EARTH AI

EL32000 MONTEJINNI PROJECT
Final Report 2021

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Operator:	EARTH AI Operations Australia Pty Ltd
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NT 1:250K map sheet:	VICTORIA RIVER DOWNS
NT 1:100K map sheet:	Pigeon, Montejinni

Table of Contents

List of Images:

Abstract

EL32000 is a new title secured first hand by Magnet Exploration Pty Ltd in 2019, after preliminary exploration work conducted by EARTH AI OPERATIONS AUSTRALIA PTY LTD, part of EARTH AI Group of companies further referred to as **EARTH AI**.

Since 2018, EARTH AI has embarked on a major Northern Territory-wide field campaign of rapid preliminary exploration targeted by the AI predictions and field validated by self-sufficient internal geology teams conducting portable X Ray Fluorescence (XRF) analysis of soils and rocks as well as soil & wholerock sampling. The work was conducted on pastoral properties without mineral tiles. We tested 132 sites, confirming geochemical anomalies on 35 of them, yielding an impressive 26% success rate.

The Montejinni project was one of the successfully predicted mineralised sites, during preliminary exploration. We have discovered anomalous Cu geochemical results and thus made the decision to apply for a mineral title.

Montejinni was located due to our AI technology predicting its location. There are no known mineral occurrences within the title area. A literature review of all previous work done in the area has provided some indication of mineralisation in the area and provided information on the local observed geology. We must conduct our own fundamentally new research to understand the geology of the area.

We have completed 431 Portable XRF (pXRF) analyses (329 of soil and 102 of rocks), and assayed 38 soil samples and 23 rock samples during the reporting period. Further work is planned to assess the full extent of anomalism.

This year’s work has been heavily impacted by COVID-19 related travel restrictions & logistical supply chain problems. We weren’t able to perform fieldwork and collect new field data on EL32000.

Unfortunately, due to the very long and unpredictable nature of the COVID-19 pandemic we don't see the possibility for us to logistically support and continue investing in the exploration of this project. In case the situation becomes suitable after the pandemic, we would like to revisit the project in the future as well as encourage other explorers to build up on our work in the area.

Copyright

Location, Title History, Physiography and Access

The Montejinni Project (EL32000) is located approximately 260km southwest of Katherine in the Victoria River Region of the Northern Territory, Australia. Kalkarindji serves as the hub for freight, fuel and food, and the Katherine airport is used to fly in and fly out of the exploration area.

Access to the project is via the Buntine Highway from Katherine. Station tracks on Montejinni Station provide access to much of the exploration area with track quality well maintained by the pastoralists.

The area is characterised by flat plains of basalt capped by plateaus of Cambrian limestone. Small shrubs and gumtrees populate the landscape along with termite mounds and spinifex. There are dry creek crossings on station roads.

Exploration License EL32000 covers an area of approximately 760 square kilometers (Figure 1).

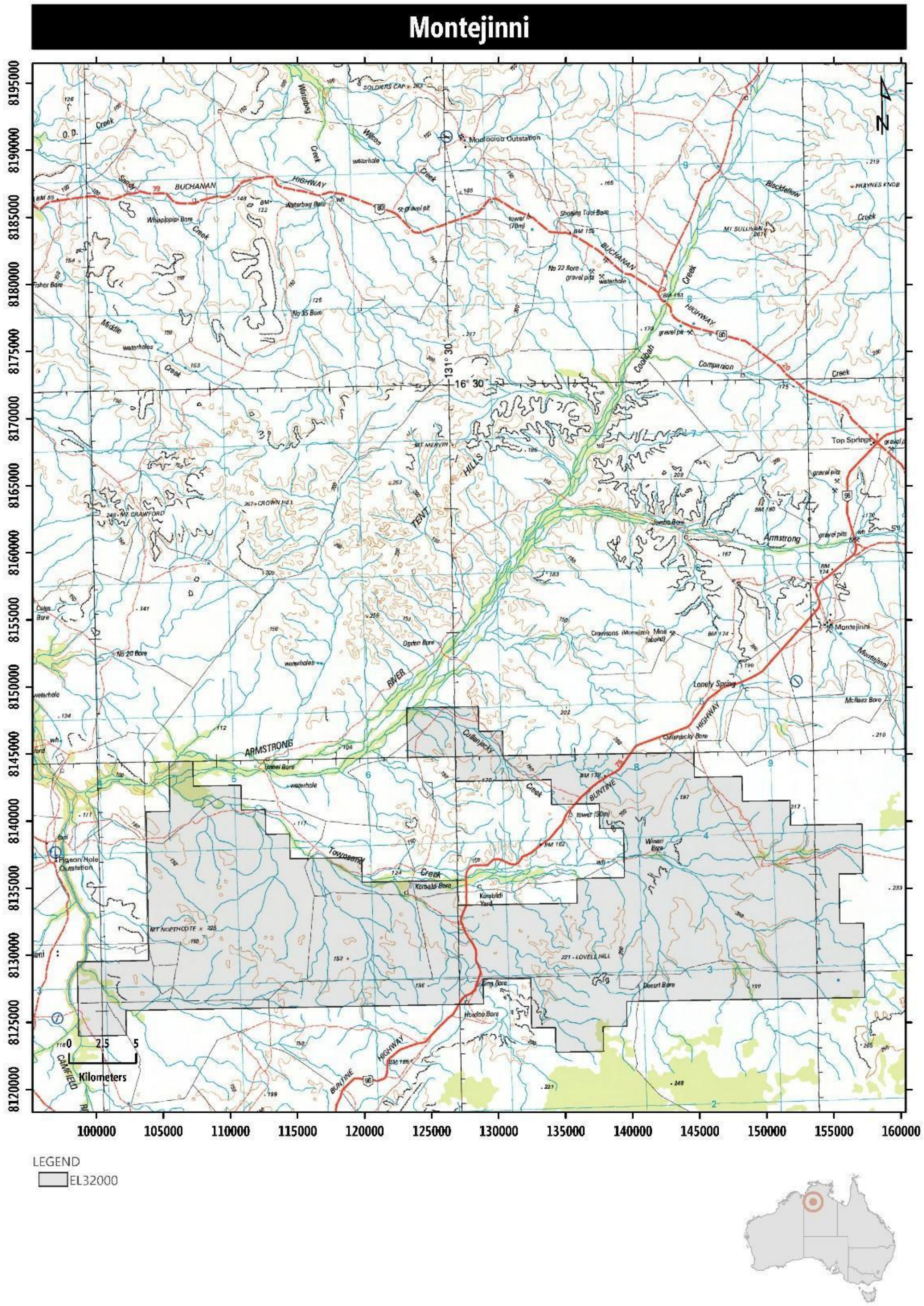

Figure 1. Topographic sheet and location of EL32000.

Geological Setting

The Montejinni project is located within the Cambrian Kalkarindji Province, a Large Igneous Province (LIP) of subaerial basaltic lava erupted across much of the Northern Territory and northern parts of Western Australia in the early Cambrian (Glass et al., 2013). The Cambrian province obscures several Paleoproterozoic provinces of the North Australian Craton, many of which represent passive margin continental shallow marine sedimentary rocks with variable quantities of volcanic sequences and degree of metamorphism. The Mesoproterozoic Birrindudu Basin to the west shares lithofacies commonalities with its southern counterparts, the Tomkinson Province and Devonport Province and is variably deformed.

The Kalkarindji Province itself is obscured to the east by intracratonic basins, the Cambrian Wiso and Daly Basins as well as the Jurassic-Cretaceous Carpentaria Basin (Munson et al., 2013).

Historical Exploration

A review of historical exploration established that limited historic exploration has been conducted and a systematic approach to exploration was not adopted.

Although limited in scope, historical sampling around our tenement area found anomalous levels of both Cu and Zn within volcanics. For Cu specifically, mineralisation has been observed along the contact between the volcanics and limestone, and native Cu has commonly been found within the amygdaloidal basalt. Previously, Zero Group Minerals had recorded readings of over 1% copper within surface rocks, within the Atrium volcanics. Au, U, Diamonds and Garnets had also been the focus of largely unsuccessful previous sampling ventures.

Exploration Rationale

Exploration targets were chosen based on three criteria:

1) Density of Earth AI proprietary AI technology predictions (referred to as clusters)
2) The size of the cluster (interpreted as the potential extent of the surface anomaly)
3) Multiple single-element clusters proximal to (within 1km), or overlapping other clusters

Multi-element analysis using Earth AI proprietary Ai technology predicted multiple high-density clusters that in some cases overlapped, or were within a reasonable distance from one another.

Exploration Index Map

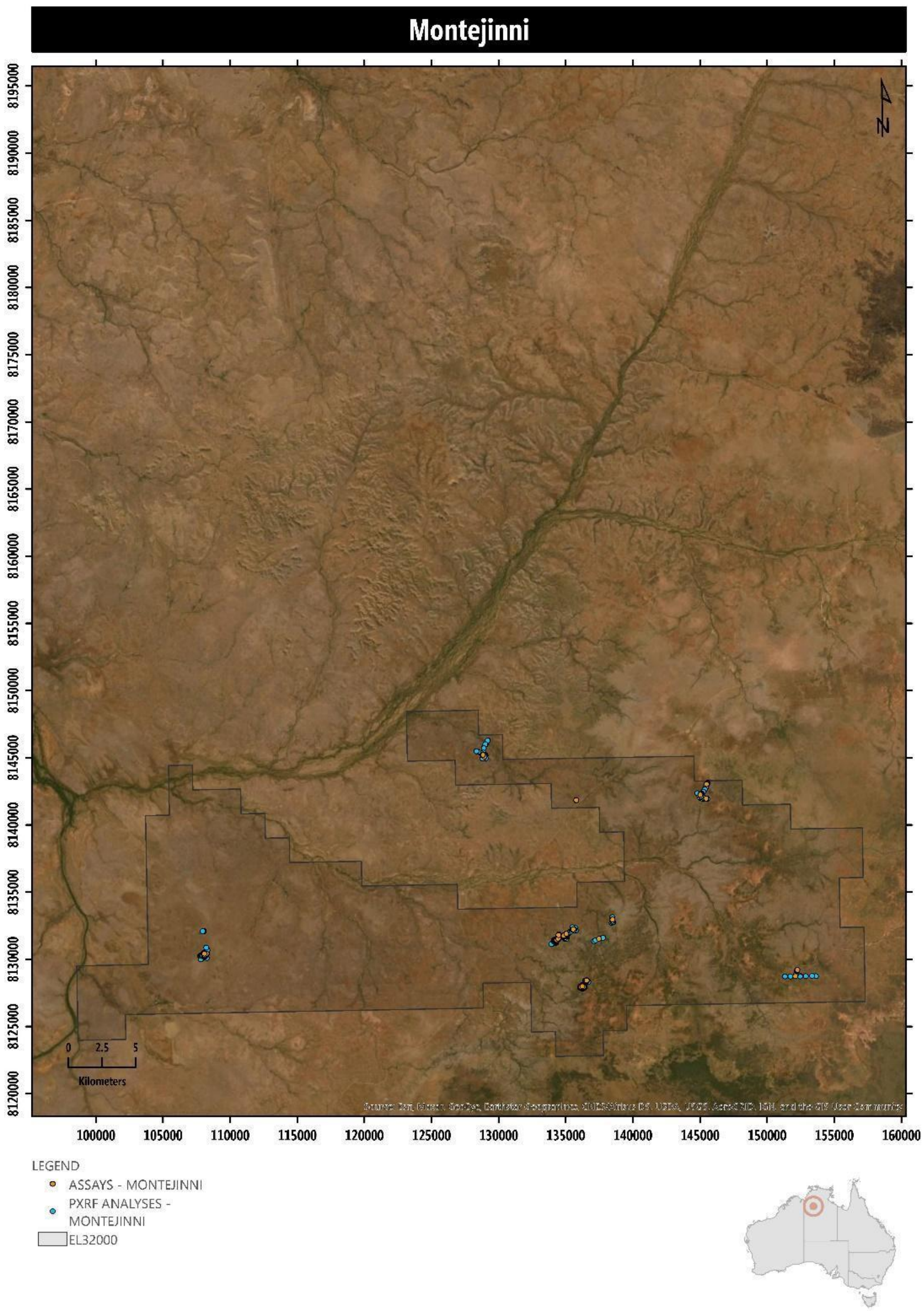

Figure 2. Index Map for the tenement.

Geological Activities and Office Studies

Tenement and Prospect Geology

EL32000 is dominated by outcropping, un-deformed and flat lying plains of Cambrian Antrim Plateau Volcanics of the Kalkarindji Province. To the east, these tholeiitic basalts are overlain by late Cambrian Montejinni Limestone, the western extent of the greater intracratonic Wiso Basin. The Cambrian sequences are partially covered by Cenozoic colluvium and incised by creeks and rivers filled with Cenozoic alluvium.

AI Analysis using EARTH AI's Proprietary Targeting Technology

EARTH AI data scientists have performed target generation analysis using our proprietary machine learning system that utilises Australia-wide open file and public domain geological, geophysical and remote sensing data for training. The system is able to recognise specific data signatures associated with mineralisation in areas not explored previously. This allows for predictions of mineralisation to be produced throughout Australia with a coverage and scope not previously possible.

AI targeting results are produced in tabular format indicating each predicted point location coordinates and its probability.

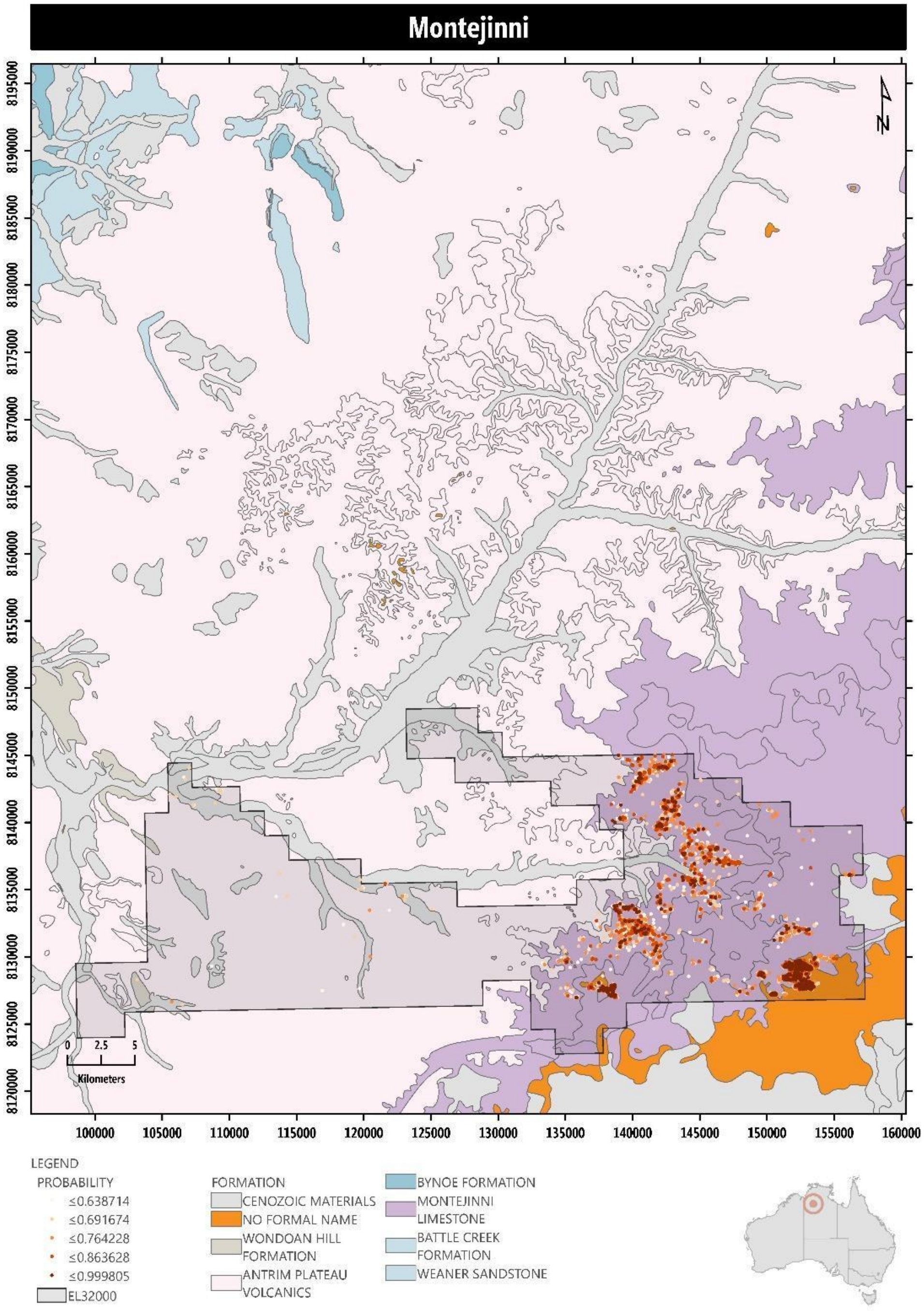

Figure 3. Image of AI predictions for Cu over local geology within the tenement.

Geophysical Activities

No geophysical activities were completed within the reporting period.

Surface Geochemistry

Surface geochemical data collected during the reporting period has involved a combination of portable XRF (pXRF) soil/rock analysis and lab assaying of soil and rock material. Geochemical survey styles can be broken down into three main categories:

1) Recon surveys aimed at testing AI-predicted targets
2) Soil grids
3) Geological traverses with Soil sampling

Reconnaissance Surveys Aimed at Testing AI-predicted Targets

These surveys are designed to test the AI-generated targets quickly with small surveys, generally 10-30 samples per survey over an area of no larger than 500m by 1000m.

Each survey usually consists of 2 profiles, roughly at right angles to each other. These profiles form an X-shape over the targeted anomaly, optimising the chances to identify the AI target faster. Profile length usually does not exceed 1km. Sample spacing is typically 50-100m, depending on the terrain and transported cover. Sampling profiles start and end 2-4 sampling points before the designated AI anomaly coordinates to get a representative geochemical background data.

In the event that anomalous geochemical values are confirmed, a pXRF soil survey is deployed to delineate and characterise the anomaly. Sample spacings are decreased when interesting rock textures or veining have been identified. The survey orientation is guided by the geochemical results and geological attitudes during initial reconnaissance.

Soil Grids

Soil surveys are designed to delineate the extent and orientation of surface geochemical anomalism and typically consist of 100-500 samples per survey, covering areas ~500m^2.

The surveys consist of multiple profiles, parallel to each other and orientated perpendicular to the anomaly to optimise anomaly delineation. Profile lengths usually do not exceed 1km. Portable XRF analysis of soils is performed by scuffing the surface by hand or foot and analysing directly in situ. Soil samples for assay are collected from ~20 to 30cm below surface and sieved to -20 mesh.

Geological Traverses with Soil Analysis

These surveys are designed to map out larger scale extents of the mineralisation, find neighbouring anomalies, understand the geological setting and find possible genetic or structural links to the mineralisation. The surveys are typically long and unstructured with hundreds to thousands of pXRF analyses per survey, generally covering an area more than $1km^2$. Analysis/mapping profiles are adjusted to follow the line of best outcrop or area coverage, are typically not straight and are guided by mapping or research hypotheses. Number, length and orientation of the profiles is variable.

Analysis spacing is irregular, as determined by geologist and rock samples are taken for assay when anomalous values or potentially mineralized rocks are encountered. Rocks collected for geological reference are also sent for full geochemical lab analysis.

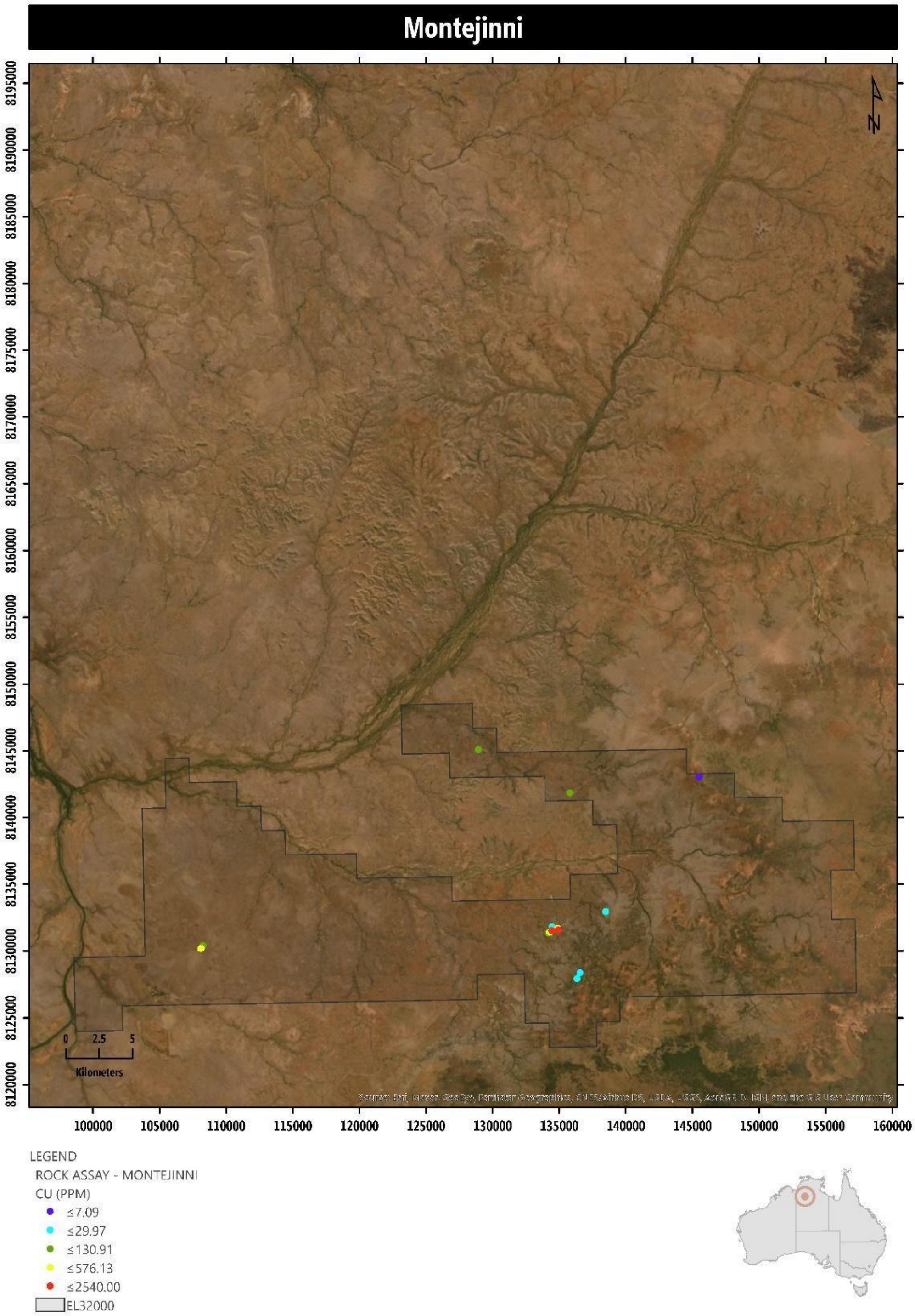

Figure 4. Rock assays (Cu [ppm]) within the tenement.

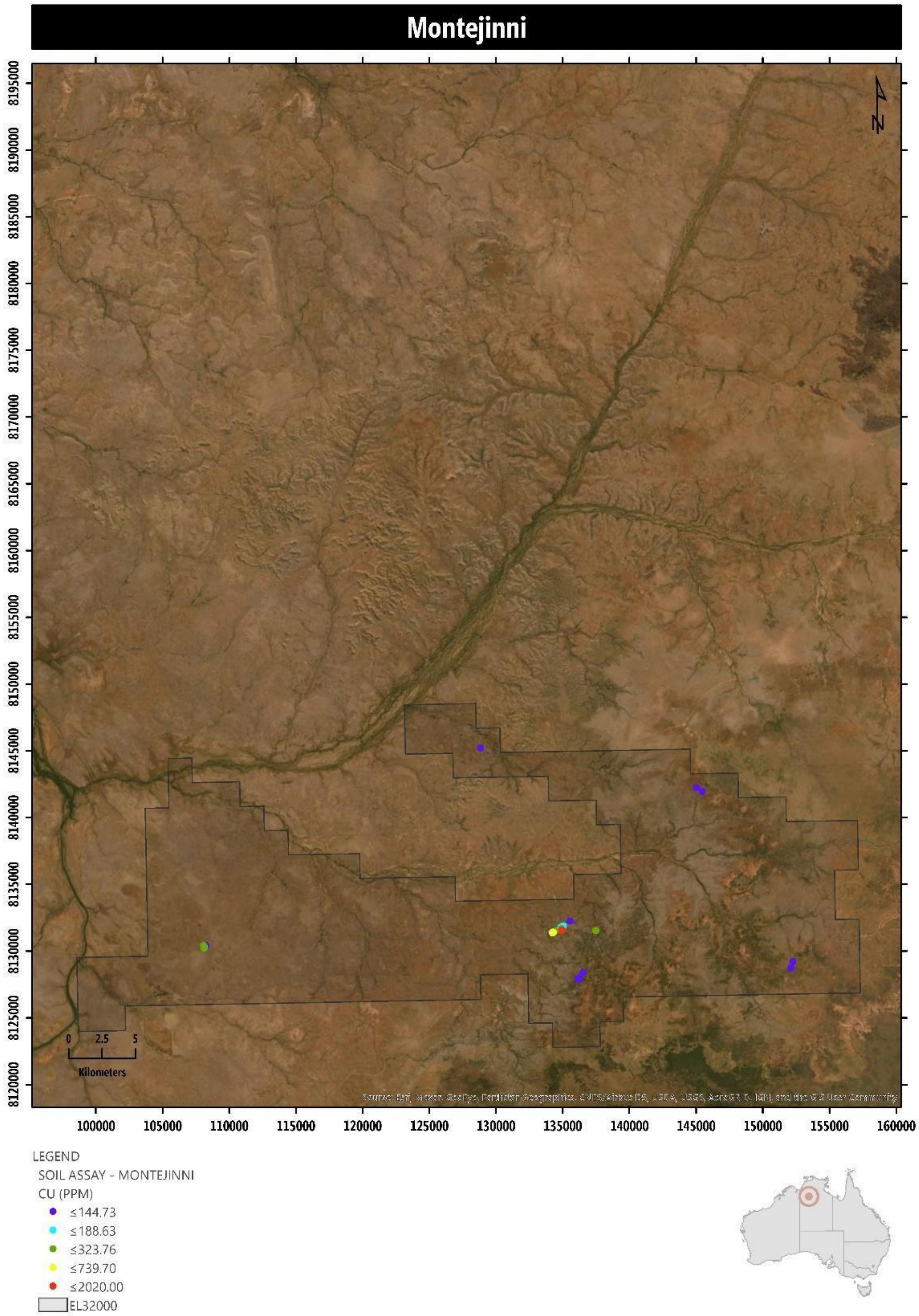

Figure 5. Soil assays (Cu [ppm]) within the tenement.

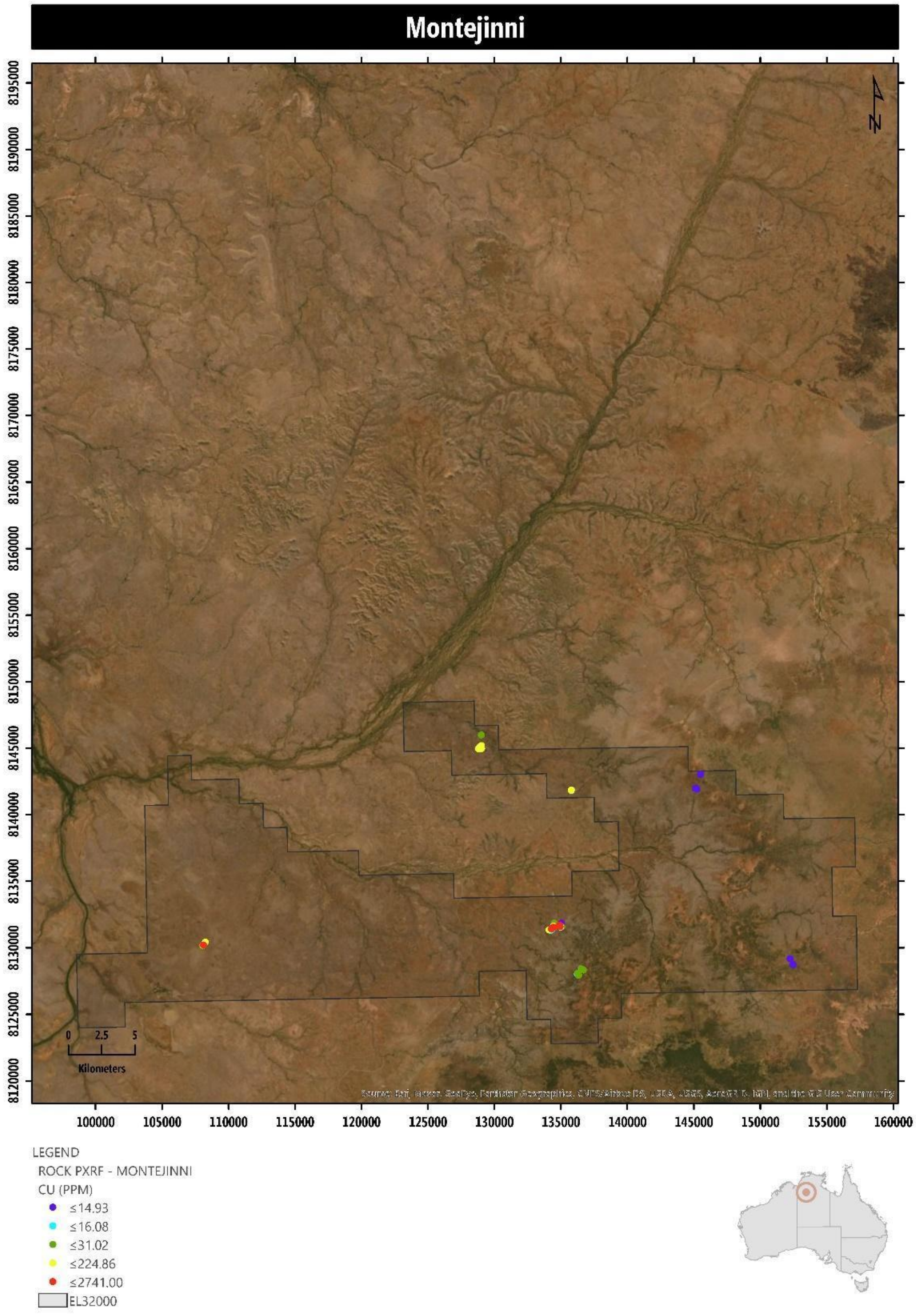

Figure 6. Rock pXRF analysis (Cu [ppm]) within the tenement.

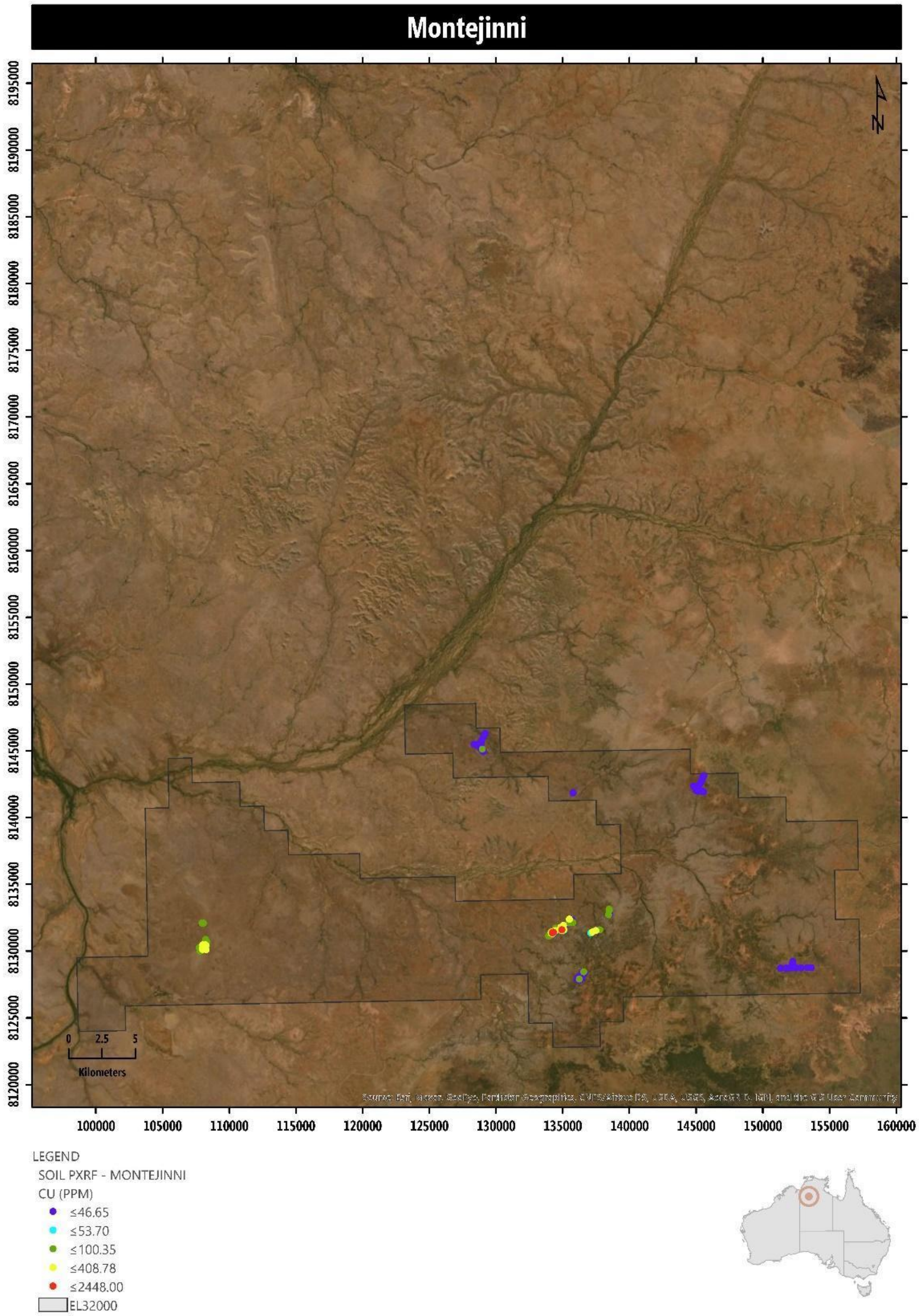

Figure 7. Soil pXRF analysis (Cu [ppm]) within the tenement.

Analysis methods and elements analysed

To analyse our samples we have used Portable XRF (pXRF) instruments Olympus Vanta & Olympus Delta, as well as ALS[1] laboratory methods AuME-ST44, PGM-ICP24, ME-MS81, ME-4ACD81, AuME-TL43, Au-ICP21, ME-MS43.

[1] - ALS global www.alsglobal.com

The instruments are Olympus Vanta portable XRF analysers, used as the primary non-destructive geochemical analysis method. Physical soil and rock samples are taken only several particular cases:

1) Anomalous geochemical values have been encountered
2) Potentially mineralised hydrothermal textures or veins have been identified
3) If the AI target being tested has predicted gold mineralisation - these surveys have full soil or rock samples taken at every point and they are being sent to the laboratory for gold assays and multi-element analysis.

QAQC for pXRF analysis is performed by analysing blanks and standards at the beginning & end of the day. Olympus Delta analyser also requires frequent re-calibration with a specific analyser sample. Olympus Vanta has automatic re-calibration running on the background.

QAQC for ALS-processed samples is performed by the laboratory, with blanks, various standards appropriate for specific analysis methods and duplicate samples analysed. ALS has supplied QAQC data as part of standard protocol for each work order.

Treatment of Below Detection Limit and Non-assayed data

EARTH AI are working with very large global databases and thus have internal data standards that we use for our databases, regardless of their original source.

Below detection limit data points are consistently converted to “0.000001” and not “nd”. We do this for 3 main reasons:

1) We must keep data columns with 1 consistent type - “float” number format. Modern low-level data processing software libraries we use in conjunction with our proprietary software require a consistent data type in each column, list or feature.
2) There is a risk of data contamination with -999 values, which in some databases indicate Non-assayed (not-existing) data.
3) Keeping various negative values makes it impossible to use automatic mapping tools, such as gridding and auto-range labelling, as it creates false artefacts on the map.

Non-assayed data points are kept as blank cells, or “nulls” when read by data handling libraries, for example python pandas. All other formats for depicting nulls, alike “-9999” etc, are converted to blank/null cells.

Drilling

No drilling was completed within the reporting period.

Conclusions and Recommendations for Future Work

Unfortunately, due to the very long and unpredictable nature of the COVID-19 pandemic we don't see the possibility for us to logistically support and continue investing in the exploration of this project. In case the situation becomes suitable after the pandemic, we would like to revisit the project in the future as well as encourage other explorers to build up on our work in the area.

References

Glass, L.M., Ahmad, M. and Dunster, J.N., 2013. Kalkarindji Province: in Ahmad M. and Munson T.J. (compilers). ‘Geology and mineral resources of the Northern Territory’. Northern Territory Geological Survey, Special Publication 5.

Munson, T.J., Ahmad, M. and Dunster, J.N., 2013. Carpentaria Basin: in Ahmad M. and Munson T.J. (compilers). ‘Geology and mineral resources of the Northern Territory’. Northern Territory Geological Survey, Special Publication 5.

Data Formats and Specifications

See Appendix I (Appendix_I_EL32000_tables.zip)

Tabular Data

See Appendix I (Appendix_I_EL32000_tables.zip)

Photographs Other than Those in the Body of Text

No photos attached to this report.