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**Regolith-Landforms and plant biogeochemical  
expression of buried mineralisation targets in the  
Northern Middleback Ranges,  
("Iron Knob South") South Australia**

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## ABSTRACT

South of the town Iron Knob on the northern Eyre Peninsula, a tenement scale plant biogeochemical survey and regolith-landform mapping, combined to define areas with elevated Cu, Zn and Au contents that are worthy of follow-up exploration. Plant biogeochemistry was conducted within a 6 Km<sup>2</sup> area with 1 Km spacing between each E-W trending transect and 200 m spacing between each sample. A regolith-landform map presents the distribution of regolith materials and associated landscape processes to help constrain geochemical dispersion. A Philips XL30 SEM provided insight into how the plants uptake certain elements and distribute them within the organs structure. Two zones of elevated trace metals (e.g. Cu, Au and Zn) were defined either side of a NW-SE structure crossing over the N-S trending 'Katunga' ridge. Both targets were located on similar regolith-landform units of sheet-flood fans and alluvial plains. Copper and Zn results were best represented by the western myall species while the bluebush species was best at detecting Au. A follow up study targeting the NW-SE structure with closer sample spacing is recommended in further constraining drilling targets. For the tenement holding company, Onesteel Ltd, these results are significant as they define two new areas of interest for possible IOCG mineralisation. For research purposes the results confirm that plant biogeochemistry can be used as an effective tool for detecting mineralisation along buried structures providing the use of the right species in the area.

**Key Words:** Iron Knob, northern Eyre Peninsula, plant biogeochemistry, regolith-landform, Onesteel, IOCG mineralisation

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