PENSANA Plc

COOLA LICENSE EXPLORATION UPDATE

NOVEMBER 2022

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1. INTRODUCTION

The main focus of exploration activities in 2022 on the 7 500 km2 Coola Mining prospecting license have been on three highly prospective targets namely the Sulima West carbonatite, the Benga Novo alkaline complex and the Coola carbonatite (Figure 1). Sulima West and Benga Novo targets are well situated being 160 kilometres east of the port of Lobito, and Coola is situated 40 kilometres north of Longonjo.

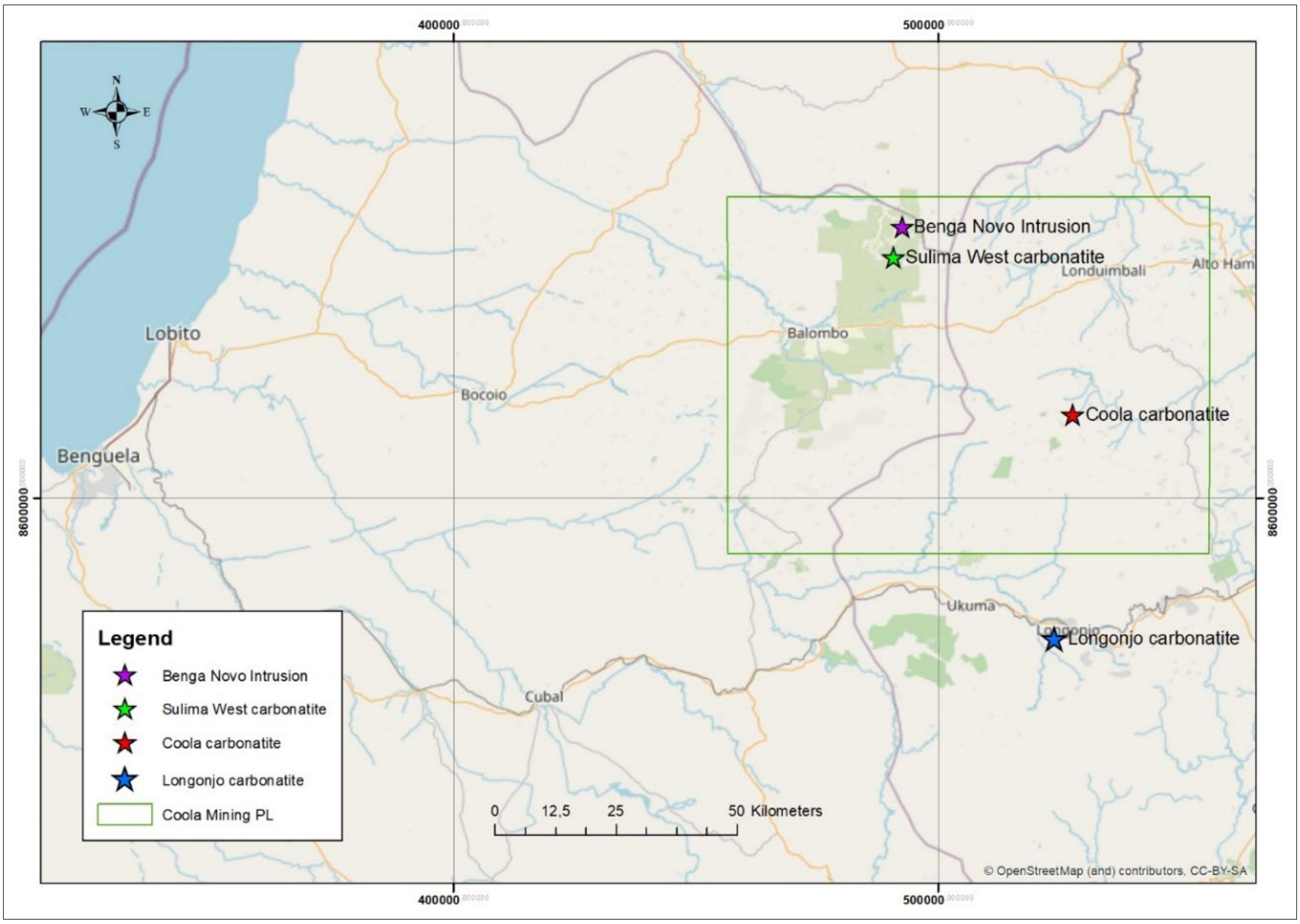


Figure 1. Locality map showing the position of the Longonjo carbonatite relative to the three main targets on the Coola license area.

This report briefly outlines work completed on these 3 target areas, records observations and sampling completed during this field season, and recommends further follow up work to be carried out on each of the respective targets.

2. SULIMA WEST CARBONATITE TARGET

Sulima West is a 4.2-kilometre diameter alkaline/carbonatite ring complex with a corresponding high radiometric response occurring immediately to the south of the Benga Novo intrusion and to the west of the Sulima ring structure (Figure 2 and 3).

The Sulima West intrusion is deeply weathered and has limited outcrop with most of the intrusion covered in thick soils with a distinct lack of trees but rather short grass and various proteacea. No villages or agricultural activities are present within the caldera, the land use being primarily cattle grazing and hunting.

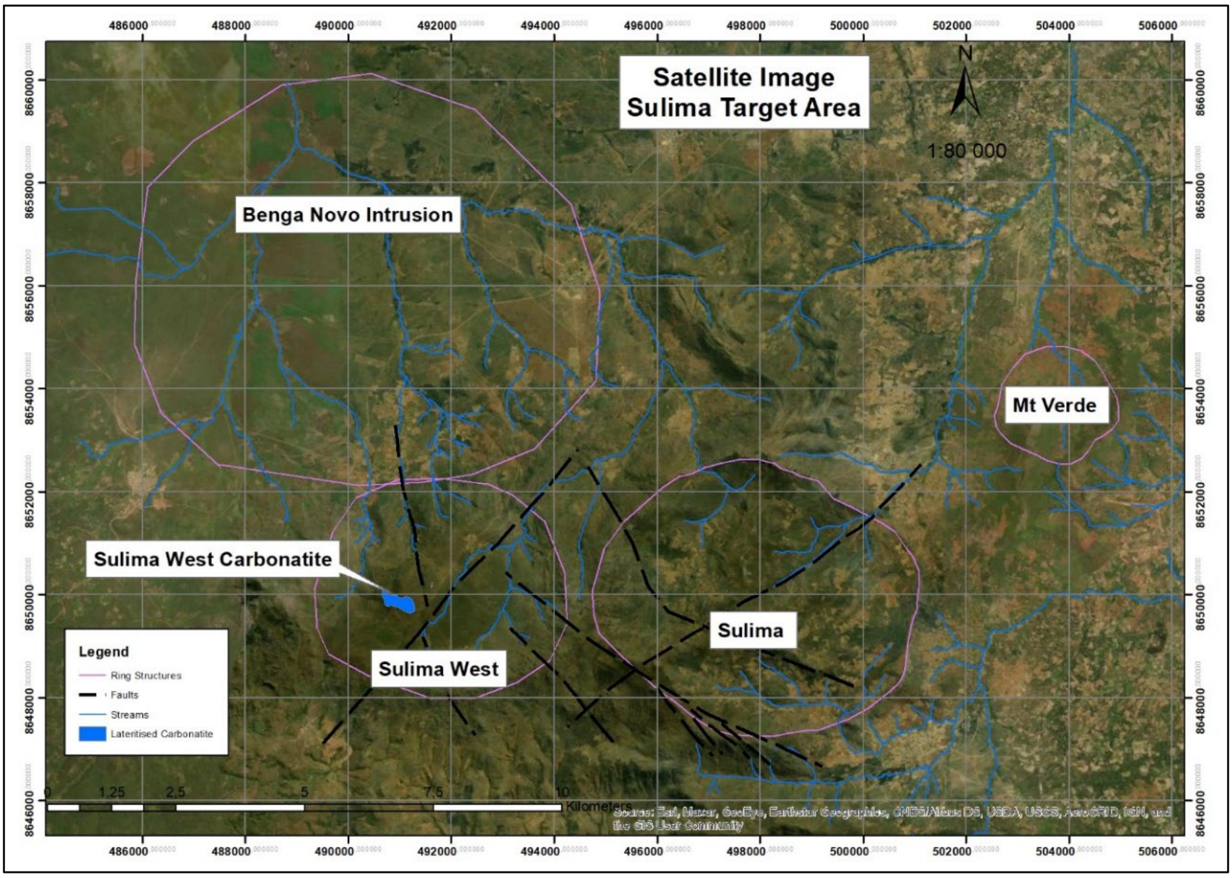


Figure 2. Satellite image showing location of Sulima West in relation to other ring structures & alkaline intrusive complexes in the area.

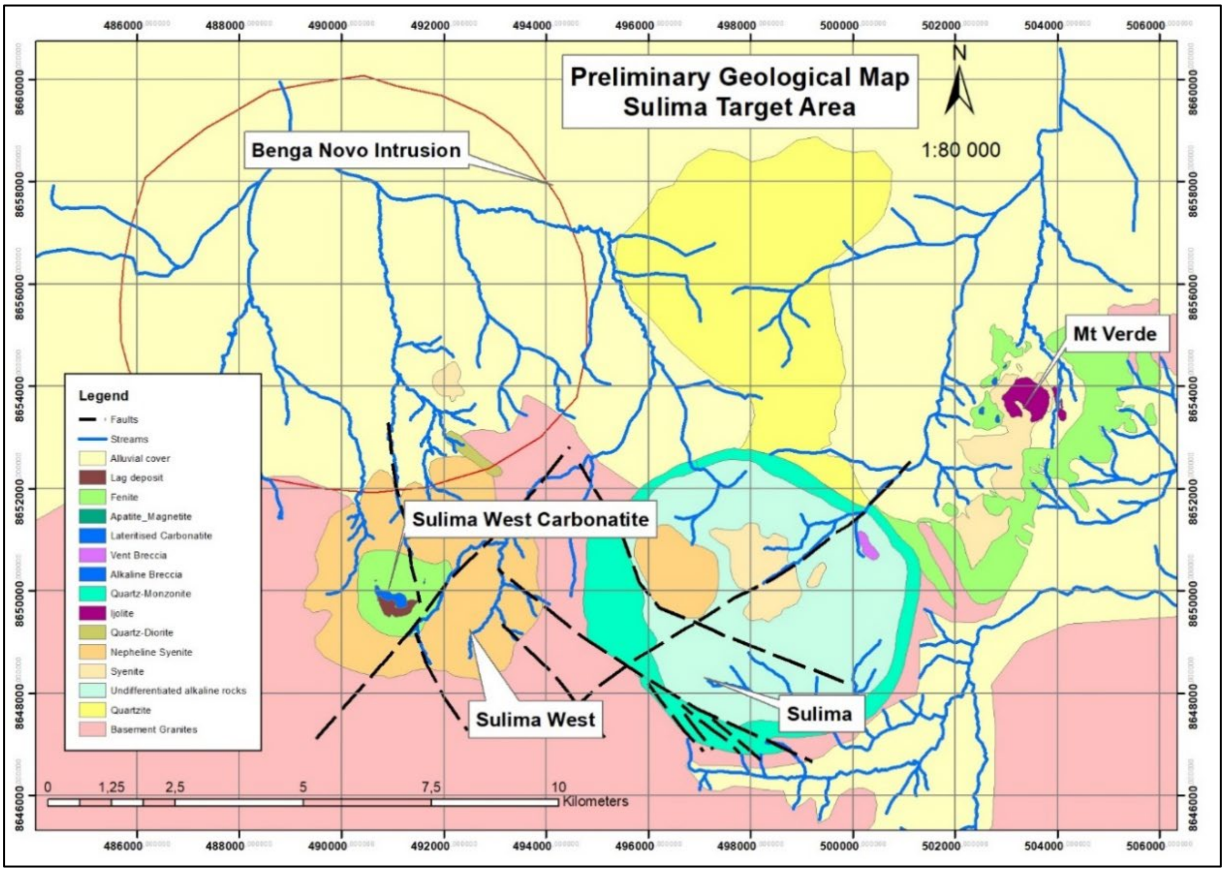


Figure 3. Preliminary geological map of the Sulima area

Inspection of the satellite imagery of the Sulima West ring structure identified 10 historic trenches each of about 90 metres in length located in the western segment of the structure. These trenches correspond with the highest radiometric response. No information on these trenches was available from the Geological Institute of Angola but local anecdotal information reports that the trenches were excavated between 1960 and 1970 by the Compania Minerais do Lobito.

Twenty-two initial reconnaissance samples were extracted from the trenches in 2021. During this sampling, it was observed that the trenches were excavated into an iron/manganese-rich (Fe/Mn) laterite very similar in appearance to the rare earth element laterite developed over the Longonjo carbonatite.

Results of this initial sampling returned significant values for rare earth oxides with up to 10.6% TREO encountered in the laterite and averaging 4.2% TREO. Manganese oxide values of up 15.9% MnO and averaging 7.2% MnO were reported. On the strength of these highly encouraging initial results, follow up mapping and sampling was scheduled for the 2022 field season.

Recent exploration activities included preliminary geological mapping and sampling, a 50 x 50 m soil sampling programme and the cleaning out and channel sampling of one historic trench and one pit. Sampling results from the trench and pit have recently been received from the laboratory, the results of the soil sampling remain outstanding. Temporary tented exploration camps were set up for the duration of the mapping and sampling exercises (Figure 4).

Figure 4. Exploration camp at Sulima West

Geological mapping indicates that much of the outer parts of the intrusion are underlain by coarse grained nepheline syenite. The central parts, however, have limited outcrop and those outcrops investigated comprise in places fenite, but mostly reflect resistant duricrusts exposed from within the regolith profile. The regolith observed has many similarities with those developed above weathered carbonatites. The area of the mapped laterised regolith is approximately 15 hectares.

A prominent sinkhole was located to the west of the trenches – a common feature associated with the internal collapse of the regolith which takes place through volume loss during weathering of carbonates. A small hillock next to the sinkhole revealed itself to consist essentially of apatite, maghemite and monazite (Figure 5, 6 and 9). These rocks are typical of the supergene apatite deposits mined in Brazil such as Catalao-2.

Figure 5: Sinkhole with outcrop of apatite-maghemite rock in the distance.

One of the historic trenches at Sulima West, Trench 1, was cleaned and sampled at 2 metre intervals across the Fe/Mn enriched lateritised regolith (Figures 6, 7, 9 and 10). Analysis returned values of between 0.3 and 9.7% TREO, with an average grade of 3.4% TREO over 68 metres.

A historic pit at Sulima West, Pit 1, adjacent to Trench 1, was cleaned and sampled at 1 metre intervals (Figures 6, 8 and 9). Analysis returned values of between 3.4% and 5.2% TREO, with an average grade of 4.3% TREO over 6 metres. Five additional Fe/Mn laterite samples from the other trenches reported individual values which vary from 4.5% to 7.6% TREO.

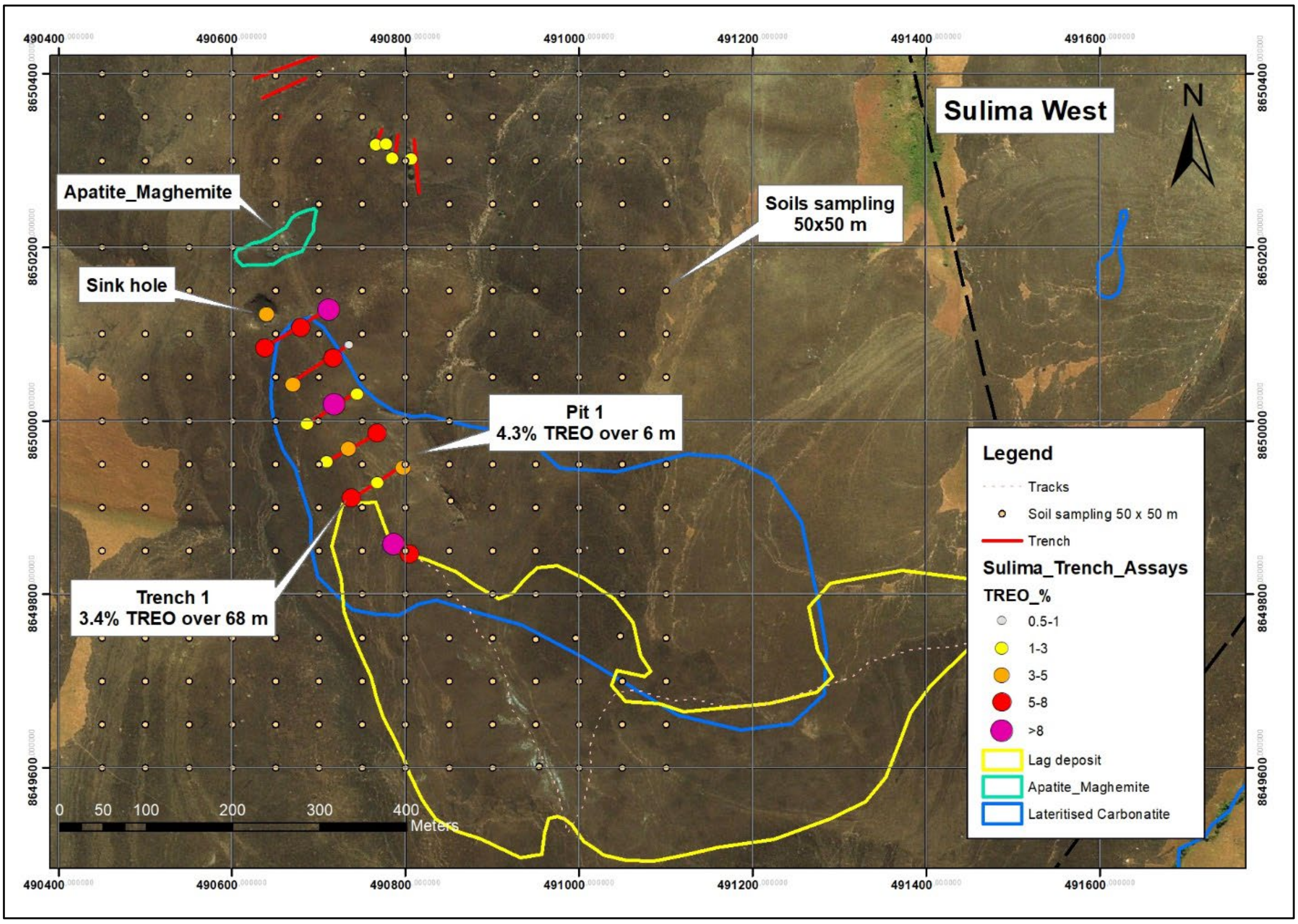


Figure 6: Sulima West simplified geology showing trench and pit sampling results and location of 50 x 50 m soil sampling grid (analytical results outstanding).

Figure 7 and 8. Channel sampling laterite exposed in Trench 1 (68 m) and Pit 1 (6 m) at Sulima West.

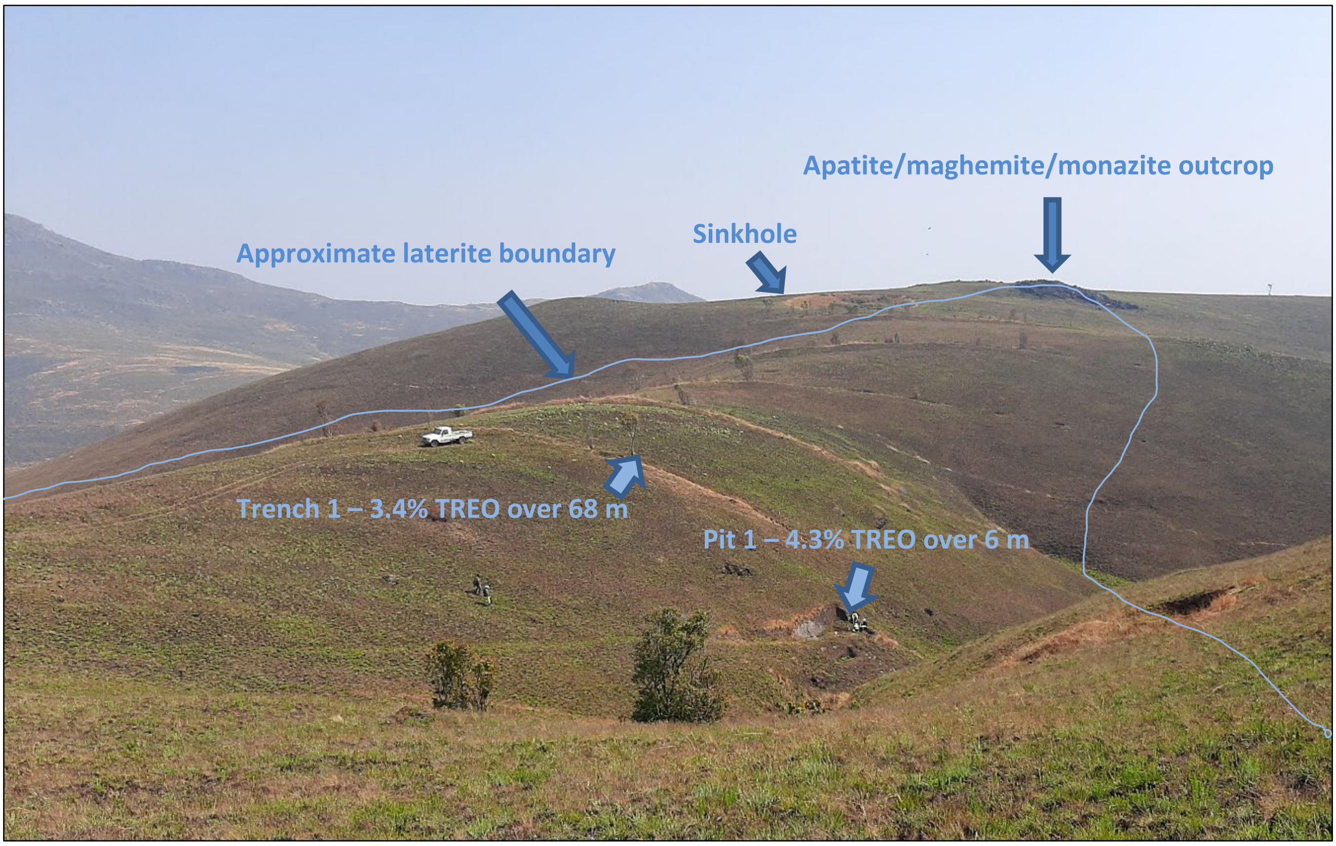


Figure 9: Sulima West - Trench 1 and Pit 1 that were sampled during 2022 looking west; outcrop in NE corner comprises supergene apatite/maghemite and monazite.

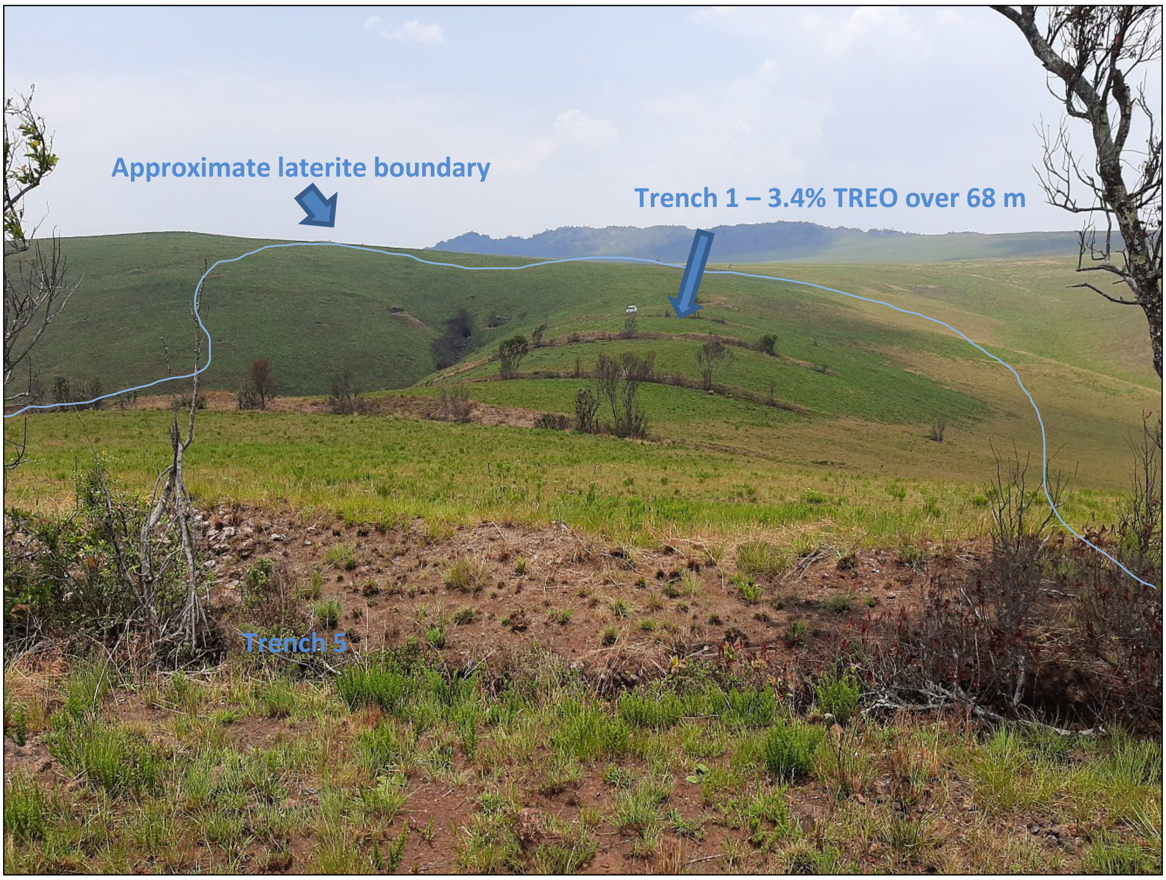


Figure 10: Looking east across the five main trenches at the Sulima West laterised carbonatite.

Reported manganese grades in the laterite range from 1.5% to 18% manganese oxide (MnO) and average 12% MnO. The manganese component is regarded to be economically significant.

Recent geological mapping at Sulima West identified a prominent outcrop of supergene apatite occurring together with maghemite and monazite and the area has the potential to host significant phosphate resources (Figures 5, 6 and 9). The presence of outcrops of secondary, supergene apatite occurring together with maghemite and monazite attests to the formation of a zone of phosphate enrichment which must occur within a deeply weathered regolith. Similar zones of apatite enrichment are noted at Mabounie in Gabon, Catalão 2 in Brazil and Mount Weld in Australia.

Samples of the Fe/Mn laterite and samples of the apatite/maghemite/monazite rock have been collected and will be submitted for Mineral Liberation Analysis.

Significant shallow rare earth element (REE), manganese and phosphate mineralization have been identified at Sulima West. The presence of highly anomalous TREO of >10%, the anomalous radioactivity, outcropping fenite, as well as significant manganese and supergene apatite, all are supportive of a carbonatite at depth.

Geophysical surveying and diamond drilling of this target is scheduled for 2023 to ascertain the extent of the underlying carbonatite, but importantly to quantify the presence and amount of apatite, REE and manganese.

3. BENGA NOVO TARGET

The Benga Novo intrusion is interpreted as a very large caldera occurring immediately to the north of the Sulima West intrusion. It is regarded to be at least 8 to 10 kilometres across and is characterised by flat, deeply weathered soils with a solitary alkaline granite outcropping in the south eastern part (Figure 2, 3 and 11). The large majority of the caldera is unpopulated and land use is predominantly localised agriculture and pastures for stock grazing (Figure 11).

The discovery of thick, leached and possibly clay rich lateritised material above the western parts of the known alkaline silicate complex of Benga Novo are strong indications of the possibility of bauxite potential. Similar occurrences are known in other parts of the world for example the Pocos do Caldas intrusive nepheline syenite in Brazil. Initial sampling of this potential bauxite resource has been completed (Figure 12 and 13) and samples are currently being exported from Angola.

The identification of a significant, clay dominated, deeply weathered regolith over parts of the main Benga Novo intrusion may additionally be prospective for the occurrence of ionic clay hosted REE deposits.

Figure 11. Looking north from Sulima West across the Benga Novo intrusion, prominent hill in centre is Benga Novo alkaline granite massif.

Figure 12 and 13. Thick clay dominated, deeply weathered regolith over parts of the main Benga Novo intrusion.

Both phosphorous (P) and potassium (K) are enriched in these rock types and the use of nepheline syenite as well as ultra-potassic rocks as direct application crushed rock fertilisers has been a success in many parts of the world and further sampling is scheduled to evaluate the potential for these essential elements.

The Benga Novo intrusion is believed to be vast (approaching 100 km2) and the potential for alkaline silicate related mineralisation such as REE, Nb, U and Zr is deemed positive.

Airborne geophysical surveys and additional mapping and sampling of the Benga Novo complex is scheduled for early 2023 with a view to advancing the geological understanding of this highly prospective soil covered potentially multi-commodity complex.

4. COOLA CARBONATITE TARGET

The Coola carbonatite is a roughly circular body, measuring about 900 metres across as inferred from the limited outcrops of carbonatite and fenite. The circular shape suggests that the Coola carbonatite may be a ring dyke or breccia pipe, similar to the carbonatite at Longonjo. The centre of the carbonatite is covered by colluvium thus obscuring the geology of the complex (Figure 14). The area is unpopulated and used for agriculture, grazing and hunting.

Figure 14. Coola carbonatite (blue ring) from the eastern carbonatite ring dyke looking west across soil covered central diatreme towards the western rim of the carbonatite ring dyke.

Initial soil sampling across the Coola carbonatite identified a high tenor of rare earth elements in a soil anomaly extending over 1.3 x 1.4 kilometres (Figure 15). Soils contain up to 4.69% TREO over outcropping carbonatite. The central part of this circular structure lies entirely under thick soil cover.

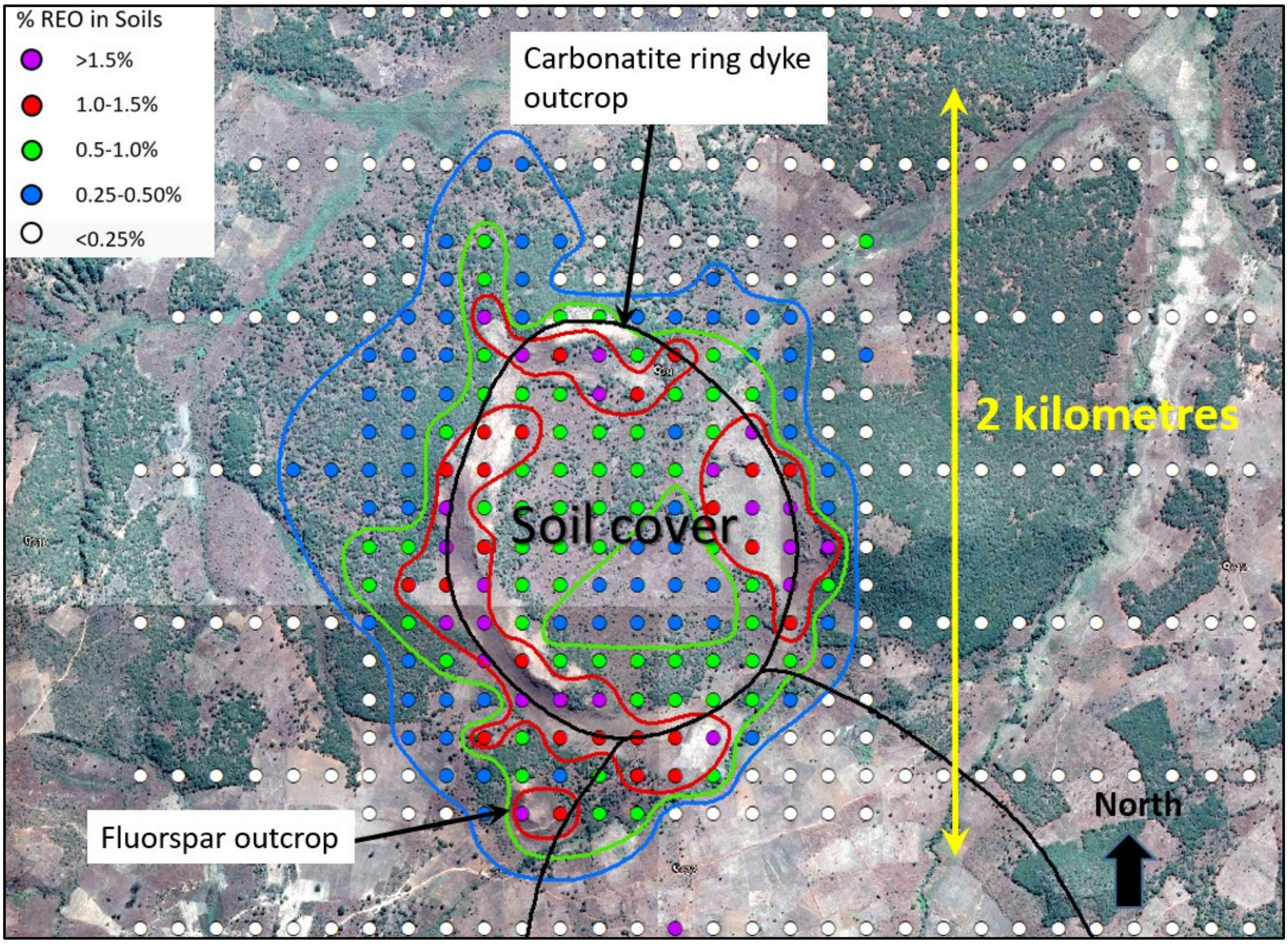


Figure 15: High tenor rare earth element soil anomaly over the outcropping Coola carbonatite ring dyke.

Recently detailed geological mapping coupled with close space soil sampling and radiometric surveys have been completed over the sub outcropping ring dyke and the fluorite occurrence at the Coola carbonatite (Figure 16). A representative suite of rock samples has been mineralogically investigated and attempts were made to hand-auger drill the central diatreme.

Three main lithologies were identified comprising the ring dyke namely: a banded dolomitic carbonatite, carbonatite breccias, and a strongly oxidized and hydrated Fe/Mn barite-rich rock. The dyke generally dip steeply inwards at between 60 to 80 degrees. The ring dyke is surrounded by fenite and the central area to the ring dyke is covered by over 5 metres of colluvial/alluvial material overlying ferricrete (Figure 16).

Evaluation of the sampling data showed the areas of banded dolomitic carbonatite returned the most encouraging rare earth oxide numbers with values of up to 13.8% TREO identified in the soils overlying sub outcropping carbonatite (Figure 16). Rock chip sampling of this unit returned grades of up to 4.9% TREO (Figure 17). Grades encountered in soils and rocks across the carbonatite breccia and oxidized and hydrated lithologies of the ring dyke returned lower grades of between 1% and 2% TREO (Figure 16 and 17). In the radiometric survey, the well mineralized dolomitic carbonatite showed the lowest radiometric response of the three main rock types (Figure 18).

Scandium values in soil samples ranged from 30 – 220 ppm and average 92 ppm Sc. Scandium is enriched predominantly in the north and northwest portions of the ring dyke and in the fenite (Figure 19).

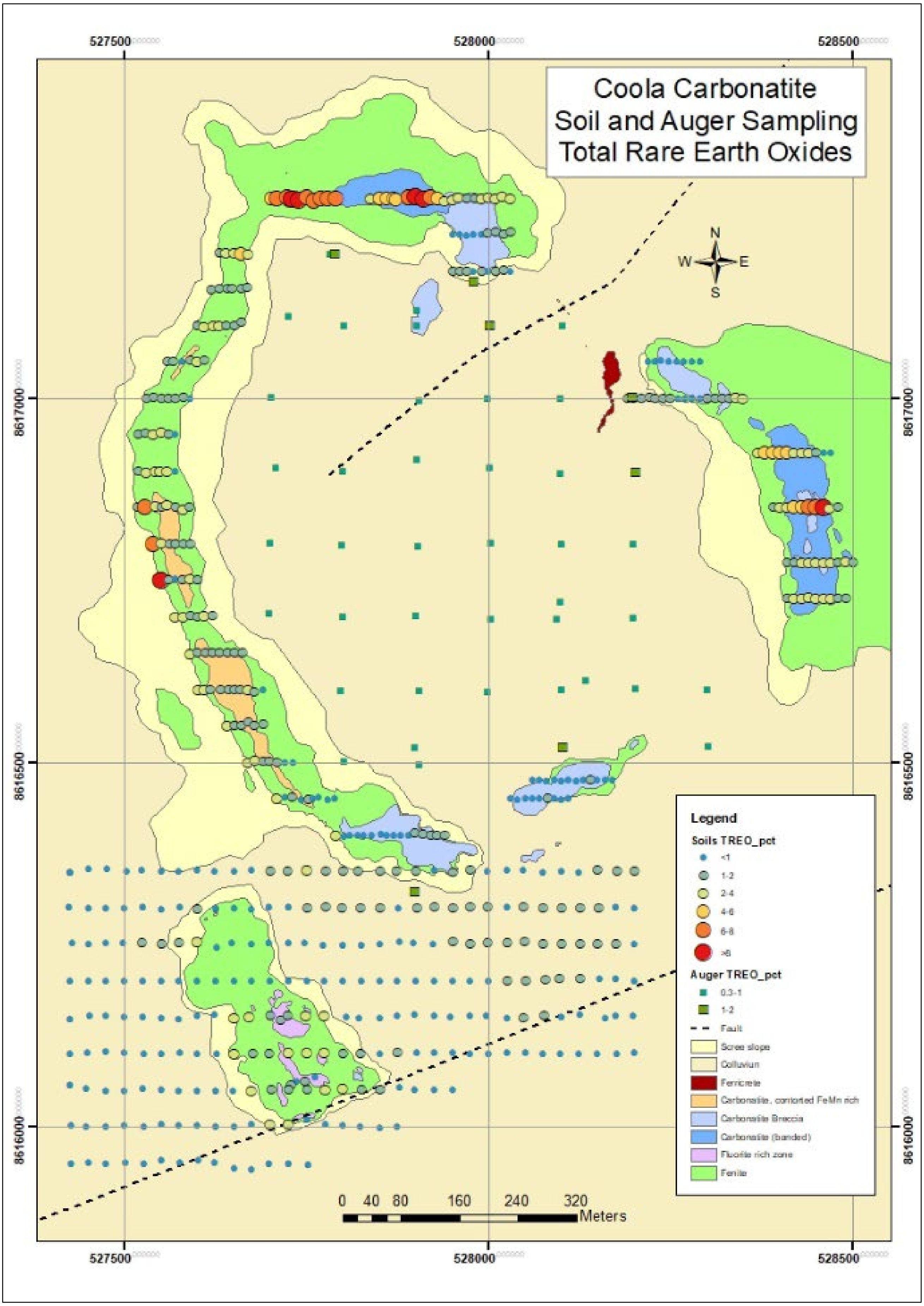
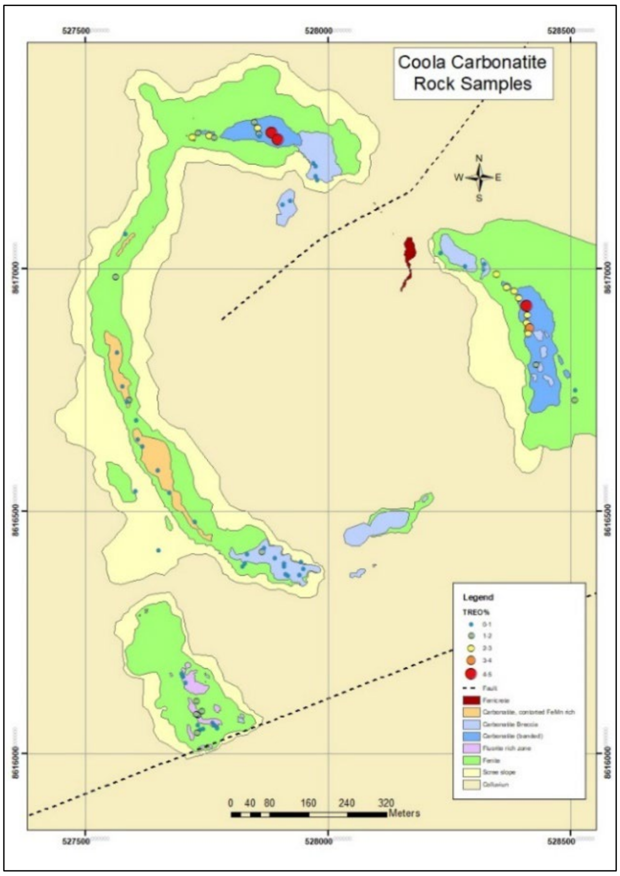


Figure 16: Geological map of Coola carbonatite showing TREO values from soil and auger sampling.



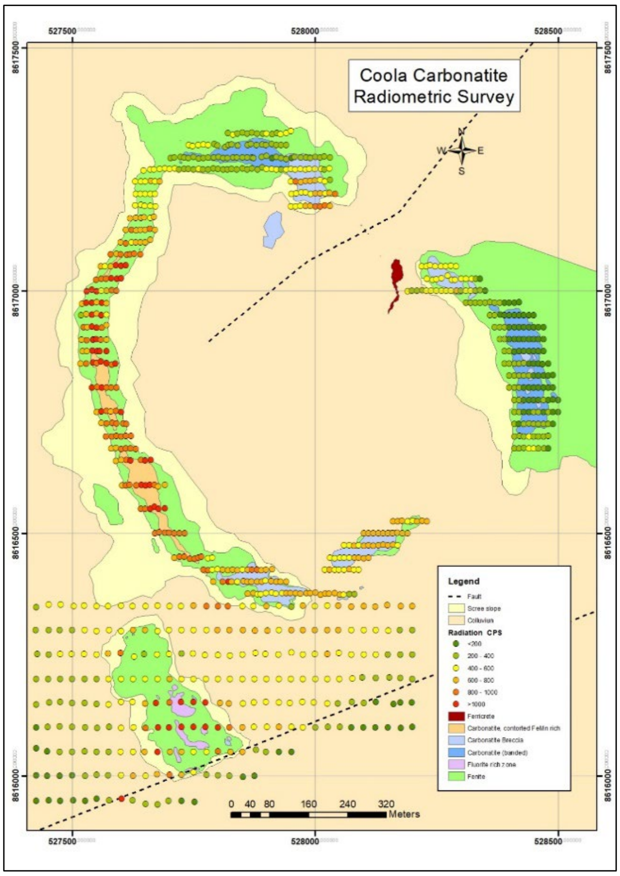
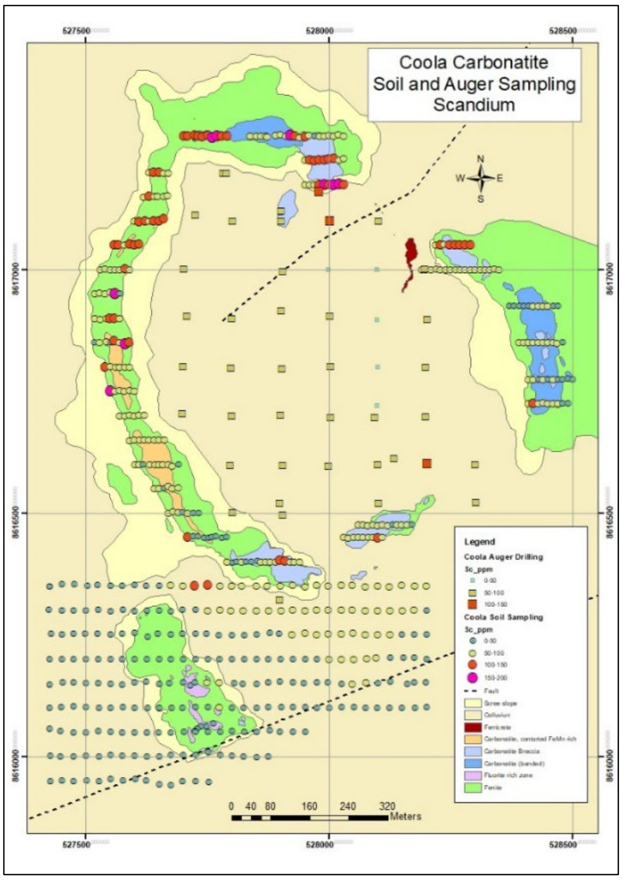


Figure 17 and 18: Rock chip sampling positions and results (left) and radiometric survey from soil sampling at Coola carbonatite (right)



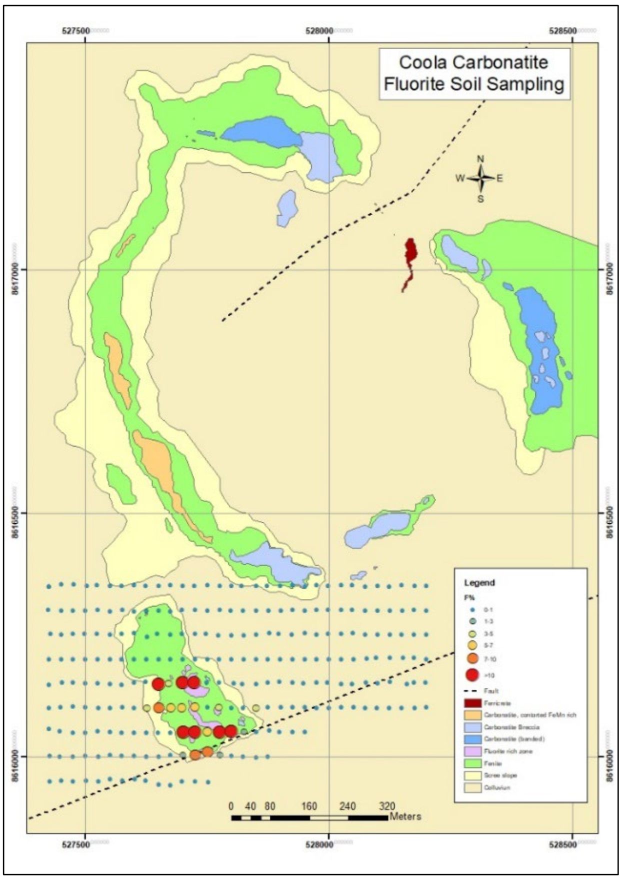


Figure 19 and 20: Scandium values from soil sampling and augering at Coola carbonatite (left) and Fluorine values from soil sampling at Coola carbonatite (right).

Late-stage hydrothermal fluorite veining occurs in fenite to the southwest of the ring dyke over an area of roughly 30 000 square metres. The limited extent of the occurrence lowers the prospectivity of fluorite at Coola (Figure 20).

Augering of the regolith within the central diatreme was completed to depth of up to 5 metres and showed low TREO grades (Figure 16). The auger samples comprised essentially colluvial soils and the auger failed to penetrate an underlying ferricrete. These ferricrete horizons commonly form above the saprolite and are therefore part of the upper regolith developed above a carbonatite. This indicates that little progress was made on determining the supergene REE mineralisation potential of the complex and deeper drilling and sampling is required.

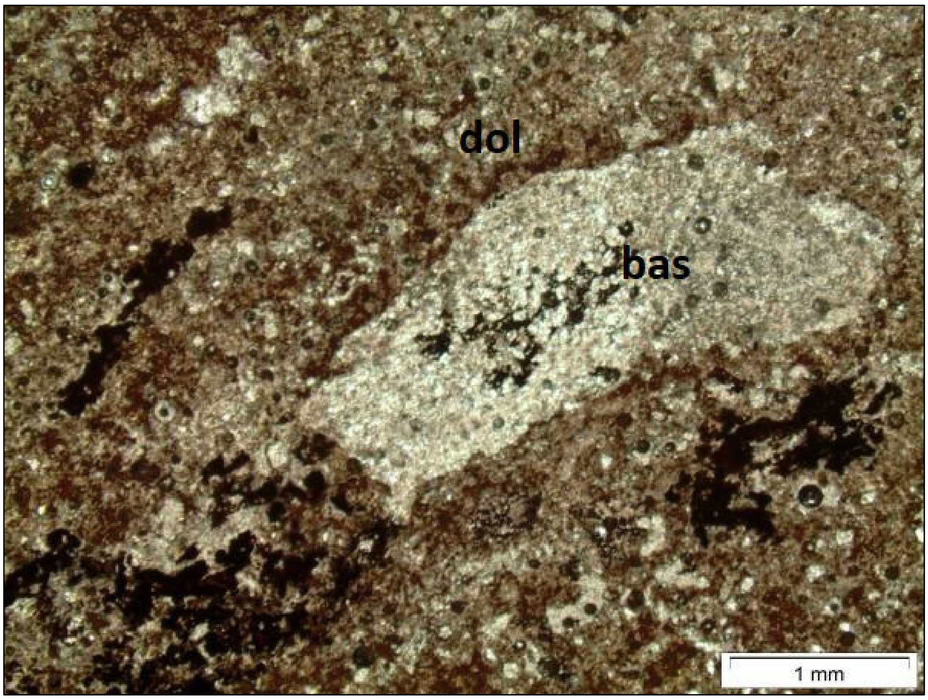


Figure 21: Photomicrograph of banded dolomitic carbonatite (dol) with large aggregate of bastnaesite (bas -greyish pink)

Mineralogical studies of the banded dolomitic carbonatite show the rare earth mineral to be bastnaesite (La/Ce/Y)Co3F, a fluorcarbonate mineral. The bastnaesite occurs as thin veins, aggregates, and segregations within the fresh carbonatite with some discrete grains observed in thin section of up to 3 mm in length (Figure 21).

Samples of the REE mineralized banded dolomitic carbonatite have been collected and will be submitted for Mineral Liberation Analysis.

Economic grades of REE mineralisation in the form of bastnaesite has been located in banded dolomitic carbonatites at the Coola carbonatite. This unit will be explored by means of geophysical surveys and diamond drilling in 2023.

The potential for supergene monazite is regarded as good given that previous auger drilling was unable to penetrate the ferricrete layer regarded as the top of the regolith. Carbonatite diatremes are often the most prospective areas for supergene deposits, and the central diatreme will be drill tested in 2023.