



# Zenith Minerals Limited

ABN 96 119 397 938

10<sup>th</sup> June 2016

Investor Update

Lithium and Gold - Copper Focus



**San Domingo Pegmatite  
Sampling**



**Large Spodumene Crystals  
Lithia King Pegmatite**



**Lithia King Pegmatite  
Arizona**



# Disclaimer

## Forward looking statements

Some statements in this presentation regarding estimates or future events are forward looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include estimates of future production, reserve and mineralised material estimates, capital costs, and other estimates or prediction of future activities. They include statements preceded by words such as "believe", "estimate", "expect", "intend", "will" and similar expressions. Actual results could differ materially depending on such things as political events, labour relations, currency fluctuations and other general economic conditions, market prices for Zenith Minerals Limited products, timing of permits and other government approvals and requirements, change in operating conditions, lower than expected ore grades, unexpected ground and mining conditions, availability and cost of materials and equipment, and risks generally inherent in the ownership and operation of mining properties and investment in foreign countries.

## Information presented is a summary

This presentation aims to provide a high level summary of various technical aspects of the Company's projects. For more details on the underlying technical parameters the reader is referred to the ASX Reports on the Zenith Minerals Limited's website: [www.zenithminerals.com.au](http://www.zenithminerals.com.au)

## JORC competent persons statements

The information in this Report that relates to in-situ Mineral Resources at the Develin Creek project is based on information compiled by Ms Fleur Muller an employee of Geostat Services Pty Ltd. Ms Muller takes overall responsibility for the Report. She is a Member of the AusIMM and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity she is undertaking, to qualify as a Competent Person in terms of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition)'. Ms Muller consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

The information in this report that relates to Zenith Exploration Results is based on information compiled by Mr Michael Clifford, who is a Member of the Australian Institute of Geoscientists and an employee of Zenith. Mr Clifford has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



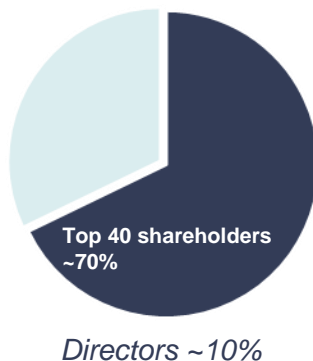
# Corporate Structure

## Capital Structure – ASX: ZNC

Share Price (as at 8 <sup>th</sup> June 2016)	\$0.13
Shares on Issue ZNC fully paid ordinary	172.9m
Market Capitalisation	\$22.5m
Listed Options ZNCO (\$0.1 Exercise price)	22.1m
Cash as at 31 <sup>st</sup> March 2016	\$1.9m

## Major Shareholders

City Corp. Nom.	7.09%
HSBC Custody. Nom.	6.66%
Granich	6.12%
GDR PL	4.27%
Miquilini	3.49%



## Mike Joyce – Non-Executive Chairman

Geologist, substantial prior experience at Aberfoyle Resources Ltd (1980-98) then MD at Giralia Resources NL (1998-2011 - \$828m takeover). Chairman of Gascoyne Resources Ltd.

## Mick Clifford - Managing Director

Geologist, >26 years experience, Billiton Australia, Acacia Resources & AngloGold Ashanti. MD of PacMag Metals Ltd (2005 – 2010 - \$50m takeover).

## Stan Macdonald - Non-Executive Director

Industry veteran, founded numerous ASX listed companies including Giralia Resources NL, Director of Gascoyne Resources Ltd.

## Julian Goldsworthy - Non-Executive Director

Geologist, currently Geology Manager at Gascoyne Resources Ltd. Substantial experience with Newcrest Mining, Newmont Australia (1986-2007) and Giralia Resources NL (2007- 2011).



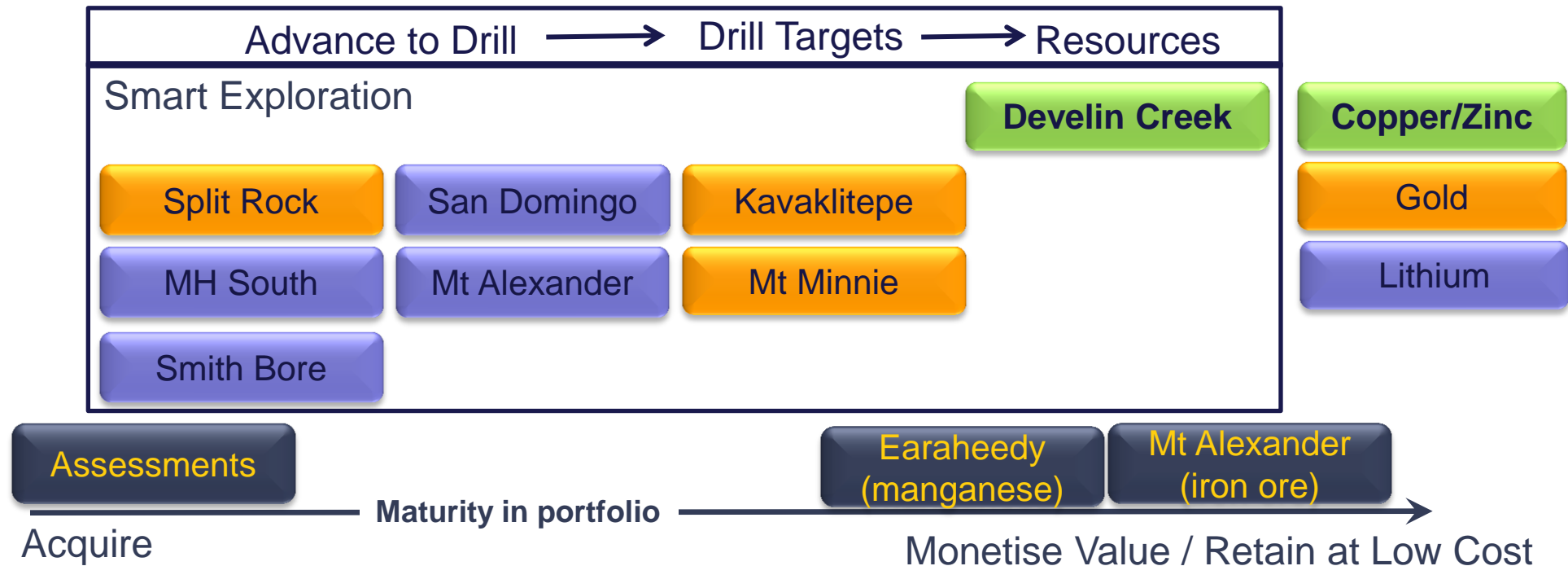


# Clear Strategy for Growth

**Zenith has a clear strategy for adding value for shareholders.**

1. Acquire projects near bottom of market, lithium and gold focus;
2. Undertake low cost smart exploration to add real value;
3. Monetise through development, joint venture, spin out or divestment or retain projects at low cost until market rebounds.

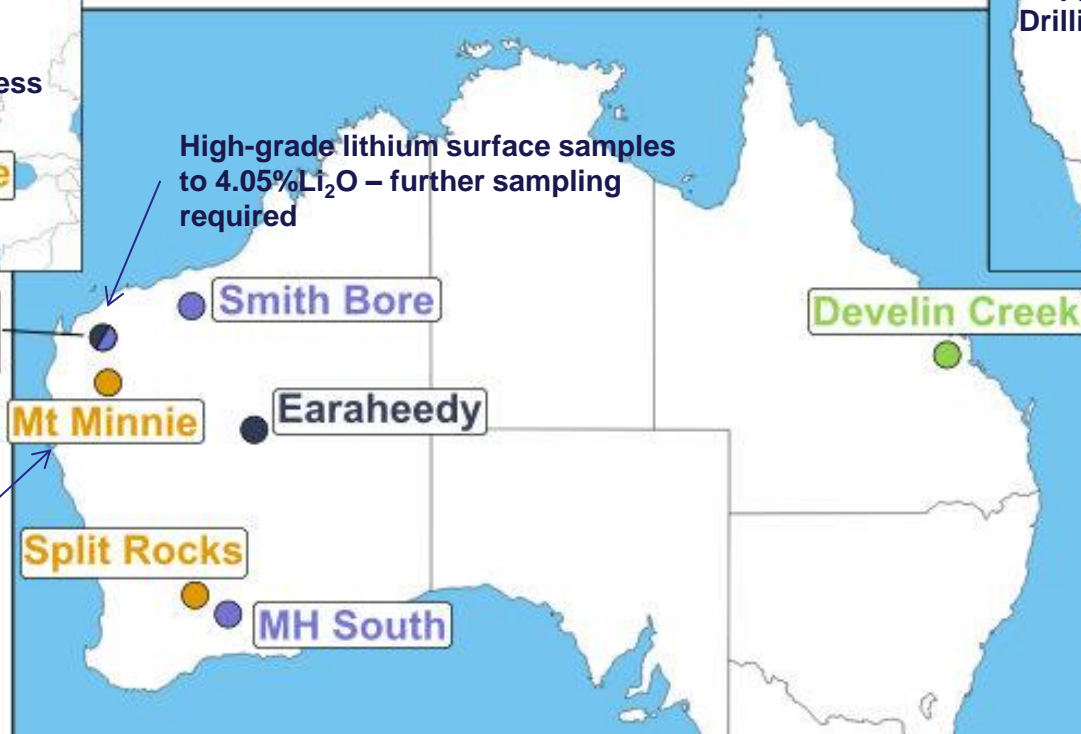
**Focus on lithium and copper-gold projects in the portfolio**







# Projects Summary



Massive copper-zinc sulphide  
Inferred Mineral Resource  
2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold & 9.6g/t silver (Feb 2015)  
Regional EM & Geochem targets.  
Drilling planned

Retention leases/  
applications to  
preserve project  
opportunities at  
low ongoing cost

## Earraheedy – Manganese

- Inferred Mineral Resource - Red Lake 1.1Mt @ 20.8% Mn (Sep 2014)
- Inferred Mineral Resource - Lockeridge 2.6Mt @ 20.6% Mn (Apr 2015)

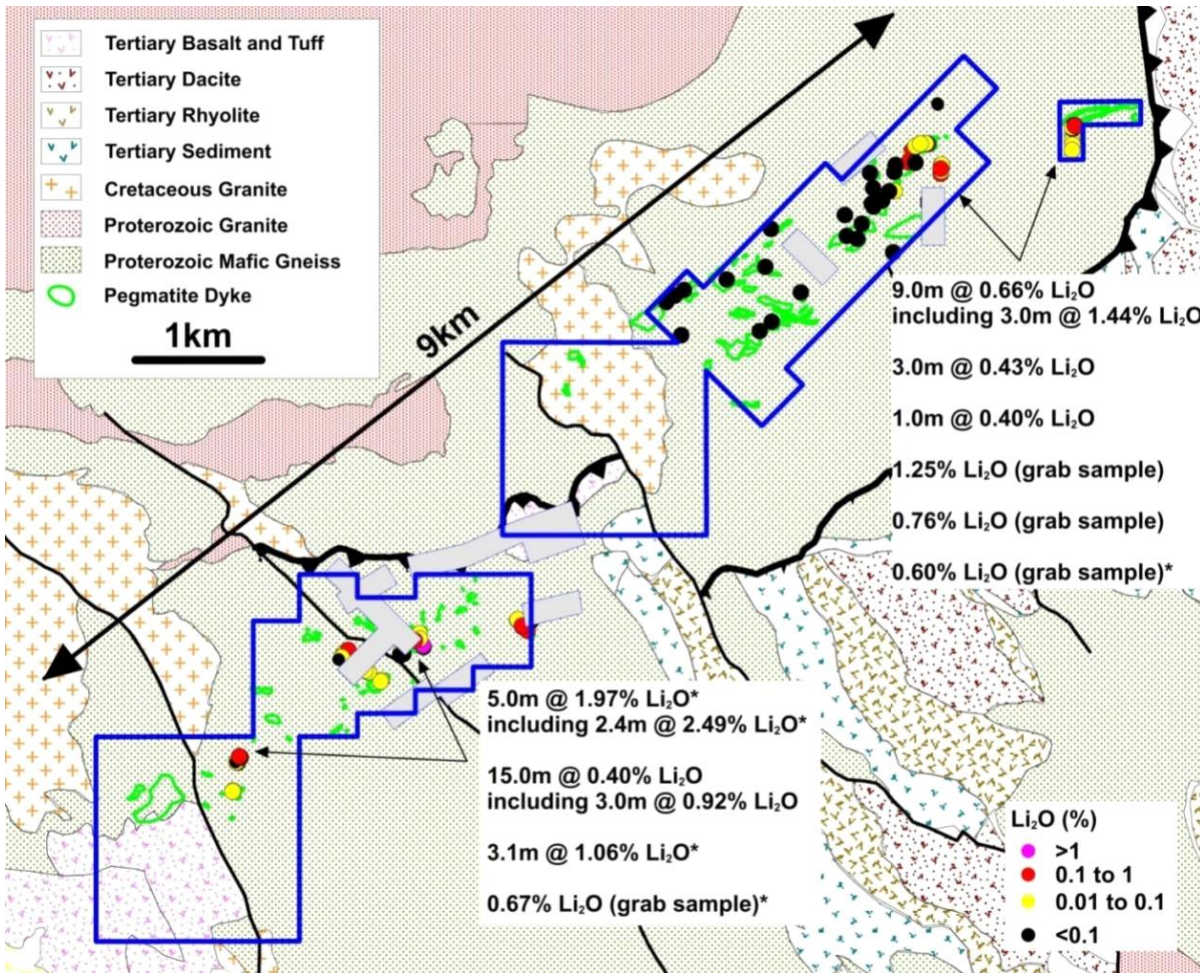
## Mt Alexander – Iron

- Inferred Mineral Resource - Mt Alexander 565.7Mt @ 30.0%Fe (Oct 2015)
- Inferred Mineral Resource - Mt Alexander West 25.9Mt @ 22.7%Fe (Jun 2015)



# San Domingo Lithium

Ownership:	100%
Location:	USA
Commodity:	Lithium
Stage:	Prospects



- New 100% owned
- 9km by 1.5km lithium pegmatite field;
- Initial Zenith sampling 5m @ 1.97%  $\text{Li}_2\text{O}$  incl 2.4m @ 2.49%  $\text{Li}_2\text{O}$  from spodumene rich pegmatites;
- Lithium as spodumene and amblygonite concentrates & tantalum produced from district (1947 – 1952);
- Limited diamond drilling in 1952 of 4 pegmatites & 1980-82 drilling program for tantalum and niobium focussed outside Zenith's claims.





# San Domingo Lithium

Ownership:	100%
Location:	USA
Commodity:	Lithium
Stage:	Prospects



**Additional surface mapping & sampling  
in progress prior to drilling**



**Pegmatite dykes up to 60m in width and 600m in length**



**Lithium rich pegmatites in district,  
spodumene crystals up to 3m in length**



**Numerous historic small scale workings**

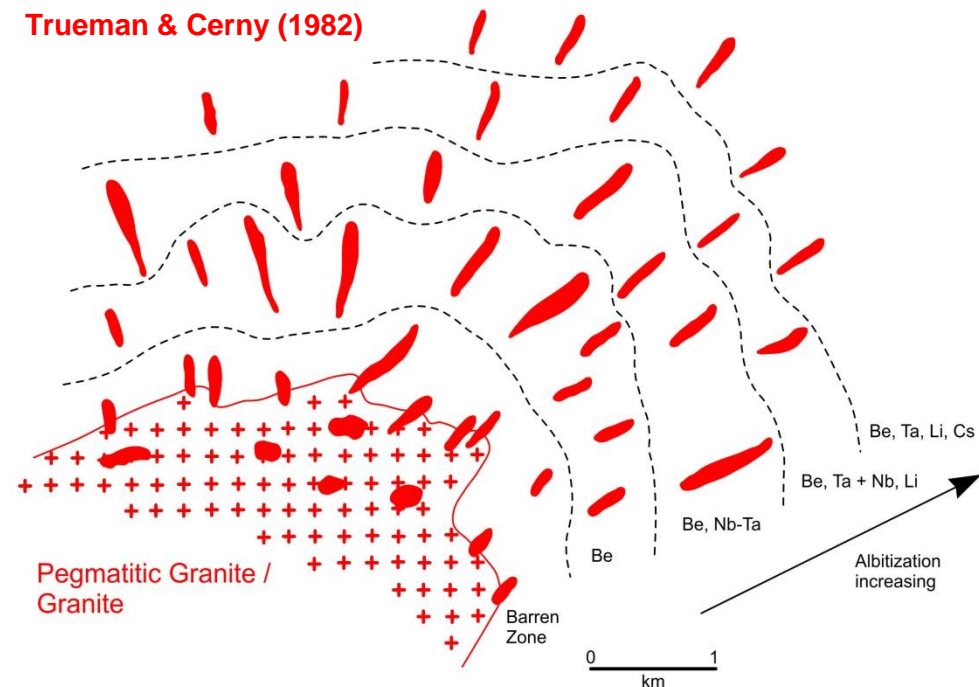




# Mt Alexander - Lithium

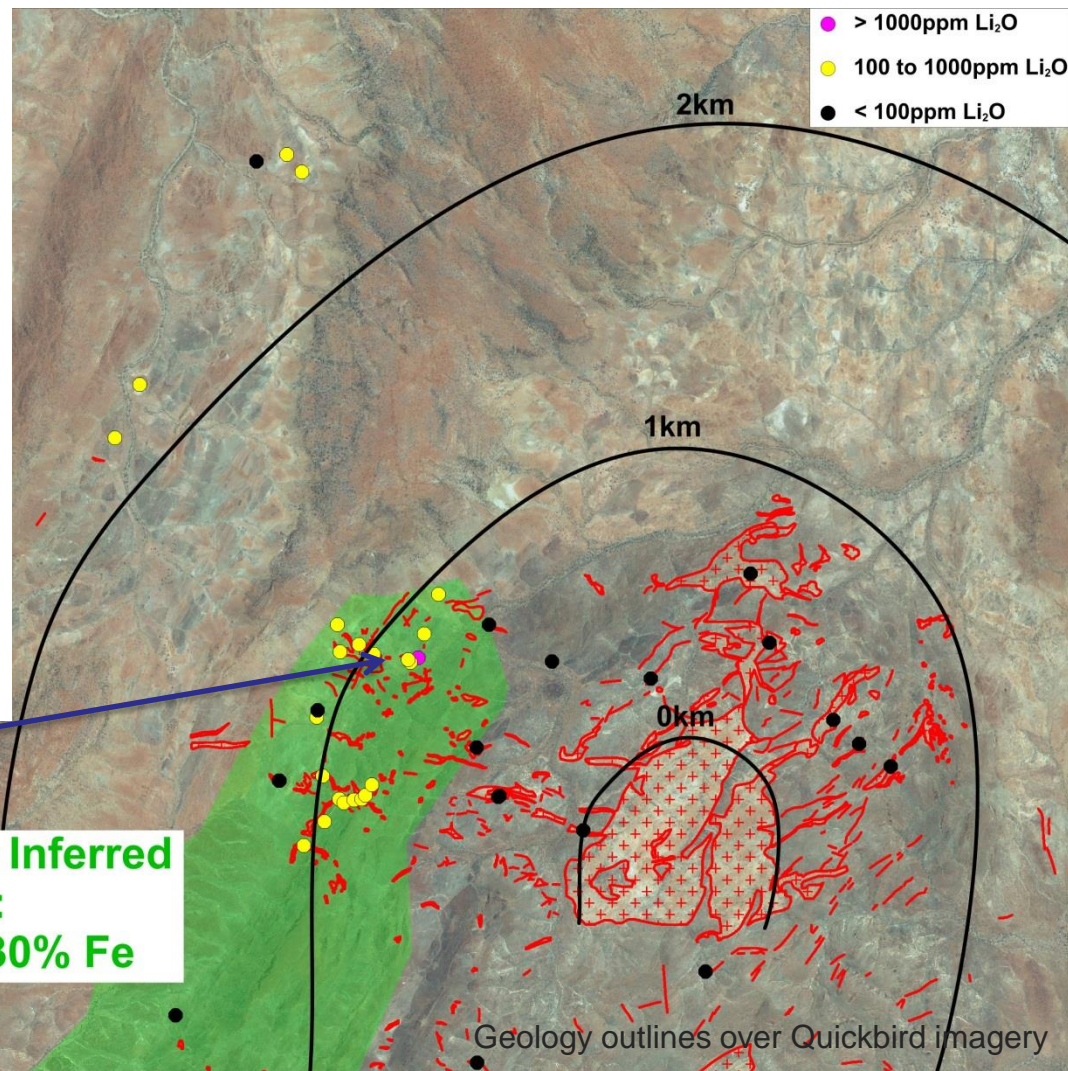
Ownership:	100%
Location:	WA
Commodity:	Lithium
Stage:	Prospect

Trueman & Cerny (1982)



- 2.94%Li<sub>2</sub>O to 4.05% Li<sub>2</sub>O and tantalum to 0.034%Ta<sub>2</sub>O<sub>5</sub> from a lepidolite rich pegmatite;
- > 100 pegmatite and granite dykes form a radiating swarm around the Mortgage Monzonite intrusive.
- Follow-up sampling and mapping

**Magnetite Inferred Resource:**  
**566Mt @ 30% Fe**



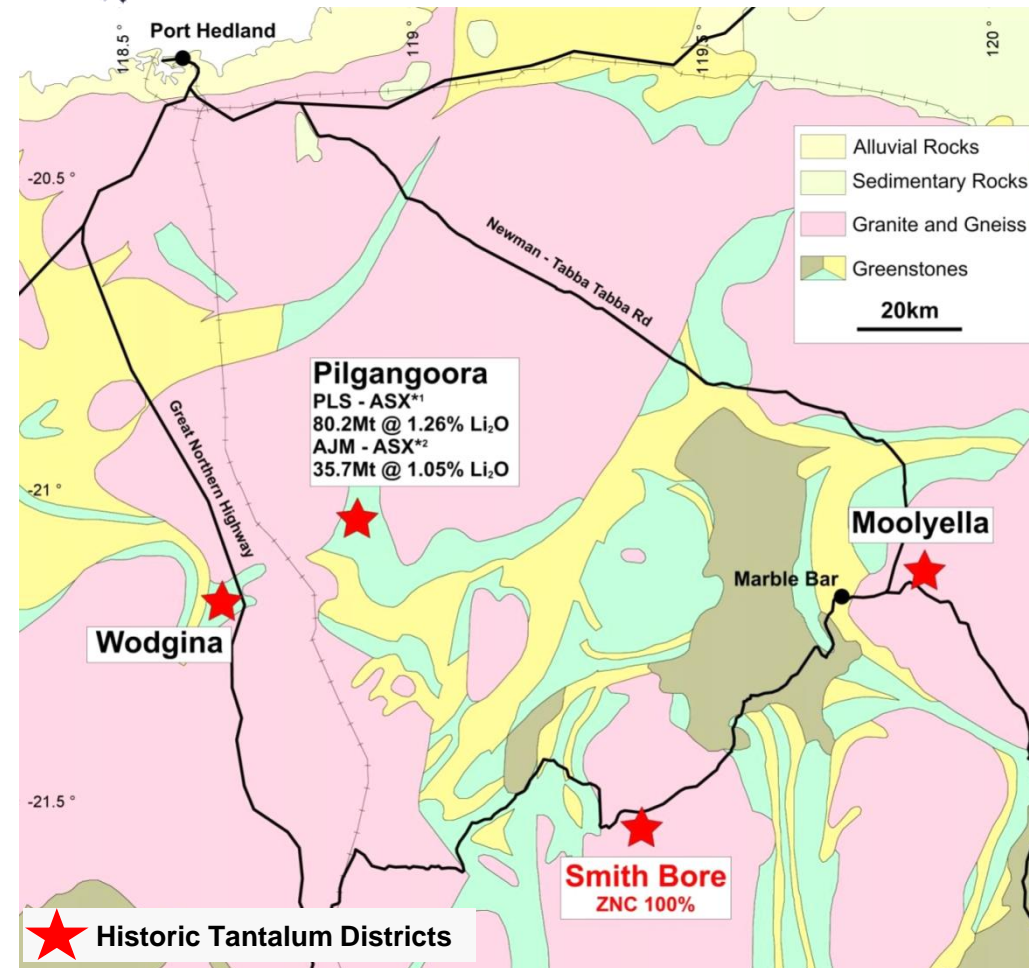




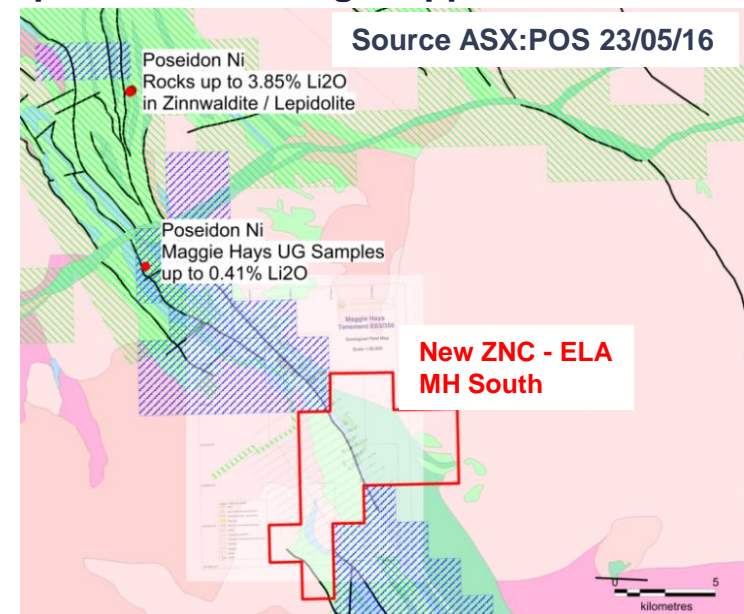
# Lithium Project Generation

## Very active project generation program

- Technically driven;
- Targeting lithium brines, pegmatites & clays;
- Understanding known lithium districts & applying knowledge to brownfield & greenfields targets;
- USA team - field evaluations in progress;
- Aus team - multiple projects under assessment; &
- Competitor monitoring & opportunistic staking



Smith Bore ELA (100% ZNC) – Rock samples to 0.63%  $\text{Li}_2\text{O}$





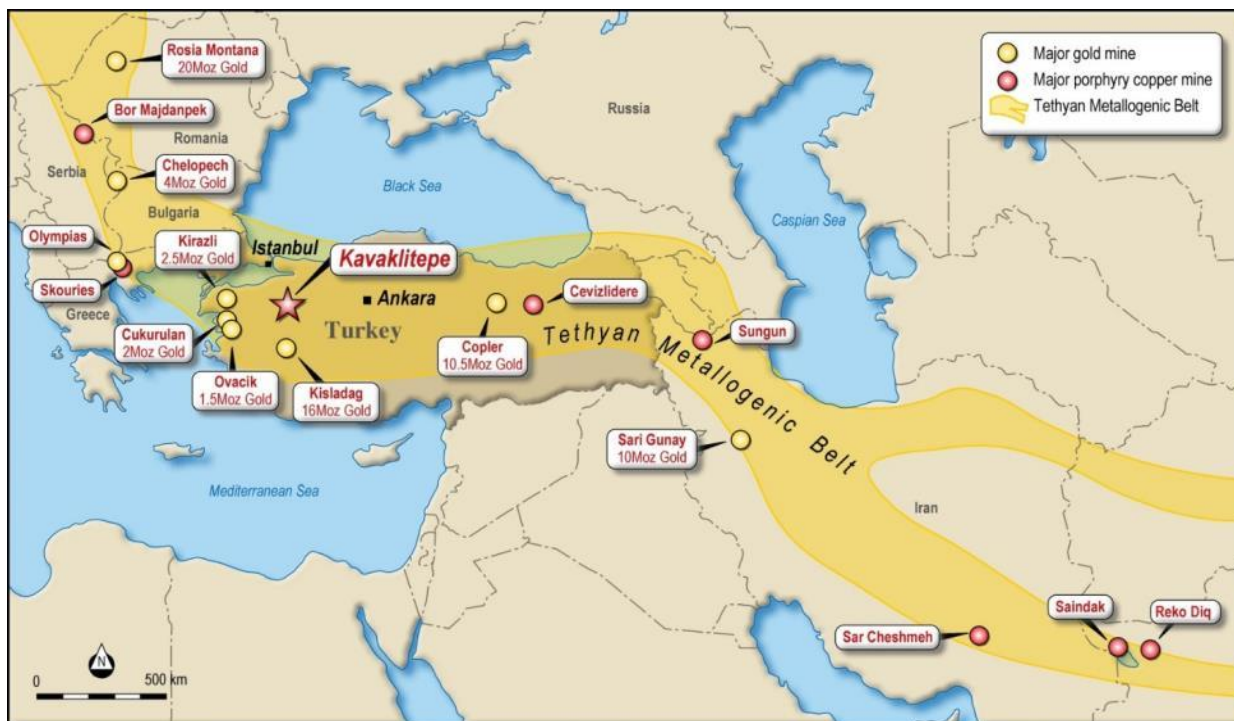
# Kavaklitepe

Ownership: Teck Earning 70%  
 Location: Turkey  
 Commodity: Gold  
 Stage: Drill Target



Discovered  
in 2013

New JV Partner – Teck  
 Zenith free carried for first \$700k of  
 expenditure  
 Drilling in progress



Turkey -  
Europe's  
largest gold  
producer

Highly endowed  
Tethyan  
Metallogenic Belt

Ranked 8  
out of 96 by  
Frazer  
Institute

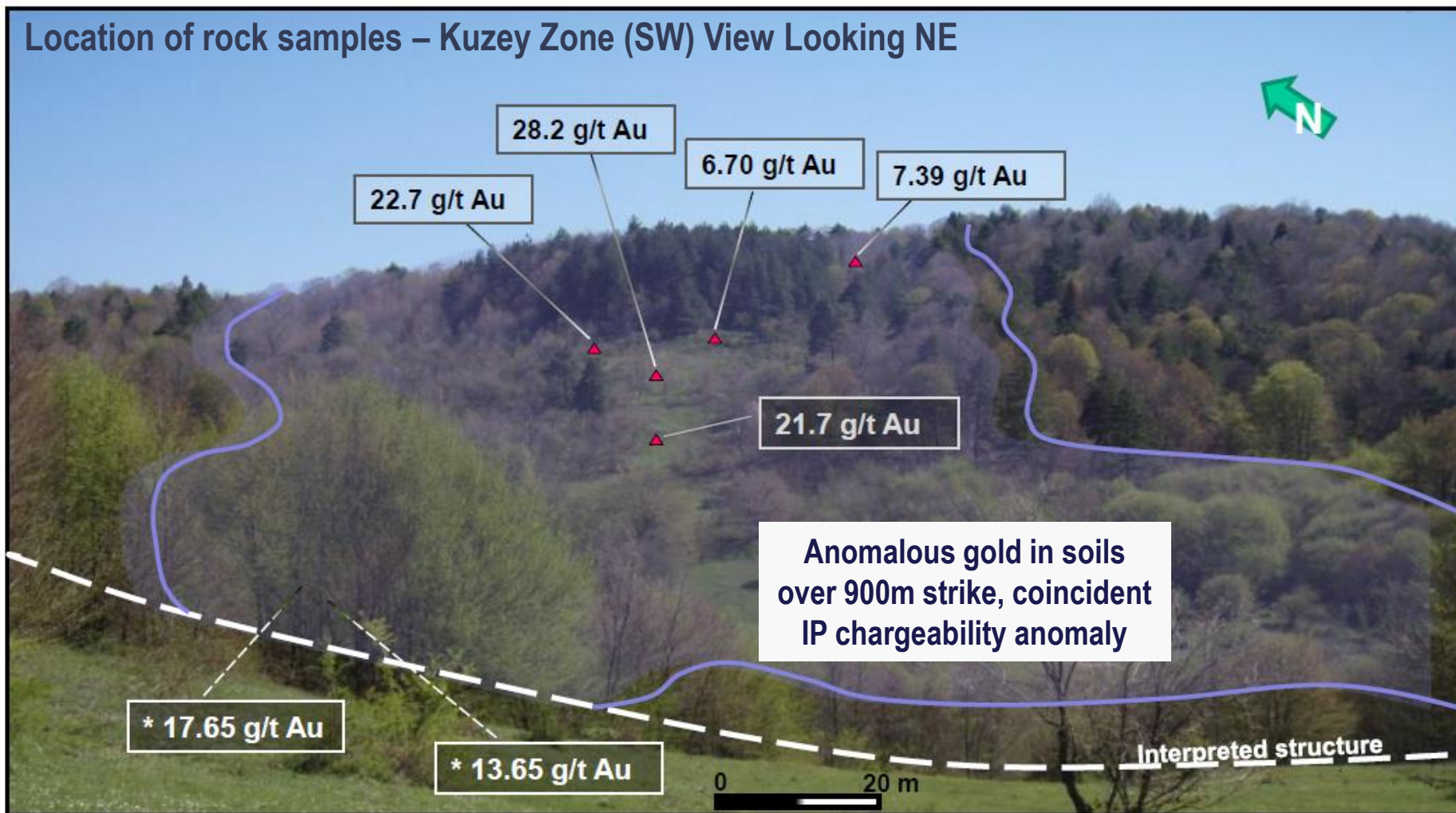






# Kavaklitepe

Ownership: Teck Earning 70%  
Location: Turkey  
Commodity: Gold  
Stage: Drill Target



\* Samples behind trees



# Kavaklitepe

Ownership: Teck Earning 70%  
Location: Turkey  
Commodity: Gold  
Stage: Drill Target

## Kuzey Zone

54m @ 3.33g/t Au incl  
21.5m @ 7.2g/t Au  
(continuous rock chip)

KUZEY ZONE  
54m @ 3.33 g/t Au  
Incl.  
21.5m @ 7.2 g/t Au  
Continuous Rock Chips

camera location  
(previous slide)

## Guney Zone

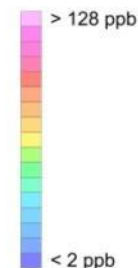
1000m strike length  
Coincident IP anomaly

GUNEY ZONE

Rock samples  
7.39g/t, 5.03g/t

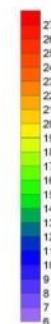
IP Surveys

Soil Image Legend Gradient IP Legend



Gold in Soil  
Anomaly

Chargeability, Mv/v



DISCOVERY ZONE  
21m @ 2.67 g/t Au  
Continuous Rock Chips

## Discovery Zone

400m strike length  
21m @ 2.67g/t Au  
(continuous rock chip)

Rock Samples - Au (g/t)  
▲ 2 to 28.7  
● 0.5 to 2  
▲ < 0.5

Soil Samples - Au (ppb)  
● 128 to > 1,000  
● 64 to 128  
● 32 to 64  
● 16 to 32  
● 8 to 16  
● < 8

Drilling in progress June 2016  
using portable core rig

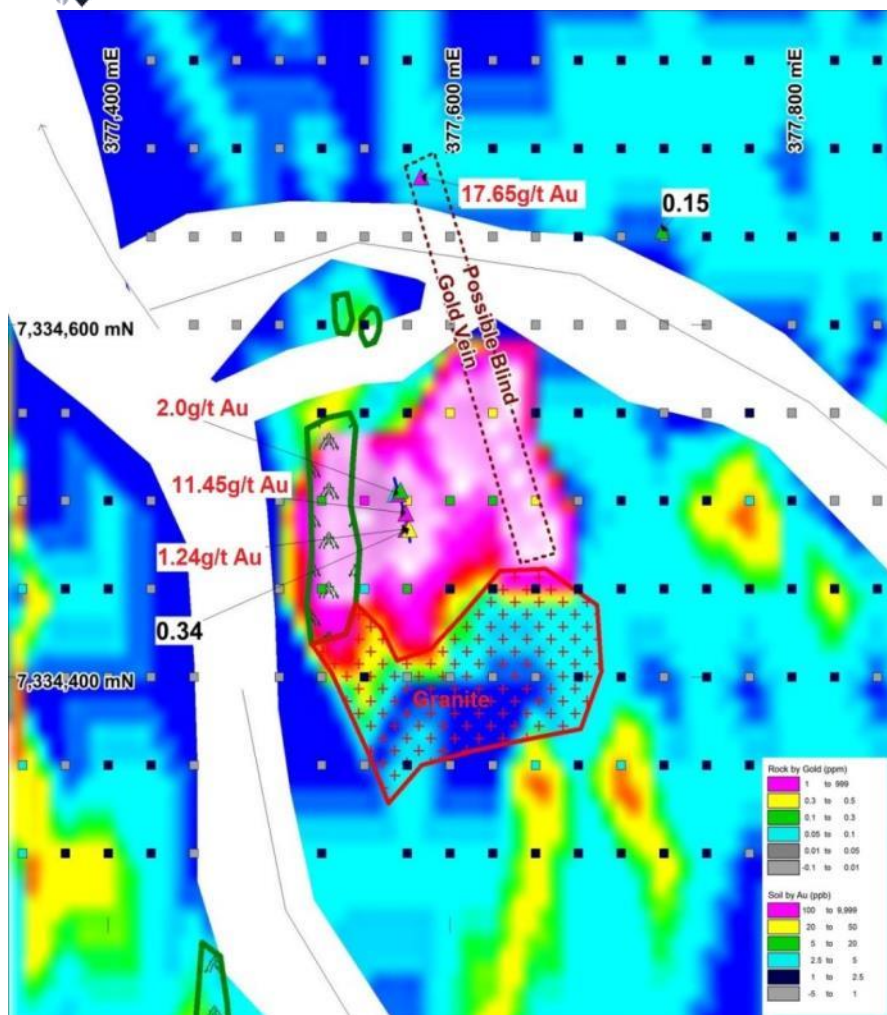
0 800m





# Mt Minnie

Ownership: 100%  
Location: WA  
Commodity: Gold  
Stage: Reconnaissance



**Woods Prospect Gold in Soil Anomaly (Triangles = rock samples, squares = soil samples, green polygons = dolerite dykes, red hatched polygons = granite outcrop)**

New geological model prospective for reduced intrusion related gold deposits

Mid-Proterozoic granite host

High-grade rock samples include: 21.5, 17.7 and 11.5 g/t gold

New gold in soil anomaly in predominantly sand covered area

Drilling planned

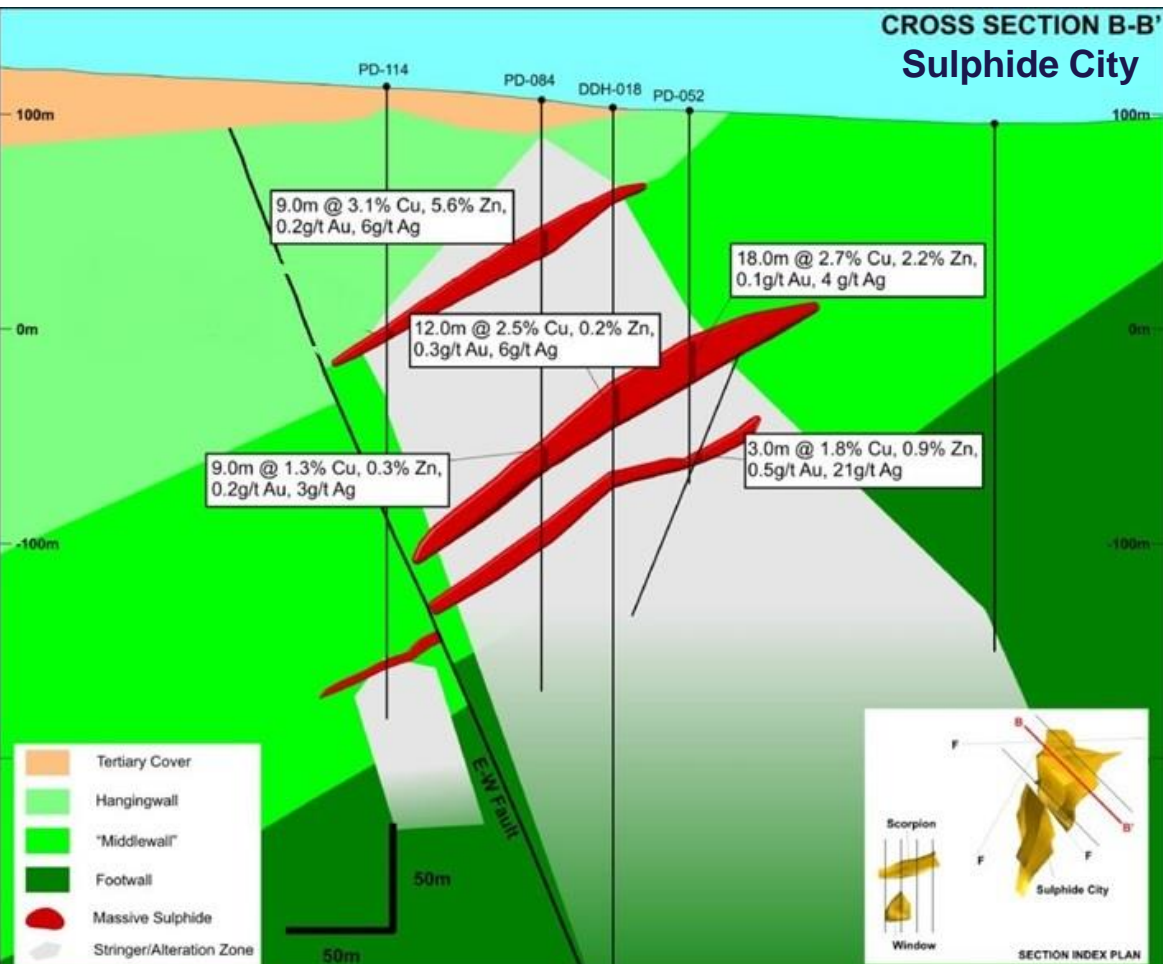




# Develin Creek

Ownership: 51-100%  
Location: Queensland  
Commodity: Cu-Zn-Ag-Au  
Stage: Resource

- Massive sulphide deposits at Sulphide City and Scorpion
- Degrussa-Monty deposits analogy (VMS in basalt-pepperite host rocks)



**Target sequence over 50km strike**





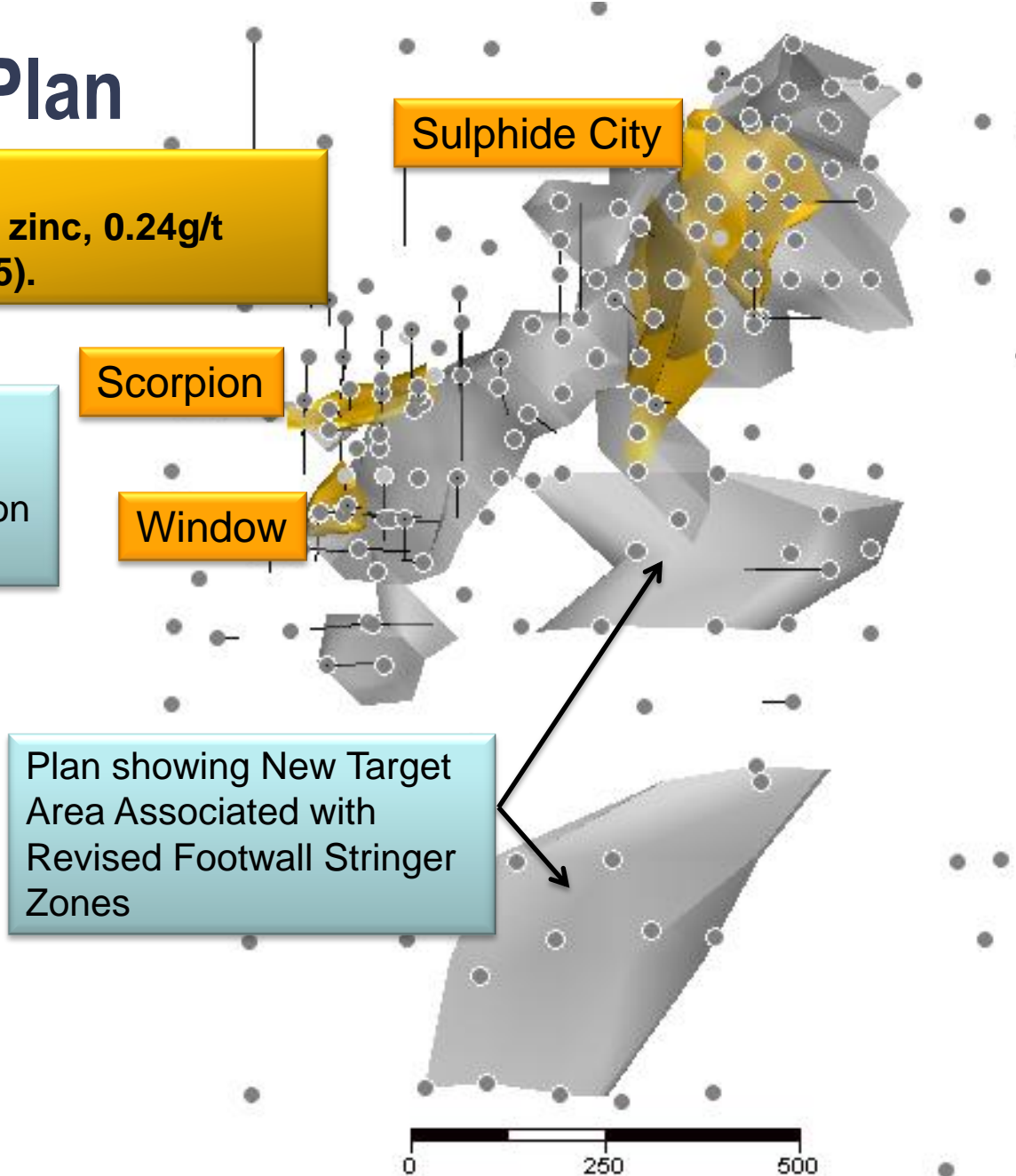
# Develin Creek - Plan

**Inferred Mineral Resource :**  
**2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold and 9.6g/t silver (Feb 2015).**

Zenith RC drilling indicates potential significant upgrade in copper, zinc, gold and silver grades **(3 to 7 times)** compared with historic percussion drilling – further twin holes planned



Positive Initial Metallurgical Test Work





# Investment Summary

	Q4 2016	Q1 2017	Q2 2017
<b>San Domingo Lithium</b>			
Mapping & Surface Sampling			
Drilling			
<b>Kavaklitepe Gold</b>			
Mapping & Surface Sampling			
Hand Pitting			
Geophysics (IP & Magnetics)			
Drilling			
<b>Mt Minnie Gold</b>			
Drilling			
<b>Develin Creek (Copper-Zinc)</b>			
Surface Geochem Sampling			
Drilling (Resource Twining & Regional Targets)			
<b>Mt Alexander Lithium</b>			
Follow-up Sampling			
<b>Lithium Evaluations &amp; Project Generation</b>			
Reviews, Due Diligence & New Tenure			





# Contact Details

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ASX Code:

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# Supplementary Slides

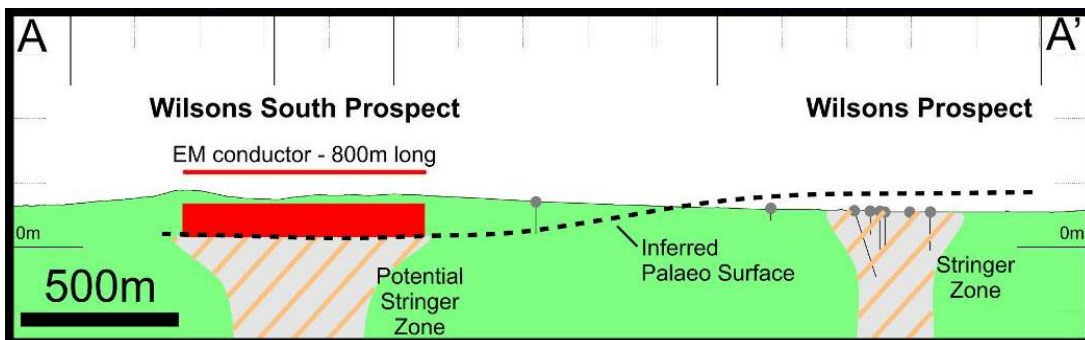




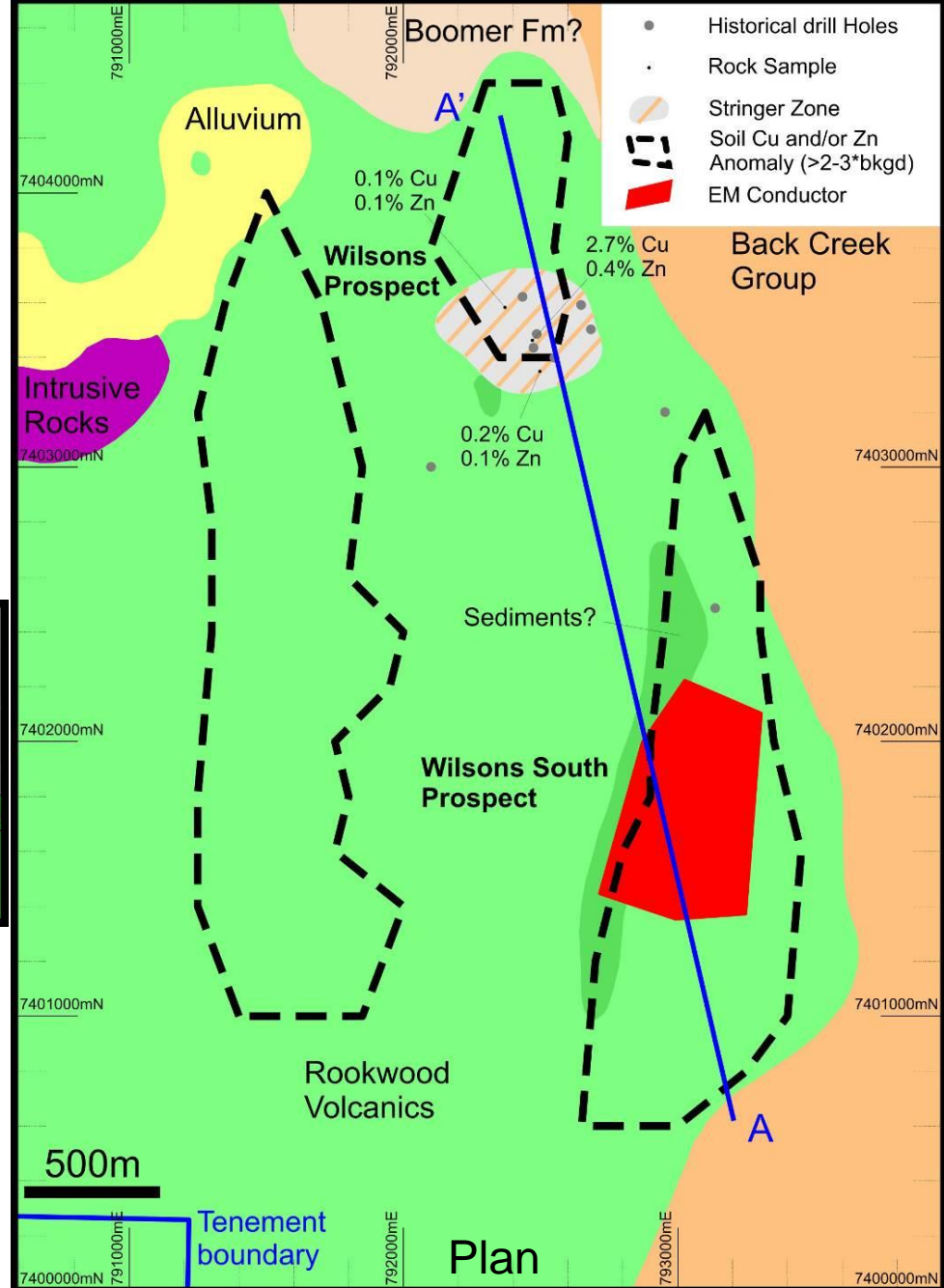


# Develin Creek Wilsons South Drill Target

Coincident EM and Geochemical Anomaly



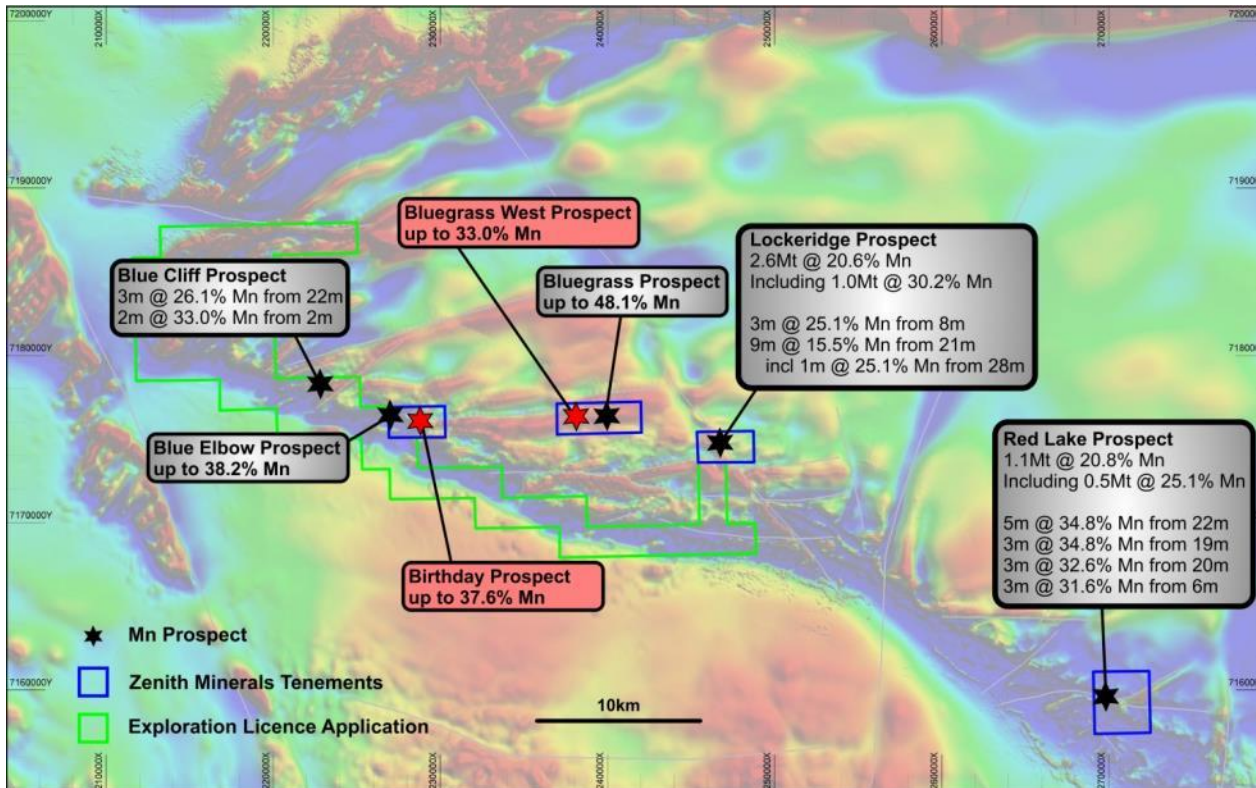
Cross Section





# Earaheedy Manganese

Ownership: 100%  
Location: WA  
Commodity: Manganese  
Stage: Resources



Zenith completed first drilling for Mn in Earaheedy

- Shallow dipping oxide; and
- Carbonate (Kalahari Basin style) mineralisation

Manganese both structurally controlled and stratiform.

Inferred Mineral Resources:

- Red Lake 1.1Mt @ 20.8% Mn (Sep 2014)
- Lockeridge 2.6Mt @ 20.6% Mn (Apr 2015)

Drill intersections include:

- 3m @ 41.0% Mn within 5m @ 34.8% Mn from 22m
- 1m @ 40.2% Mn within 3m @ 30.7% Mn from 3m
- 2m @ 38.4% Mn within 3m @ 32.6% Mn from 20m
- 1m @ 42.3% Mn within 3m @ 34.8% Mn from 19m

New discoveries:

- Bluegrass, Bluegrass West, Blue Elbow & Birthday

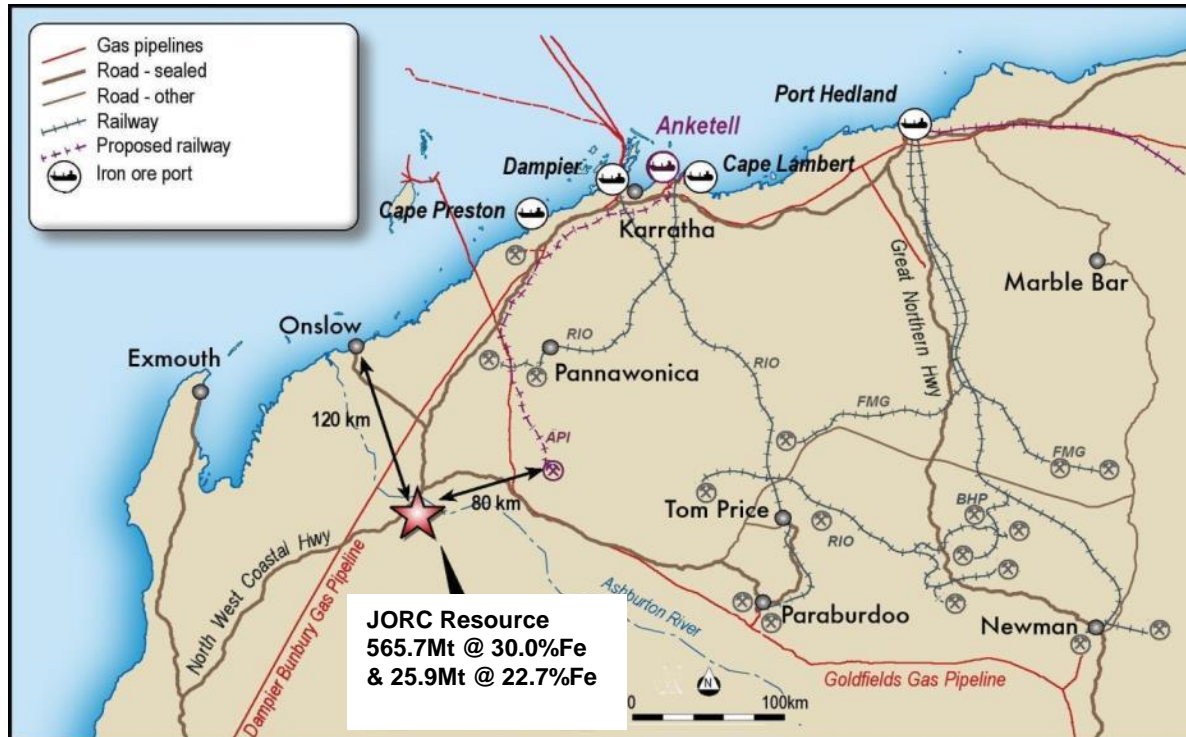
Focused tenement strategy





# Mt Alexander Magnetite

Ownership: 100%  
Location: WA  
Commodity: Iron Ore  
Stage: Resources



Well located close to – sealed roads, gas pipelines, only 120km from coast near Onslow (Mitsui, Chevron ports)

Base case in 2011 Scoping study - slurry pipeline, tranship by barge to vessel offshore

Only 80km to API JV (Baosteel -AMCI) West Pilbara proposed railway to Anketell Port – third party access.

Advantages over other WA magnetite deposits:

- location close to coast and infrastructure
- coarser grained = better beneficiation +40 micron grind size

Inferred Mineral Resources:

- Mt Alexander 565.7Mt @ 30.0%Fe (Oct 2015)
- Mt Alexander West 25.9Mt @ 22.7%Fe (Jun 2015)

Additional very large exploration target

Key tenure retained