



## PATERSON PROJECT

TECHNICAL OVERVIEW  
OCTOBER 2020



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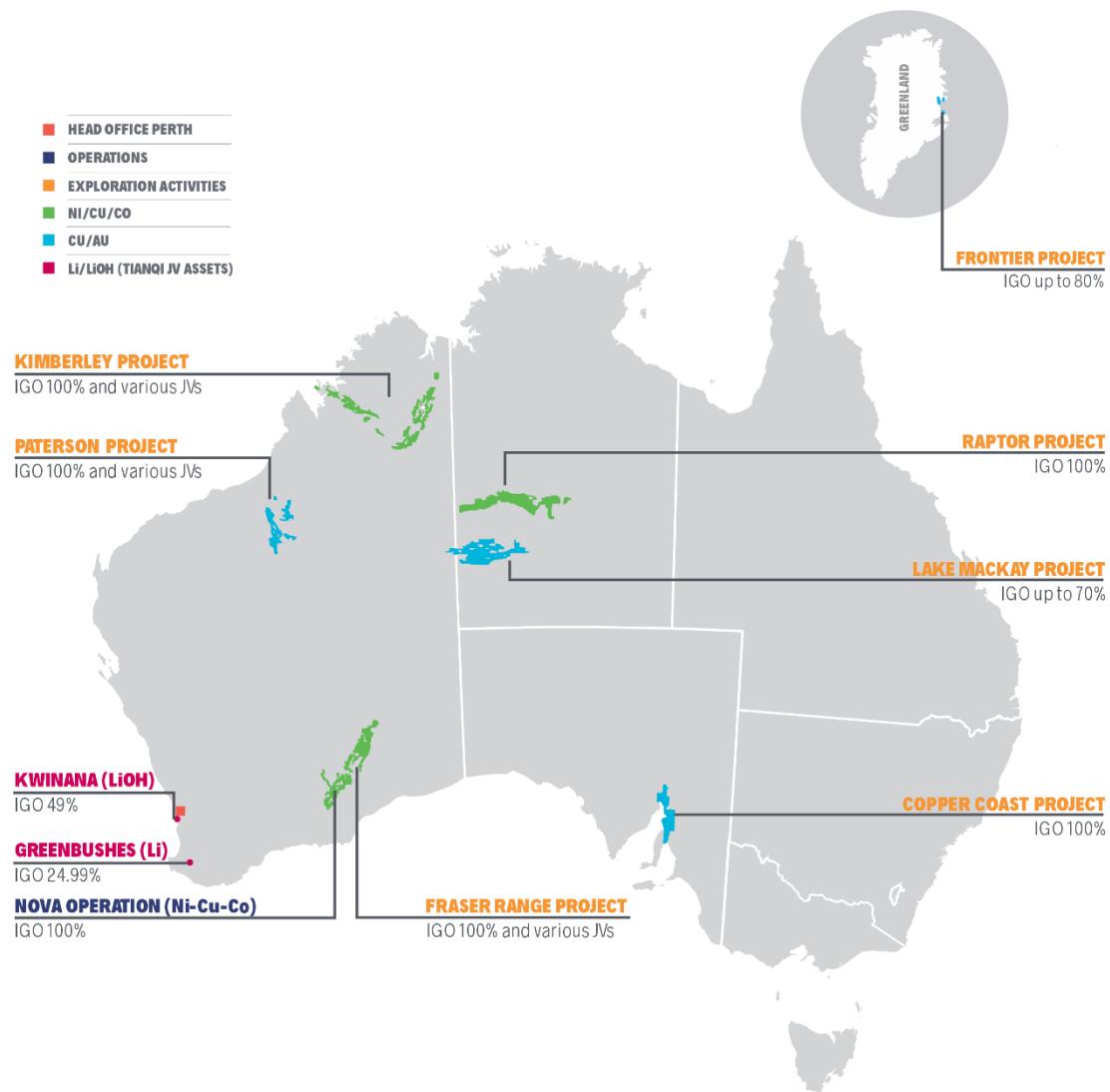
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## INTRODUCTION

To align with IGO's strategic focus on clean energy metals IGO prioritises the exploration of terranes prospective for magmatic nickel sulphide and sediment hosted copper deposits.

The Company has acquired exploration access to extensive belt-scale land positions across Australia and in Greenland, and all are highly prospective for multiple Tier-1 base and precious metals discoveries (Figure 1).

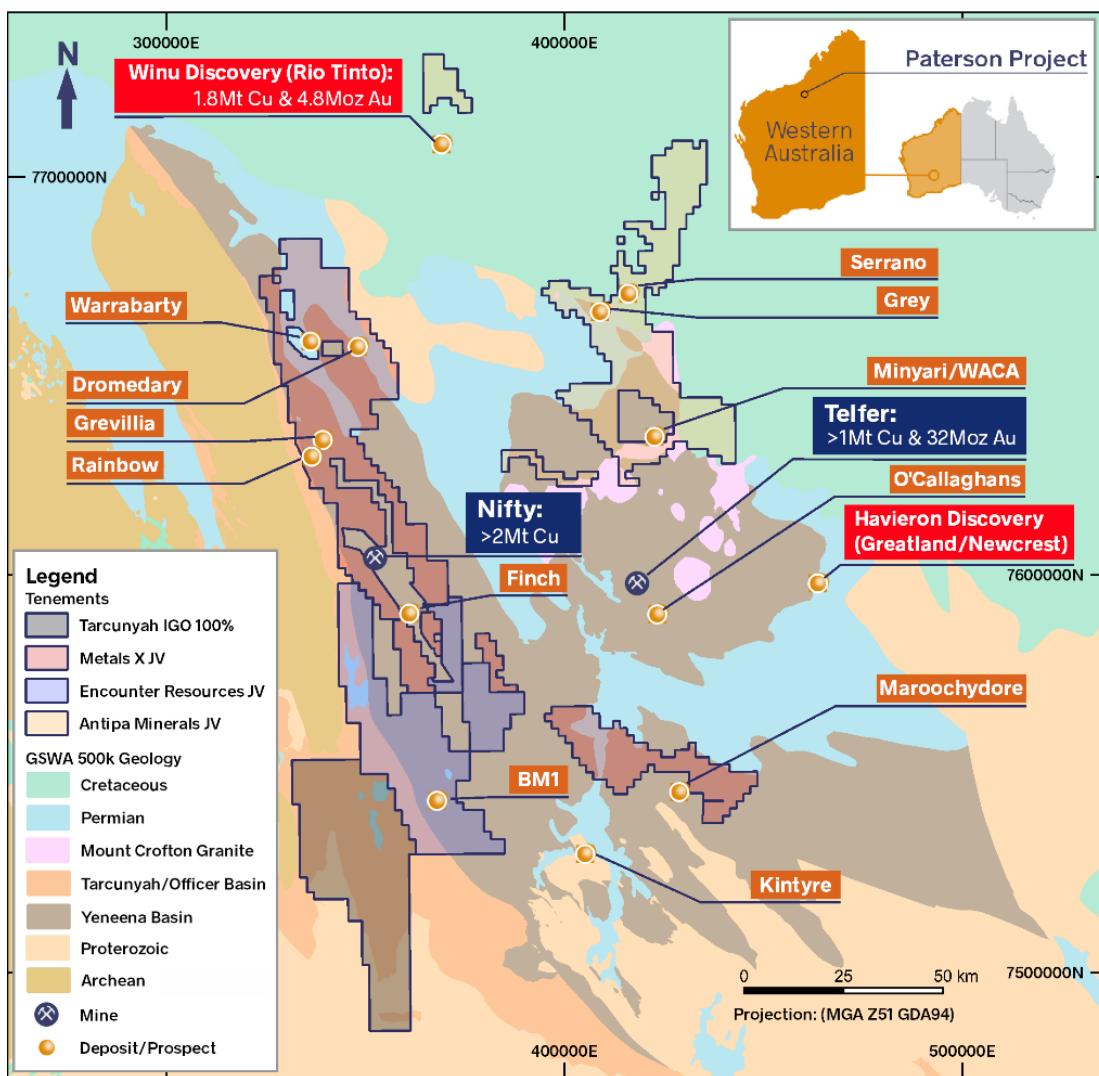


**Figure 1 – Location Map of IGO's Belt-scale Exploration Projects and Operations**

The newly consolidated Paterson Project in Western Australia has been formed through JV agreements with Encounter Resources Limited, Metals X Limited, and Antipa Minerals Ltd, and additionally the staking of 100% IGO tenements (Figure 2). The combined tenure is now a belt-scale opportunity to find and develop Tier-1 sediment-hosted copper-cobalt and intrusion-related copper-gold deposits. The consolidation comprises 6,850 km<sup>2</sup> of tenure, which is second only in the region to exploration major Rio Tinto.

## TECHNICAL OVERVIEW

IGO commenced exploration in the Paterson Province in 2018 through an agreement with Encounter Resources on the Yeneena JV, which provided IGO the opportunity to test several new exploration methods that had not previously been applied in the area. These methods, including magnetotellurics (MT) and ultrasensitive regolith geochemistry have proven successful, encouraging IGO to expand its ground position in the region through recent earn-in and joint ventures with Metals X in the Throssell Range and Antipa in the northern Paterson. IGO's 100%-staked tenements cover part of the Tarcunyah Group, south of the Encounter Resources tenements. IGO considers that these rocks are of comparable age, composition, and structural setting to those in the Throssell Range. However, until now this area and its rocks have been completely overlooked as likely hosts for world-class copper deposits.



**Figure 2 – Map of Paterson Province geology relative to IGO's joint ventures/tenements and major deposits/mines in the area**

The Paterson Project covers primarily a late Proterozoic basin that was progressively filled by a complex succession of basal clastic sandstones, carbonaceous to pyritic shales and siltstones, and platform carbonates, which are highly prospective for a variety of sediment-hosted copper deposits similar to the Central African Copper Belt (CACB). Importantly, the sedimentological character in the Paterson not only matches that of the CACB, where oxidised metal-rich brines ascended along basin margin faults to form giant sediment-hosted copper-cobalt deposits, but the rocks of the region are of similar age as

those found in the CACB. These rocks host the Nifty copper deposit and other copper deposits and prospects including Maroochydore, Rainbow, Finch and Dromedary. Granitic magmatism in the Paterson has also resulted in the formation of a series of copper-gold deposits such as Telfer and skarn deposits such as the O'Callaghans Prospect (Figure 2).

Despite over 40 years of semi-continuous exploration in the Paterson by past explorers, IGO considers that the area has been underexplored and poorly understood as evidenced by the recent significant copper-gold discoveries of Winu by Rio Tinto, Havieron by Newcrest Mining/Greatland Gold and Calibre by Antipa Minerals. The Calibre, Winu and Havieron discoveries were made beneath 80m, 110m and 400m of transported and/or hard rock cover, respectively. In contrast to the depth of these discoveries, IGO's regional assessment of the area has identified that most historic exploration has focused on sub-cropping to thinly covered copper-lead-zinc-gold-arsenic geochemical anomalism in samples collected in between the 15m-high sand dunes that transect the region. Few holes drilled outside the areas of known mineralisation have exceeded 150m depth.

New research from the CACB, and the recent discovery of Ivanhoe Mine's 1.3Bt high-grade Kamoakakula copper deposit in the DRC, have demonstrated that world-class deposits can remain undiscovered for a long period of time in seemingly well-explored sedimentary basins. The Kamoakakula discovery highlights the benefits of applying new geological models to previously explored areas, the need to better understand basin architecture under cover, and the advantages of applying new geochemical and geophysical technologies to open up new search spaces. IGO and its joint venture partners consider that further major copper-rich deposits exist within both the Throssell Range and Lamil Group metasediments, and that the technology now exists to find them beneath thicker cover.

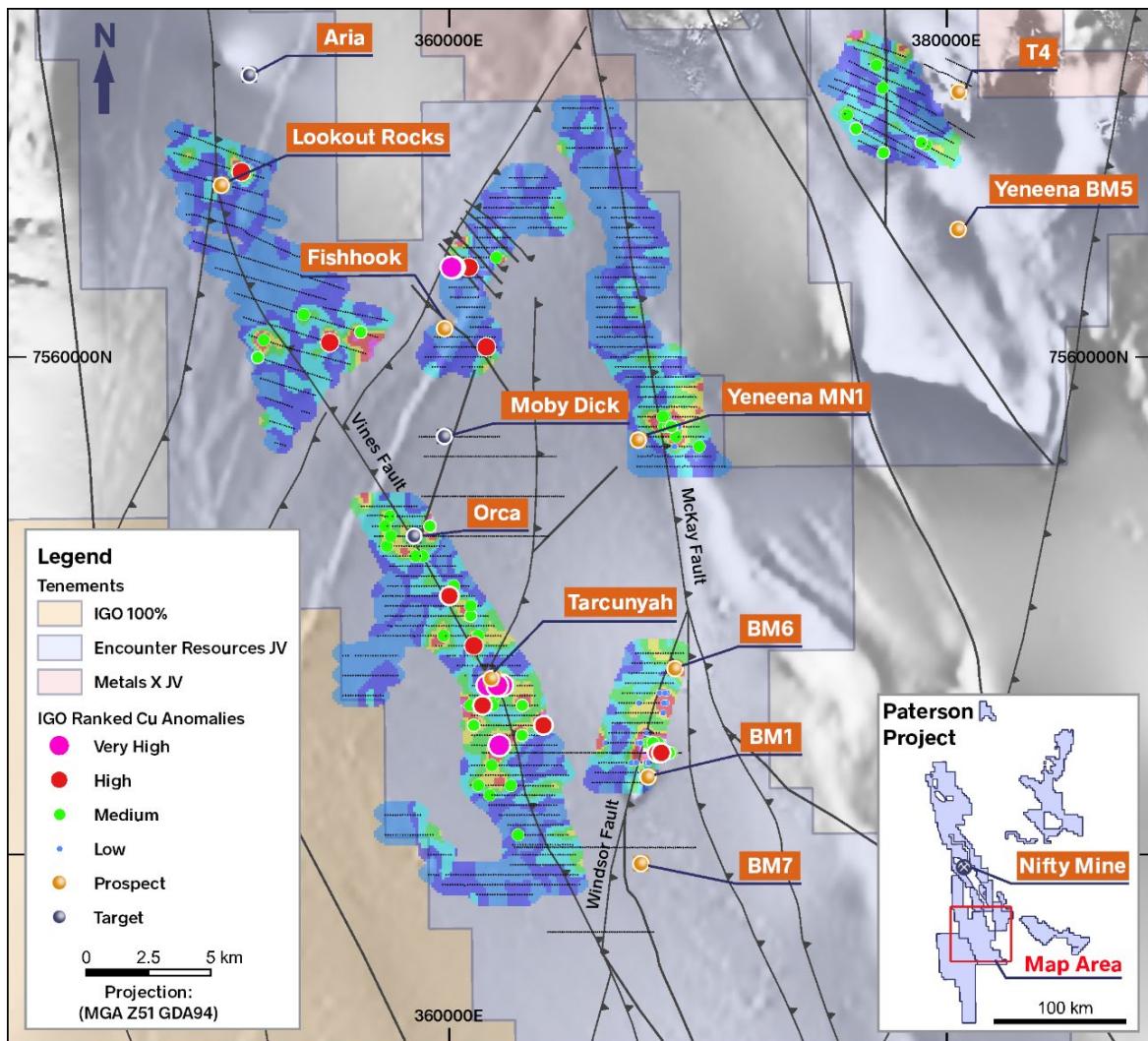
IGO's partnerships in the Paterson have already demonstrated the application of new ideas which will increase the chances of discovery success. Examples of this were on tenure held within the IGO joint venture with Encounter Resources. New geophysical methods and ultra-low geochemical detection limits have led to breakthroughs in understanding the basin architecture and in identifying new soil anomalies for follow-up by drilling in areas where historical lag sampling has failed, respectively:

- Five MT regional lines surveyed by IGO and Encounter during FY20 have provided state-of-the-art 3D imaging of a 5km-wide syncline bounded by the structurally important Vines and Windsor Faults. Copper-cobalt mineralisation occurs at the intersection of these faults with the syncline limbs, where oxidised metal-rich fluids ascended along the faults and redox reactions formed mineralisation in the reduced shale beds. Drilling near the eastern limb of the syncline previously intersected up to 9m grading 1.0% Co and 1.5% Cu (BM7 prospect, EPT1557 from 42m downhole<sup>1</sup>). The effective deployment of large-scale MT surveys allows us to image the relationship between the most prospective stratigraphic units and key structural elements of the basin architecture, thus enabling further targeting of structural-stratigraphic traps favourable for copper-cobalt mineralisation.
- A multi-element fine-fraction soil survey completed by IGO and Encounter in 2020 detected the surface expressions of previously drilled copper-cobalt occurrences beneath >15m of transported cover and identified other multi-element targets under cover (Figure 3). Importantly, the favoured mineralisation-hosting lithologies were able to be geochemically characterized allowing mapping and targeting of strata despite the lack of outcrop. The survey revealed a close relationship between copper-cobalt anomalism and important structural elements within the basin (such as at the BM1, BM6 and BM7 prospects along the Windsor Fault). These results highlight the importance of understanding geology and basin architecture in controlling

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<sup>1</sup> ASX Announcements, Encounter Resources, 15 July 2014 ("Additional High Grade Copper at BM1), 30 January 2015 (Quarterly Activities Report), 2 March 2017 (Cobalt Opportunities Identified at Yeneena)

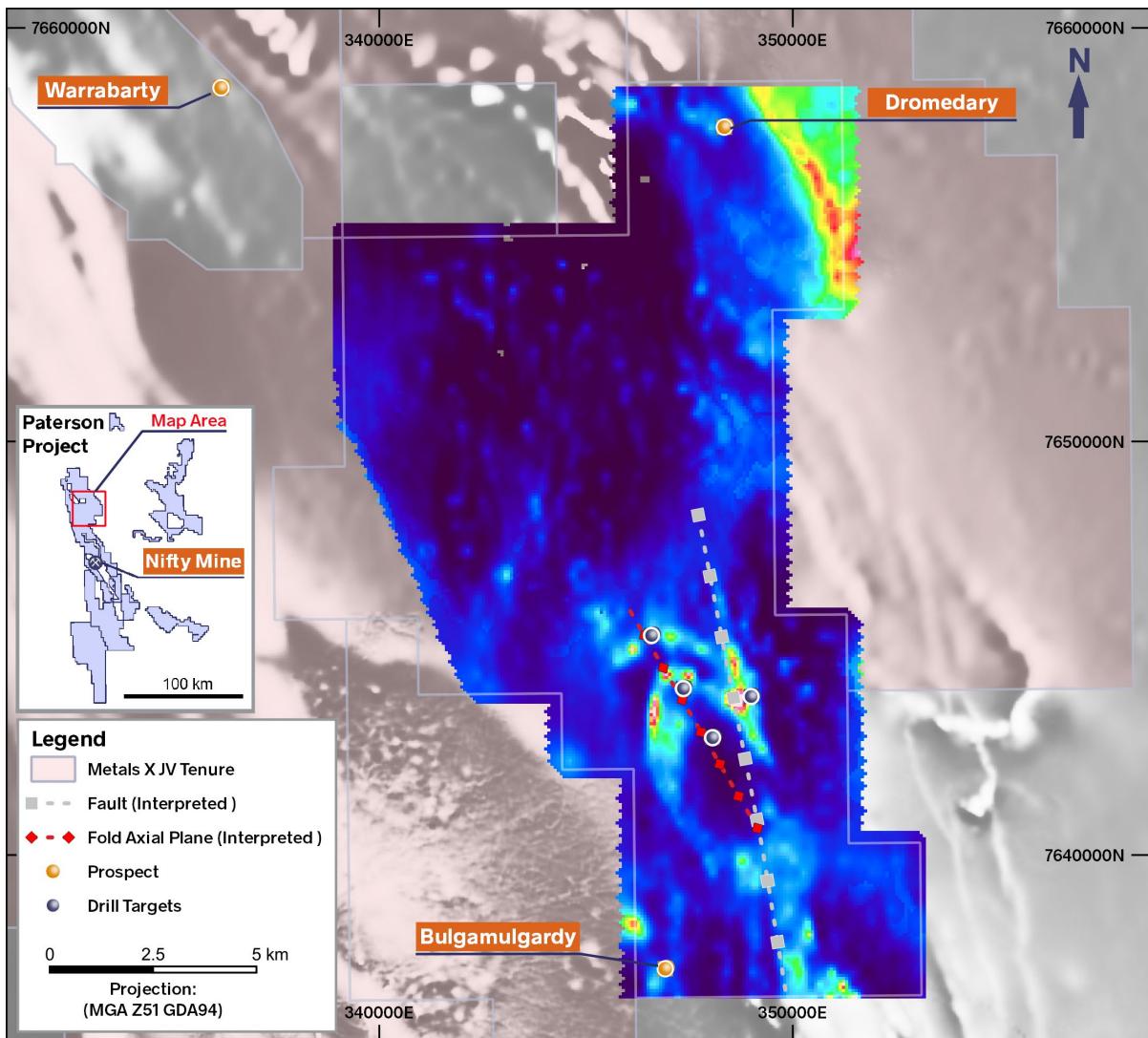
copper-cobalt mineralisation. Further soil sampling is currently underway to help prioritise drilling targets.



**Figure 3 - Soil geochemistry results highlighting fault control of the strongest anomalies, IGO-Encounter ‘Yeneena’ JV**

On the tenements subject to the earn-in and JV with Metals X, IGO is targeting Nifty style copper (cobalt) mineralisation that occurs at structurally controlled, sandstone-shale contacts and other favourable tectono-stratigraphic settings. Application of a new generation of airborne EM technology has been instrumental in mapping these key geological attributes and a relogging project of historical drill core also aims to provide a better understanding of basin structure, stratigraphy, and alteration halos.

SkyTEM airborne EM data over two of Metals X tenements has been successfully processed to highlight numerous basin-bounding and relay fault structures, together with a fold structure, through transported cover up to several tens of metres thick (Figure 4). The fold shapes are interpreted by IGO to represent conductive beds within the Broadhurst Formation with a geometry that can be followed in depth slices up to 300m deep. Intersections of the faults with the fold limbs and axial planes represent first order targets for copper-cobalt mineralisation, and the aim is to drill test these targets during FY21 and FY22.

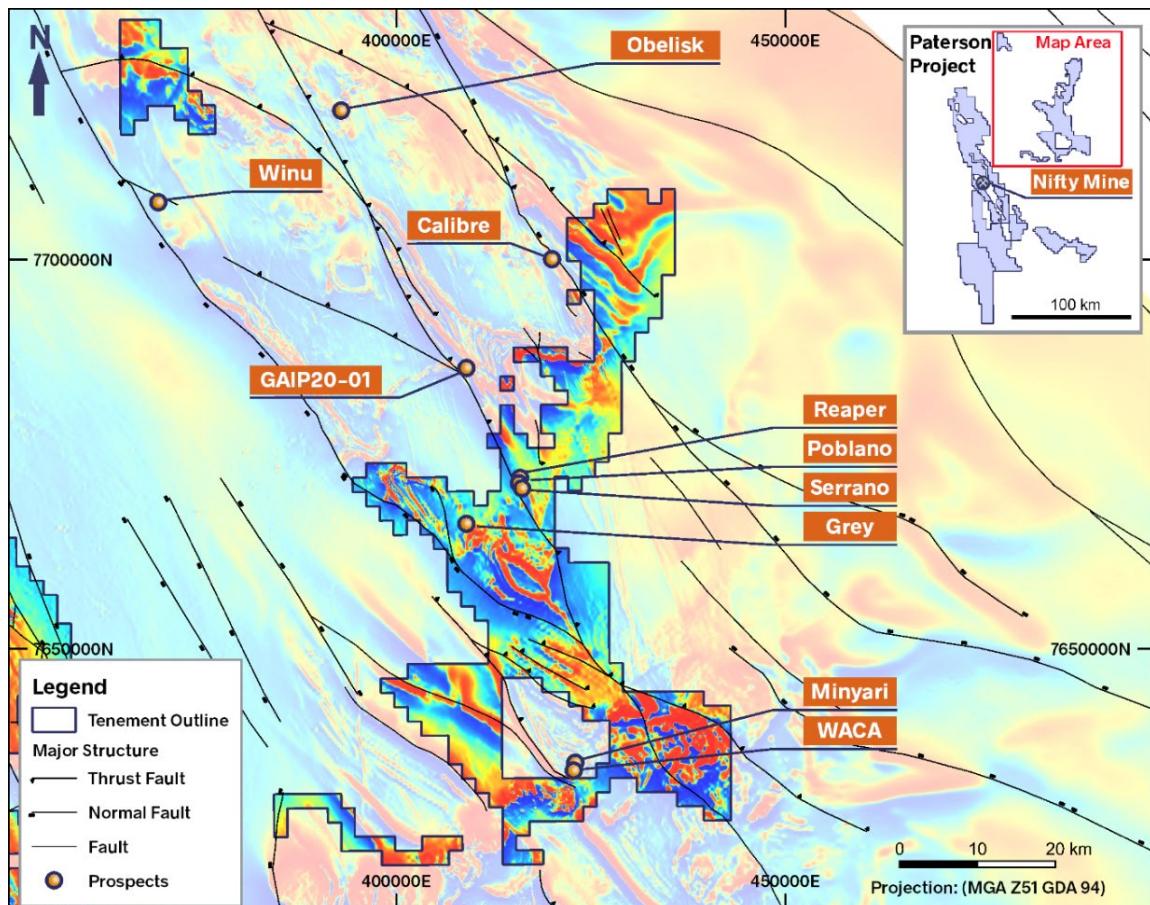


**Figure 4 – Imaged SkyTEM data: depth slice at 180m depth showing folded conductive beds with fold axis trace, cut by a linear fault structure, hosted within the Broadhurst Formation**

More than 12km of regionally representative diamond drill core and RC chips are currently being re-logged and re-analysed by IGO, with some holes only being reassessed for the first time in 30 years. The goal of this work is to fully characterise the Throssell Range stratigraphy and generate a comprehensive multi-element and spectral database. The samples will be analysed for >56 elements and scanned using new long-wave infrared (LWIR) technology that can identify alteration assemblages that have been elusive using conventional short-wave (SWIR) and petrographic methods. This database will then be interrogated to identify distal alteration haloes that will assist in vectoring towards major deposits from several hundred metres or more away. The results will then be integrated with the existing geophysical survey datasets.

The tenements that are subject to the IGO and Antipa Minerals Earn-in and JV Agreement host similar structural, host-rock and intrusion-related sediment-hosted copper-gold mineralisation as Telfer. IGO's and Antipa's planned work programs are targeting mineralisation like that found at Telfer and Winu (Figure 5). This joint venture includes the 20km long Reaper-Arbol trend, which includes the Reaper, Poblano and Serrano prospects, which all occur within a 1.8km-long by 500m-wide NNW-trending zone. Wide-spaced RC drilling in 2019 identified mineralisation that included 4m grading 8.1g/t Au and

0.23% Cu (from 194m downhole) in quartz-sulphide veined metasediments<sup>2</sup>. The mineralisation is under shallow cover (10-23m thick) and is open in all directions. A coincident magnetostratigraphic unit extends 14km northwards along strike of the Rio Tinto-Antipa GAIP20-01 target (AZY ASX release; 20 August 2020). An air core drilling program designed to define the extent of the Reaper-Poblano-Serrano mineralisation is planned for completion in FY21.



**Figure 5 – IGO-Antipa Earn-in JV tenements on 1/2VD aeromagnetic image (background), and showing how the prospects across the region are located on magnetostratigraphic-fault contacts**

In summary, the Paterson Province is recognised as a world class copper-gold and polymetallic mining district with a known endowment of more than 5Mt copper and 39Moz gold. The long-life mines of Telfer (which commenced in 1977 and continues today) and Nifty (1983-2019) have been joined by ongoing mineral resource definition programs at Winu (Rio Tinto), Havieron (Newcrest-Greatland Gold) and Calibre (Antipa-Rio Tinto). Other advanced projects, some with JORC Code reportable Mineral Resources, include Maroochydore (Metals X), Minyari-WACA (Antipa) and O'Callaghans (Newcrest). Highly encouraging exploration drill intercepts have also been reported from Serrano-Poblano-Reaper (Antipa; IGO farm-in), BM1 and Aria (Encounter; IGO farm-in), and Ngapakarra (Rio Tinto), among others.

IGO is bringing new cutting-edge exploration methodologies to underexplored areas of the Paterson Province which IGO considers have outstanding exploration potential for further Tier-1 sediment-hosted copper-cobalt and intrusion-related copper-gold polymetallic deposits. Through its earn-in and joint venture agreements with Encounter Resources, Metals X and Antipa Minerals, IGO intends to invest up to A\$77M over the next six years to deliver more discoveries from this re-emerging province.

<sup>2</sup> ASX Announcement, 20 August 2020, Antipa Minerals – Citadel JV GAOP Survey Highlights Large Gold-Copper Target

## COMPETENT PERSON'S STATEMENTS

Any references to IGO Mineral Resource and Ore Reserve estimates should be read in conjunction with IGO's Annual Update of Exploration Results, Mineral Resources and Ore Reserves dated 30 January 2020 (Annual Statement) and lodged with the ASX for which Competent Person's consents were obtained, which is also available on the IGO website.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements released 15 July 2014 and 20 August 2020 and, (i) in the case of estimates or Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed, (ii) the Competent Person's consents remain in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent, and (iii) the form and context in which the Competent Person's findings are presented have not been materially modified from the original ASX announcement.

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