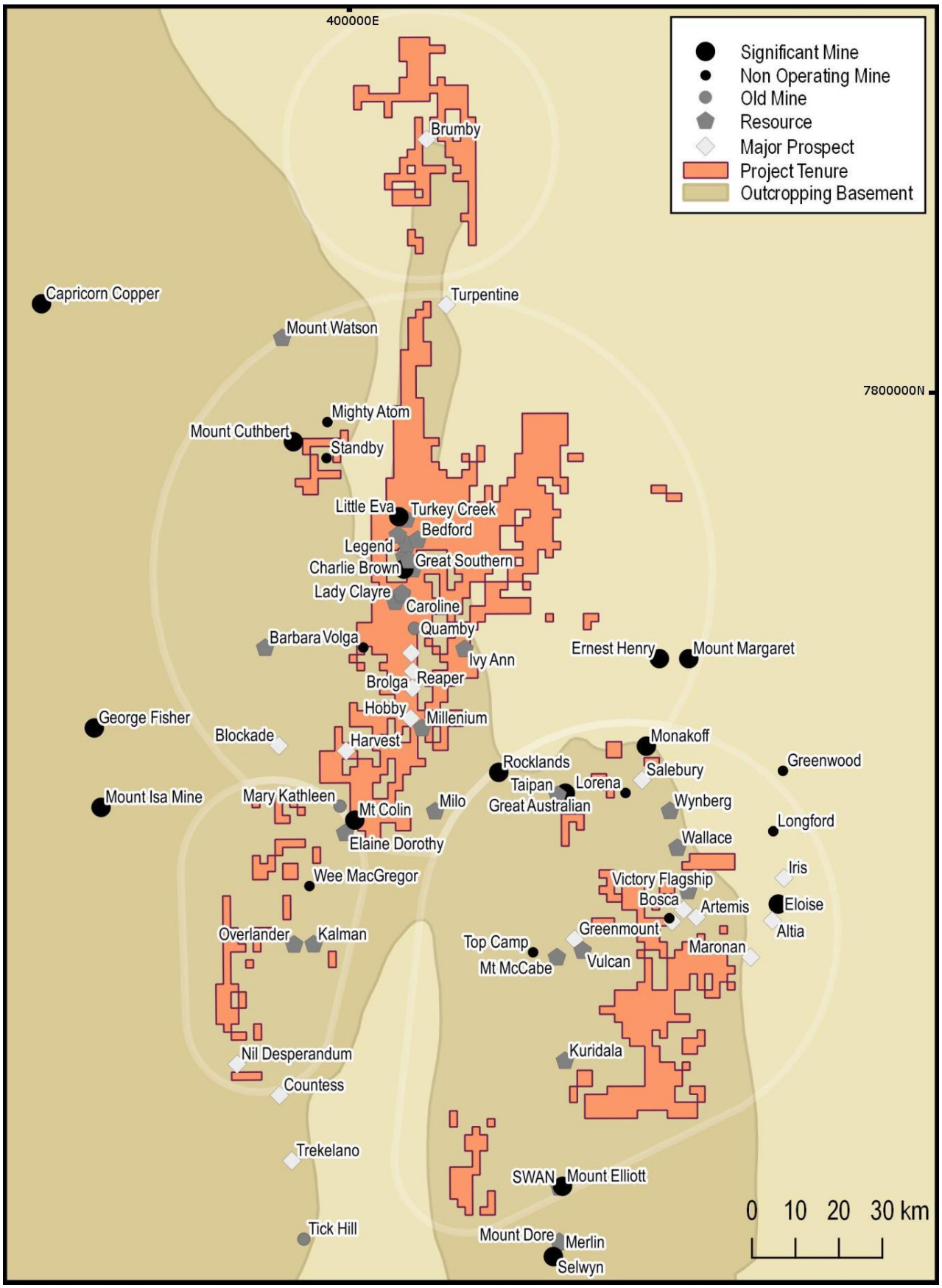

Figure 2: Distribution of significant regional mines, resources and major prospects within the Mount Isa Geological Province relative to Project tenure. Tick Hill is the only significant gold deposit of those shown.

3.1. The Roseby Area and Gold Mineralisation

The Roseby area is located approximately 70km north of Cloncurry, primarily within Mount Roseby Station. The core of the area is dominated to the Mount Roseby Schist stratigraphic unit, a package consisting of fine-grained and grey muscovite-quartz-biotite +/- scapolite schists (psammopelite) interbedded with carbonate-rich layers. Surface outcrop of the Mount Roseby Schist is bordered by the Rose Bee Fault to the east and Landsborough Graben to the west.

In addition to MMG's Dugald River Zn-Pb-Ag mine (56.7Mt @ 12.4% Zn, 2.3% Pb & 25 g/t Ag), the area hosts eleven copper +/- gold deposits totalling approximately 310 million tonnes of resources grading 0.48% copper and 0.04 g/t gold (CMMC, 2018).

The area's copper mineralisation is split into two broad styles: 'Copper-Gold' and 'Copper-Only'. Notably, the Copper-Only style of mineralisation occurs exclusively within the Mount Roseby Schist while Copper-Gold deposits occur exclusively outside or upon the contacts with other stratigraphic units. Mineralisation is classed as Iron-Oxide-Copper-Gold (IOCG) in style and is inferred to have occurred during the waning stages of the Isan Orogeny at around ~1530 Ma.

Four separate Copper-Gold deposits have defined Mineral Resources, these include Little Eva, Bedford, Lady Clayre and Ivy Anne. The average gold grade for sulphide Resources defined over the Copper-Gold deposits ranges from 0.07 g/t to 0.17 g/t Au at an approximate ratio of 1% Cu : 0.2g/t Au. Defined Resources for these deposits contain 1,288 million pounds of copper and 383,000 ounces of gold. Drill hole sample with assays above 1g/t Au are relatively common and well distributed within the Copper-Gold deposits, with individual assays ranging up to 45 g/t at Lady Clayre, 8.9 g/t at Little Eva, 6.5 g/t at Bedford and 3.2g/t at Ivy Ann. Petrography and geochemical analysis suggests an intimate association between copper sulphide species and gold occurrences in all Copper-Gold deposits.

The Copper-Only deposits include Turkey Creek, Blackard, Legend, Scanlan, Longamundi, Great Southern, Caroline and Charlie Brown. The defined Mineral Resources over Copper-Only deposits are calculated to contain 2,034 million pounds of copper metal. The deposits contain minimal gold, however, low level (sub economic) silver mineralisation is common. Only six of over nine hundred holes at the Blackard deposit and one of sixty-nine holes from the Turkey Creek deposit included gold assays exceeding 1 g/t Au. While only eight Copper-Only Resources are currently defined, this style of mineralisation is common within the area and additional resources are likely to be defined in the future.

Finch (2011) provides a potential explanation for why Copper-Only (gold poor) deposits occur exclusively within the Mount Roseby Schist, while Copper-Gold deposits occur in neighbouring stratigraphic units.

In her thesis 'The nature of Cu mineralisation at Roseby Copper Horizon, Mt. Isa Inlier, Queensland' Finch proposes that a single regional fluid was responsible for Cu- Au mineralisation throughout the area, and that variations in gold rich versus gold poor mineralisation could be attributed to fluid interaction with host rocks. Specifically, when the Mount Roseby Schist interacted with "moderately acidic fluid was buffered towards neutral pH by calcite, causing a decrease in solubility of Cu and an increase in Au solubility".

Table 1: Defined Mineral Resources (CMMC, 2018)

Deposits	Tonnes (t '000)	Cu %	Au g/t	Cu Pounds (Mlb)	Au Ounces (oz '000)
Copper-Gold Deposits					
Little Eva	132,146	0.36	0.07	1091	287
Bedford	3,794	0.51	0.14	43	18
Lady Clayre	12,305	0.39	0.16	106	63
Ivy Ann	6,105	0.35	0.08	48	15
			Totals	1,288	383
Copper Only Deposits					
Blackard	76,400	0.62	0	1,044	0
Legend	17,400	0.54	0	207	0
Scanlan	22,200	0.65	0	318	0
Turkey Creek	19139	0.44	0	185	0
Longamundi	10,400	0.66	0	151	0
Great Southern	6,000	0.61	0	81	0
Caroline	3,600	0.53	0	42	0
Charlie Brown	700	0.4	0	6	0
			Totals	2,034	0

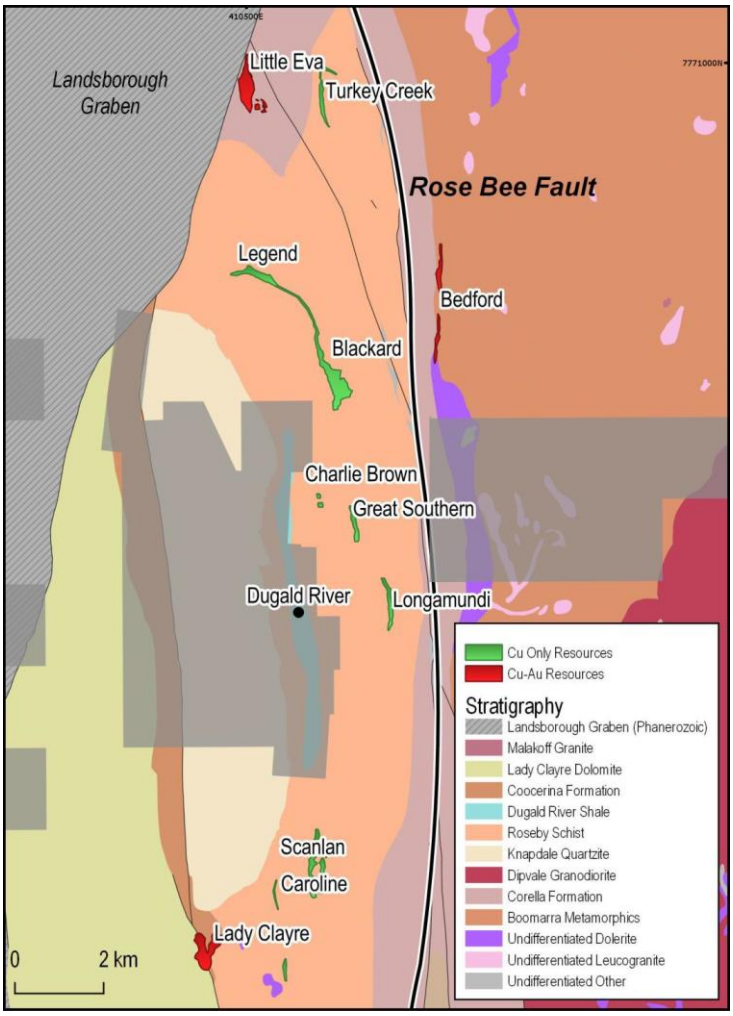

Figure 3: Basic stratigraphy of the Roseby Area with distribution of copper deposit types.

Assuming the validity of Finch's hypothesis, we propose that succeeding mineralisation of the Copper-Only deposits, copper depleted - gold carrying fluids continued migration until reaching a host lithology suitable for precipitation of gold mineralisation.

Using the relative proportions of copper and gold estimated for the Copper-Gold deposits (1,288 million pounds of copper & 383,000 ounces of gold) we estimate that approximately 605,000 ounces of gold are 'missing' from the defined Copper-Only deposits (containing 2,034 million pounds of copper).

It is our belief that a spectrum of economically significant 'Gold Rich – Copper Poor' end member IOCG deposits may exist undiscovered within the region. We speculate that these deposits should occur at chemical gradients within or on the periphery of the Mount Roseby Schist or chemically similar units. It is expected that gold mineralisation would be accompanied by weak-moderate copper anomalism yielded from fluids largely depleted in copper following deposition of Copper-Only style deposits.

We suggest a possible analogue for this style of mineralisation is the Tick Hill gold deposit.

3.2. The Tick Hill Deposit

Tick Hill was a small but unusually high-grade gold-only deposit, located ~75 kilometres South of Mount Isa. The deposit was mined between 1991 to 1995, producing 513,000 ounces of gold from ore grading at ~23g/t gold (Le, 2019). The deposit's lode occurs as an elongate silicified zone measuring only~150m Length x ~24m Width x ~300m Depth and dipping 55° West. Discovery of the deposit was initially guided by gold anomalism in Bulk Cyanide Leach stream sediment samples. Stream sediment sampling was followed up by -80# mesh conventional soil geochemistry survey which identified a sporadic gold response and a discrete copper anomaly immediately above the deposit lode (Figure 4).

Tick Hill is hosted within Proterozoic aged rocks of the Corella Formation. Mineralisation occurs in a shear-hosted lens on the eastern limb of an asymmetric, synform. The shear zone host is developed within a Quartzite-Schist unit, thought to be the locus for intense ductile strain along the rheological boundary of the hanging wall sequence (Calc-silicate, Amphibolite, Schist), and the footwall sequence (Porphyritic granitoid sills, Biotite Schist).

The timing of deposit formation is uncertain, however, recent work by Le (2019) suggests a late D_3 Isan Orogeny age of 1,528-1,530 Ma. This contrasts with previous work which had suggested a much earlier age for formation (~1,800Ma).

Despite the success of the Tick Hill Mine, discovery and exploitation of comparable deposits have remained elusive within the Mount Isa Inlier.

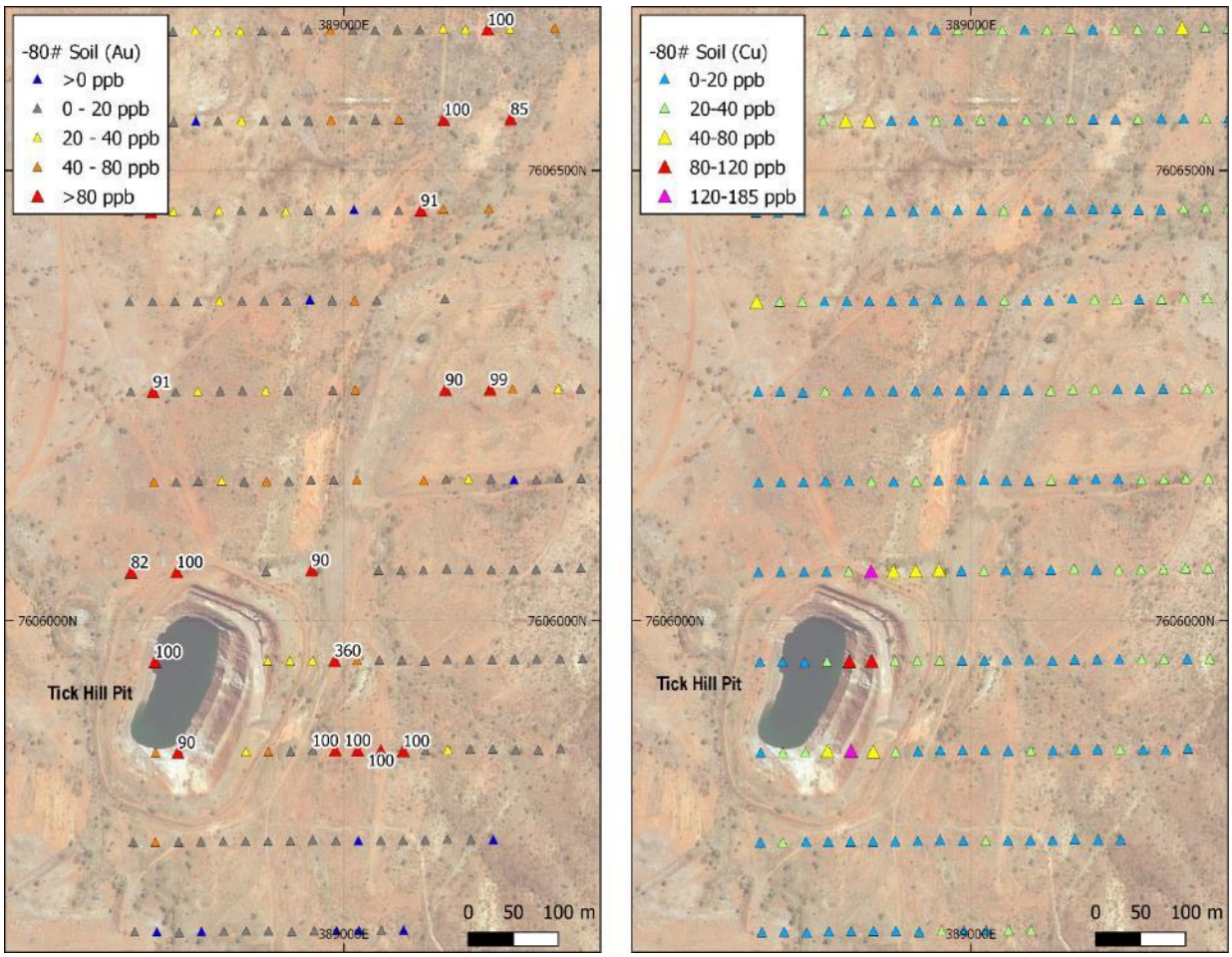

Figure 4: -80# Mesh soil geochemistry response over the Tick Hill gold deposit (pre-mining). Samples with gold assays over 80 ppb are individually labelled.

4. PREVIOUS EXPLORATION

4.1. Historic Soil Sampling for Gold

The discovery of Tick Hill proved that soil sampling could be used as an effective method for identification of gold mineralisation in residual soil areas within the Mount Isa Inlier. Despite this, the distribution of gold in soil analysis remains relative patchy throughout the region (Figure 5) and much of this has been a secondary focus to copper exploration.

Analysis of the company's datasets has identified several potential Gold Rich – Copper Poor prospect areas, these include: Bald Hills, Wonga, Felix, Quamby North, Edze, Quamby, Companion, Good Luck, Oliver's Twist, Mistake Creek & Long Valley (Millennia), Federal, Cameronian, Wonder Valley, Pilgrim South, Windmills (Figure 6). These areas are characterised by the presence of relatively high gold to copper ratios and proximity to interpreted faults or major stratigraphic contacts.

These prospects are characterised by relatively low copper compared to gold anomalism and are mostly undrilled.

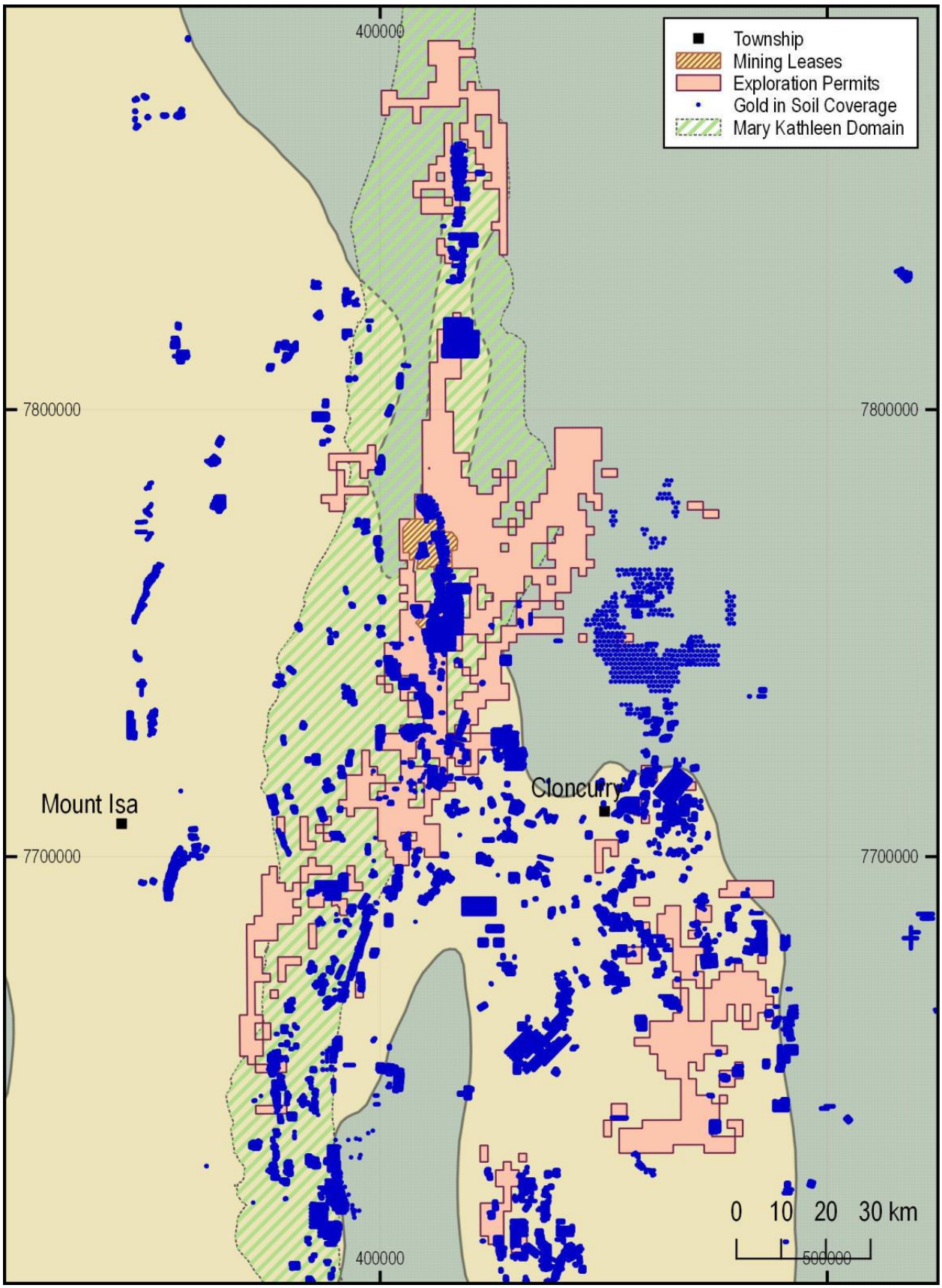

Figure 5: Spatial distribution of soil samples tested for gold in the Eastern Mount Isa Inlier with outline of Mary Kathleen Domain and CMM tenure position. Coverage includes GSQ and internal datasets.

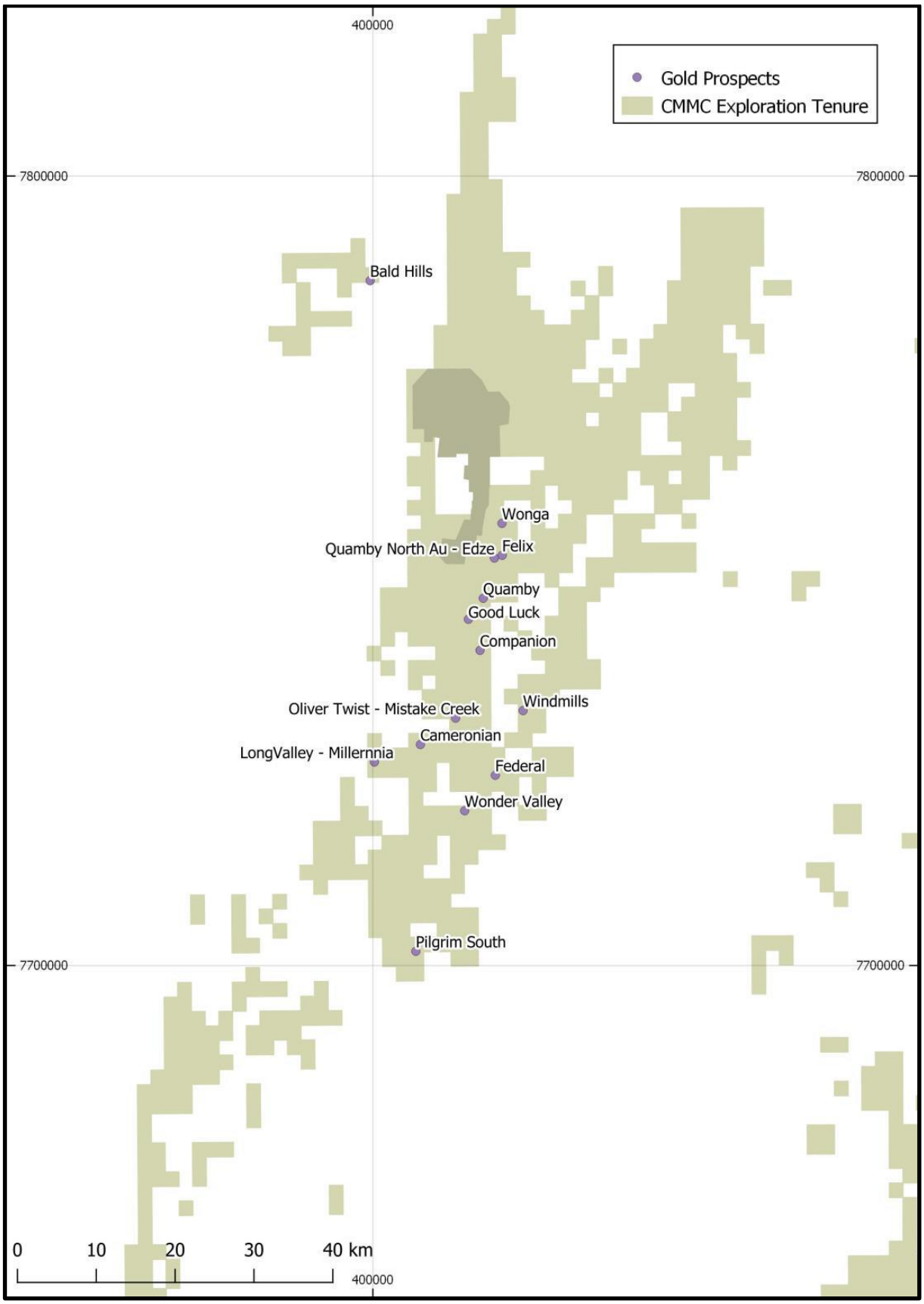

Figure 6: Locations of identified potential Gold Rich – Copper Poor targets.

4.2. Use of Portable XRF

CMM's exploration strategy has focused upon leveraging affordable and rapid portable XRF (pXRF) technology for analysis of soil samples sourced from residual soil environments. While pXRF analysis is well suited to many common elements such as base metals, it is not appropriate for analysis of gold which tends to occur in nuggety accumulations.

The significant cost savings offered by pXRF analysis has enabled CMM to reallocate budgets away from analysis, and towards sample acquisition, ultimately increasing the quantity of samples that can be collected and analysed per dollar spent. This narrative is shared by other explorers within the region who have also expanded their soil sampling programs in recent years.

While regional coverage of pXRF soil analyses continues to expand, many explorers have chosen not to submit their bagged samples for wet chemistry analysis. If not submitted for analysis groups may either archive or dispose of their samples.

CMM has collected approximately 54,250 samples since 2015. Spatial coverage of new pXRF samples versus historic gold samples is displayed in Figure 7. Approximately 99% of pXRF samples were retained and securely stored at the company's Cloncurry exploration yard.

The Company has completed many soil campaigns over regional and detailed prospect areas. Nominal sample spacing for CMM's pXRF sampling programs is 40m along line. Line spacing is varies, though is typically ~200m and ranges from 80m to 500m depending on terrain and perceived prospectivity.

CMM's soil samples have been collected a consistent procedure. This includes sieving a dry soil, ideally from the soil's beta horizon, through a -2mm mesh into a ~1,000µm thick plastic bag.

Samples are then stored until being scanned using either a Thermofisher-Niton or Olympus-Vanta portable XRF instrument in the field office. Certified reference materials are periodically scanned throughout pXRF analysis to ensure quality assurance. Select samples are periodically submitted to a commercial laboratory for check assays.

Following analysis samples are packed into bulker bags for long term storage and retained at the company's Cloncurry exploration yard.

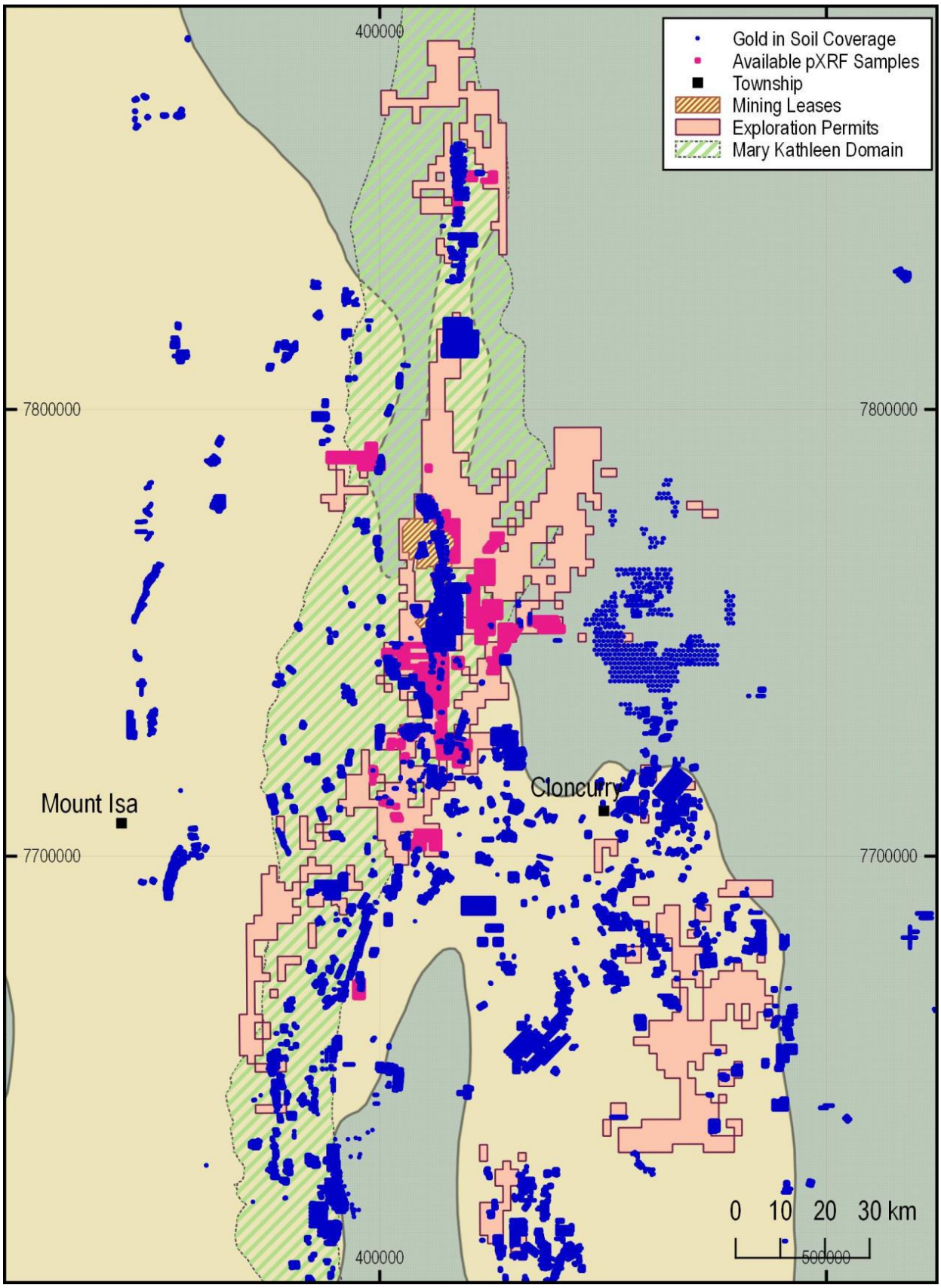

Figure 7: Distribution of CMM's retained samples from completed portable XRF sampling programs (pink) with publicly available gold in soil samples (blue).

5. PROJECT RATIONALE

The project's aim was to test a concept for Gold Rich – Copper Poor end member IOCG mineralisation, through efficient gold assaying of unutilised soil samples collected for pXRF analysis. Importantly, the project tested a large spatial extent and areas down ranked by the Company due to their perceived low prospectivity for typical models of copper dominant mineralisation.

6. METHODOLOGY

The program involved gold analysis of approximately 8,000 soil samples that were collected for pXRF analysis and stored at the Company's Cloncurry yard.

6.1. Sample Selection Criteria

The following criteria were used to select samples from the Company's pXRF sample inventory:

- Within granted exploration permits owned by CMM and overlapping the Mary Kathleen domain.
- Areas that typically either have no, or very sparse gold in soil coverage (Figure 7).
- Areas of identified weak-moderate Cu in soil anomalism (also some areas with higher anomalism)
- The periphery the Mount Roseby Schist and comparable carbonate rich stratigraphic units.

Samples were submitted to Intertek's Townsville Laboratory in three major rounds of dispatches. Anomalism identified in the first and second rounds was followed up with submission of infill samples in the third round of dispatches.

6.2. Gold Analysis

The applied analytical procedure was determined through trials and discussions with the Manager of Intertek's Townsville Laboratory. Please refer to section 7.1.1 for further information.

Samples were assayed at their 'raw' -2mm mesh size without further preparation. Gold abundance was determined using trace level (1ppb level of detection) 50g Fire Assay.

7. WORK COMPLETED

7.1. Selection of Analytical Techniques

Prior to commencement of the full work program an orientation trial program was completed to select the most cost-effective analytical approach. The selection process included a consultation and tendering process from the several major Queensland based commercial laboratories. The basis of this work was an initial stage of sample particle size characterisation followed by analytical method trials.

7.1.1. Characterisation of Sample Particle Size

Particle sizing analysis was completed on a batch of stored pXRF samples. All samples had been collected in the field as the undersize faction from 2mm sieves ("raw samples'. Samples were progressively sieved with 20# (841µ) and 80# (177 µ) mesh, and the then the products weighed for mass. The proportional mass results for each sieved fraction is presented in Figure 7.

7.1.2. Assay Method Trials

To maximise the financial efficiency grant funding, advice on preparation and analytical methods was sought from several major Queensland based commercial laboratories.

The CMM team had envisaged that pulverization and Aqua Regia gold analysis would be most cost-effective method of analysis. A trial was proposed by Intertek's Townsville laboratory manager to evaluate the effectiveness of raw vs pulverized sample preparation coupled with an Aqua Regia digest vs Fire Assay. It was hoped that a trace (1ppb precision) 50g fire assay would provide a similar result irrespective of sample preparation due to the reasonable fineness of raw soil samples.

The trial was completed on 19 samples collected from the C1 (Companion) prospect over gold mineralisation previously identified by rock chip and soil geochemistry. Each sample was split, with half of the sample retained in its raw form and the other half pulverized to 80µ. The raw and pulverized splits were then re-split and analyzed using Aqua Regia digest and Fire Assay.

The 50g Fire Assay outperformed Aqua Regia in all tests except one irrespective of the raw or pulverised preparation status (Figure 9). The pulverised - Fire Assay detected higher abundances of gold than the raw sample in approximately half of the tests and significantly more in Samples 7 & 11.

It was concluded that a method of 50g Fire Assay upon raw samples should successfully delineate elevated gold abundance from a background level less than approximately <10 ppb (Figure 9).

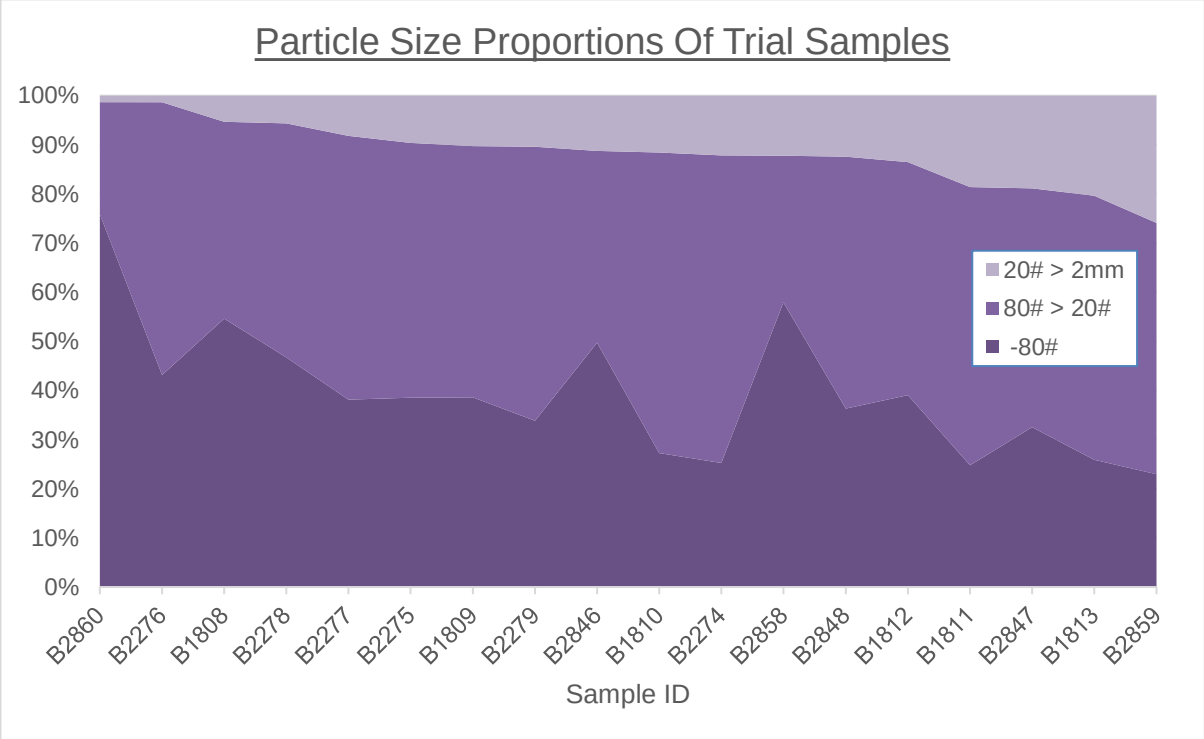

Figure 8: Analysis of relative mass for a selection of 18 random samples.

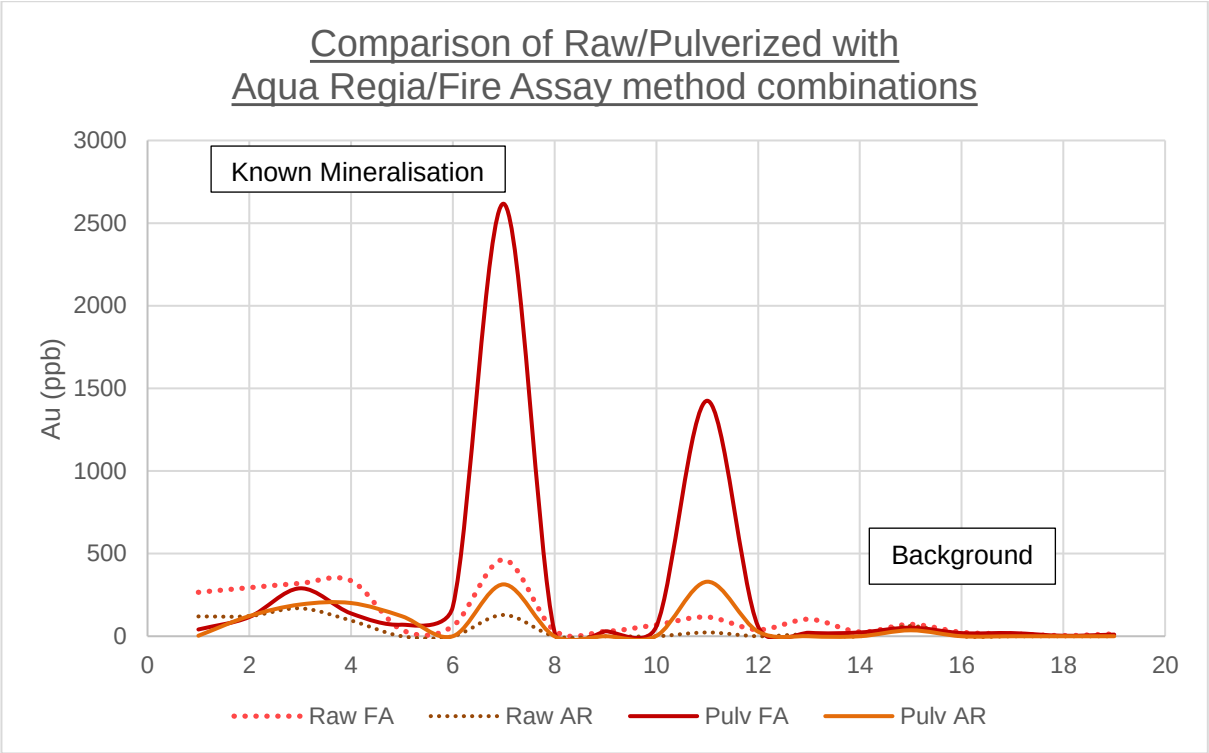

Figure 9:Trial analysis of 19 soil samples Raw/Pulverisation preparation and Fire Assay/ Aqua Regia analysis.

7.2. Sample Selection

In total, 7,895 soil samples (not including QAQC) were analysed for Au as part of the project.

A total of 3,887 (not including QAQC) soil samples were selected for a first round of submissions. Samples were selected based on key criteria or to maximize regional spatial coverage. A second round of samples totaling 1,900 (not including QAQC) expanded coverage over secondary priority areas and followed up on anomalies identified in the first round of submissions.

A third and final round of samples totalling 2,108 (not including QAQC) was submitted to complete detailed infill amongst areas of anomalism which had limited (or broadly spaced) results.

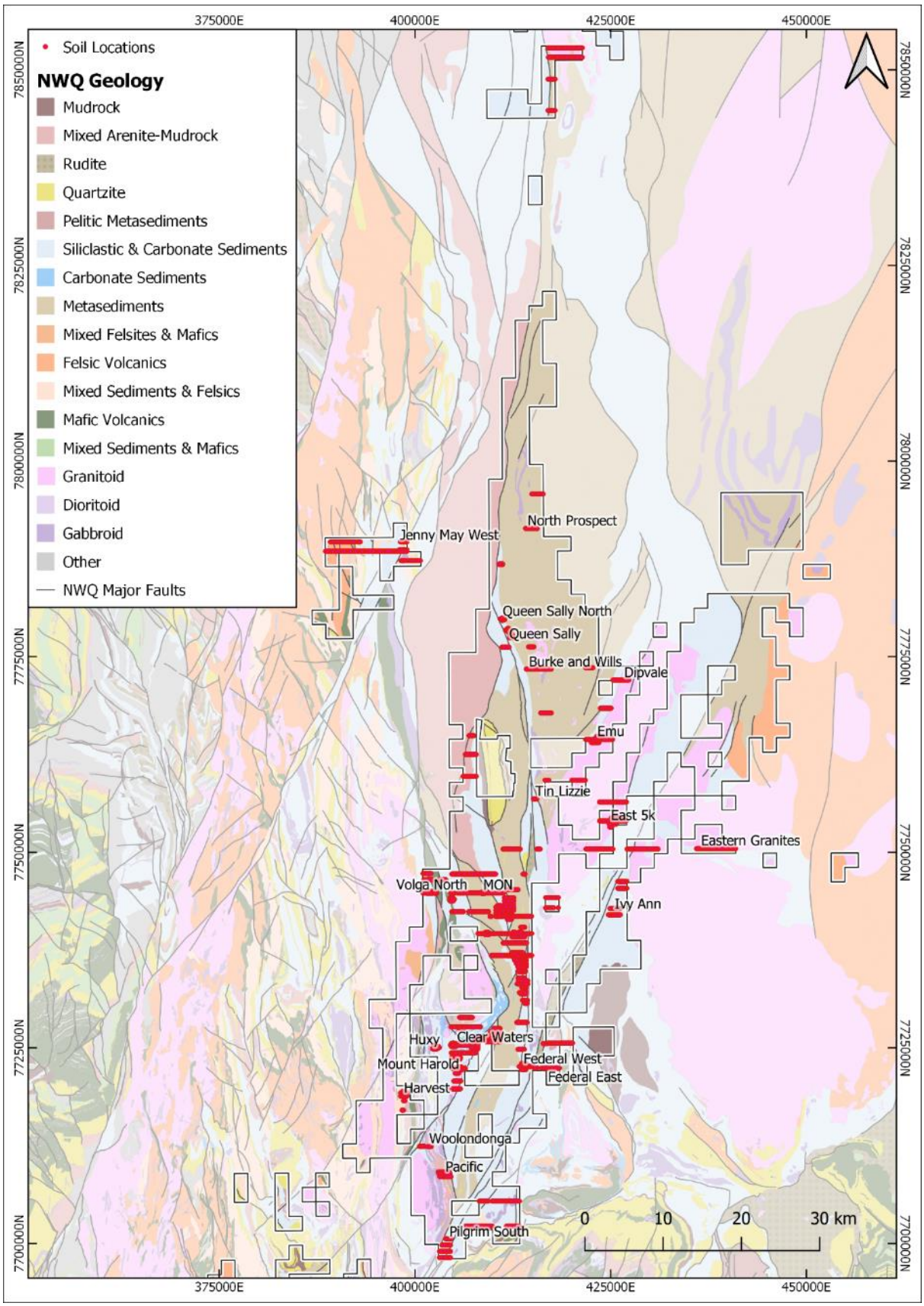

Figure 10: Distribution of soil samples selected for analysis in this project.

8. RESULTS

8.1. Statistical Overview of Assays

A summary of binned gold results is provided in Table 2. This data is also presented in box and whisker plot in Figure 11. A large percentage of samples returned values below the 1ppb limit of detection with 89.4% of results returning values less than 10ppb and 95.1% of samples returning results less than 20ppb. With an assumed value of 0.5 ppb for all results less than the 1ppb detectable limit, the median result was 1.0 ppb (Figure 11). With below detectable limit results removed from the analysis a median of 3.4 ppb was obtained (Figure 12).

For the purposes of discussion and analysis, any result above 10ppb was consider anomalous and any result greater than 40ppb considered highly significant. This is consistent with observations

Table 2 Summary results for ranged bins of gold assays.

Bin (ppb)	Count	%	Cumulative %
<BDL (1)	3257	41.0%	41.0%
1<3	1773	22.3%	63.3%
3<6	1410	17.7%	81.0%
6<10	667	8.4%	89.4%
10<20	447	5.6%	95.1%
20<40	235	3.0%	98.0%
40<60	56	0.7%	98.7%
60<80	32	0.4%	99.1%
80<100	20	0.3%	99.4%
100<120	13	0.2%	99.5%
120<140	4	0.1%	99.6%
140<	32	0.4%	100.0%

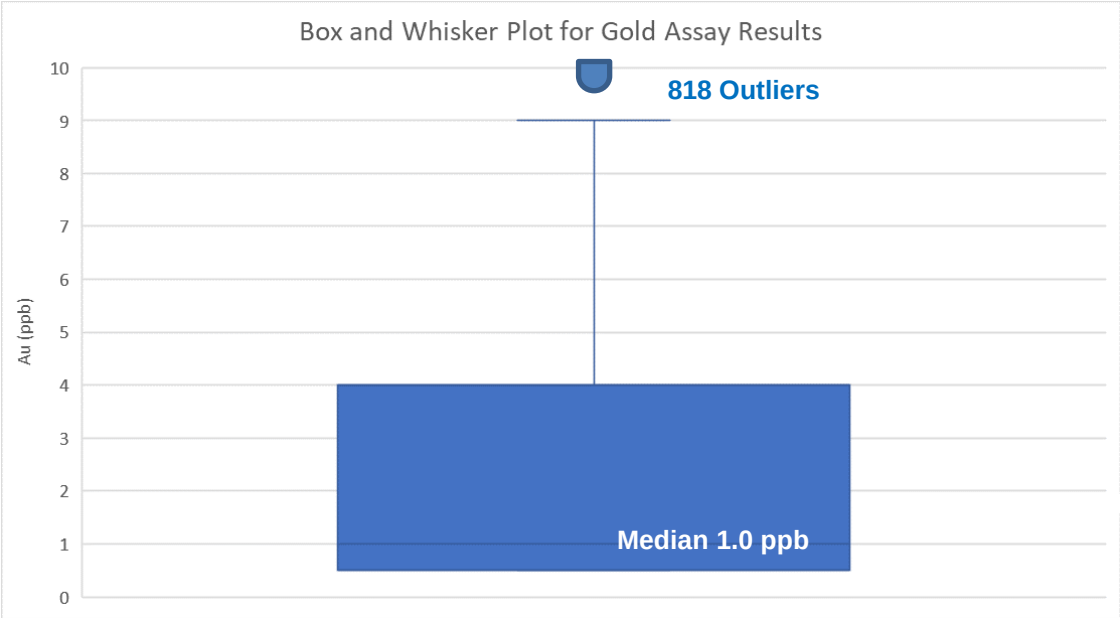

Figure 11 Box and Whisker plot for gold assay results. 3,257 assays below detectable limit of 1ppb assumed value of 0.5ppb. Upper extreme: 9ppb, 818 positive outliers.

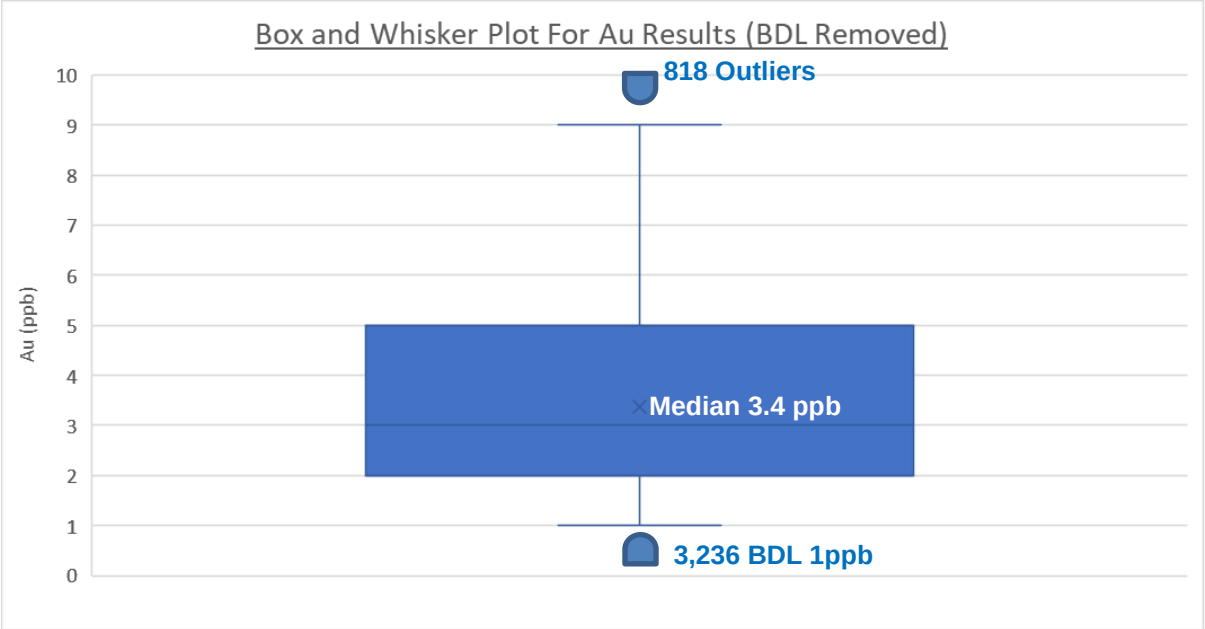

Figure 12 Box and Whisker plot for gold assay results. 3,257 assays below detectable limit of 1ppb removed from analysis. Upper extreme: 9ppb, lower extreme: 1ppb. 818 positive outliers.

8.2. Identified Targets

Thirty-seven areas returned a combined total of 387 samples reporting greater than 20 ppb Au. The highest gold value returned for the program was 19.26 g/t (19,260 ppb), from the far southern extent of the Companion prospect. Full assay results are provided in Appendix 1.

The total count of anomalous samples (> 20 ppb Au) and highest two results from each prospect are summarised in Table 3 below with sample locations illustrated in Figure 14 through Figure 49.

Six targets have been ranked 'very high' priority and a further ten targets as 'high' priority. All very high and high priority targets have geochemistry signatures that may indicate proximity to a high tenor gold target with small footprints such as the Tick Hill mine.

Table 3:Targets ranked by gold anomalism. Please note that bracketed values represent alternate prospect names.

Nearby Prospect	Geology	Max Au ppb	2nd Max Au ppb	Count of samples >20 ppb Au	Priority
Companion (C1)	Mount Roseby Schist	19,264	374	31	Very High
Cameron (C40)	Lady Clayre Fm in contact with Mount Roseby Schist	298	298	19	
Cameron West (31)	Lady Clayre Fm contact with Corella Fm	2,807	333	51	
Queen Sally	Boomarra Metamorphics in contact with Corella Fm to the west	634	585	30	
Clear Waters	Corella Fm	542	229	3	
Red Dwarf (C27)	Western margin of Rose Bee Fault within Mount Roseby Schist	93	80	5	
Good Luck (C24)	Junction of Lady Clayre Fm, Corella Fm and Mount Roseby Schist	427	117	17	High
Brolga (C8)	Western margin of Rose Bee Fault along contact of Mount Roseby Schist and Corella Fm	316	105	10	
MON	Mount Roseby Schist west of Pinnacle Fault	272	49	4	
Harvest	Along contact of Argylla Fm with Balarra Quartzite (east) and Corella Fm	246	187	20	
Mount Harold	Corella Fm associated with Dolerite intrusives, proximal to Mount Philip-type breccia	206	117	62	
Pinnacles (C12)	Contact of Lime Creek Metabasalt and Corella Fm/Ballara Quartzite	185	94	4	
Volga North	Corella Fm - contact with mafic along eastern margin	145	120	19	
Emu	Dipvale Granodiorite	144	102	18	
Burke and Wills	Boomarra Metamorphics in contact with Corella Fm to the west	125	-	1	
CC West (C7)	Mount Roseby Schist	104	65	3	
Huxy	Eastern margin of Burstall Granite within Corella Fm, associated with Dolerite intrusives	98	66	21	Medium

Nearby Prospect	Geology	Max Au ppb	2nd Max Au ppb	Count of samples >20 ppb Au	Priority
Federal West	Along and east of Rose Bee Fault and contact of Mount Roseby Schist with Corella Fm	93	48	2	
Reaper (C2)	Western margin of Rose Bee Fault along contact of Mount Roseby Schist and Corella Fm	74	70	21	
Cameronian (C13)	Corella Fm with minor Mount Philip-type breccia (Intrusive) associated with Wonga/Burstall Suite	71	33	7	
Gullivers Gossan (C22)	Western margin of Pinnacle Fault, contact along Mount Roseby Schist, Corella Fm and Lady Clayre Fm	64	42	6	
Pacific	West of Lady Clayre contact within Corella Fm associated with Wonga Granite+/-Dolerite Intrusives	62	48	9	
Woolondonga	Contact between Wonga Granite and Corella Fm	42	21	2	
North Prospect	Boomarra Metamorphics	39	-	1	
Queen Sally	Boomarra Metamorphics in contact with Corella Fm to the west	33	30	6	
Dipvale	Dipvale Granodiorite contact with Ballara Quartzite/Corella Fm	33	29	2	
Eastern Granites	Contact of Ballara Quartzite/Corella Fm with Malakoff Granite	33	-	1	
Pastime (C20)	Western Margin of Rose Bee Fault within Corella Fm	33	-	1	
Tin Lizzie	Ballara Quartzite/Corella Fm	32	21	2	
Federal East	Milo Beds east of Junction between Quamby Fault and Fountain Range Fault	29	22	2	Low
Edze (C10)	Within Corella Fm east of Roseby Fault	27	-	1	
Jenny May West	Ballara Quartzite proximal to Corella Fm contact to the west	26	-	1	
Pilgrim South	Corella Fm - between Fountain Range Fault, Pilgrim Fault Zone and Ballara Corella River Fault	26	-	1	
Hobby (C4)	Western Margin of Rose Bee Fault within Corella Fm	25	-	1	
East 5k	Dipvale Granodiorite proximal to Croella Fm contact and east of the Quamby Fault	23	22	2	

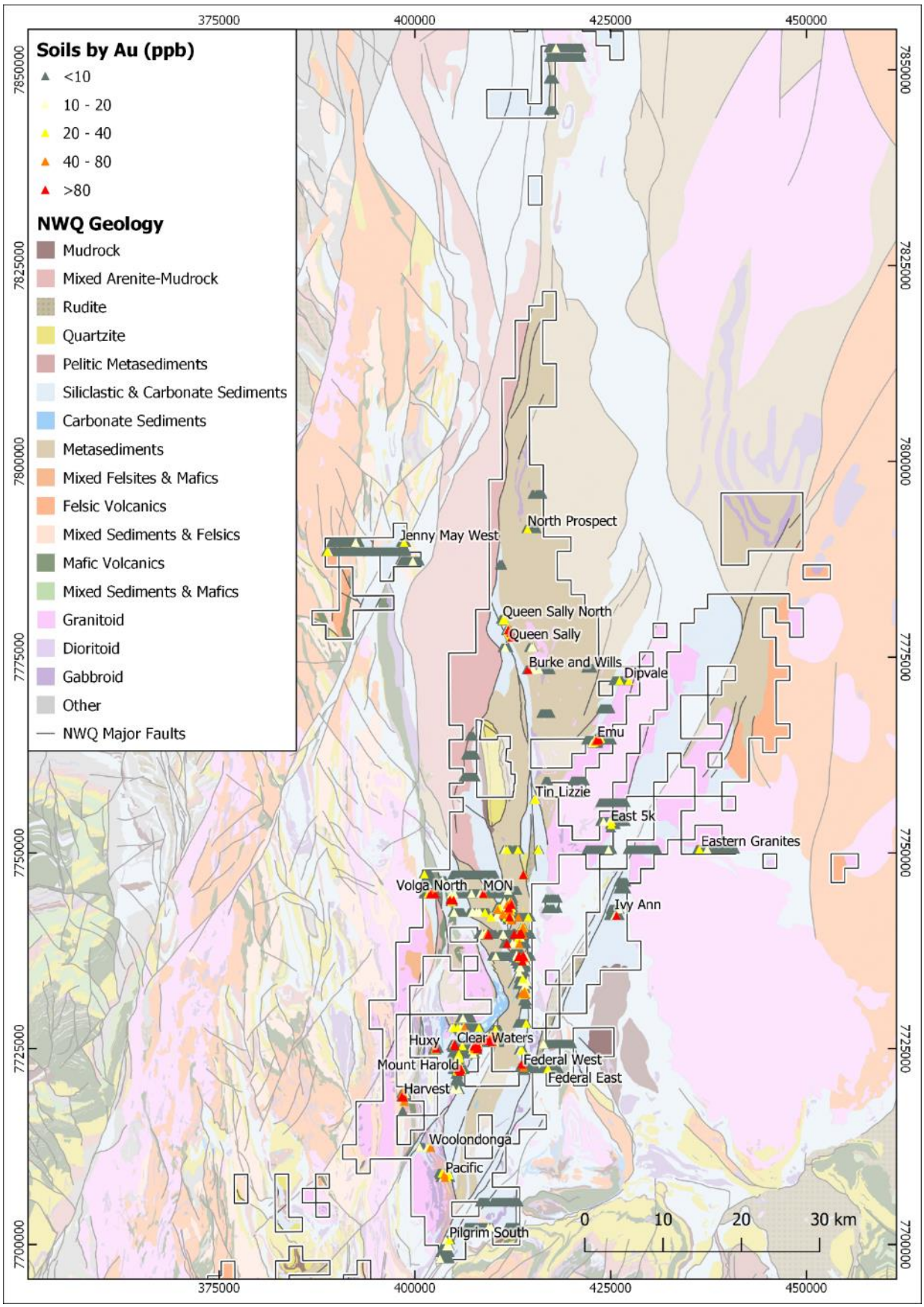

Figure 13: Result location coded by colour with key target areas over regional geology.

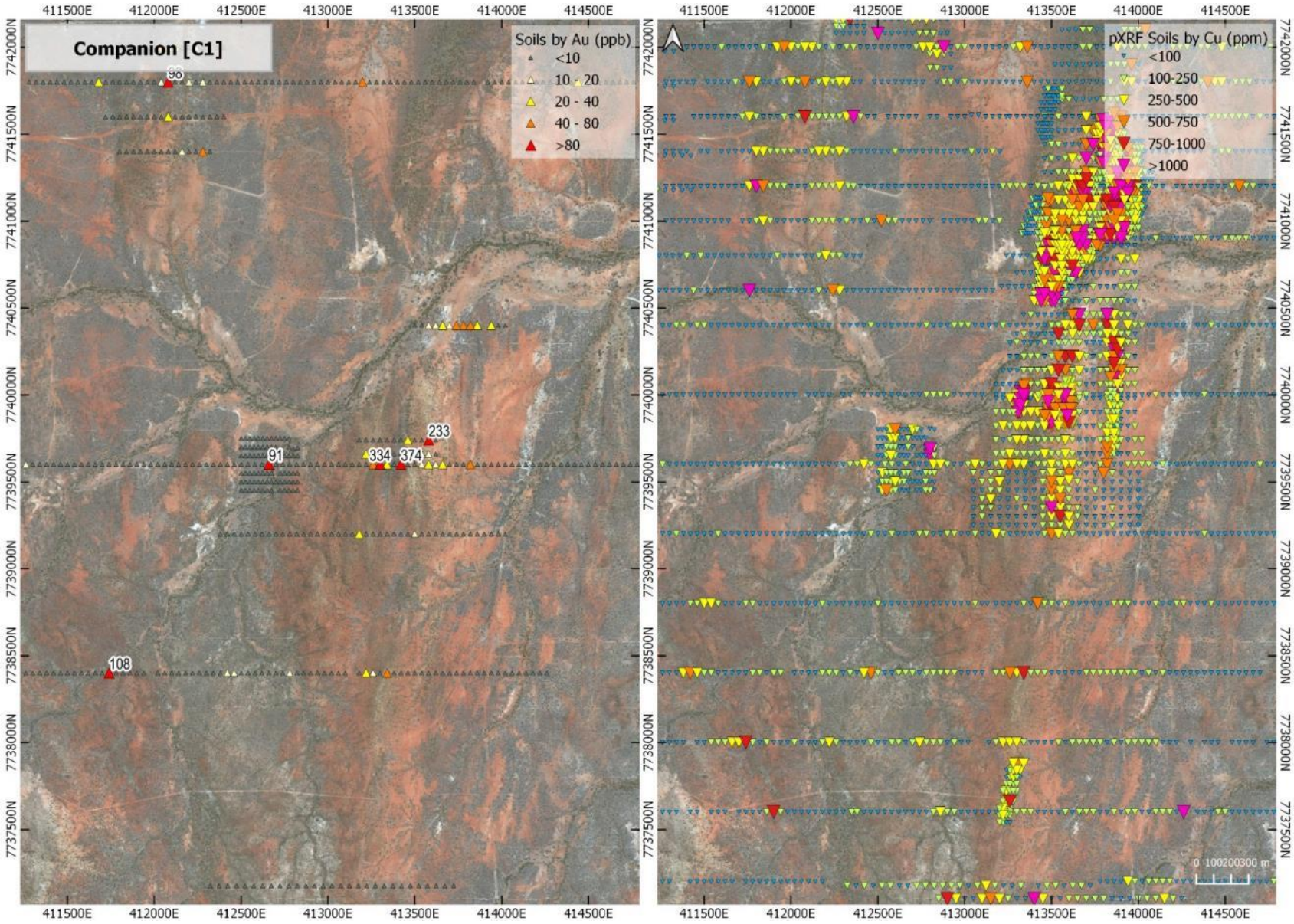

Figure 14: Gold in soils (Left) & pXRF Cu in soils (Right) at the Companion Prospect.

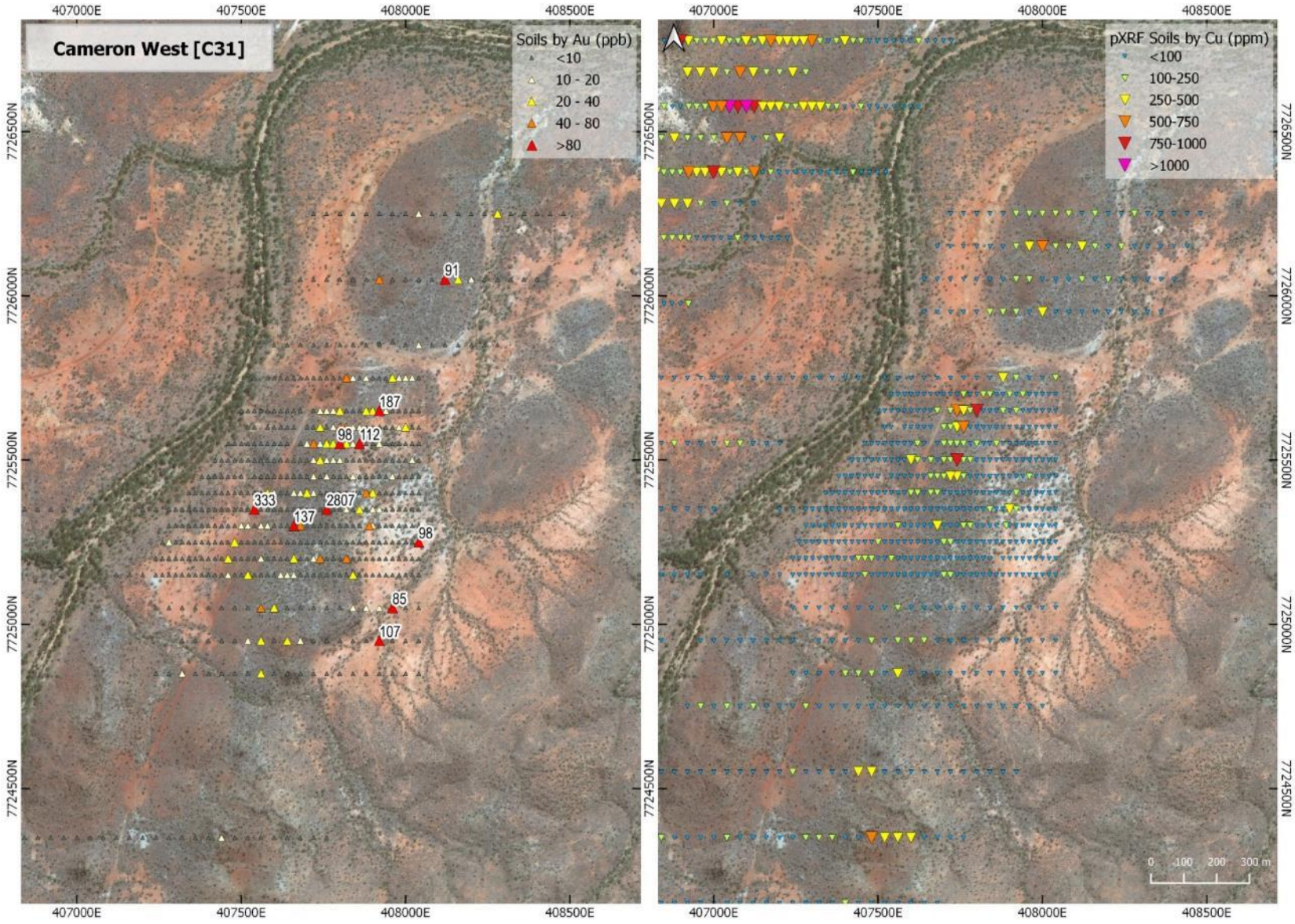

Figure 15: Gold in soils (Left) & pXRF Cu in soils (Right) at the Cameron West Prospect.

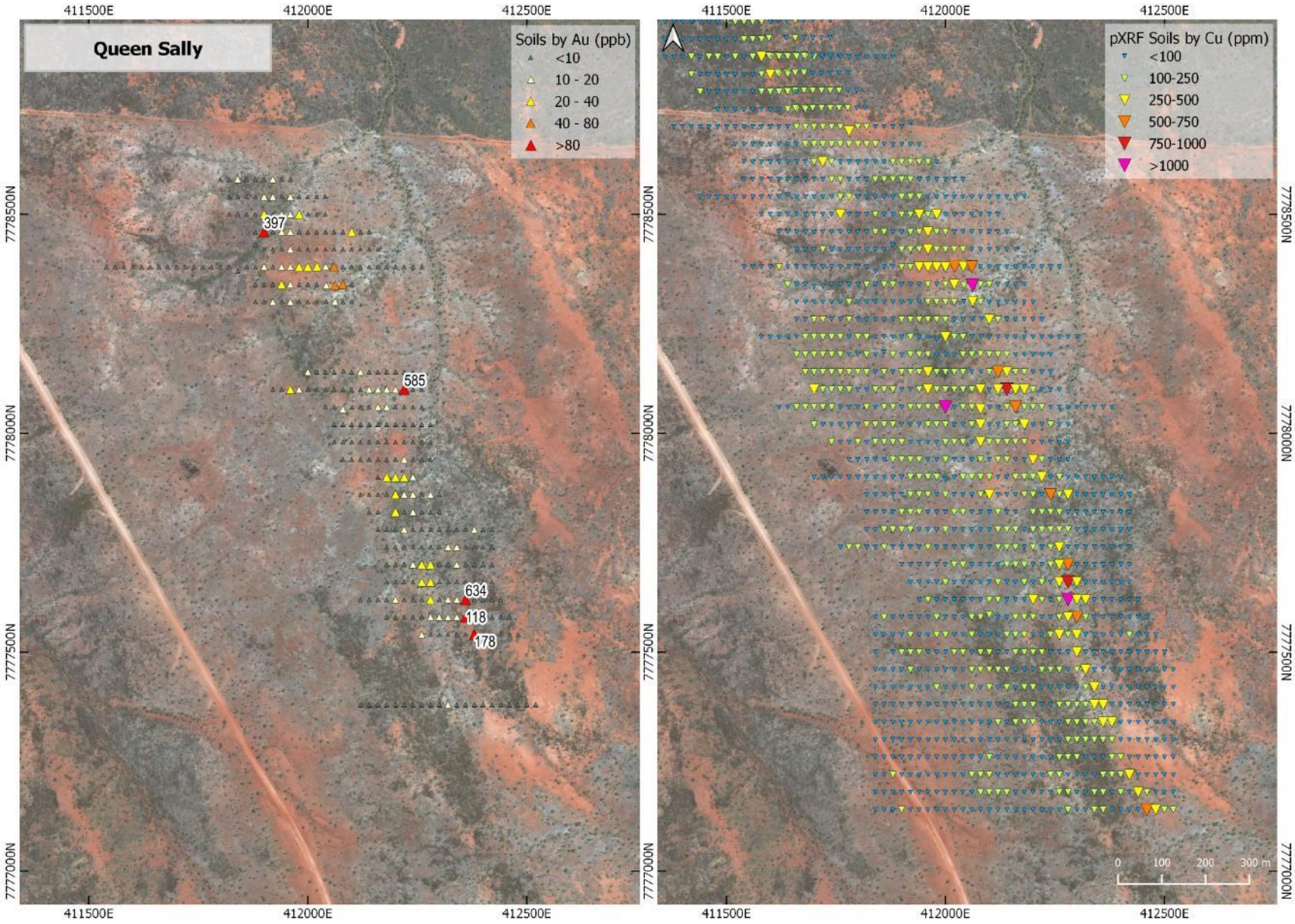

Figure 16: Gold in soils (Left) & pXRF Cu in soils (Right) at the Queen Sally Prospect.

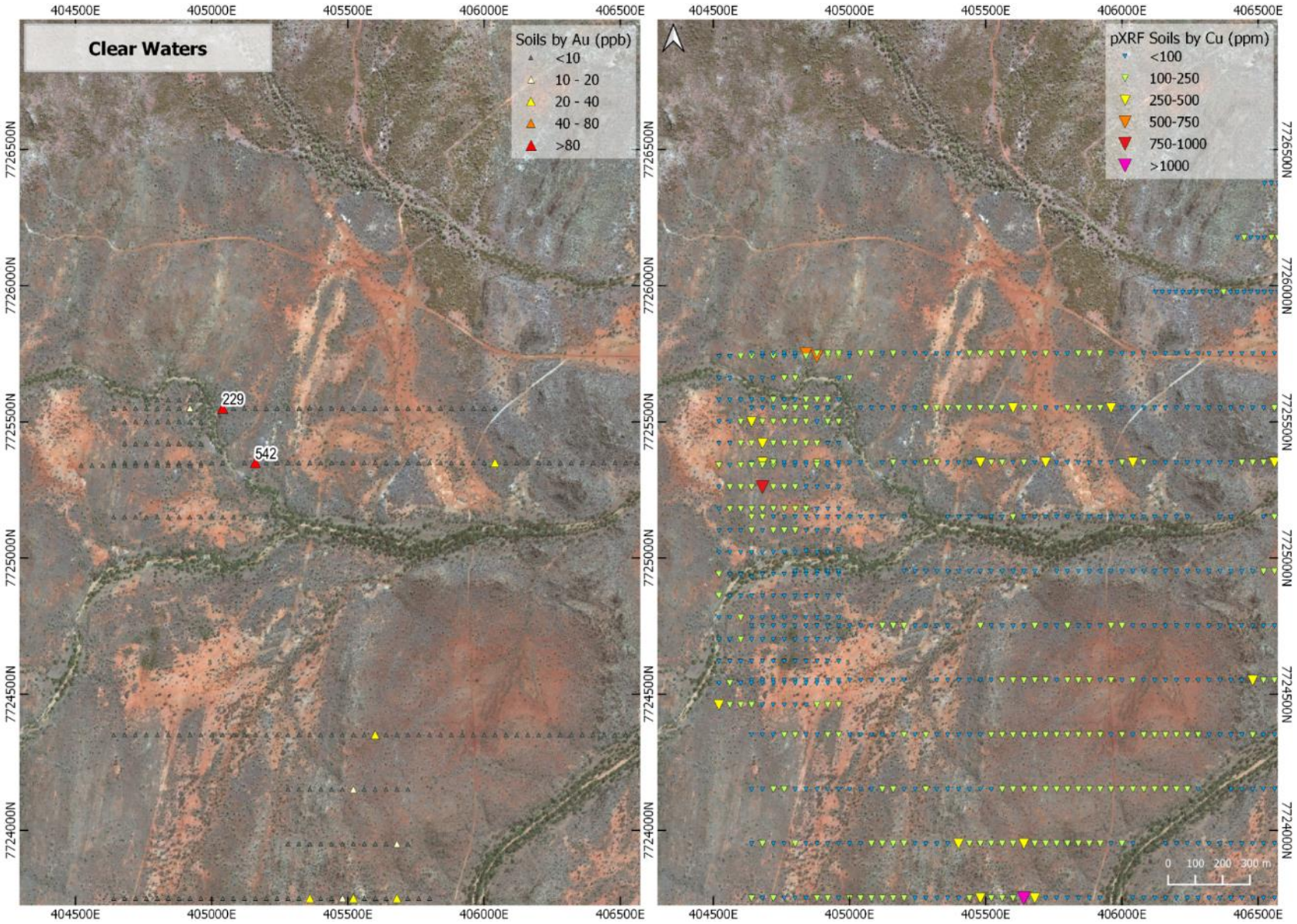

Figure 17: Gold in soils (Left) & pXRF Cu in soils (Right) at the Clear Waters Prospect.

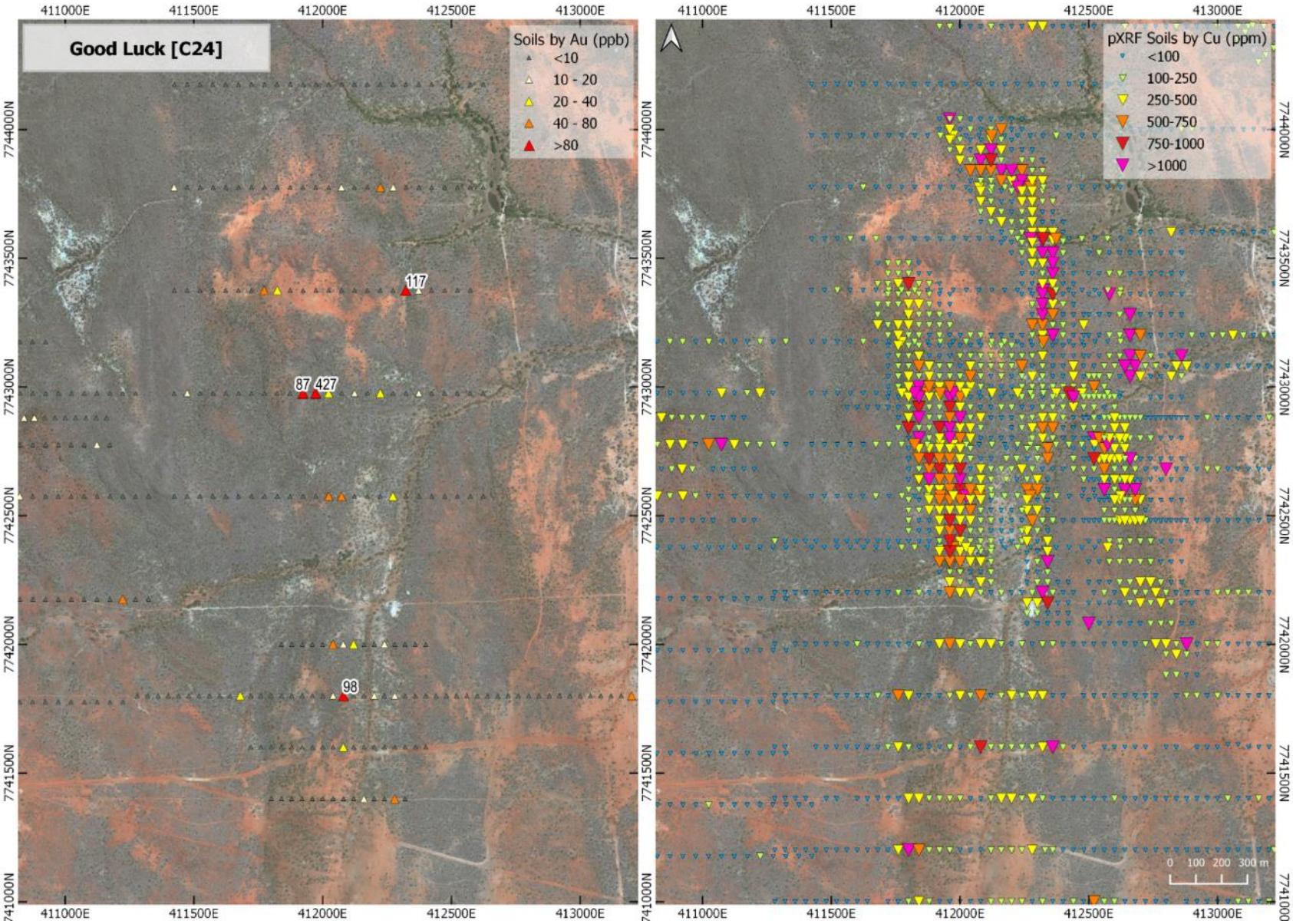

Figure 18: Gold in soils (Left) & pXRF Cu in soils (Right) at the Good Luck Prospect.

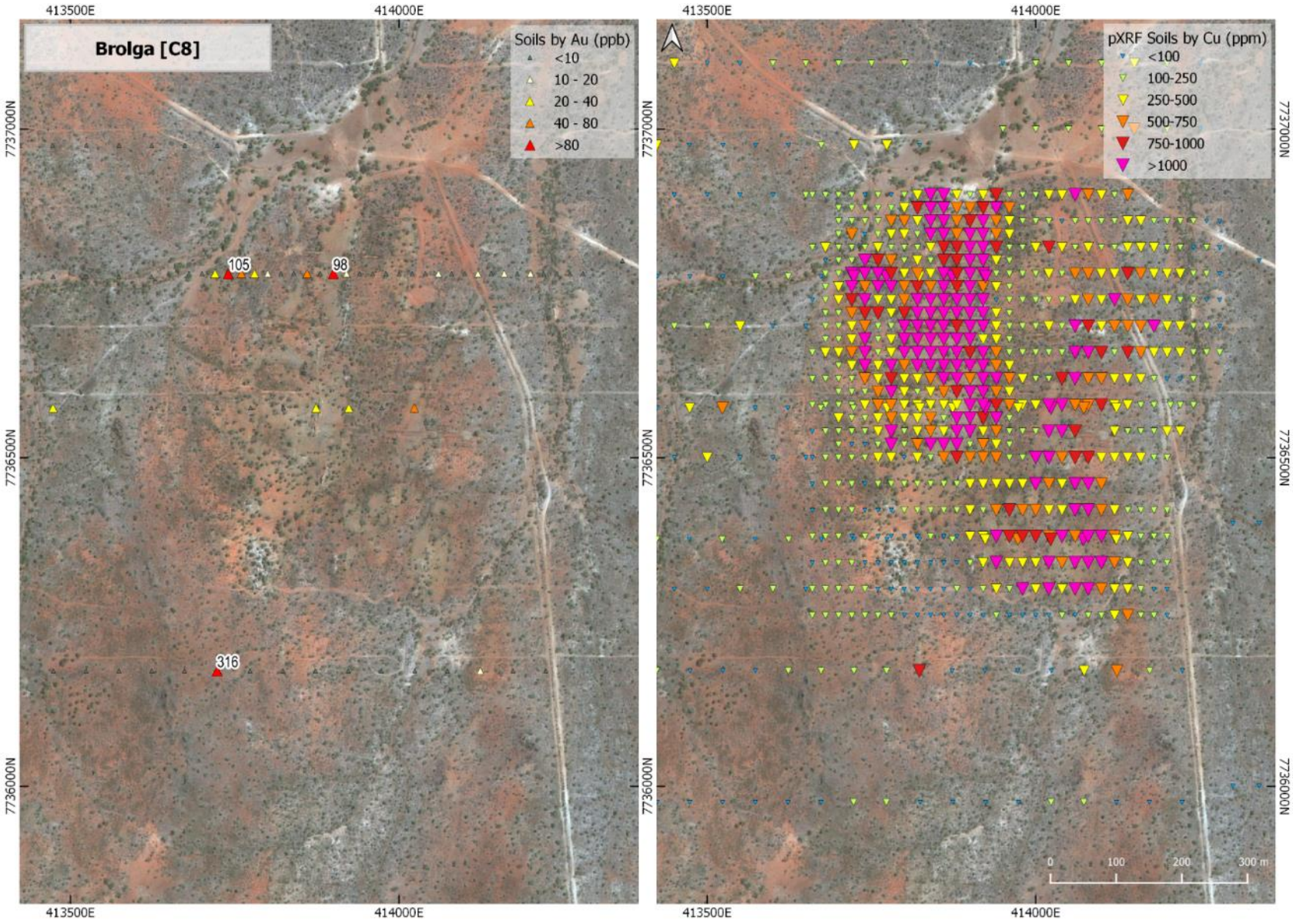

Figure 19: Gold in soils (Left) & pXRF Cu in soils (Right) at the Brolga Prospect.

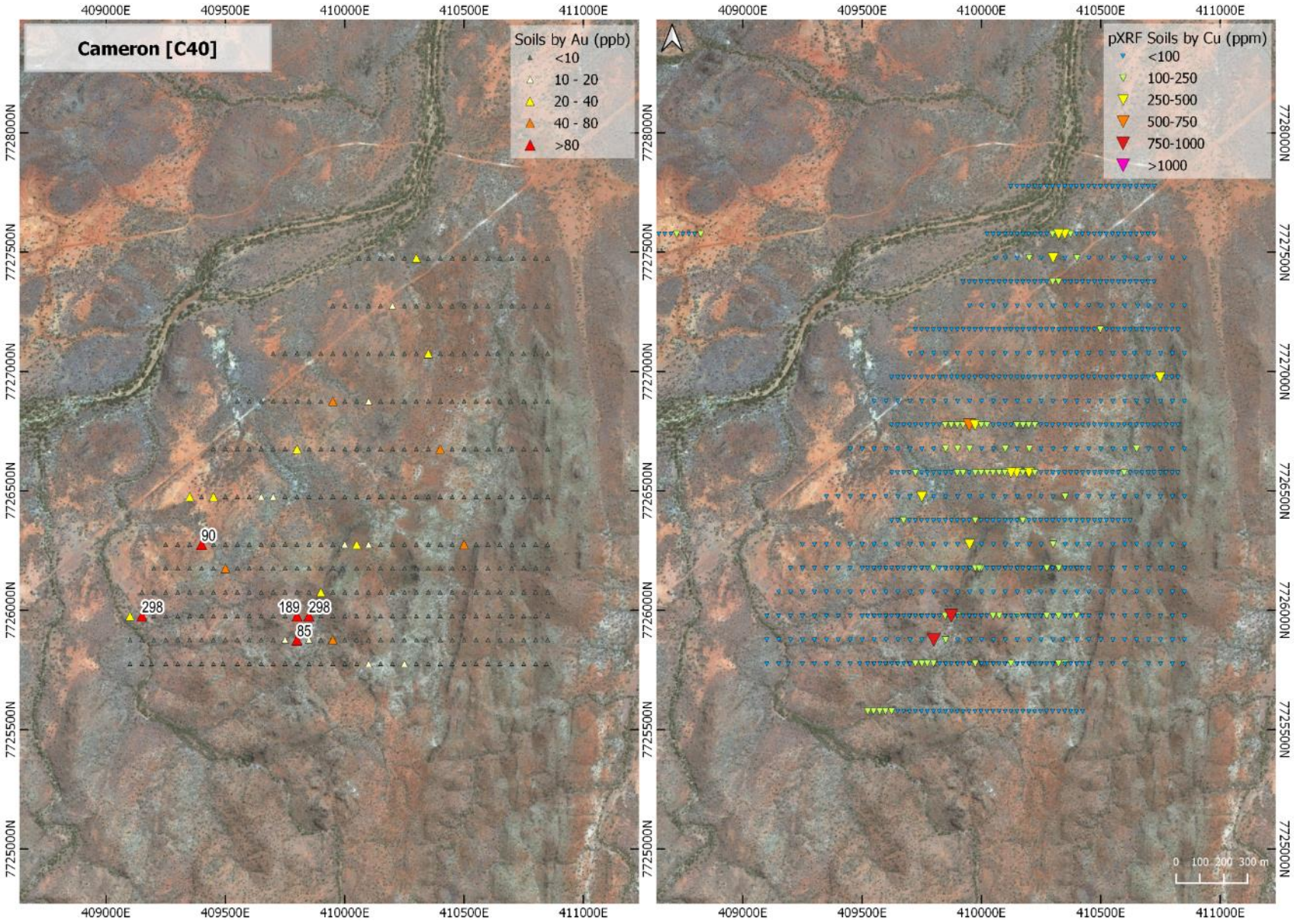

Figure 20: Gold in soils (Left) & pXRF Cu in soils (Right) at the Cameron Prospect.

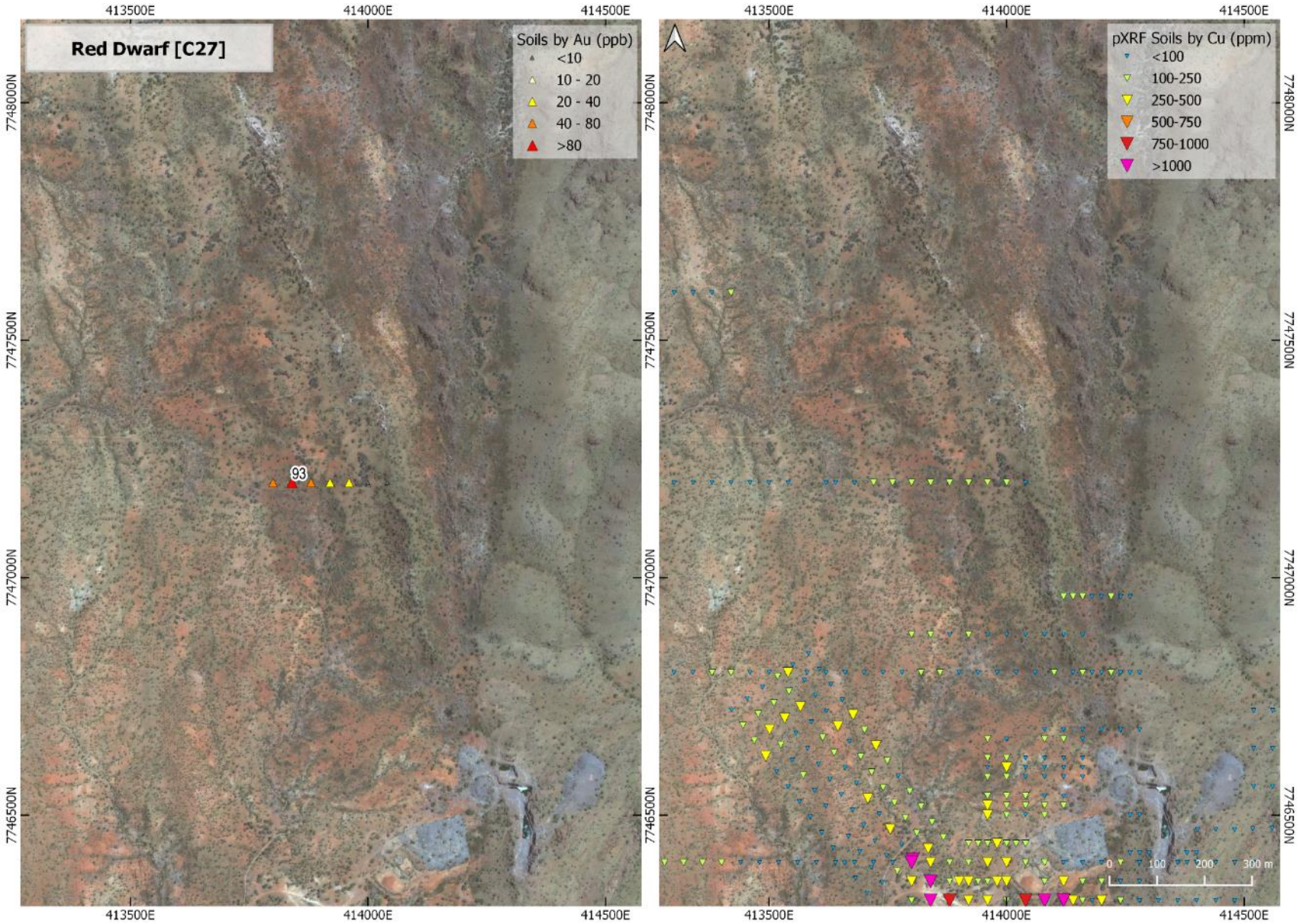

Figure 21: Gold in soils (Left) & pXRF Cu in soils (Right) at the Red Dwarf Prospect.

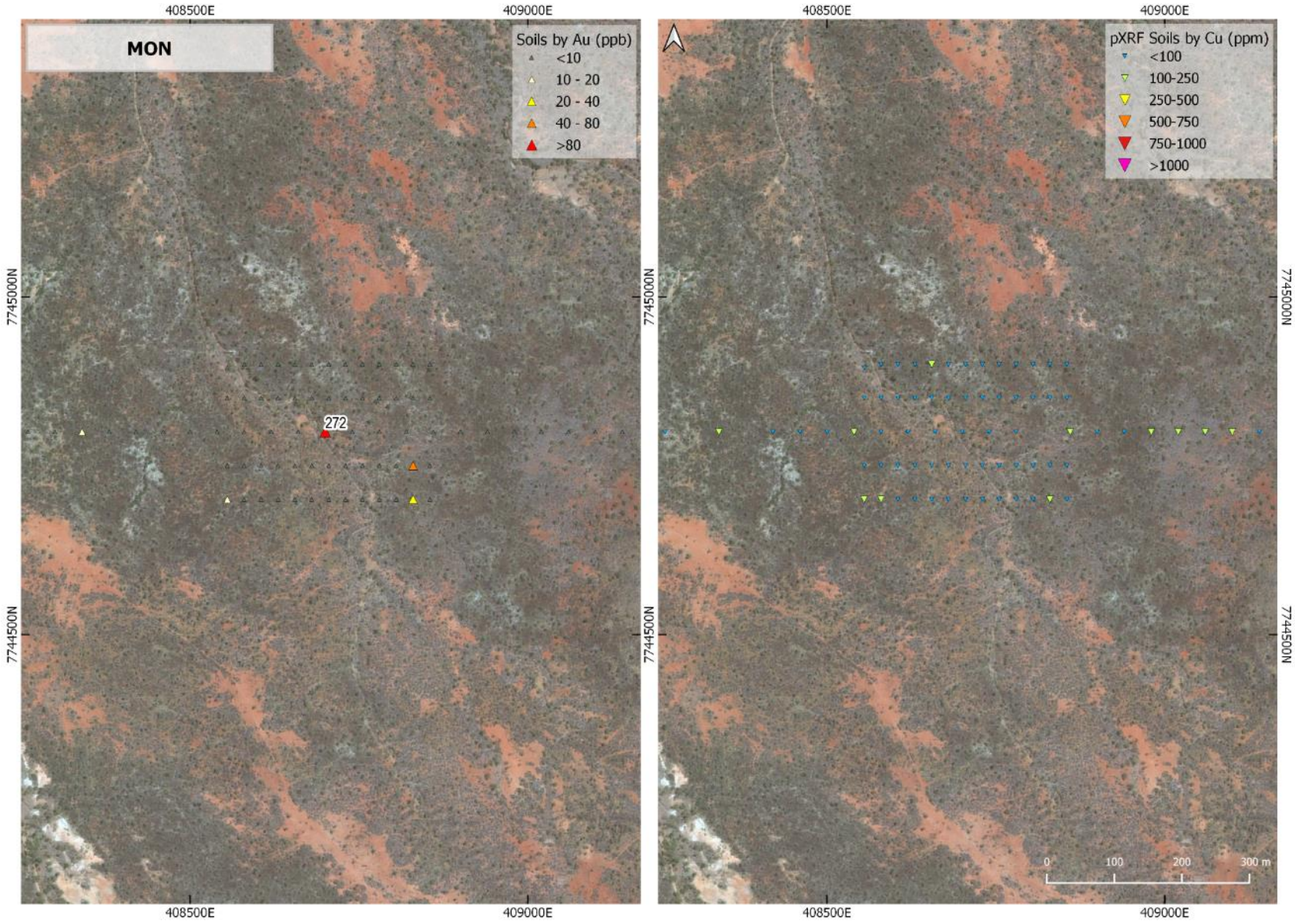

Figure 22: Gold in soils (Left) & pXRF Cu in soils (Right) at the MON Prospect.

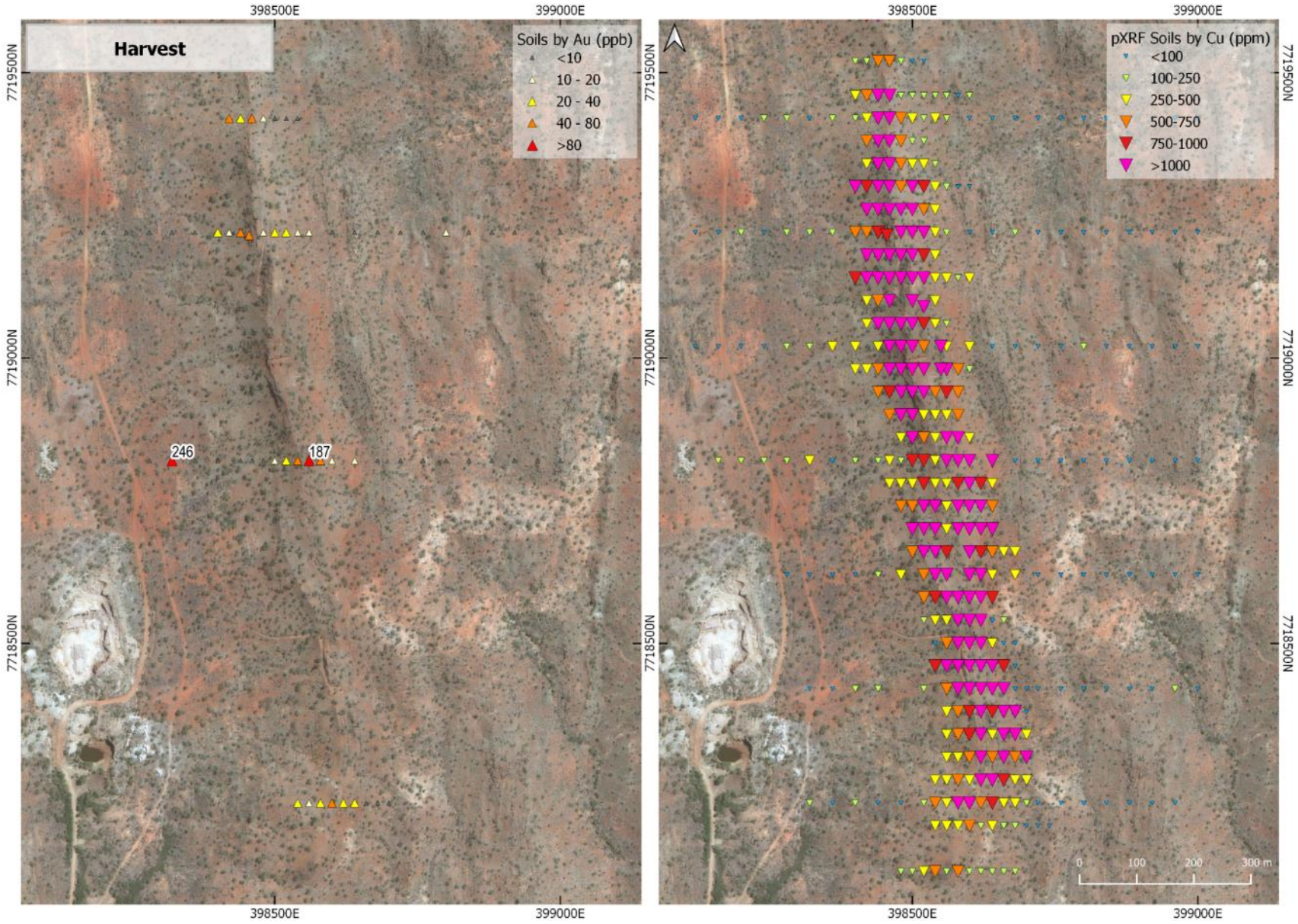

Figure 23: Gold in soils (Left) & pXRF Cu in soils (Right) at the Harvest Prospect.

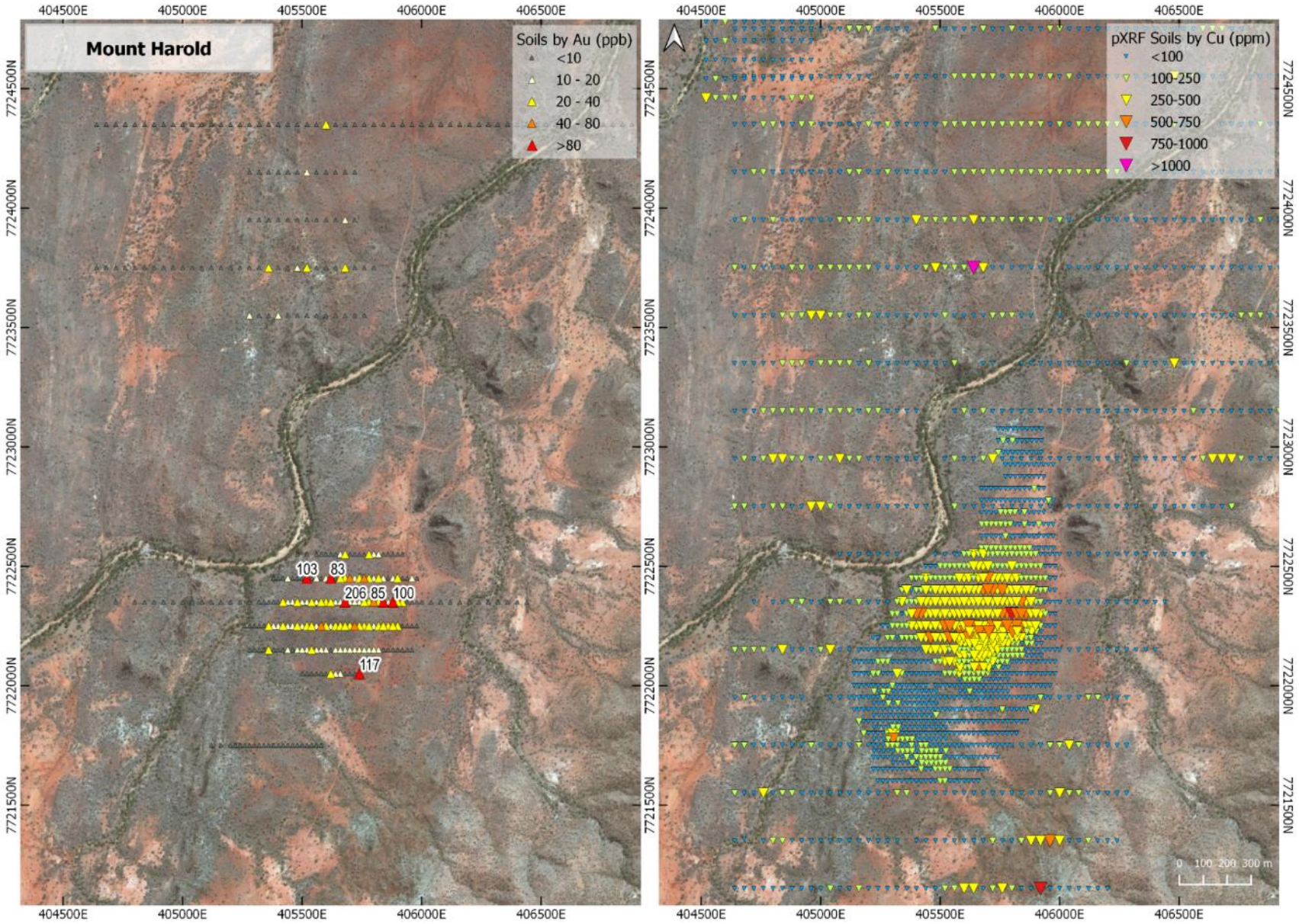

Figure 24: Gold in soils (Left) & pXRF Cu in soils (Right) at the Mount Harold Prospect.

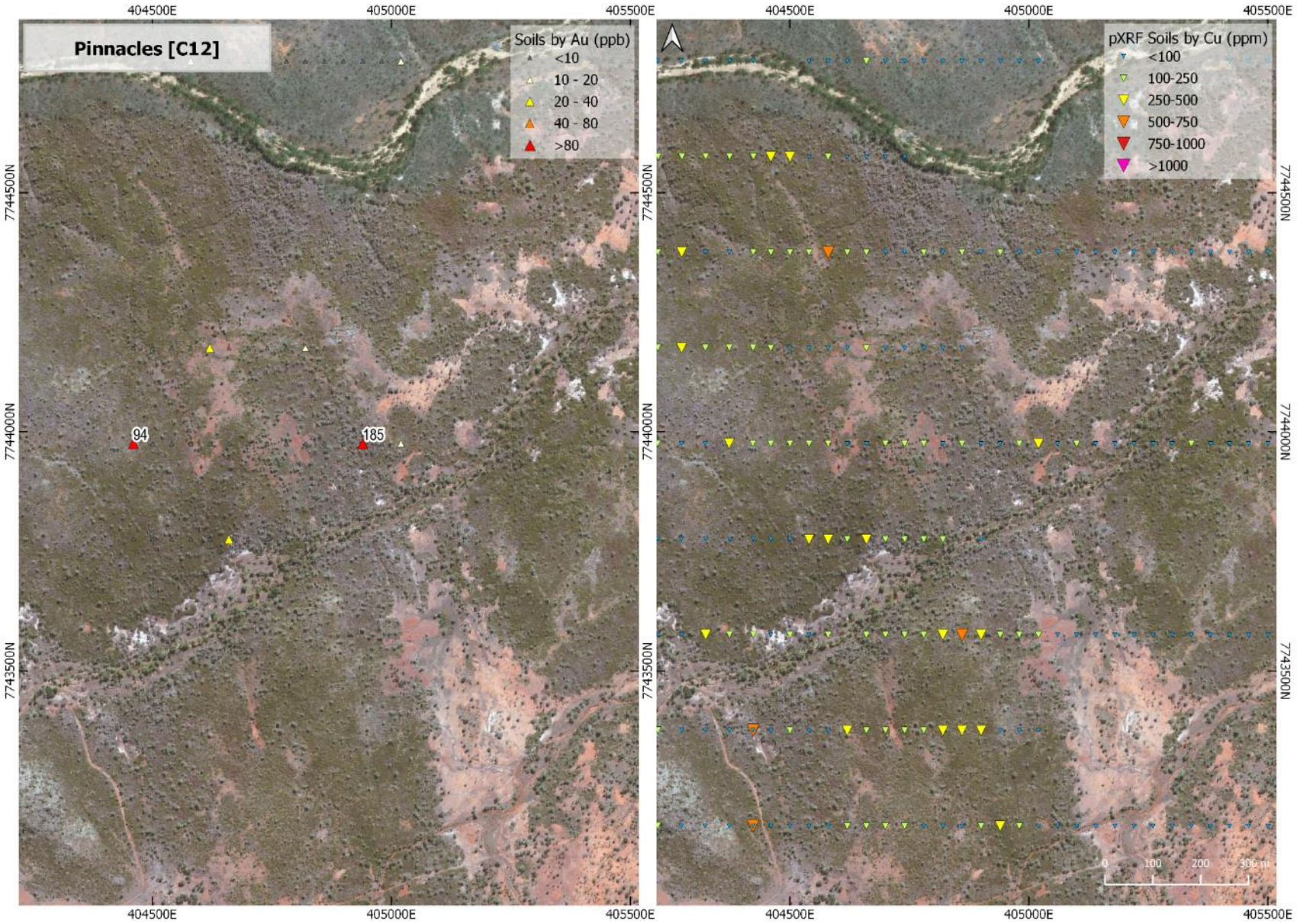

Figure 25: Gold in soils (Left) & pXRF Cu in soils (Right) at the Pinnacles Prospect.

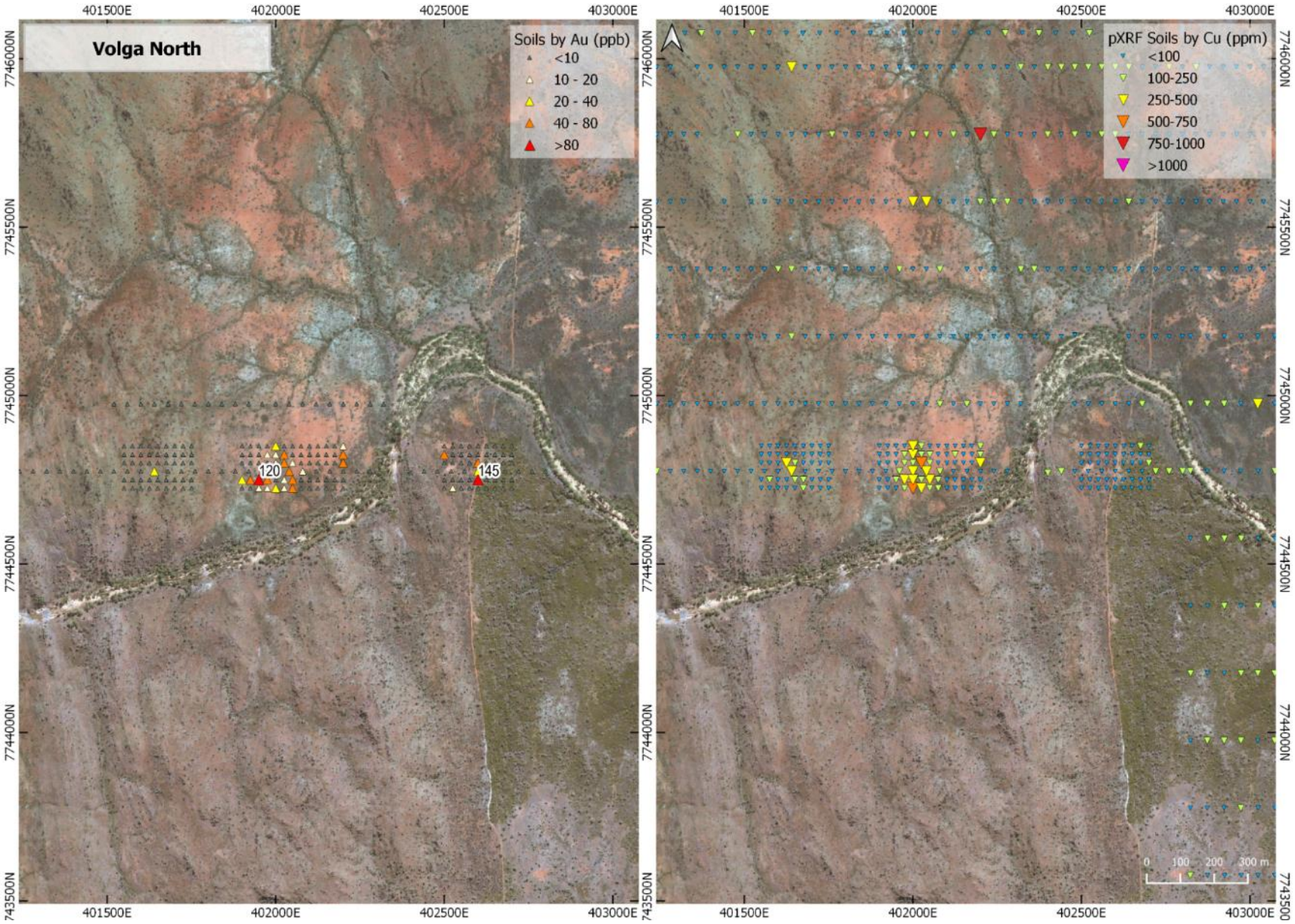

Figure 26: Gold in soils (Left) & pXRF Cu in soils (Right) at the Volga North Prospect.

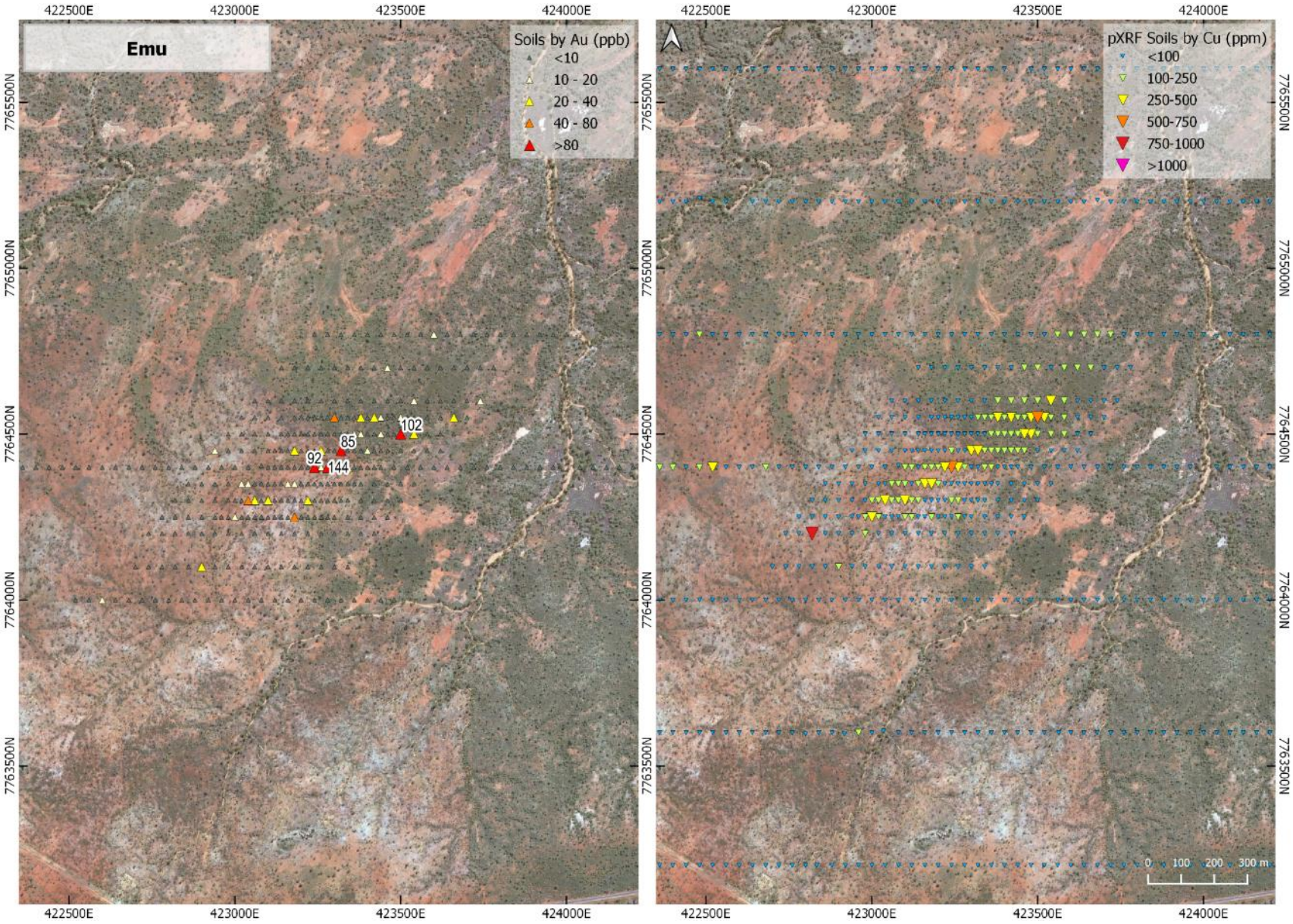

Figure 27: Gold in soils (Left) & pXRF Cu in soils (Right) at the Emu Prospect.

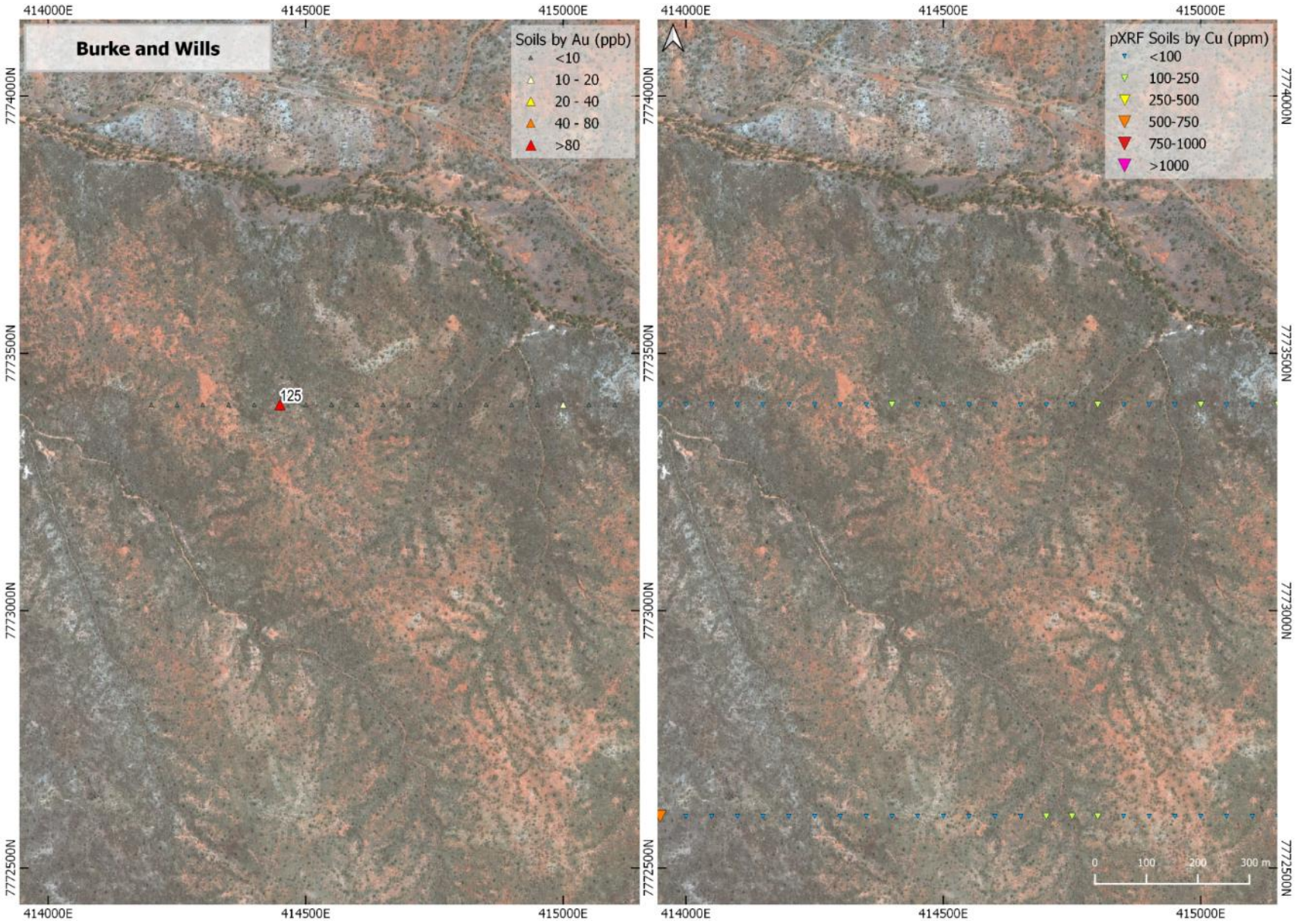

Figure 28: Gold in soils (Left) & pXRF Cu in soils (Right) at the Burke and Wills Prospect.

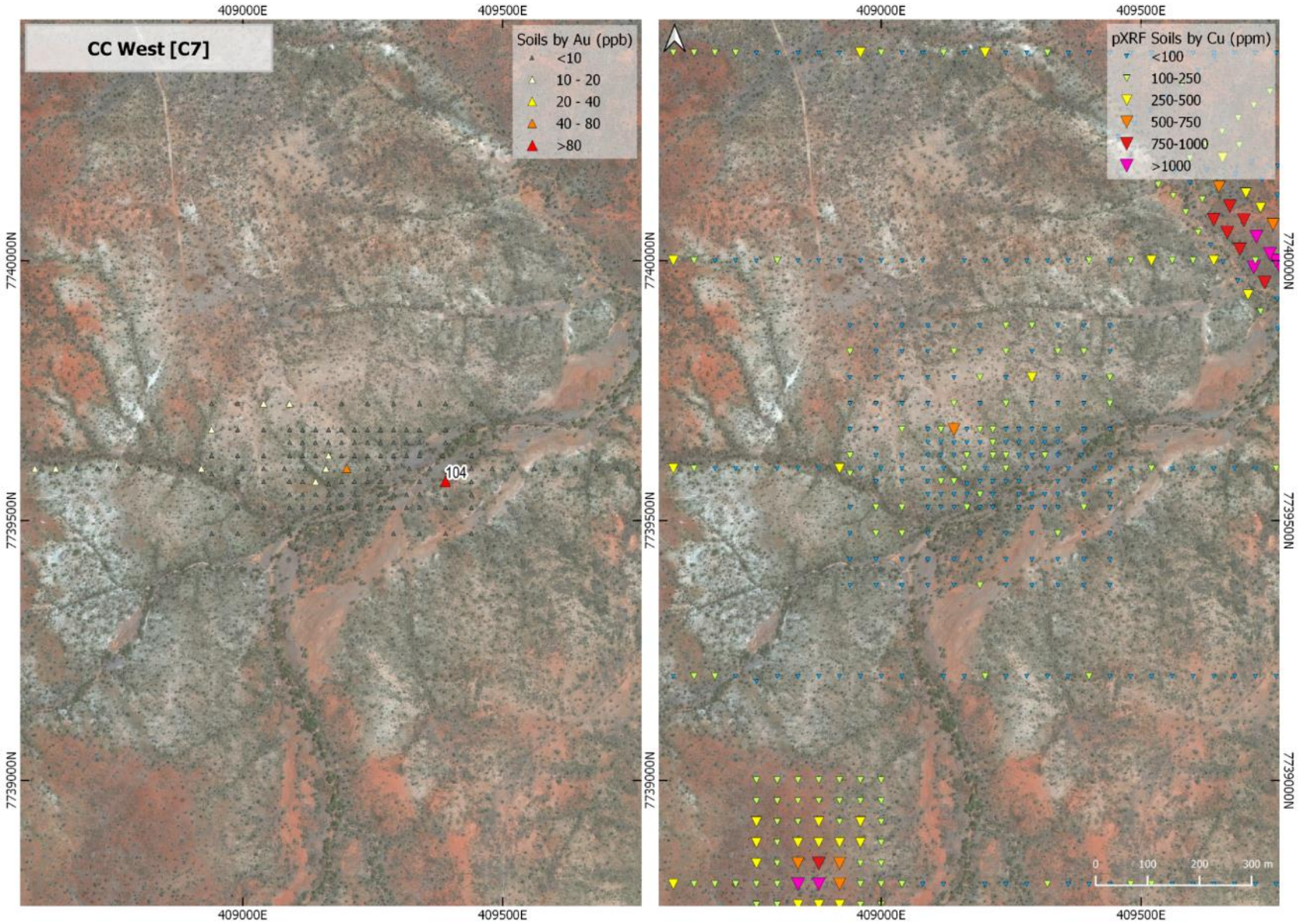

Figure 29: Gold in soils (Left) & pXRF Cu in soils (Right) at the CC West Prospect.

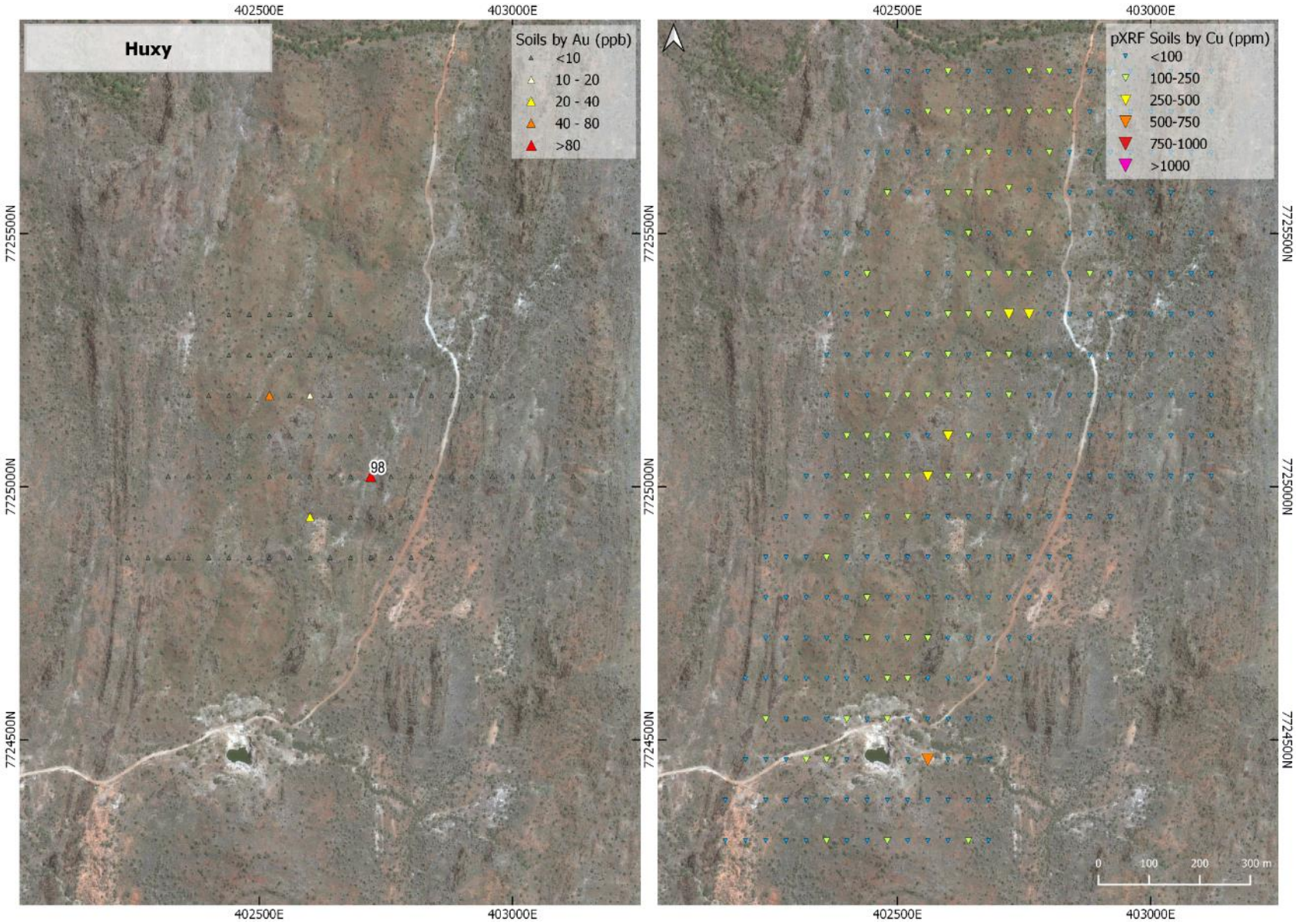

Figure 30: Gold in soils (Left) & pXRF Cu in soils (Right) at the Huxy Prospect.

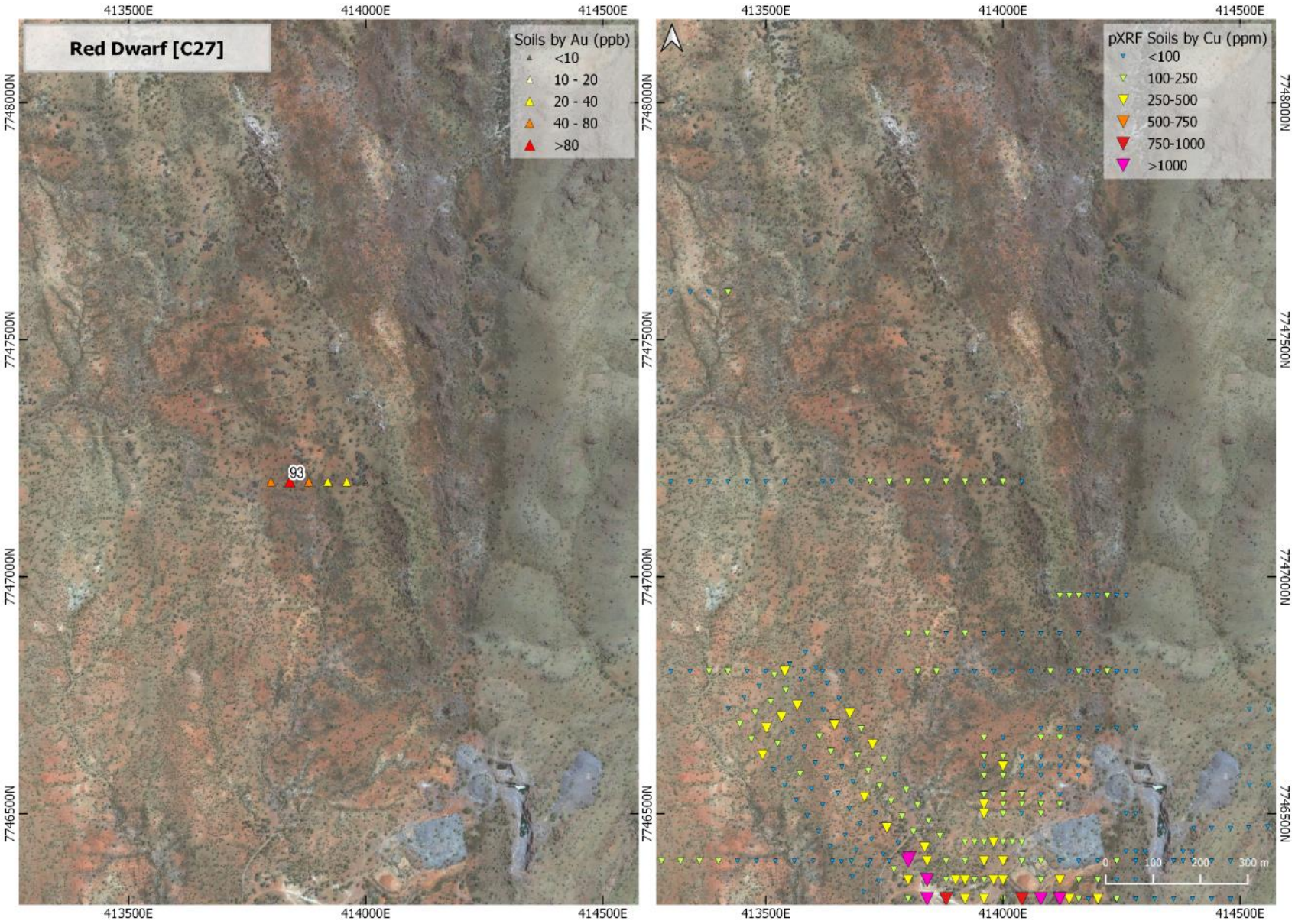

Figure 31: Gold in soils (Left) & pXRF Cu in soils (Right) at the Red Dwarf Prospect.

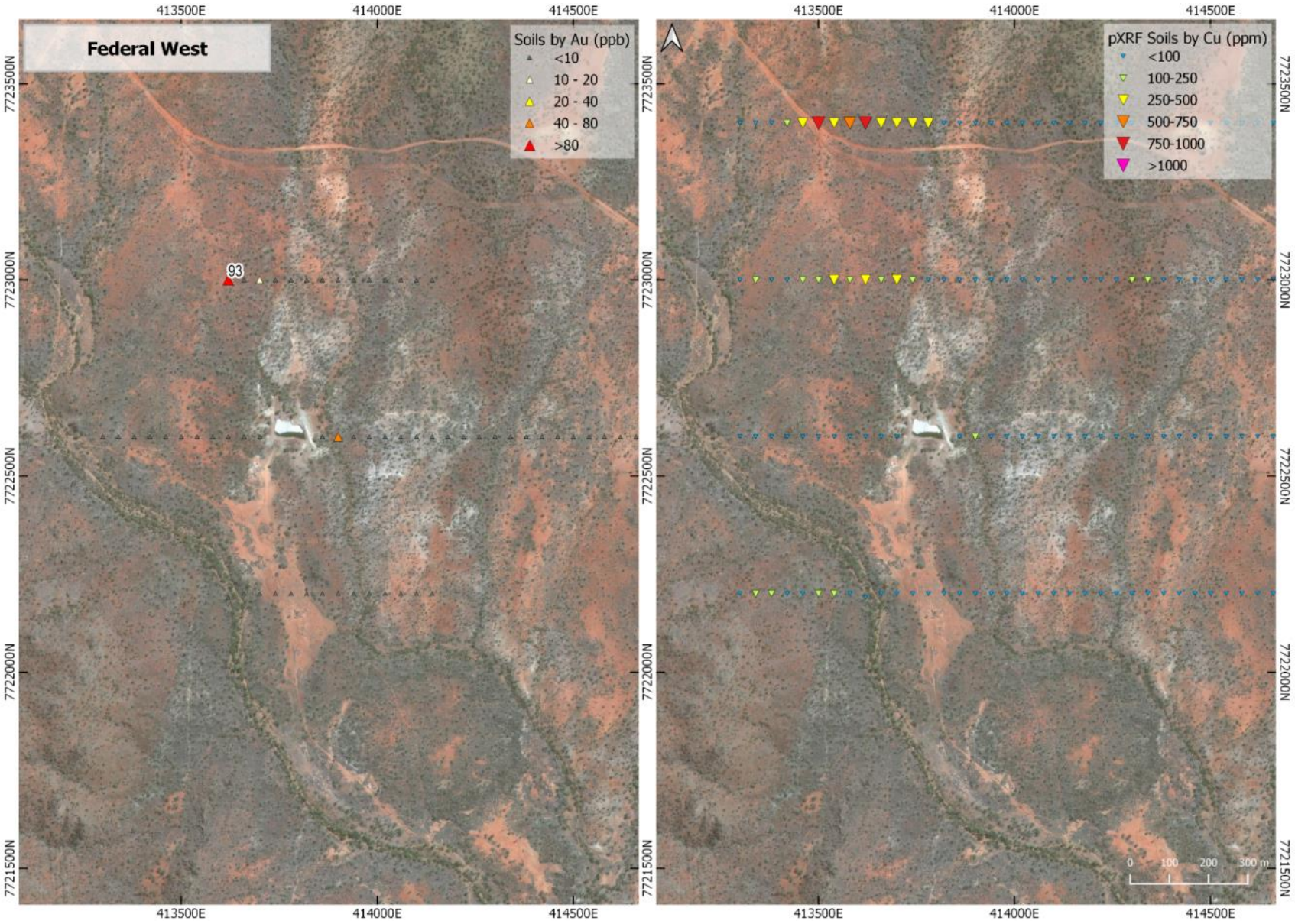

Figure 32: Gold in soils (Left) & pXRF Cu in soils (Right) at the Federal West Prospect.

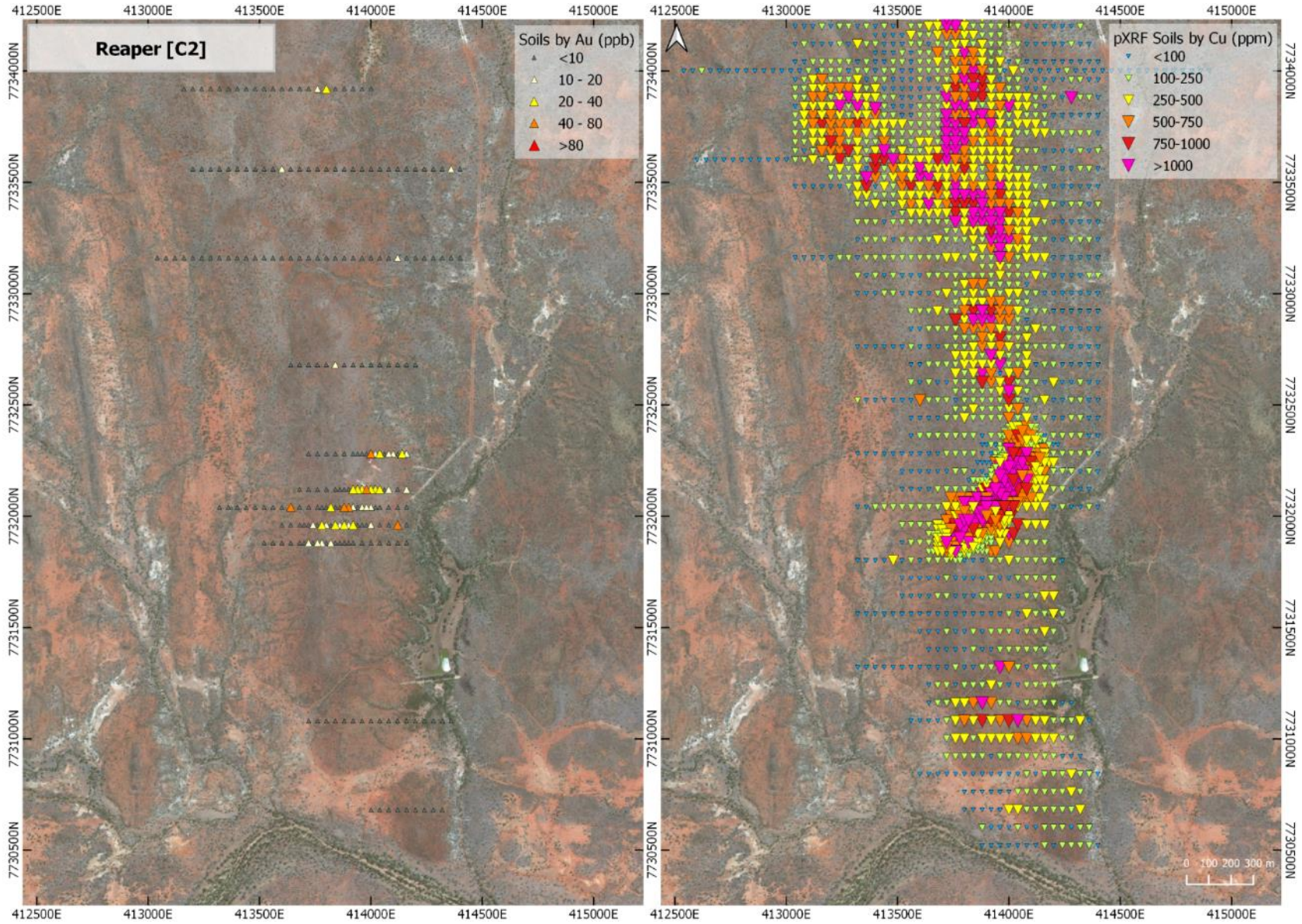

Figure 33: Gold in soils (Left) & pXRF Cu in soils (Right) at the Reaper Prospect.

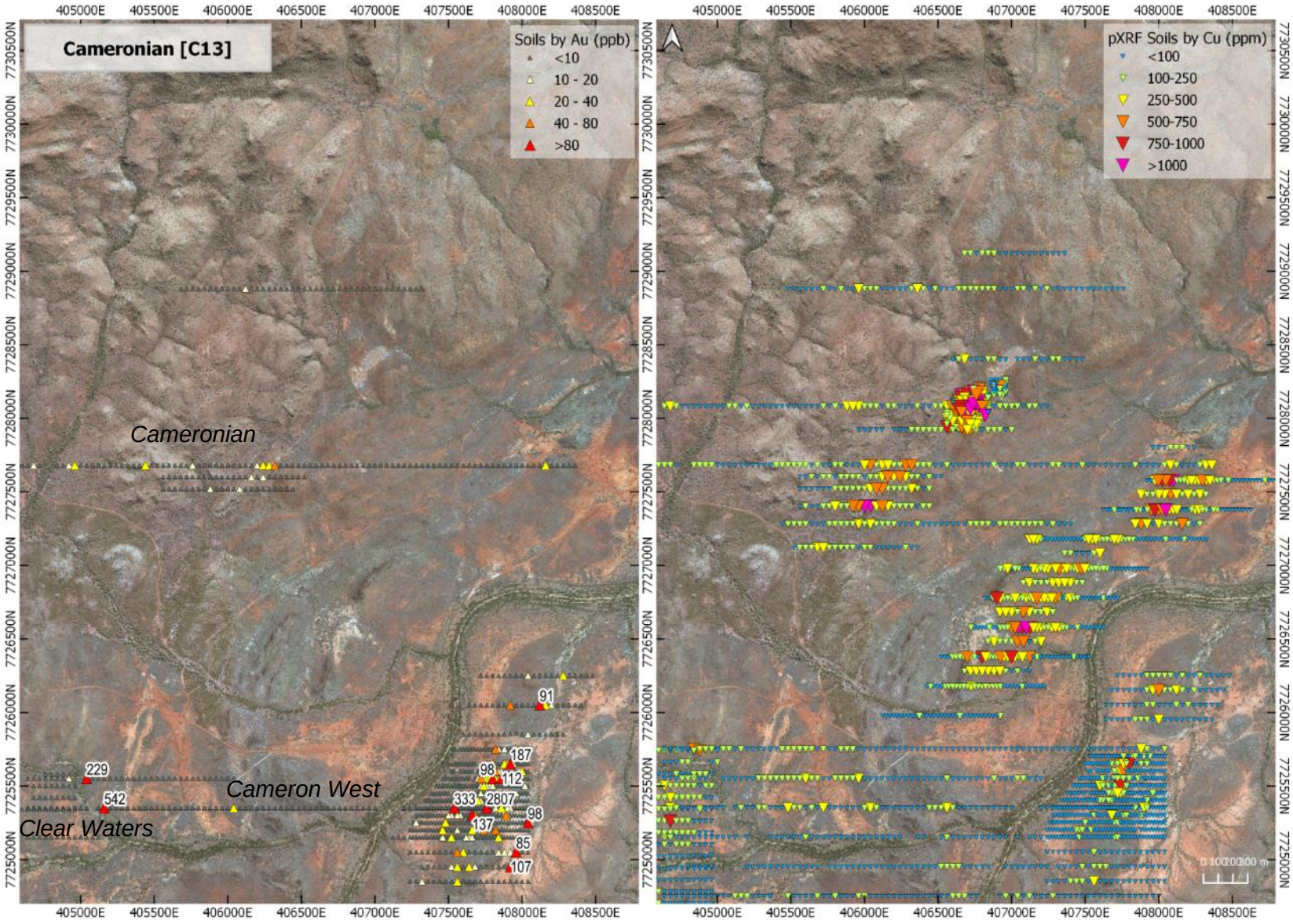

Figure 34: Gold in soils (Left) & pXRF Cu in soils (Right) at the Cameronian Prospect.

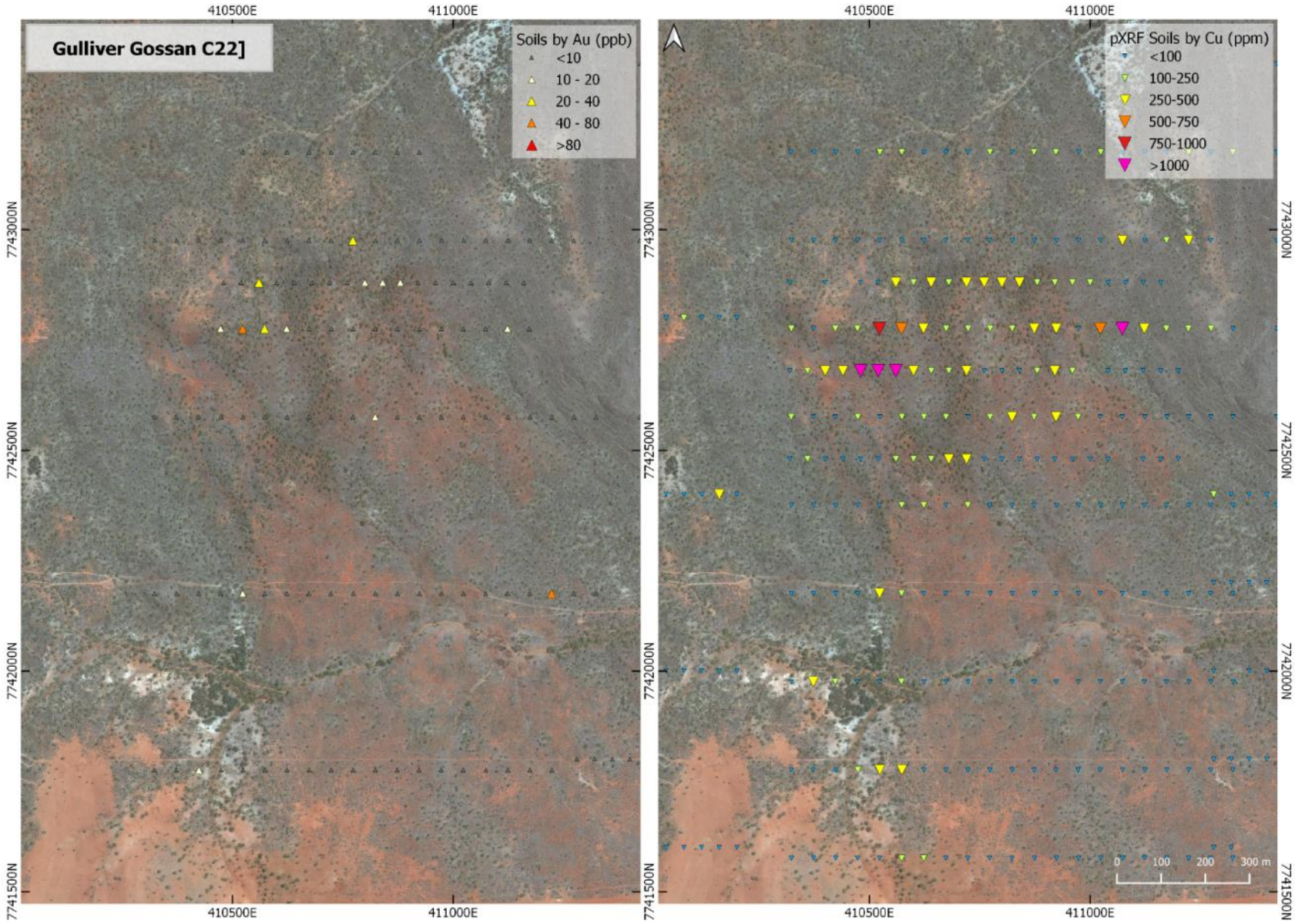

Figure 35: Gold in soils (Left) & pXRF Cu in soils (Right) at the Gulliver's Gossan Prospect.

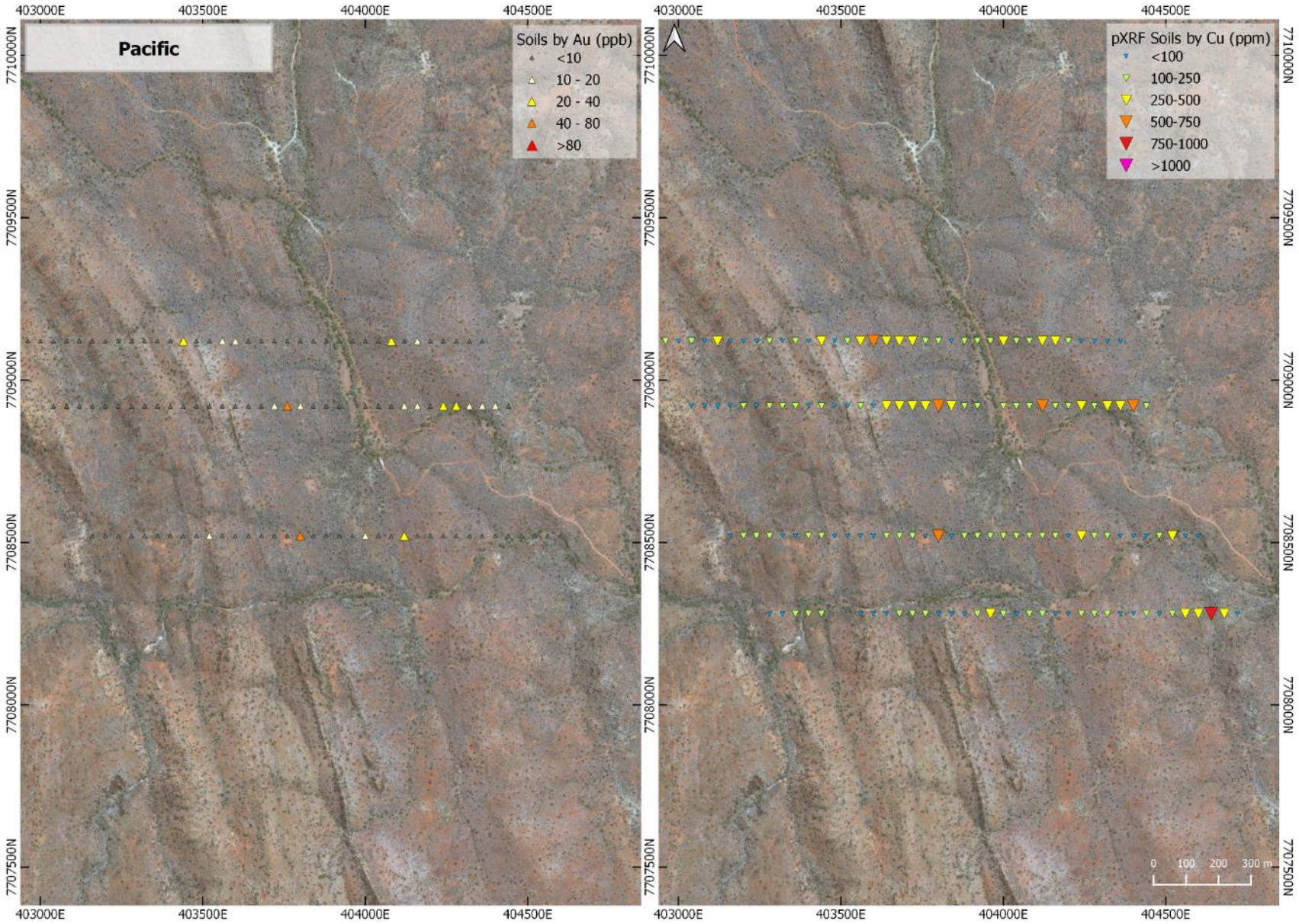

Figure 36: Gold in soils (Left) & pXRF Cu in soils (Right) at the Pacific Prospect.

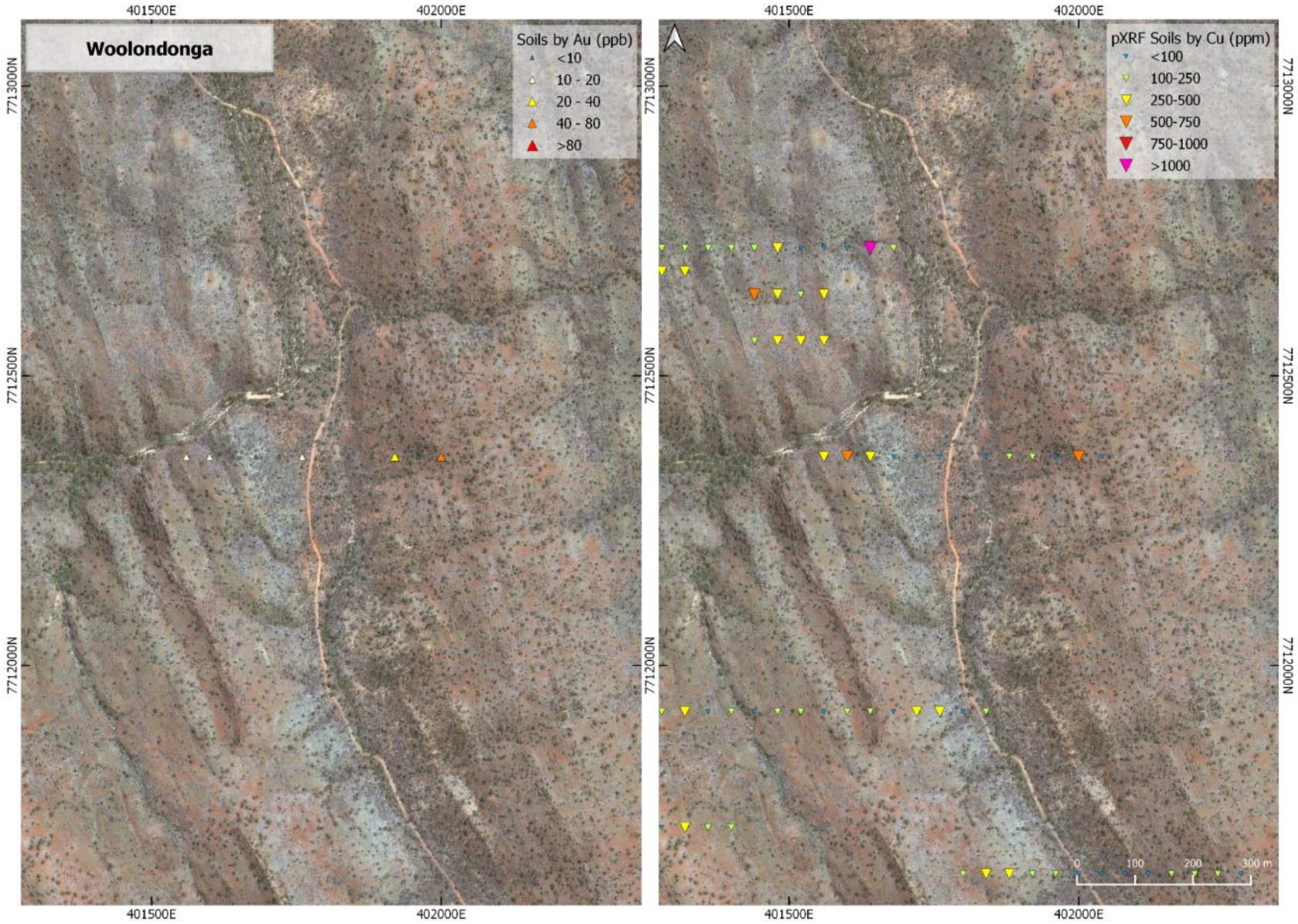

Figure 37: Gold in soils (Left) & pXRF Cu in soils (Right) at the Woolondonga Prospect.

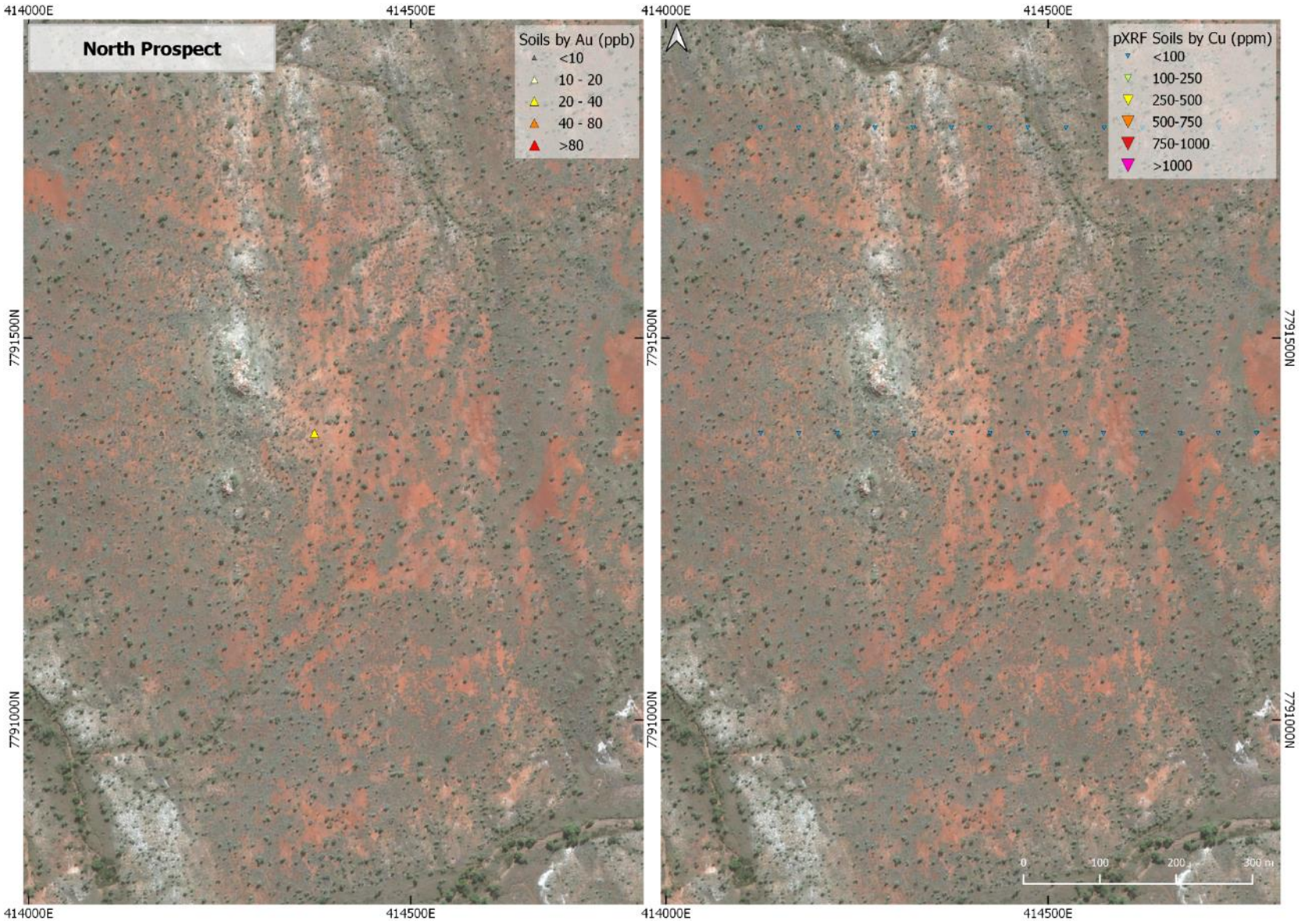

Figure 38: Gold in soils (Left) & pXRF Cu in soils (Right) at the North Prospect.

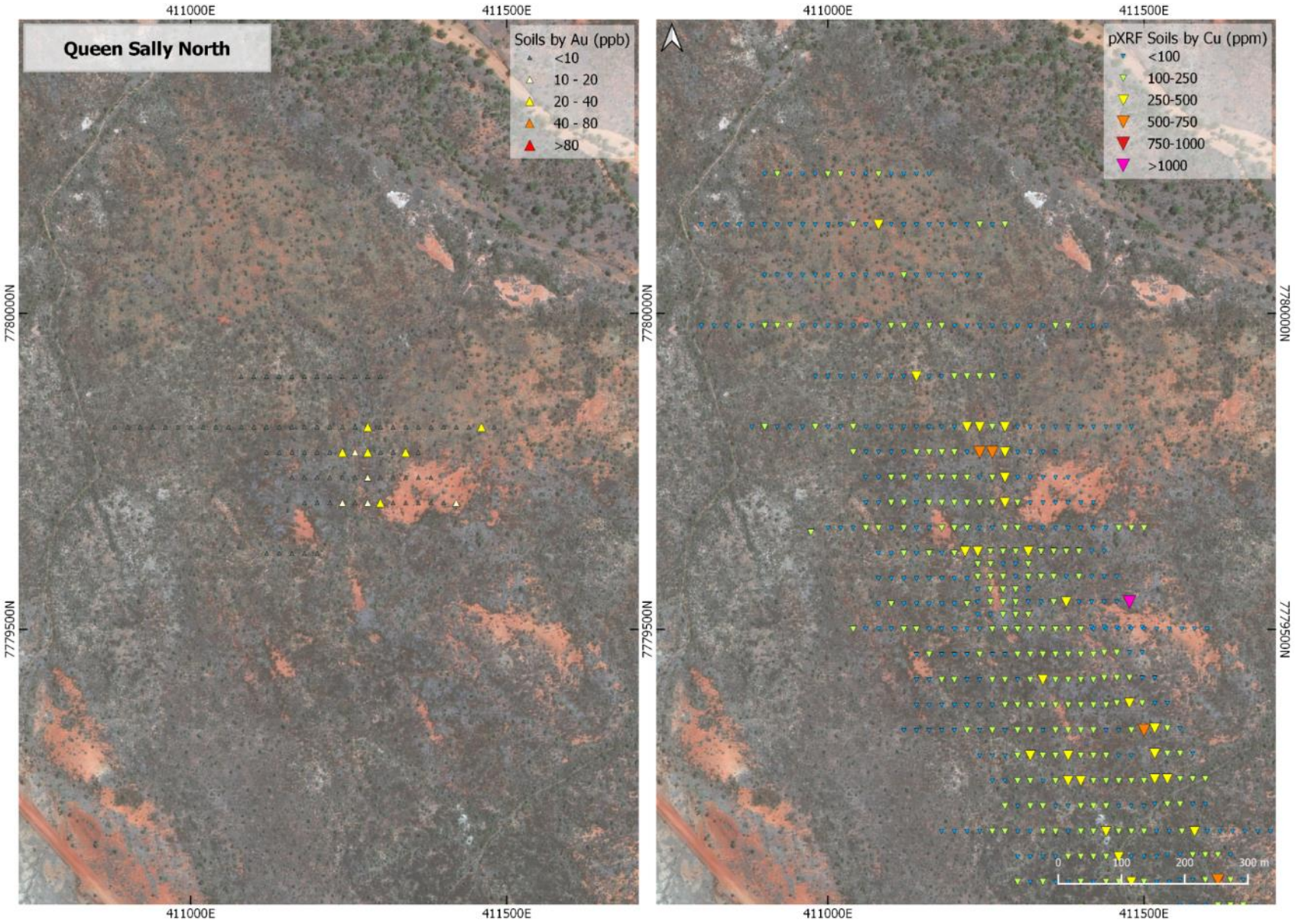

Figure 39: Gold in soils (Left) & pXRF Cu in soils (Right) at the Queen Sally North Prospect.

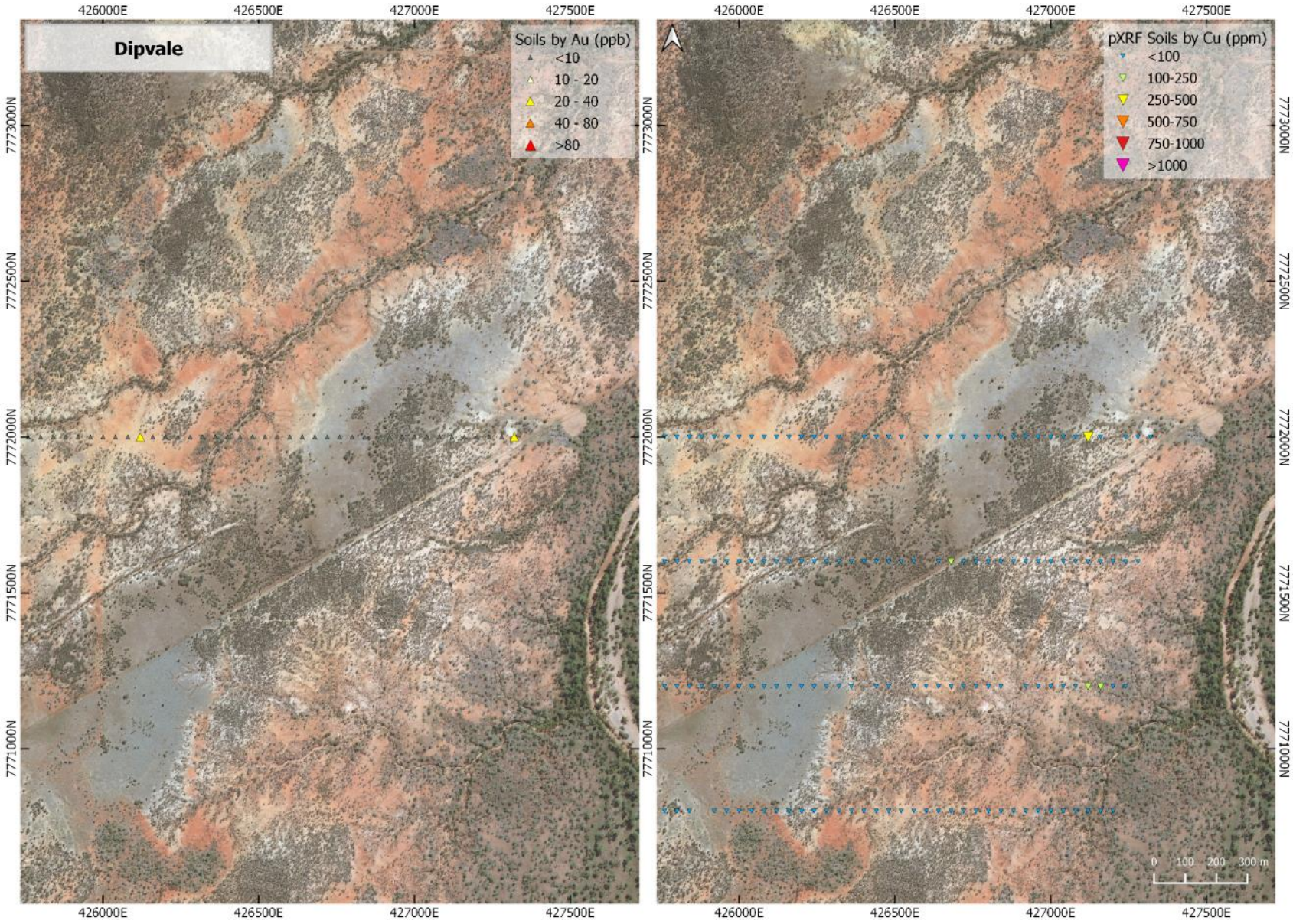

Figure 40: Gold in soils (Left) & pXRF Cu in soils (Right) at the Dipvale Prospect.

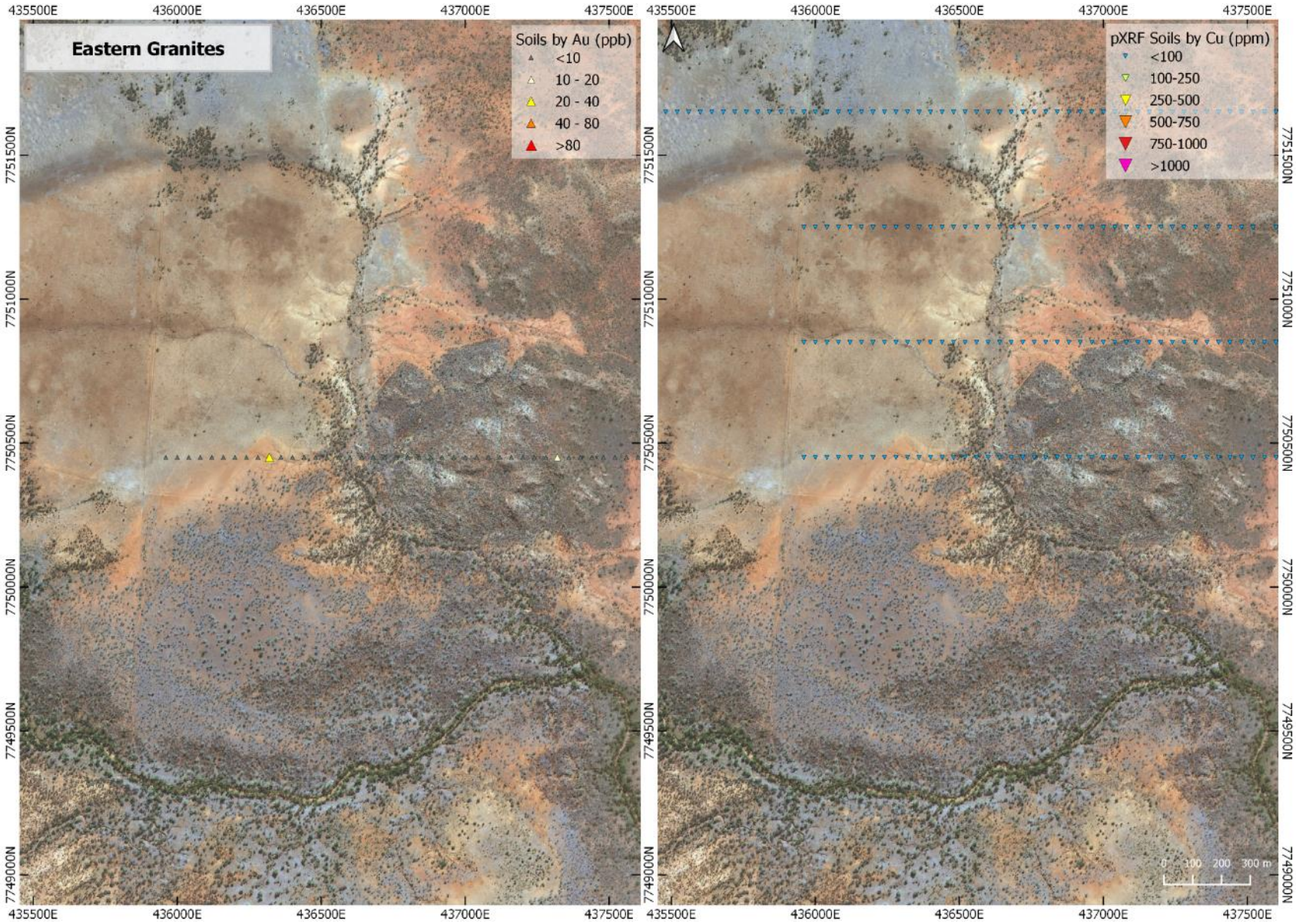

Figure 41: Gold in soils (Left) & pXRF Cu in soils (Right) at the Eastern Granites Prospect.

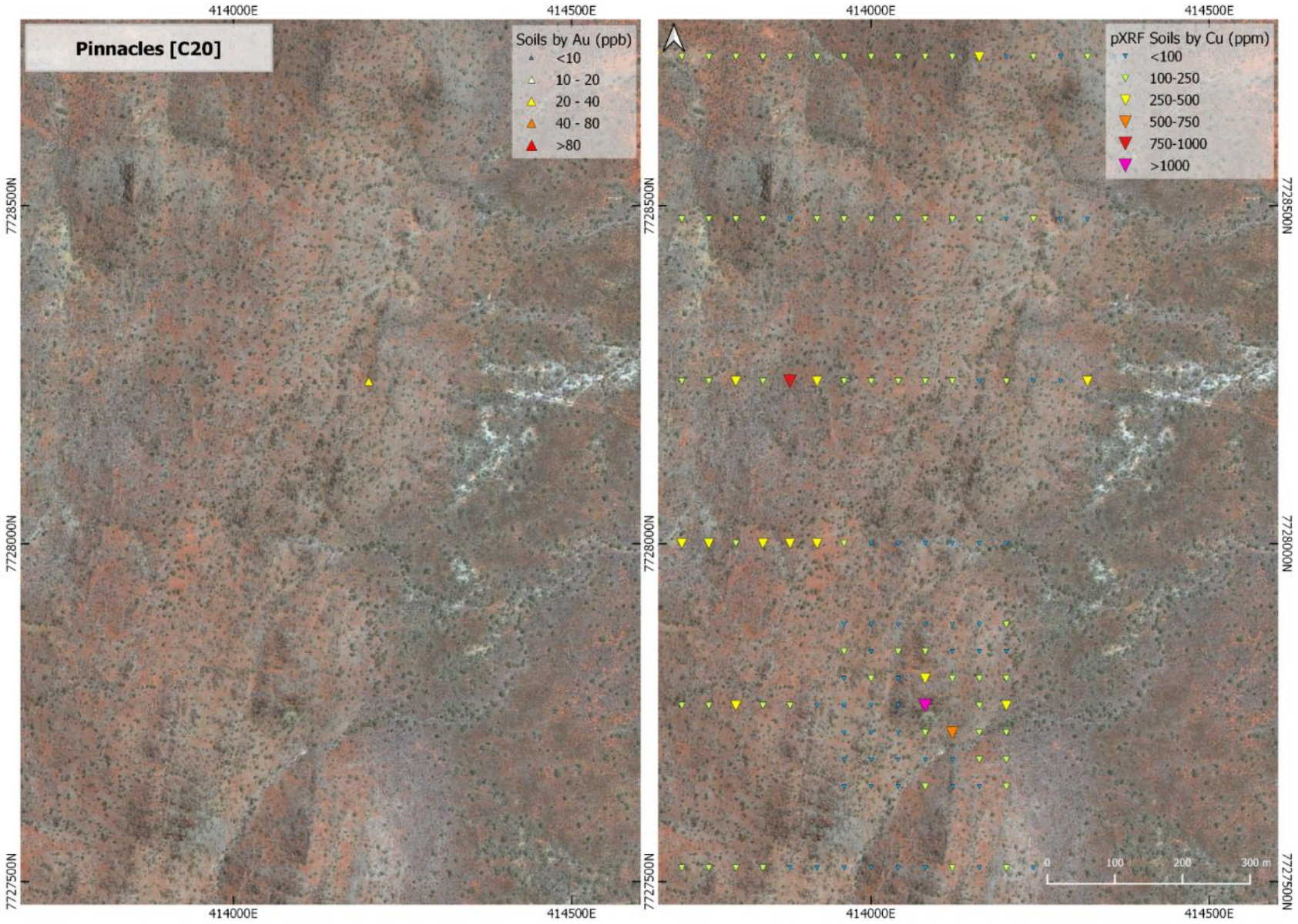

Figure 42: Gold in soils (Left) & pXRF Cu in soils (Right) at the Pinnacles Prospect.

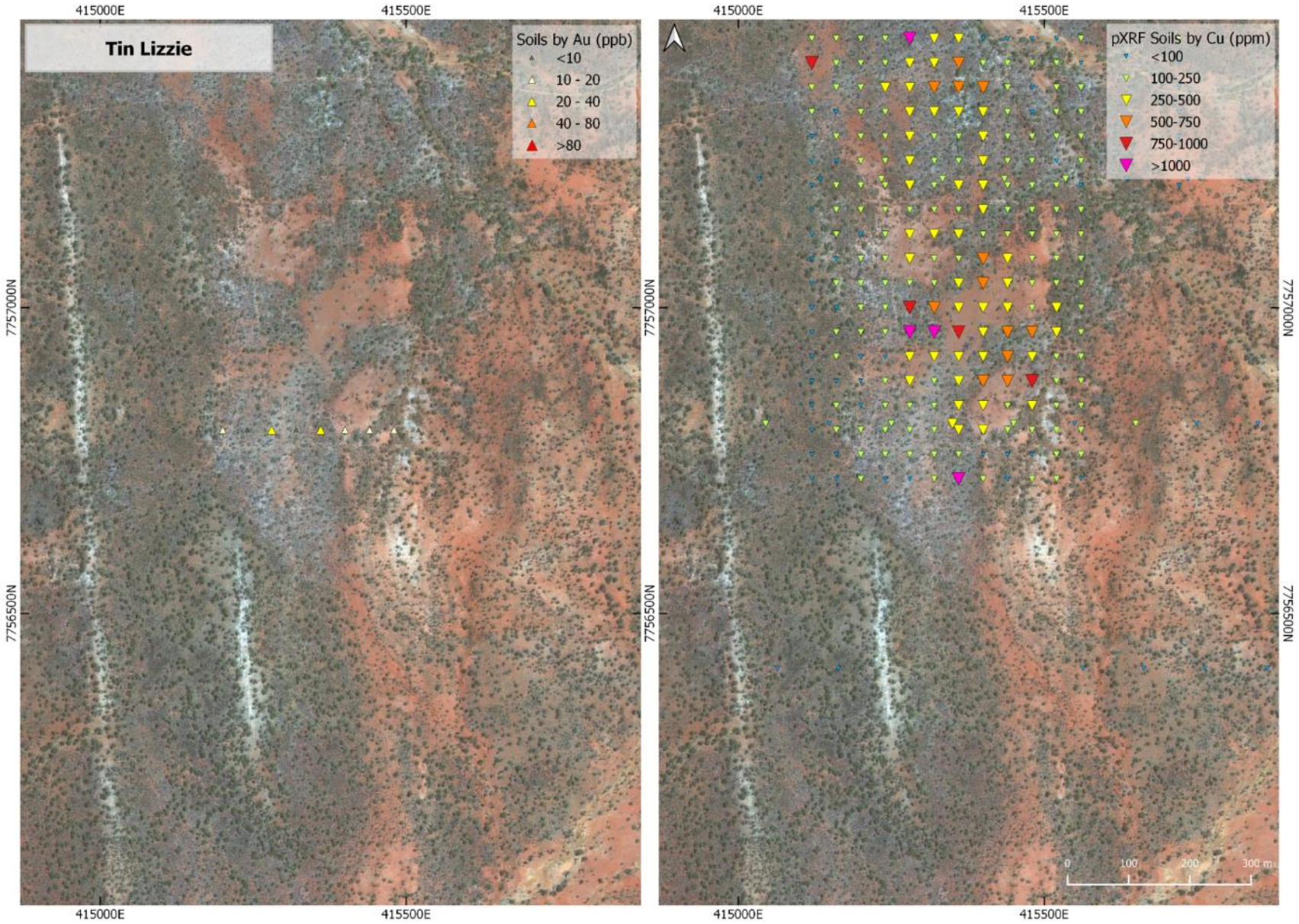

Figure 43: Gold in soils (Left) & pXRF Cu in soils (Right) at the Tin Lizzie Prospect.

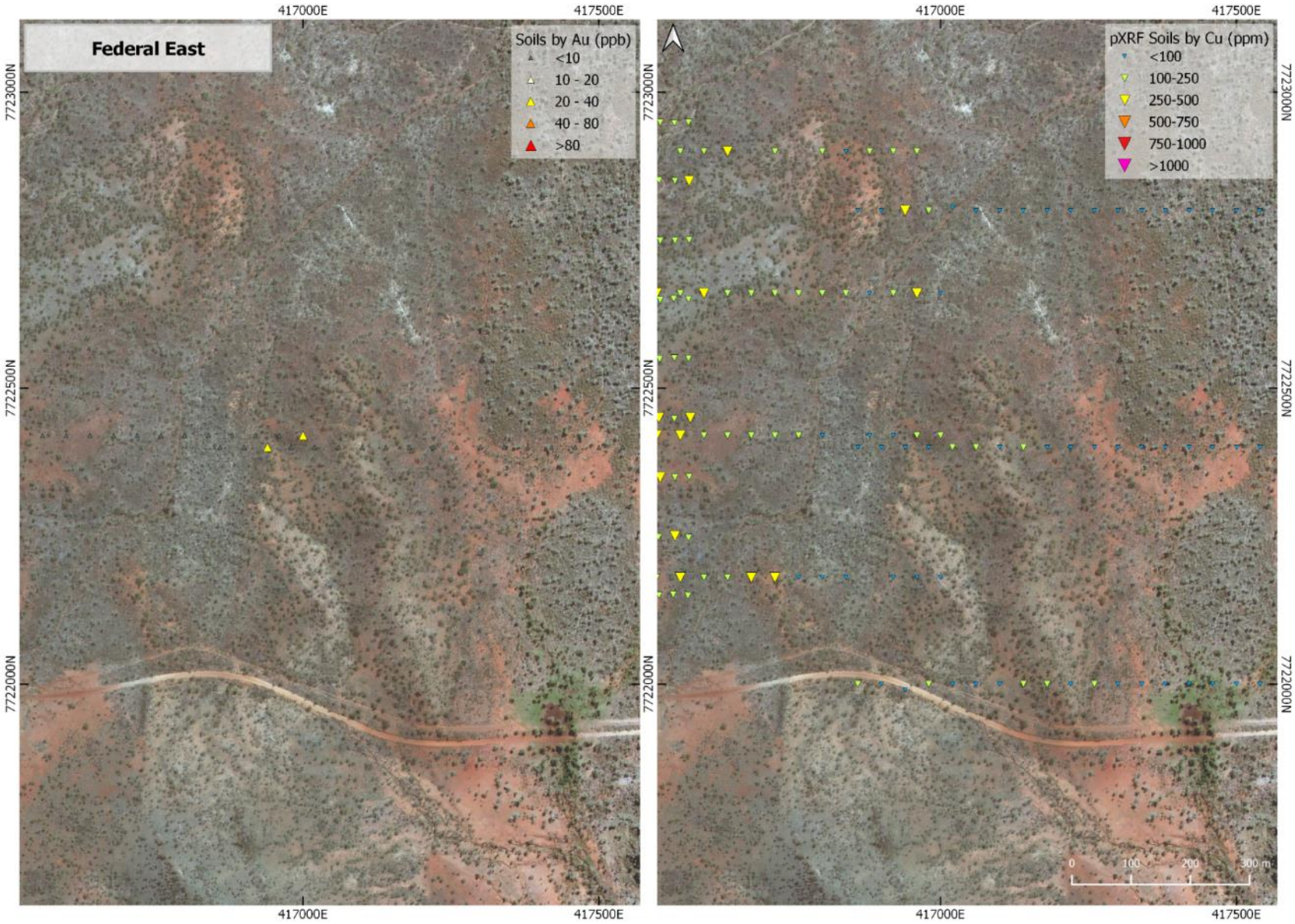

Figure 44: Gold in soils (Left) & pXRF Cu in soils (Right) at the Federal East Prospect.

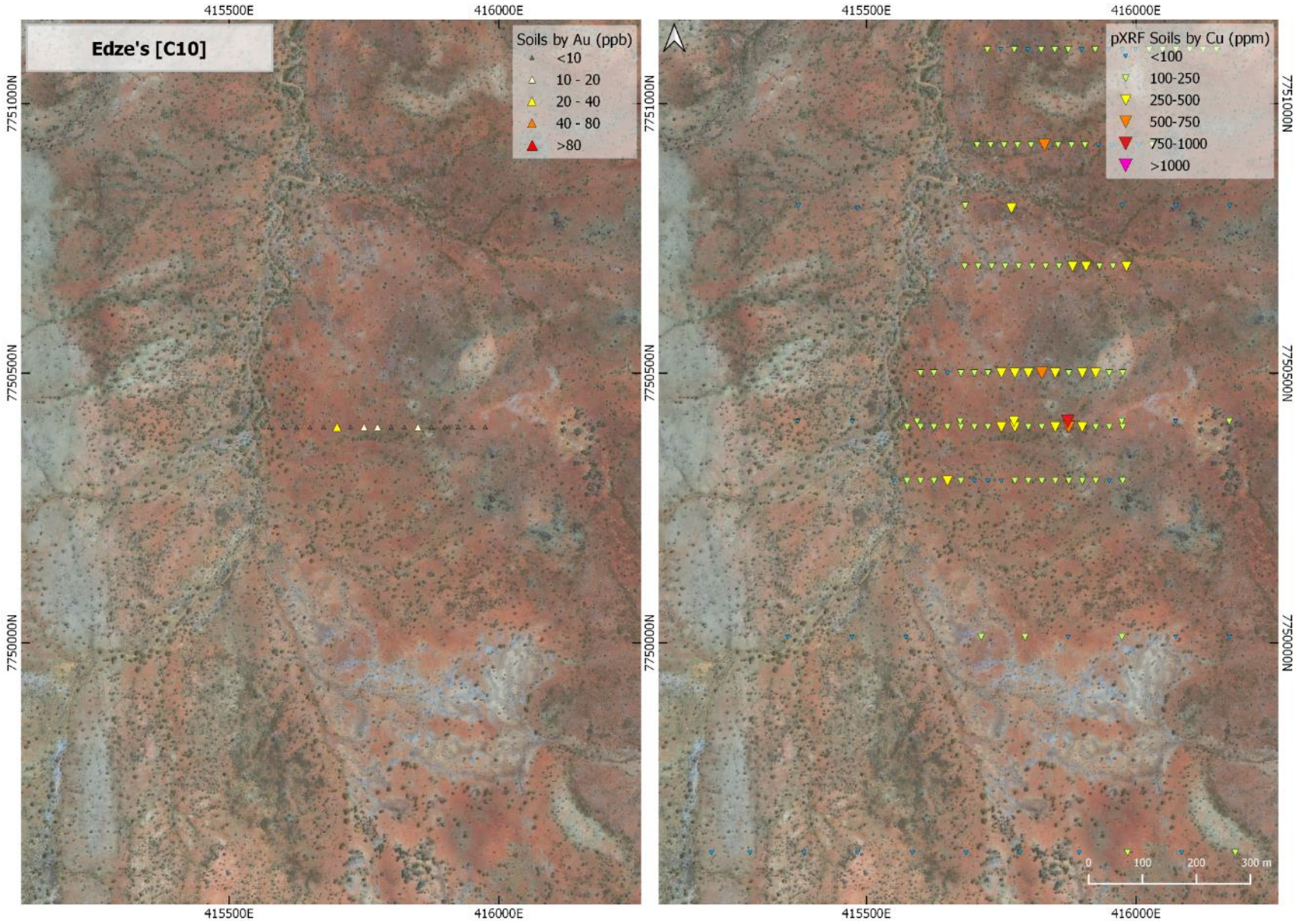

Figure 45: Gold in soils (Left) & pXRF Cu in soils (Right) at the Edze's Prospect.

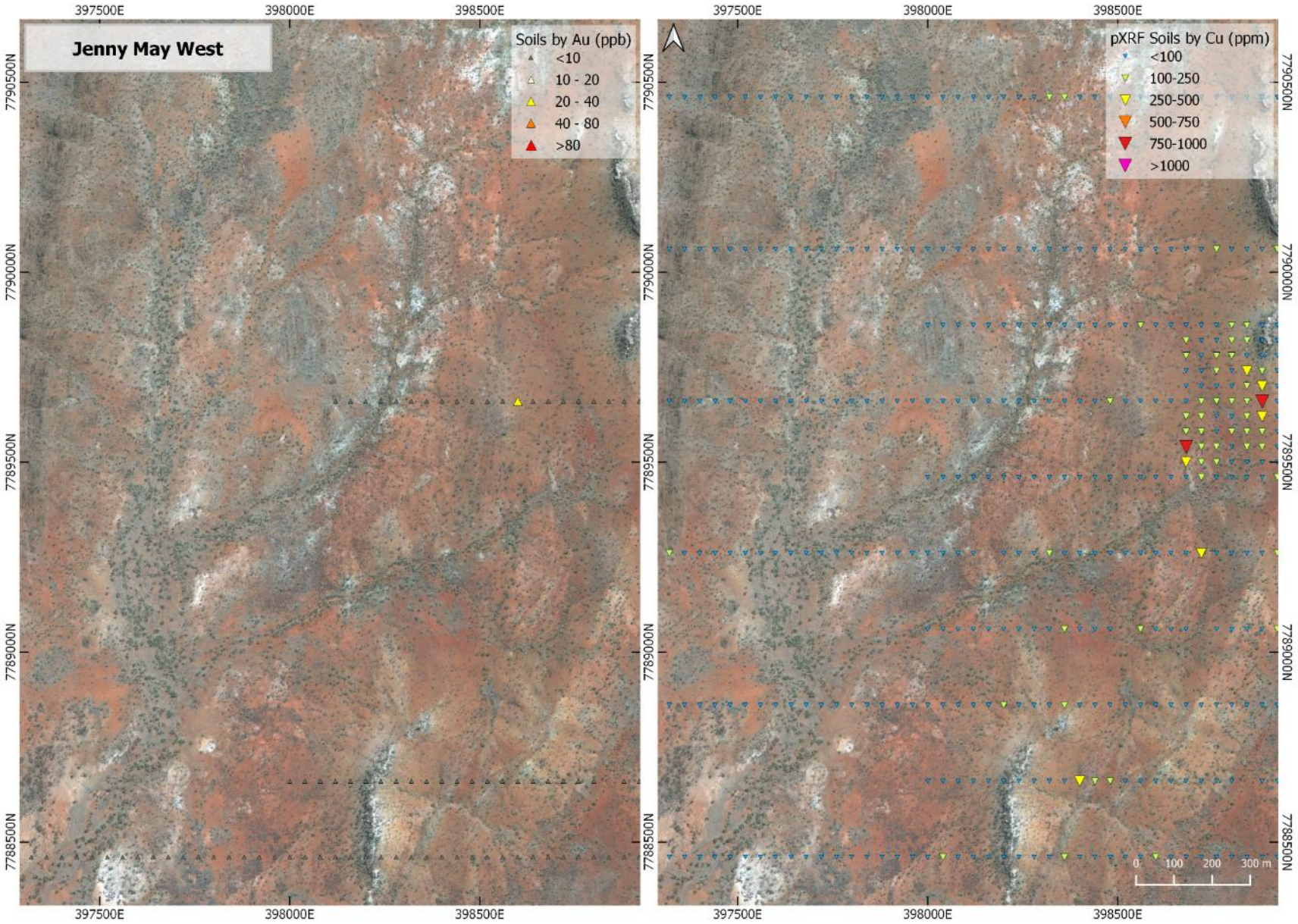

Figure 46: Gold in soils (Left) & pXRF Cu in soils (Right) at the Jenny May West Prospect.

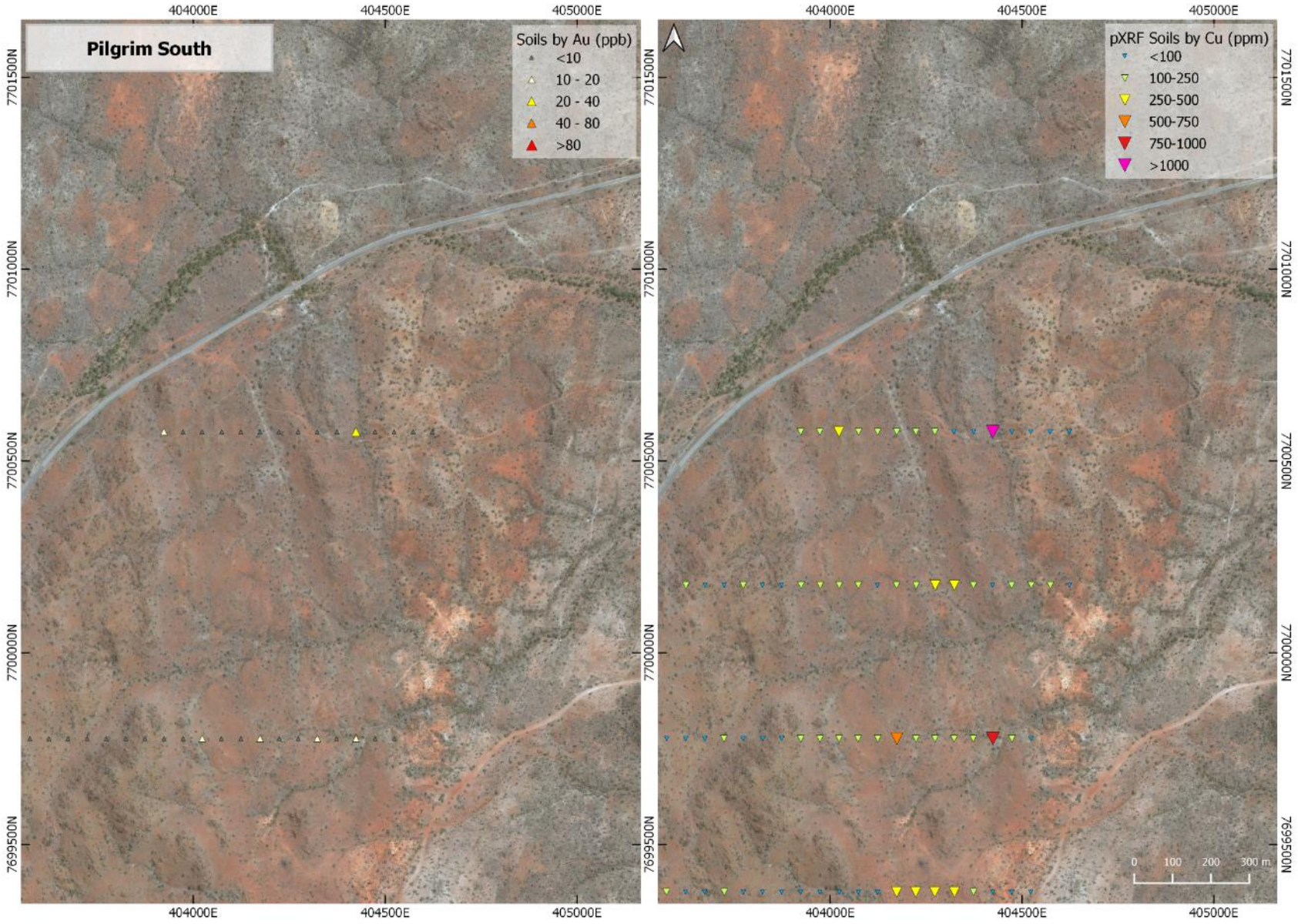

Figure 47: Gold in soils (Left) & pXRF Cu in soils (Right) at the Pilgrim South Prospect.

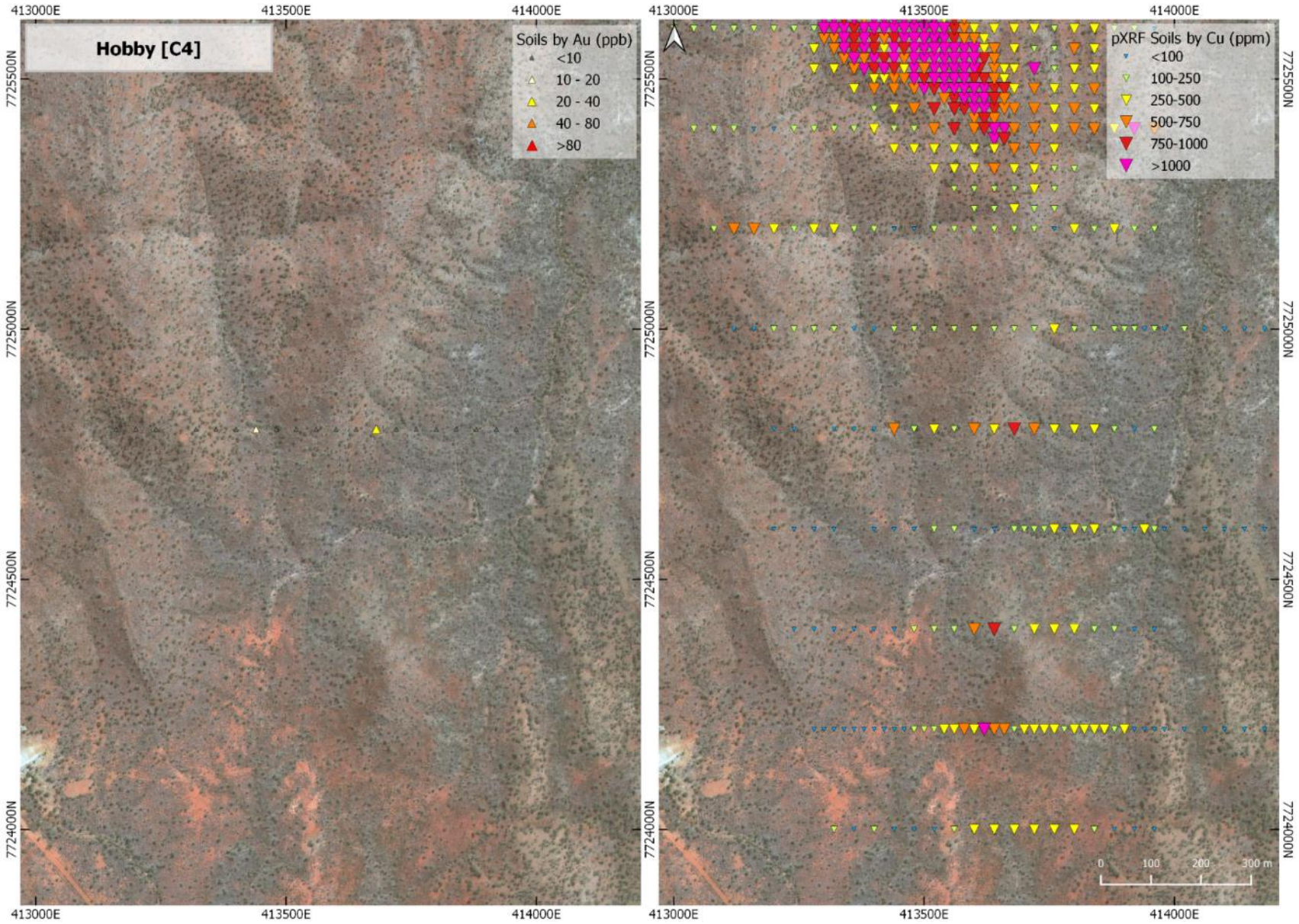

Figure 48: Gold in soils (Left) & pXRF Cu in soils (Right) at the Hobby Prospect.

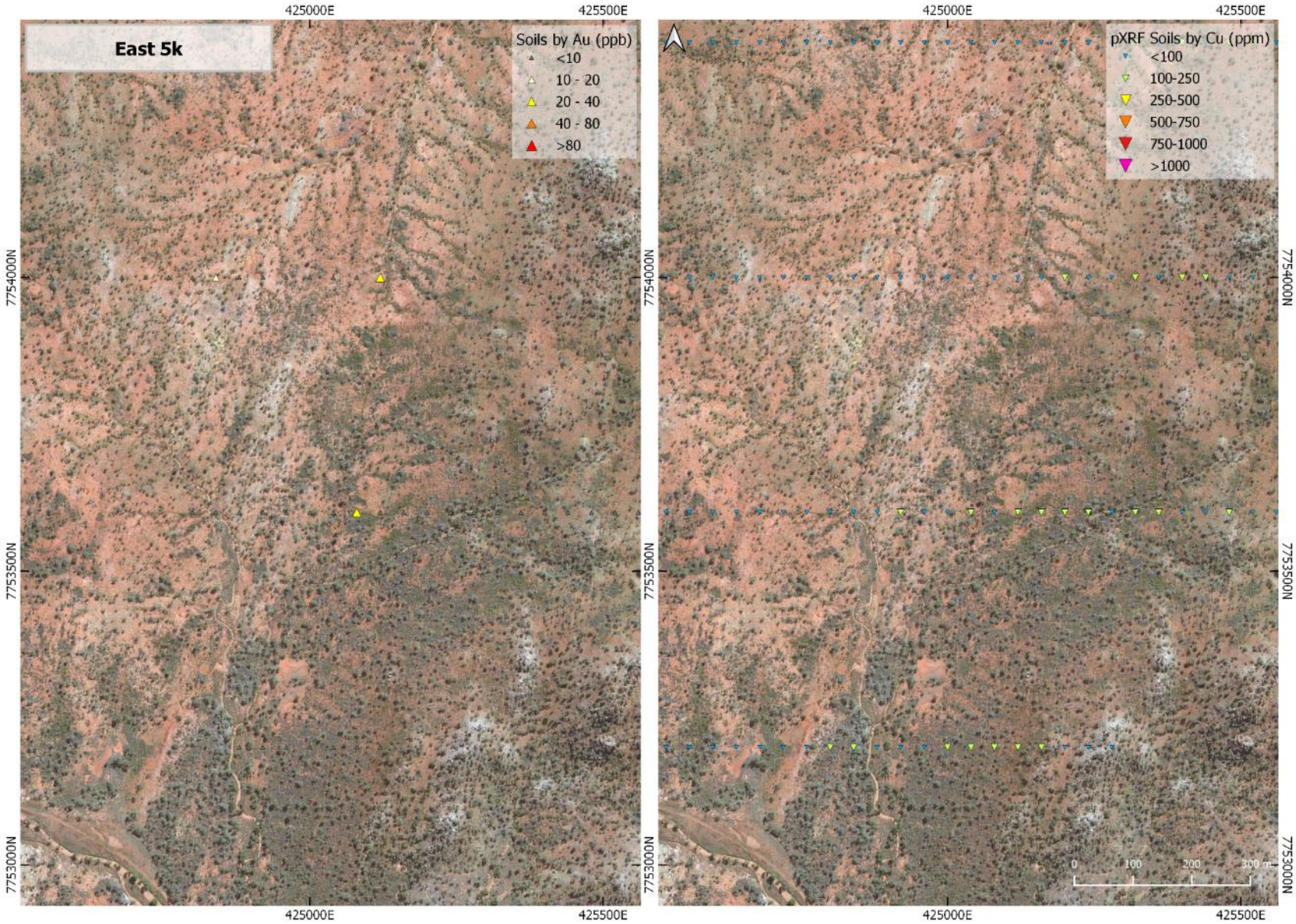

Figure 49: Gold in soils (Left) & pXRF Cu in soils (Right) at the East 5k Prospect.

8.3. Quality Assurance & Quality Control

Standards

Check assays were completed on one gold certified reference material (OREAS901 'S7') in each laboratory submission. All standards passed and were well within 2 standard deviations of the certified value (363ppb) for gold (Figure 50).

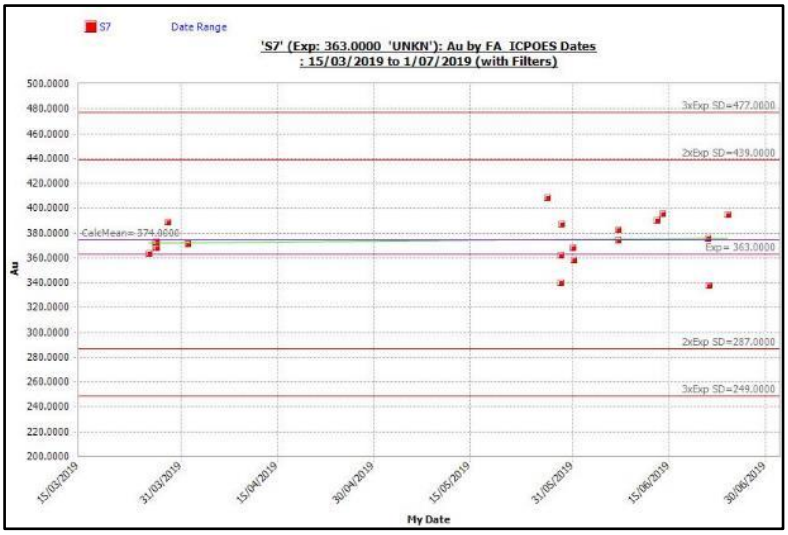

Figure 50: QAQC graph displaying S7 (OREAS901) standard by Au (ppb) results within 2 standard deviation of certified value.

Repeats

Gold analysis was repeated on group of samples. Repeat results were generally acceptable, although some data scatter was observed. Poor repeat performance is most likely linked to the presence of nuggety distribution of gold.

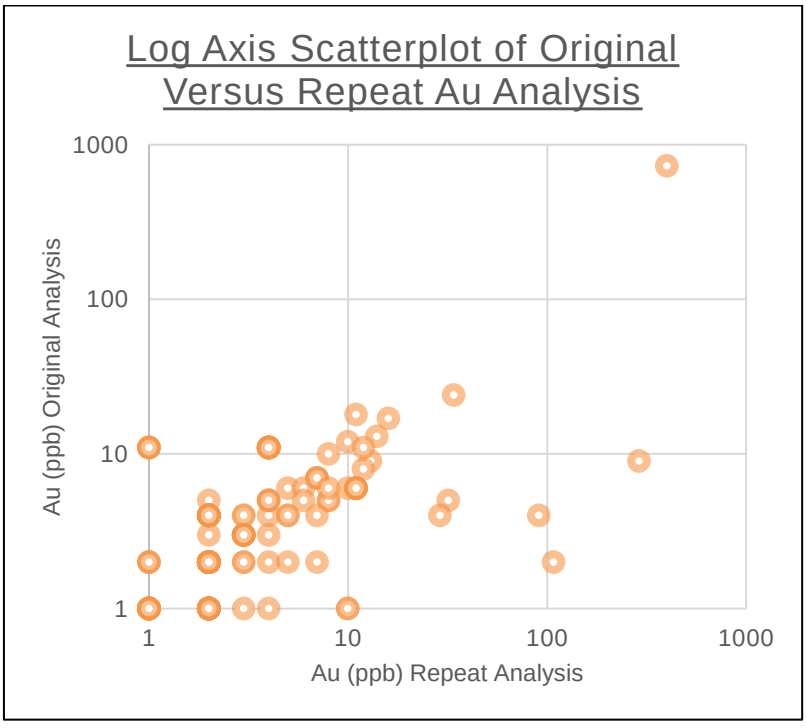

Figure 51: Repeat checks of gold samples.

9. DISCUSSION

9.1. Highlights

Companion

The Companion Prospect returned the project's highest result of 19.26g/t Au. This exceptional result was an infill sample collected as a follow up of a 138 ppb Au result (from the initial round of submissions).

The Companion Prospect is located within the Mount Roseby Schist which comprises of psammo-pelitic biotite-quartz schists interbedded with calc-silicates. The area which yielded the 19.26 g/t Au result was followed up post completion of CEI activities, observing north-south tightly folded, banded and brecciated calc-silicate units, occasionally cross-cut by quartz veining (30 – 50 cm wide). Copper oxide in the forms of chrysocolla, malachite and atacamite is observed at surface and appears to be concentrated along the edges of quartz veins.

Possibility for coarse Au was taken into consideration due to the exceptional (19.26 g/t Au) result and replicate soil samples were collected. A bulk sample from the site of the 19.26g/t Au soil was also collected for the purpose of panning, resulting in the identification of small ~0.5 mm flake of gold (Figure 52). Visible gold (Figure 53) was also identified in a rock chip sampled from a small historic mine gouge located approximately 30 m southwest of the high soil location.

Figure 52: Approximate 0.5mm gold grain panned from soils at the 19.26g/t Au soil site.

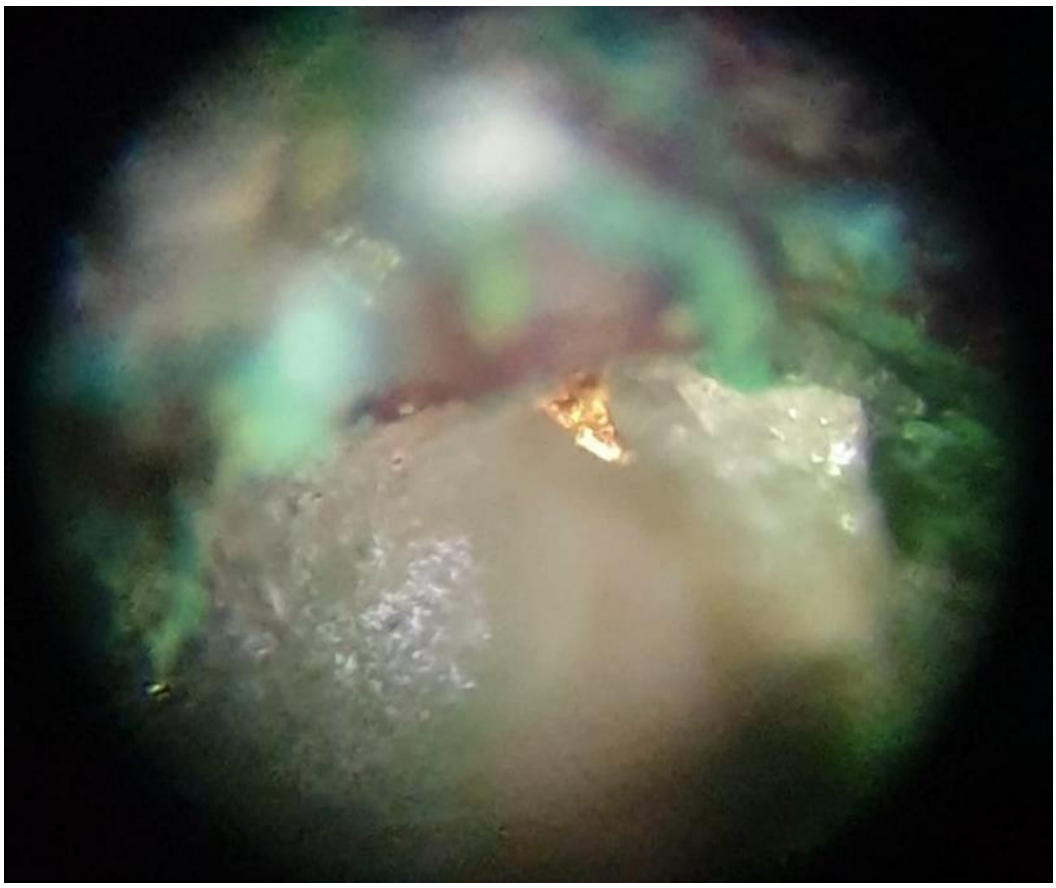

Figure 53: Visible gold in rock chip sample collected from a historical outcrop located 30m from the 19.26 g/t Au soil site. Image taken through microscope lens at x40 magnification.

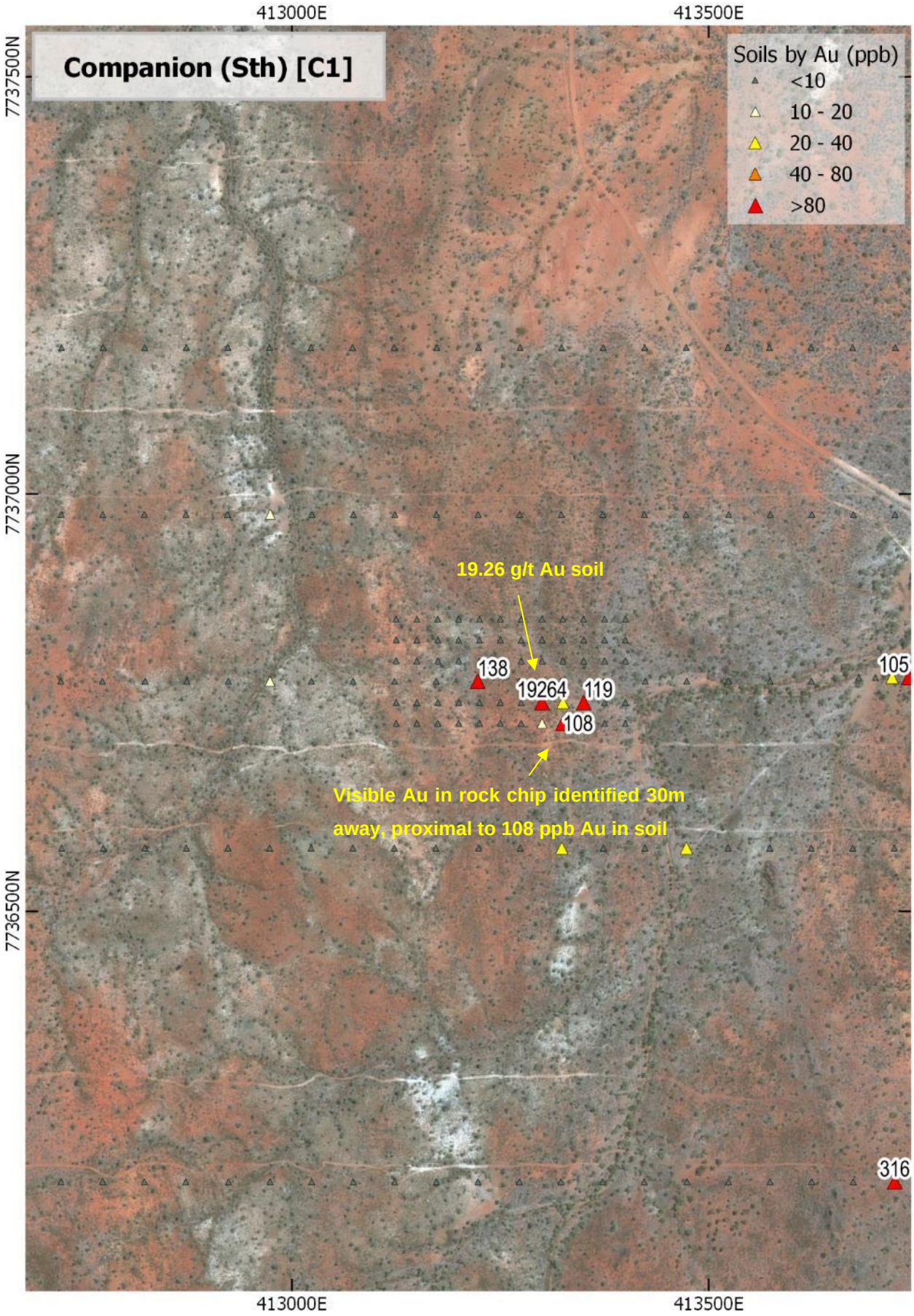

Figure 54: Soil location and results by Au (ppb) at the Companion (South) area.

Cameron & Cameron West

The Cameron and Cameron West areas had previously received some attention for gold prospectivity with stream gold anomalism detected up to 728ppb Au (Lewis, 1994). This anomalism was confirmed by follow-up stream sediment sampling (16 samples) completed by CMM staff in December 2018. Significant gold anomalism (>50ppb) was recorded in five -1.6mm BLEG samples and three -80# stream sediment samples, with BLEG values up to 1.18 g/t Au. Visible gold was panned from two additional stream bulk samples at the sites high tenor gold assays.

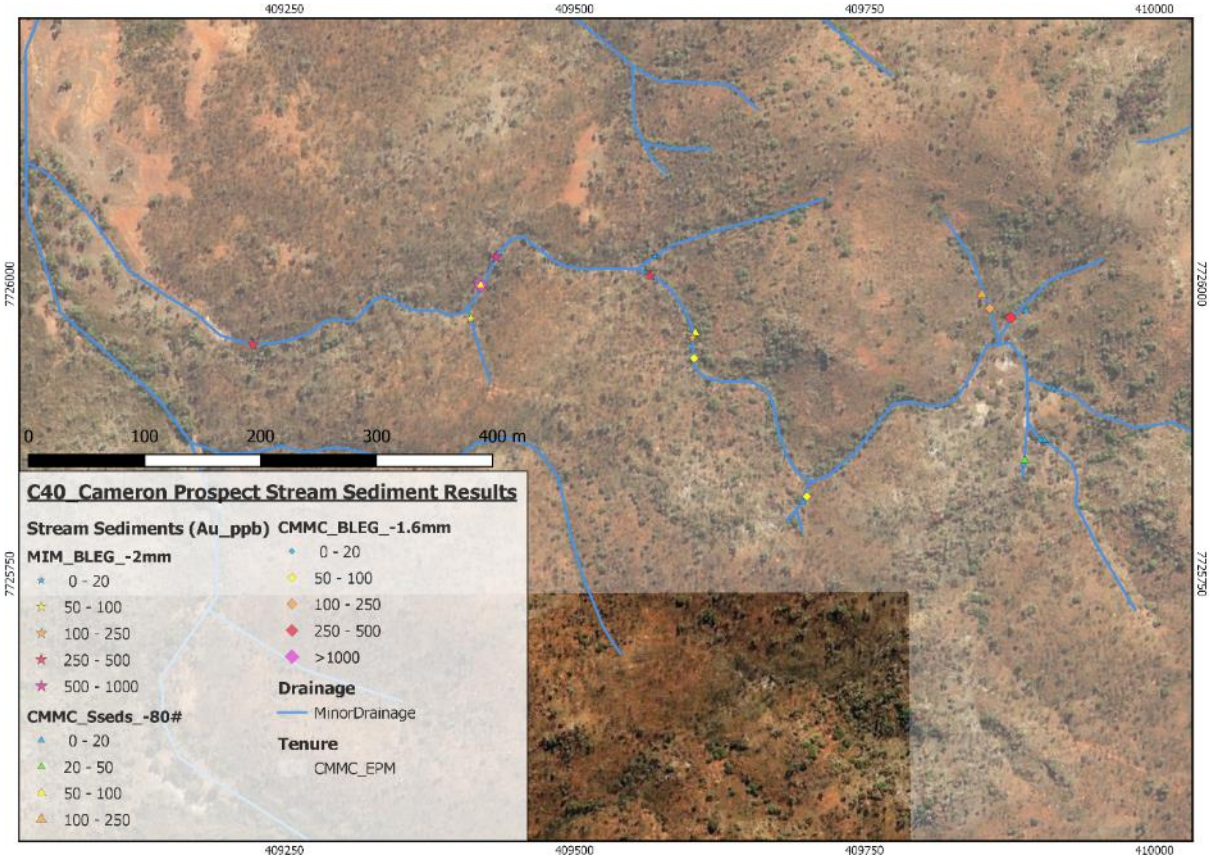

Figure 55: Stream sediment sample results by Au (ppb) at the Cameron Prospect.

The prospect areas are situated along the contacts between the Lady Clare Formation, Corella Formation and the Mount Roseby Schist.

Anomalous gold in stream sediment samples occurs predominately within the main drainage channel at the Cameron Prospect, and is elevated proximal to two north east striking faults. Significant anomalism does not occur in samples upstream from the easternmost north-east striking fault, indicating that this structure is a likely source or control on mineralization at the prospect.

A total of 51 samples reported > 20 ppb Au at the Cameron West Prospect area, with the highest result of 2.8 g/t Au. Subsequent infill samples were collected in 2019, overlapping a historic

Universal pXRF soil grid (as the original samples were not retained) and were submitted in the final phase for Au testing purposes.

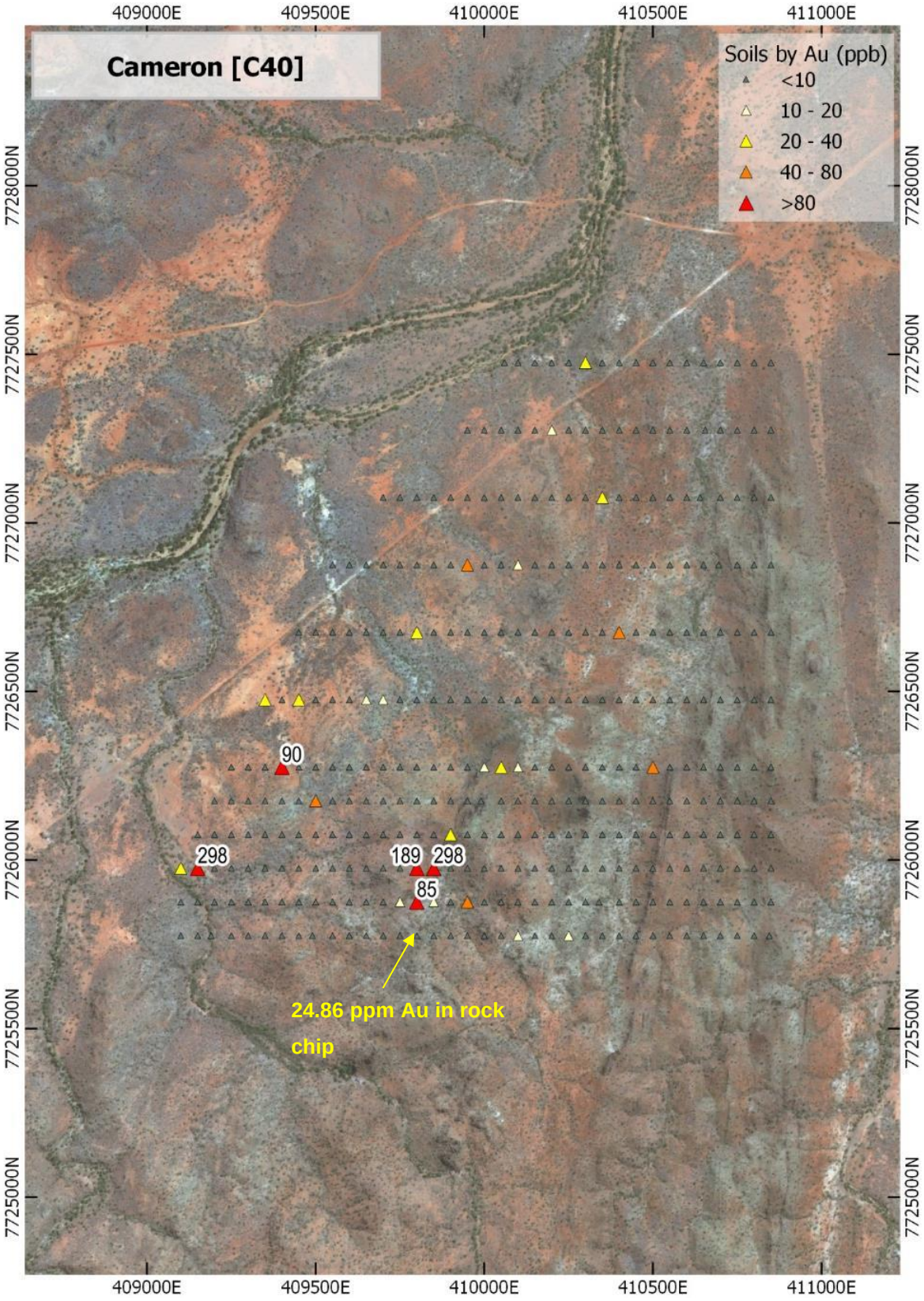

Figure 56: Soil location and results by gold (ppb) with follow up rock chip location and results by Au (ppm).

A total of 19 samples reported > 20 ppb Au at the Cameron Prospect area, with a highest result of 298 ppb Au.

The results from the Cameron West and Cameron prospects support the exploration model for Gold Rich – Copper Poor mineralization within the Mount Roseby Schist. Both prospects have been previously overlooked due to their having weak-moderate copper soil anomalism and may be prospective for a gold end member IOCG system.

Exploration work post completion of CEI activities involved first-pass follow up rock chip sampling targeting areas proximal to gold in soil anomalism, and areas of interest determined through preliminary field observations. Localised marble banded and brecciated calc-silicate ± dolerite units were identified proximal to gold in soil anomalism. A small historical copper oxide mine gouge at the Cameron Prospect was identified during the soil sample collection, with obtained rock chip samples reporting up to 25 g/t Au.

Queen Sally and Queen Sally North

The Queen Sally area was previously considered to be prospective for cobalt. Spoil heaps from two historic mine shafts at the prospect contain Erytherite, hetrogenite and primary cobaltite. The workings targeted a mylonite zone with cross-cutting quartz-carbonate veins and localized pegmatite.

At Queen Sally, a total of 30 samples reported > 20 ppb Au, with the highest results of 634 ppb and 585 ppb Au. Low to moderate copper in soil anomalism appears coincident with cobalt anomalism however results from this project has identified slightly offset gold anomalism to the east. The source of this anomalism is unknown and requires follow up work.

These results for this prospect are particularly interesting as the Queen Sally prospect appears to share many similarities to the Tick Hill deposit. Both areas are characterized by anomalous copper-cobalt, are associated with zones of high strain and are hosted in rocks of similar composition.

Red Dwarf

Five samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 80 ppb and 93 ppb Au. Red Dwarf correlates with the model for Gold Rich – Copper Poor mineralisation located within the Mount Roseby Schist. Red Dwarf has previously returned anomalous Au in soil results with recent results extending anomalism along strike. Red Dwarf exhibits weak-moderate copper in soil anomalism with returned results indicating prospectivity for a gold end member system.

9.2. Other Areas of Interest

Clear Waters

Six samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 229 ppb and 542 ppb Au. Au anomalism appears offset to a broad low Cu in soil trend and is proximal to

outcropping Ballara Quartzite and Corella Formation. The source of this anomalism is unknown and requires follow up work.

Good Luck

Seventeen samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 117 and 427 ppb Au. Gold anomalism appears co-incident with moderate copper (to high) in soil trend located at the junction of the Lady Clayre Formation, Corella Formation and Roseby Schist.

Brolga

Ten samples returned Au in soil results (> 20 ppb Au) reporting up to 105 ppb and 316 ppb Au, located along the western margin of the Mount Roseby Schist and Corella Formation. The Brolga prospect correlates with the model for Gold Rich – Copper Poor mineralisation. The prospect has been overlooked due to its weak-moderate copper anomalism and may be prospective for a gold end member IOCG system.

MON and CC West

At the MON Prospect, four samples returned anomalous gold in soil results (> 20 ppb Au) reporting up to 272 ppb Au. The CC West Prospect returned three anomalous samples > 20 ppb Au reporting up to 104 ppb Au. The MON and CC West Prospects are situated within the prospective Mount Roseby Schist and present an opportunity due to the limited historical work completed in the areas. CC West is also associated with weak copper in soil anomalism. The source of the anomalism is unknown and requires follow up work.

Harvest

At the Harvest Prospect, twenty samples returned gold in soil results (> 20 ppb Au) reporting up to 117 ppb and 246 pb Au, located along the Argylla Formation contact with Ballara Quartzite (east) and Corella Formation. While gold anomalism at the Harvest Prospect was anticipated, the strike extension of the Cu-Au system was confirmed a single >80ppb anomaly separate to the copper zones was identified to the west.

Mount Harold

The Mount Harold Prospect exhibits broad Au in soil anomalism reporting up to 62 samples > 20 ppb Au. The anomalism appears to be associated with dolerite intrusive of the Corella Formation and is proximal to Mount Philip-type Breccia. High results ranging up to 206 ppb warrant follow up work.

Pinnacles

Four samples returned anomalous gold in soil results (> 20 ppb Au) reporting up to 94 ppb and 184 ppb Au. The anomalism appears to be along the contact between Lime Creek Metabasalt and Corella Formation/Ballara Quartzite.

Volga North

Nineteen samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 120 ppb and 145 ppb Au. The anomalism appears within the Corella Formation and contact with mafic units along the eastern margin.

Emu

Eighteen samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 102 ppb and 144 ppb Au. Au soil anomalism at the Emu Prospect is supported by highly anomalous rock chip geochemistry located approximately 200 m northeast. Historical reporting indicates small scattered copper workings within the area, with mineralization hosted by red-rock altered granite and quartz veining which appear to be associated with dolerite intrusives. Historical assessment concluded limited extents of mineralisation with no follow up work warranted, however the recent soil sample results returning 144 ppb and 102 ppb now present a possible 200 m extension.

Burke and Wills

One sample returned anomalous Au in soil results reporting up to 125 ppb Au. Au anomalism north of Burke and Will's presents an opportunity with no historical work completed proximal to the anomaly. The source of this anomalism is unknown and requires follow up work.

Huxy

The Huxy prospect exhibits broad Au in soil anomalism reporting up to 21 samples > 20 ppb Au. Anomalism appear to be located along the eastern margin of the Burstall Granite within the Corella Formation and appears associated with dolerite intrusive units. Above background Au anomalism associated with mafic intrusive is common however the high results ranging up to 98 ppb warrants follow up work.

Federal West

Two samples returned anomalous Au in soil results reporting 48 ppb and 93 ppb Au. Anomalism is located east of the Rose Bee Fault, along the contact of Mount Roseby Schist and Corella Formation.

Reaper

Twenty-one samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 70 ppb and 74 ppb Au. Anomalism is located on the western margin of the Rose Bee Fault, along the contact of Mount Roseby Schist and Corella Formation.

Cameronian

The Cameronian Prospect exhibits minor Au in soil anomalism reporting up to 7 samples > 20 ppb Au, highest result of 71 ppb Au. Anomalism is located within the Corella Formation with minor Mount Philip-type Breccia (intrusive) associated with the Wonga/Burstall Suite.

Gulliver's Gossan

The C22 Prospect exhibits minor Au in soil anomalism reporting up to 6 samples > 20 ppb Au, highest result of 64 ppb Au. Anomalism is located on the wester margin of the Pinnacles Fault and along the contact of the Mount Roseby Schist, Corella Formation and Lady Clayre Formation.

Pacific

Nine samples returned anomalous Au in soil results (> 20 ppb Au) reporting up to 62 ppb Au. The Pacific prospect correlates with the model for Gold Rich – Copper Poor mineralisation. The prospect has been overlooked due to its weak-moderate copper anomalism and may be prospective for a gold end member IOCG system.

Woolondonga

Two samples returned anomalous Au in soil results reporting 21 ppb and 42 ppb Au. Anomalism appears to be located on the contact margins of the Corella Formation and Wonga Granite.

10. CONCLUSIONS AND RECOMMENDATIONS

The results from this project support the exploration target concept for Copper Poor-Gold Rich IOCG deposit types. The project results also demonstrate the effectiveness of exploration approach of utilizing the results and samples generated from surveys analyzed by pXRF to identifying gold targets previously overlooked due to weak-moderate Cu in soil anomalism.

The project has delivered a positive exploration targeting outcome. That will flow through to further substantial exploration activities in the region with potential for a new discovery on completion of follow-up work.

Anomalous gold (>20ppb) was identified at 36 prospects. Based on geochemical signatures five of the targets have been ranked 'very high' priority and a further eleven targets as 'high' priority.

All 'very-high and 'high' priority targets have signatures that may indicate proximity to high grade gold targets with small footprints, analogous to the mined Tick Hill deposit.

The CEI project results has generated a new set of gold focused targets that will drive a new phase of gold focused exploration by the company.

Further exploration work is proposed for the following areas:

The Companion, Cameron, Cameron West and Queen Sally areas are prioritized for follow up work including rock chip sampling and detailed mapping with the scope of becoming a drill ready target in 2020.

Ground proofing, replication and extension of soils and rock chip sampling is also strongly recommended for the remaining 'high' and 'very-high' gold anomalous prospect areas.

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