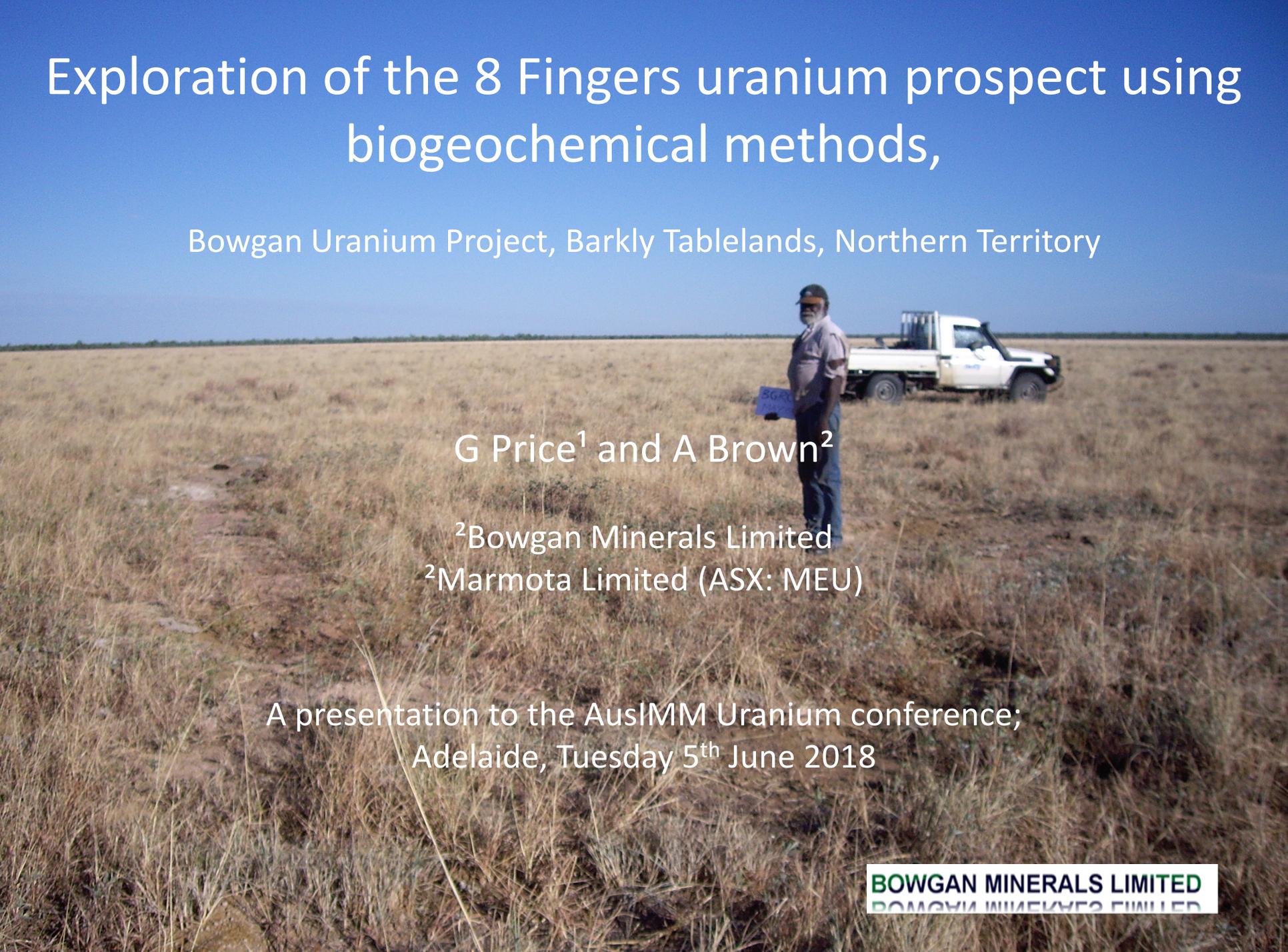


Exploration of the 8 Fingers uranium prospect using biogeochemical methods,

Bowgan Uranium Project, Barkly Tablelands, Northern Territory



G Price¹ and A Brown²

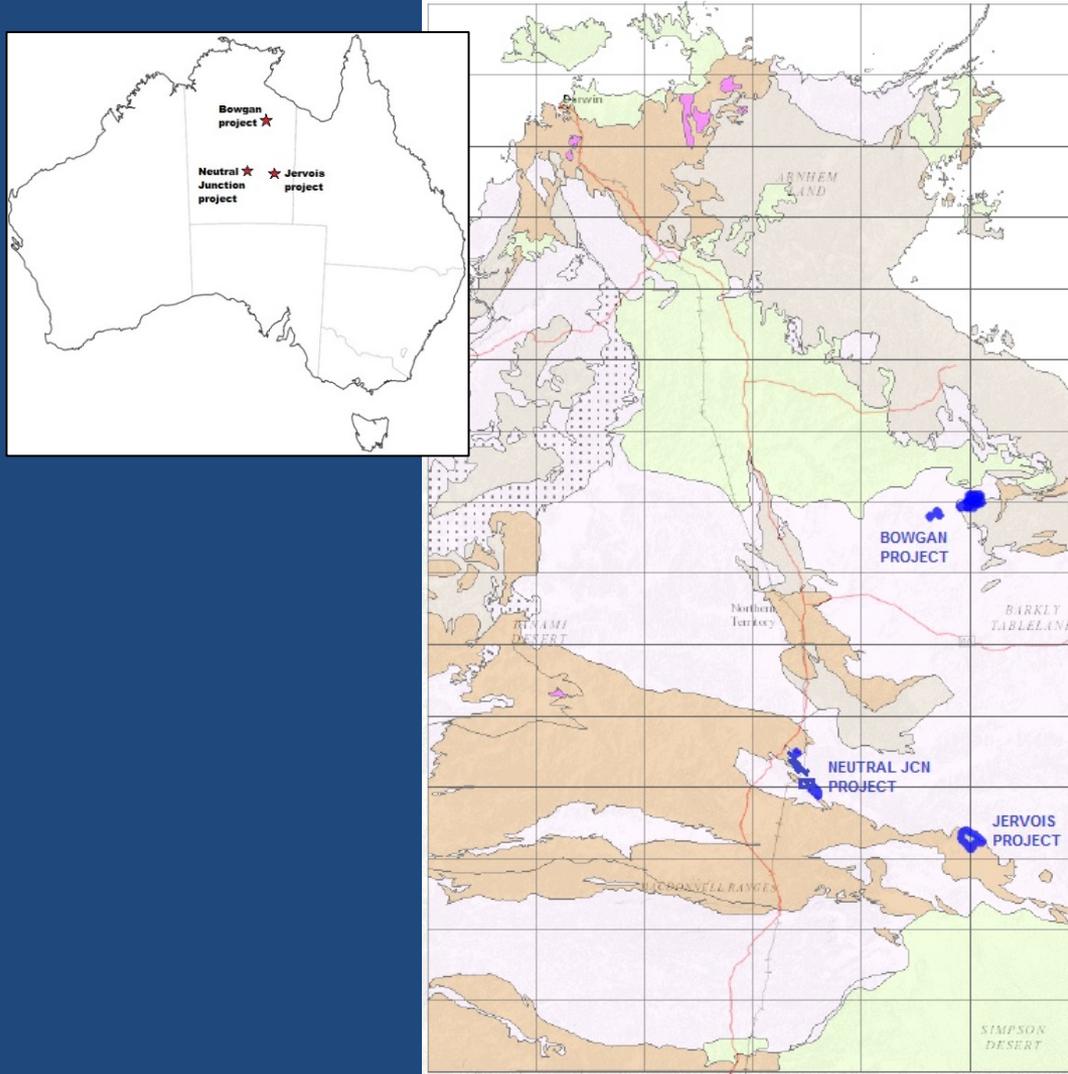
²Bowgan Minerals Limited

²Marmota Limited (ASX: MEU)

A presentation to the AusIMM Uranium conference;
Adelaide, Tuesday 5th June 2018

Bowgan Minerals Limited

We are a private equity funded explorer (non-listed)

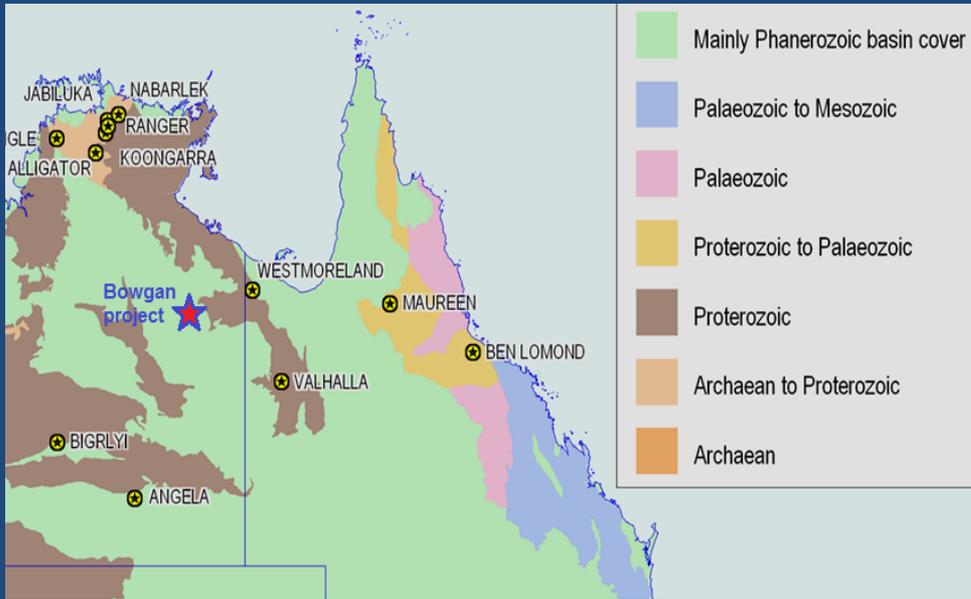


Established mid-2009

Currently exploring 3 projects,
all in the Northern Territory;

- **Bowgan Uranium project**
- **Neutral Junction project**
- **Jervois project**

Bowgan Uranium: Project location



Location of Bowgan project and surrounding uranium deposits

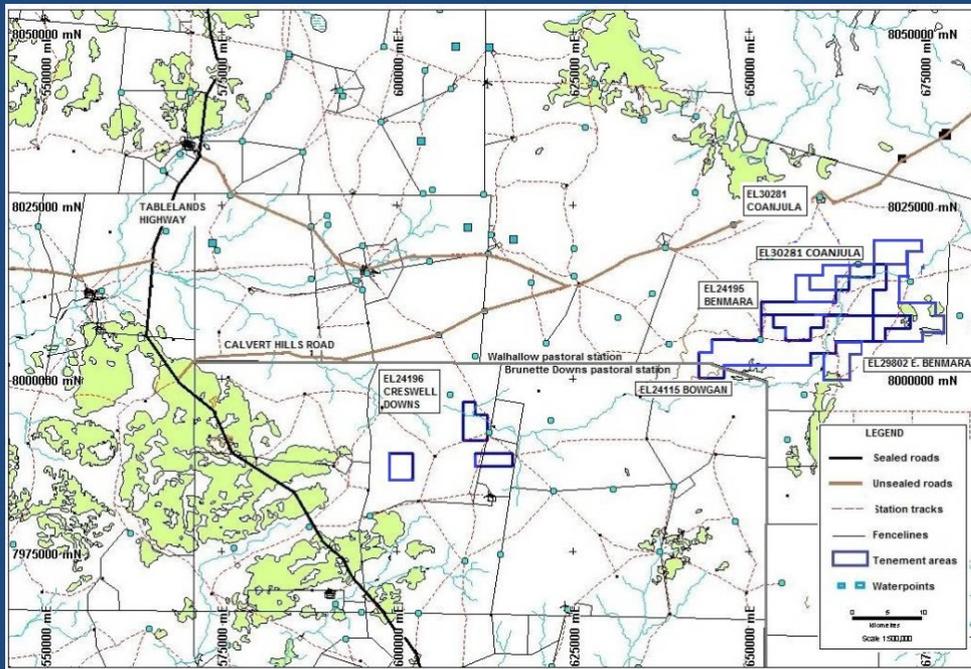
Tenement summary:

EL24115 Bowgan, 24195 Benmara (53 blocks) & EL24196 Creswell (12 blocks).

Original tenements currently in JV with ERA Resources Inc. (10% retain) and Mega Uranium (10% retain).

EL29802 East Benmara, EL30281 Coanjula (40 blocks).

Both 100% Bowgan Minerals Limited.



Bowgan Uranium project: Regional setting

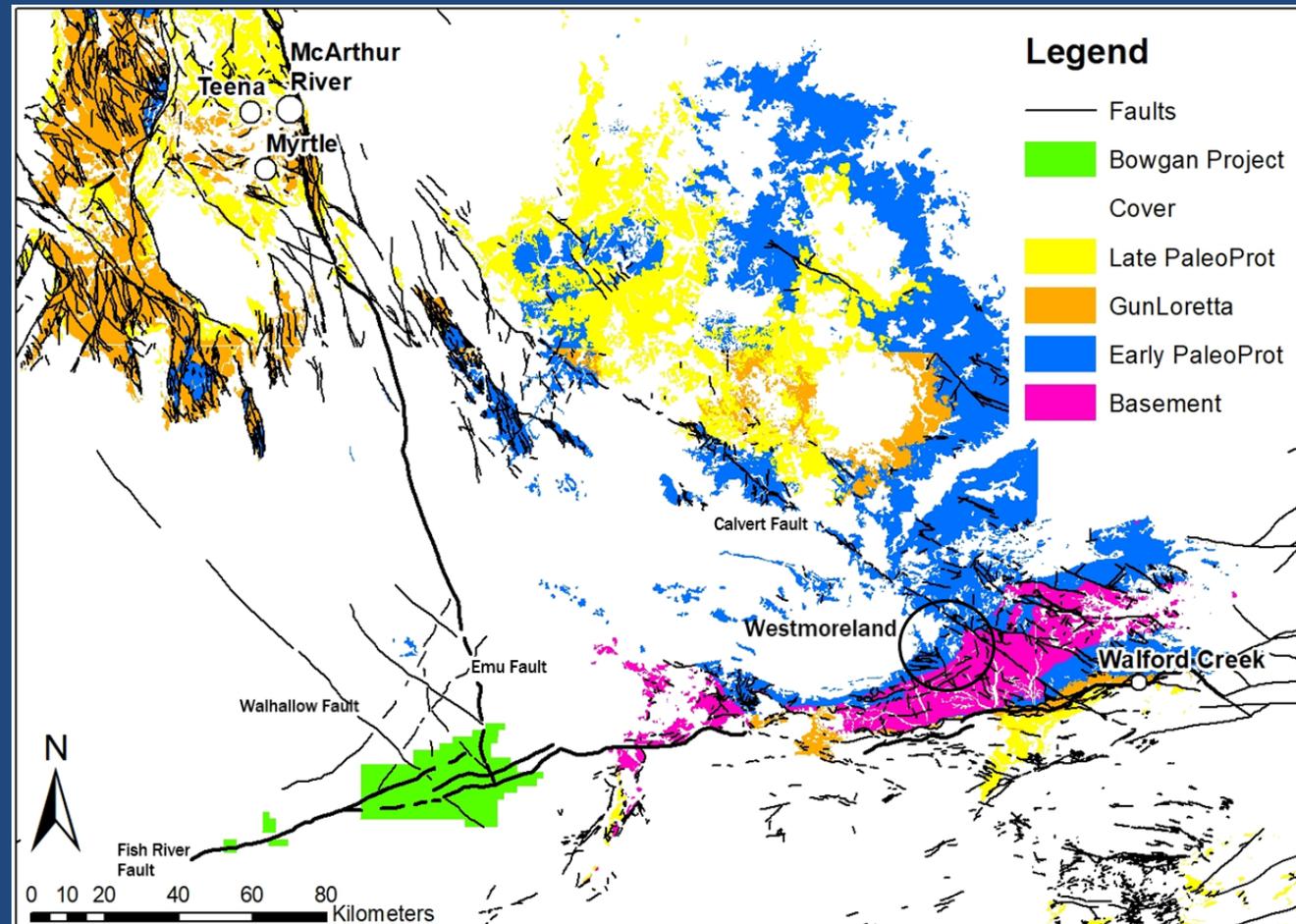
Hypothesis that the Bowgan project locality hosts an unrecognized western extension of the Westmoreland conglomerate (Lower Tawallah Group; southern extension of the Paleoproterozoic McArthur Basin)

Historic Westmoreland U field: >50 known U \pm Au, Cu occurrences, hosted along/near to the Westmoreland/Murphy unconformity

We aim to target economic U within a similar geological setting to Westmoreland field

Major local structure - Emu Fault (southern extension of Batten Trough)

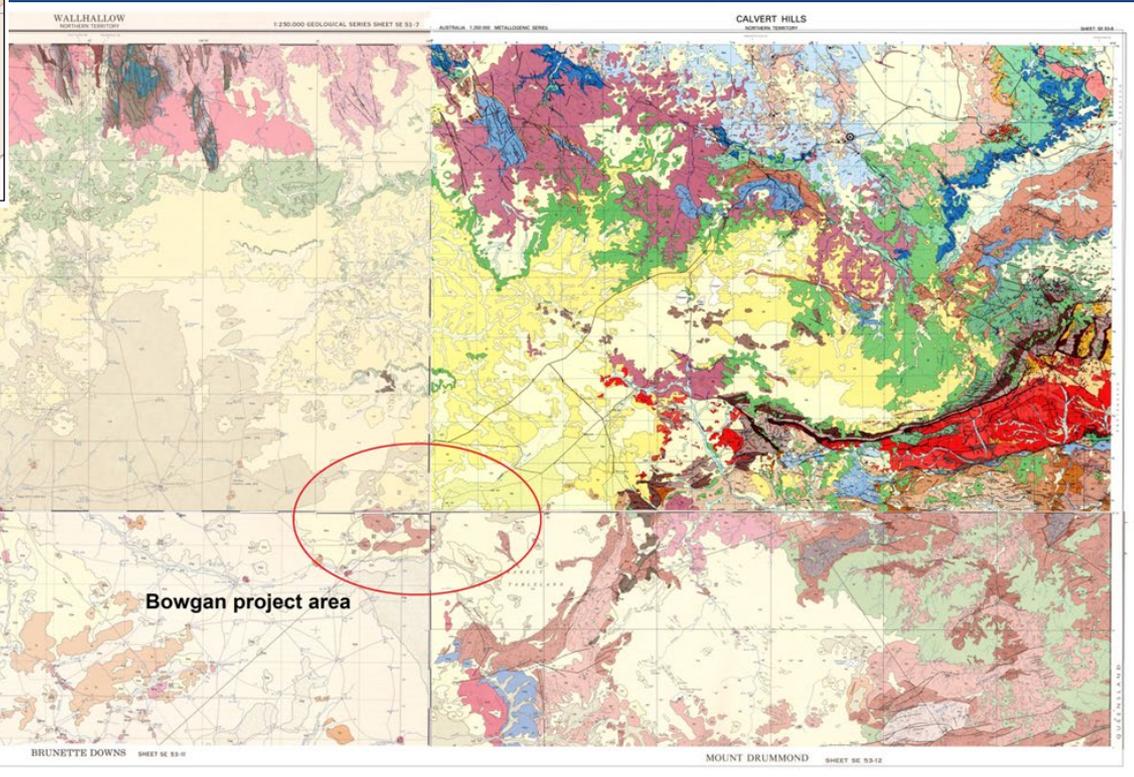
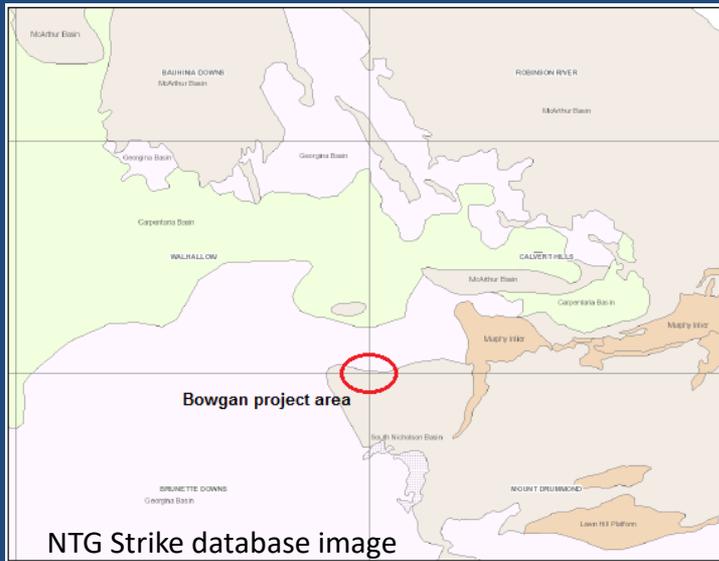
Walhallow fault on west flank follows NW-SE strike trend



Regional geology; new interpretation

Outcrops currently interpreted as Mittiebah Sandstone (Mesoproterozoic-aged South Nicholson group).

We believe these rocks are older McArthur Basin units (middle to late Proterozoic in age).



Action: Correlation analysis using Detrital Geochronology



Outcrop mapped at BW007-west target area was interpreted to be Westmoreland conglomerate.



Decision made to complete geochronology to correlate this conglomerate outcropping at the Bowgan Uranium project with Westmoreland conglomerate outcrops mapped by NTGS in the China Wall area, 80km+ further east

Geochronology project

Sampling program was conducted during August 2016 (supervised by Dr Nick Gardiner from CET, Curtin).

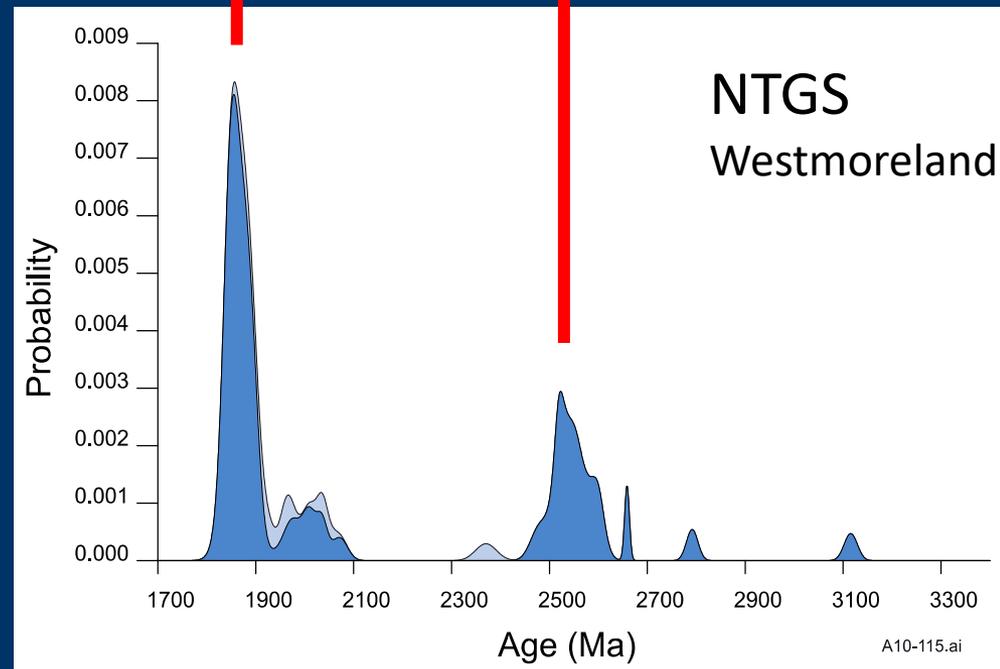
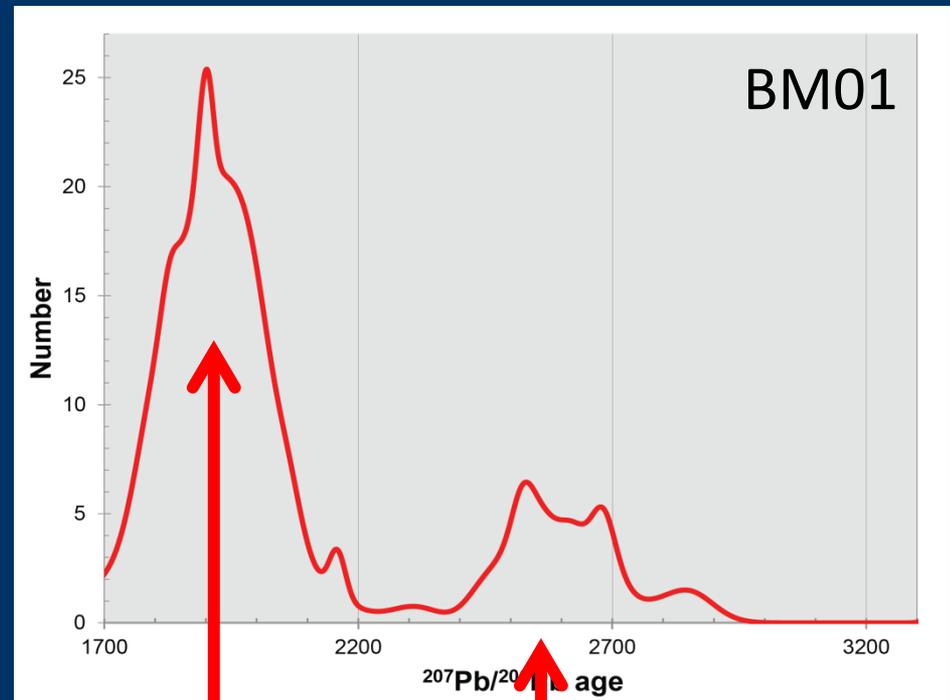
Selective samples of boulder conglomerate and the overlying sandstone collected from the BW007-west target area.

Additional 'comparative' samples of Westmoreland conglomerate also collected from outcrop located at China Wall, 80km further east.



INITIAL CONCLUSIONS

- Results presented at last year's AusIMM Uranium conference (2017).
- BM01 has a broader age spectra compared to the Westmoreland samples analysed by NTGS.
- No Mesoproterozoic ages found; new interpretation is now required



BOWGAN PROJECT

8 Fingers Uranium target

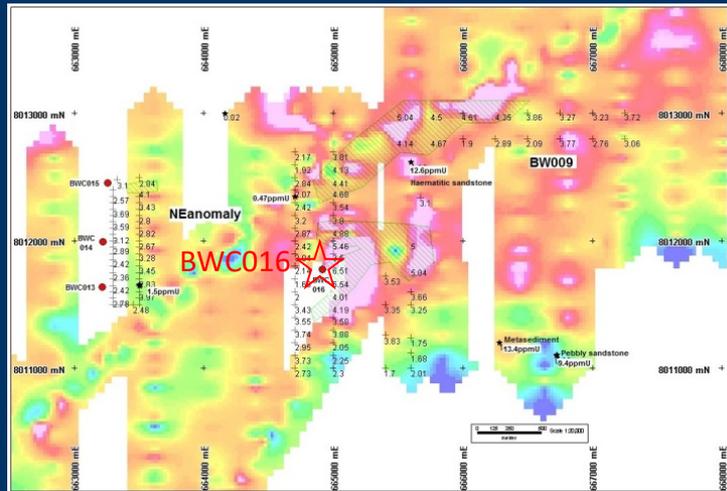
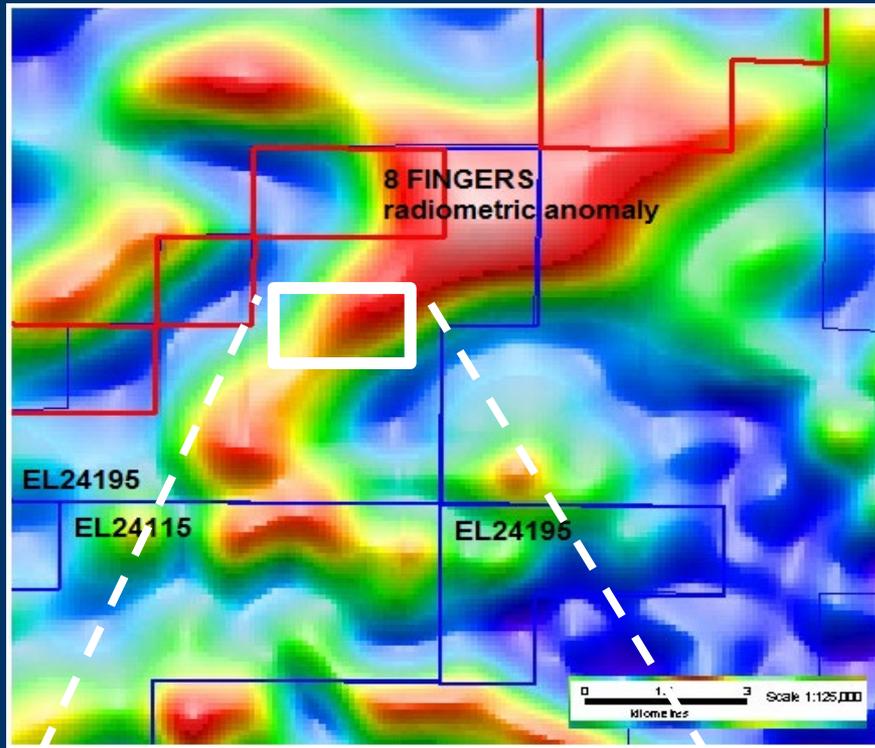
A large radiometric anomaly originally identified by historical airborne surveys.

14/07/2017

8 Fingers target summary

Large (regional-scale) surface radiometric anomaly identified by historical airborne surveys.

Previous drill hole (BWC016) intersected a wide zone of U anomalism (4-40m@>14ppmU) above the unconformity with underlying Seigel? volcanics which was not followed-up at that point.

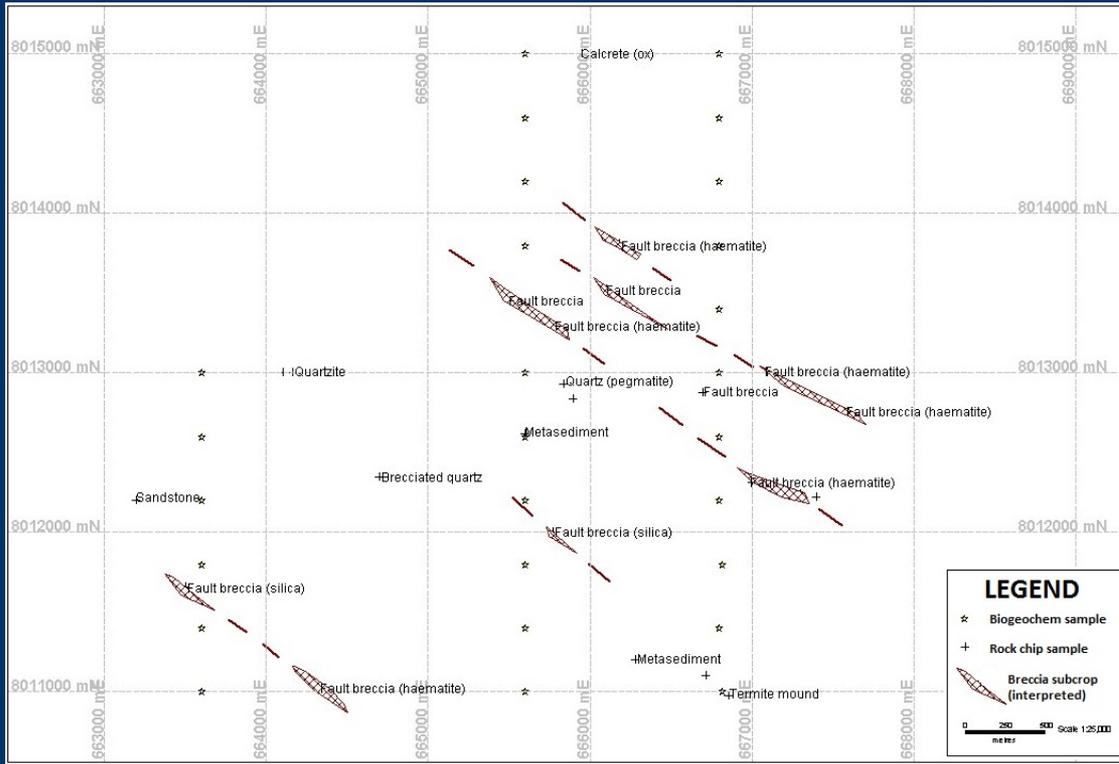


Vehicle-mounted spectrometer surveys conducted in 2012 by Bowgan Minerals Limited confirmed readings up to 8ppmU

Vehicle spectrometer assays were later validated by spot assays on-ground.



8 Fingers target; Geological mapping



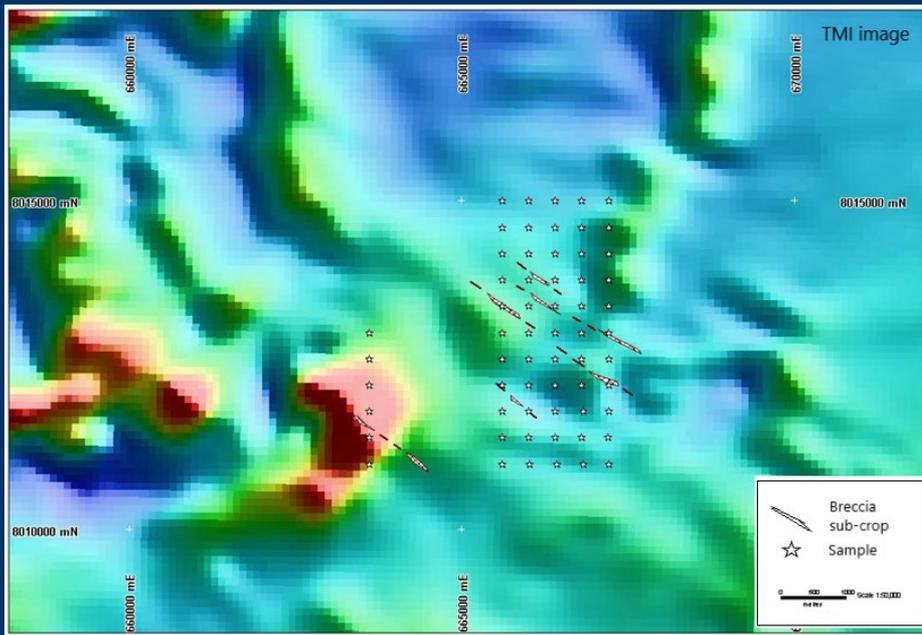
8 Fingers target area has a widespread cover of transported black soils (gilgai profile), with localised sub-crop of fault breccia were mapped; interpreted to follow a NW/SE-strike trend.

Sedimentary breccia sub-crop represents the surface expression of underlying faults; extensional setting with dolerite dyke infills (**vanadium values ~0.3-0.4% V**)

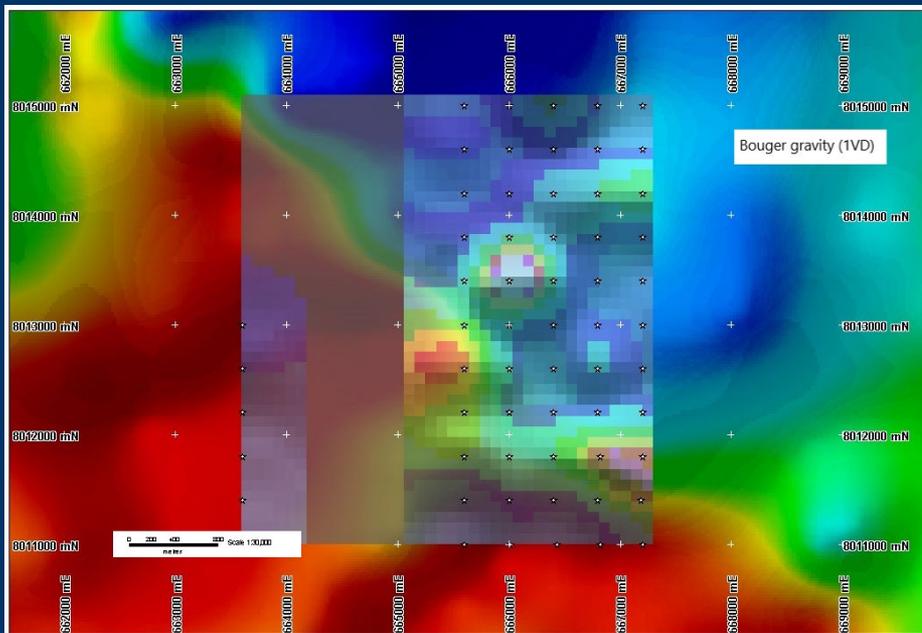


Calcrete fragments mapped along the north flank, with termites and sub-crop mapped along south; suggests a shallowing in the transported-regolith contact.

8 Fingers target: Magnetics/gravity



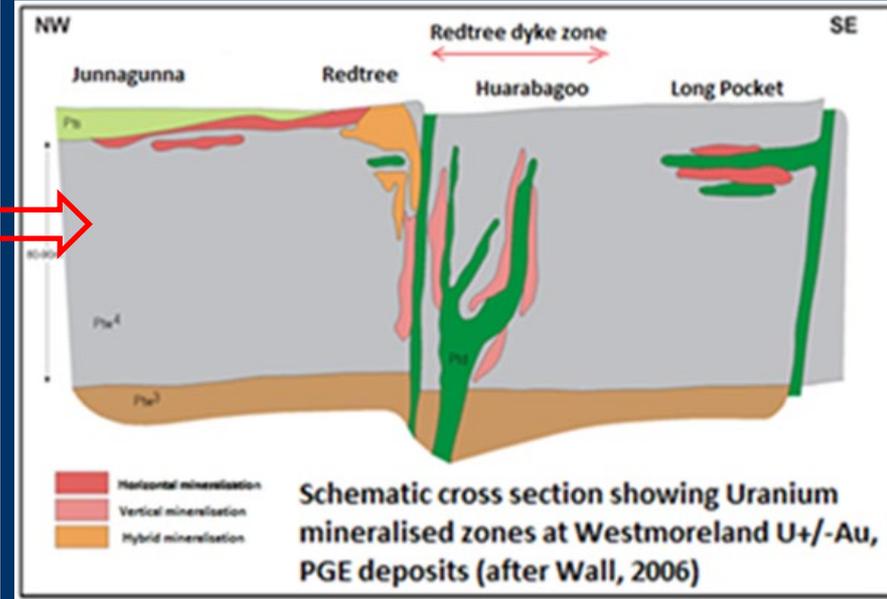
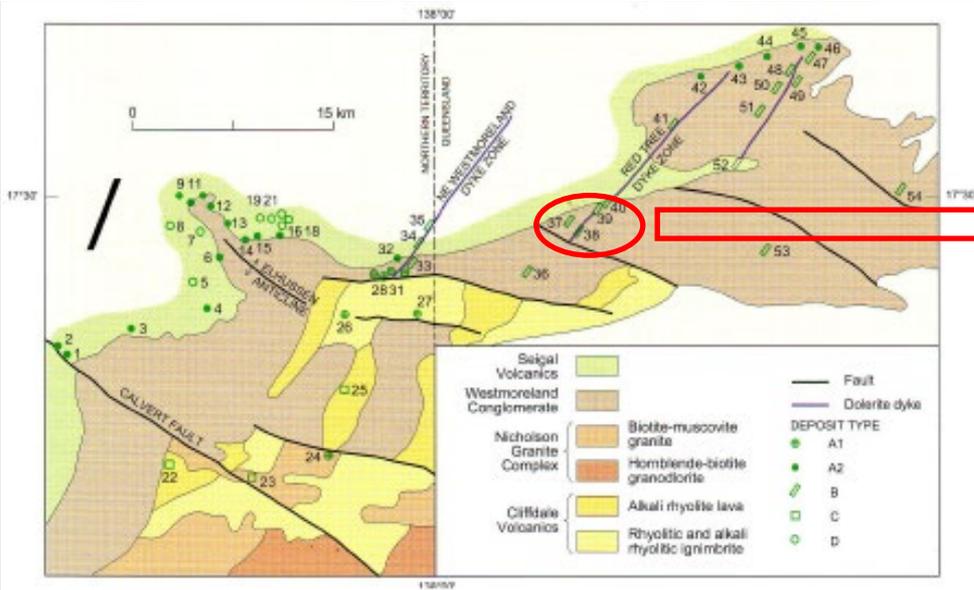
- Key structures and contacts can be interpreted from the airborne magnetic (TMI) image (top), and the Bouguer gravity (1VD) image (lower).



- Faults; both NW/SE & NNE/SSW, NW/SE extensional; dolerite-filled?
- Unconformity at shallow depth; strikes $\sim 040^{\circ}$ - 060° (which is the regional lithological trend).

The IOgas image for Uranium is overlain on the lower image.

Exploration targeting: What is a 'Westmoreland-style' deposit setting?



URANIUM OCCURRENCES

- | | | |
|--------------------|-----------------------------------|-----------------|
| 1 Calvert South | 21 Johnny Walker | 37 Redtree |
| 2 Calvert North | 22 Eva Mine | 38 Namalangi |
| 3 Debbil-Debbil | 23 Una May | 39 Huarabagoo |
| 4 White Label | 24 Red Rock | 40 Junnagunna |
| 5 Horse Pocket | 25 Crippled Horse | 41 Wariganango |
| 6 El Hussan | 26 Ducchos | 42 Embayment |
| 7 Monte Carlo | 27 Maniwa | 43 Pats Field |
| 8 Fata Morgana | 28 Southern Comfort | 44 Pioneer |
| 9 White Horse | 29 Jaagues | 45 Vauderville |
| 10 Black & White | 30 Jim Beam | 46 Broadway |
| 11 McGuiness | 31 Jackson Pit | 47 Amphitheatre |
| 12 Corio | 32 NE Westmoreland (contact lode) | 48 Yankee |
| 13 Kookaburra | 33 NE Westmoreland (Mogera) | 49 El Sharm |
| 14 Hidden Valley | 34 NE Westmoreland (Intermediate) | 50 Flying Fox |
| 15 Waterfall Creek | 35 NE Westmoreland (Ogoodoo) | 51 El Nashfa |
| 16 Rocky Creek | 36 Moongooma | 52 Long Pocket |
| 17 Old Parr | | 53 Tjambi |
| 18 Coban-2 | | 54 Buck Hill |
| 19 Kings Ransom | | |
| 20 White Heather | | |

after Ahmad & Munson (2013)

AS1-0784

Similarity to Athabasca unconformity-style deposit setting, locally described as;

- Uranium sourced from volcanics (Seigel?).
- NW/SE faulting, reverse thrust (Calvert Fault),
- Dolerite intrusives (late-stage) with Au, Cu, PGE enrichment
- Redox formation on/near dolerite contacts

What is the best method to explore for economic Uranium at 8 Fingers target?

- Geophysics; radiometrics/magnetics?
- Radon caps?
- Soil-gas surveys (H/He pathfinders)?
- Conventional soil geochemistry?
- Divining rod?

We chose biogeochemistry, using a method employing sampling and analysis of Mitchell grass that was first trialled at Bowgan during 2007-8 (Mega-Hindmarsh-era).

This method yielded positive results at ppb-levels, when compared to conventional soil geochemistry which was not successful at defining contrasts over known structures/contacts at ppm-levels.



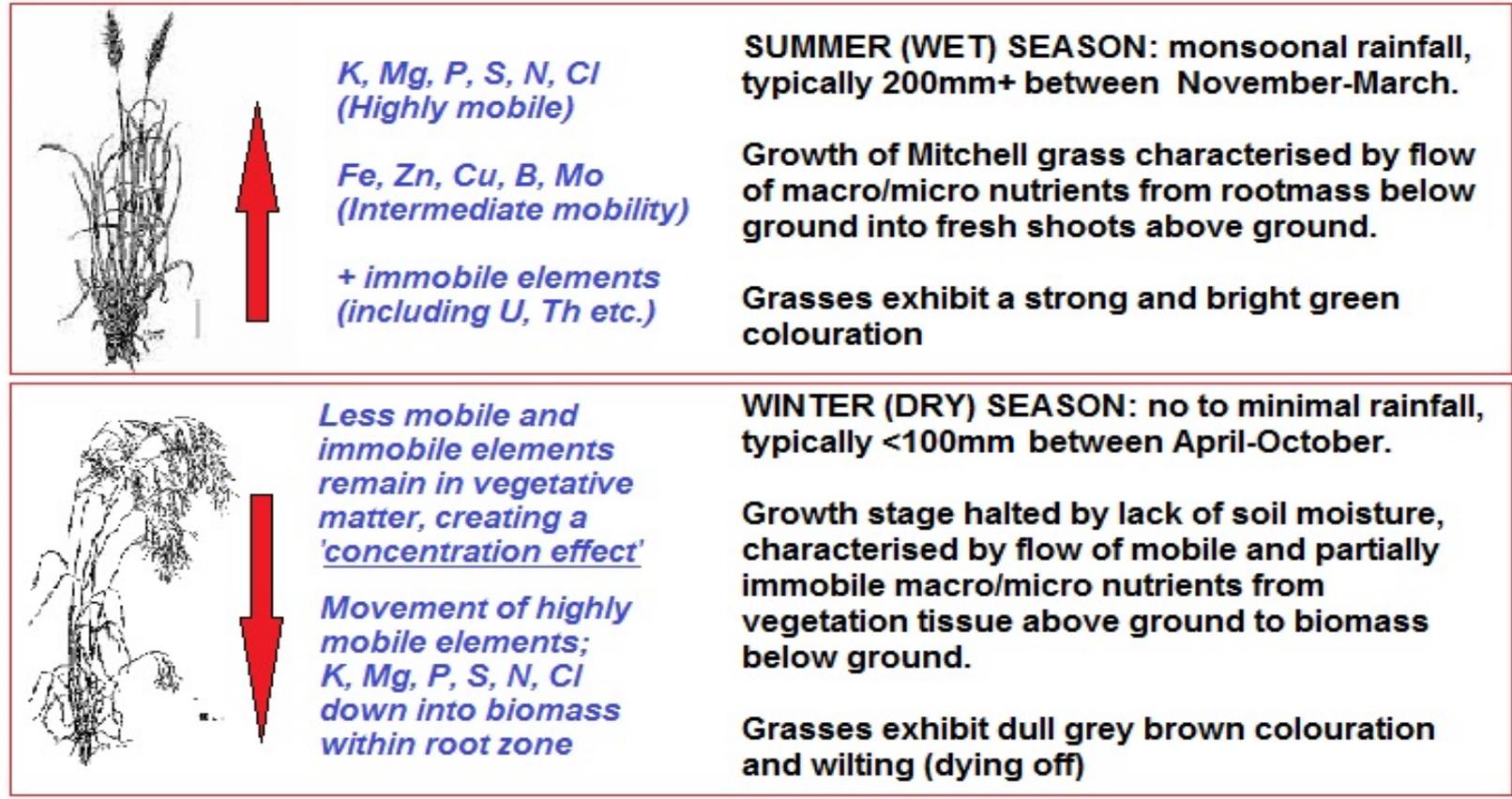
Biogeochemical sampling program (conducted July 2013)

Program aimed to sample across the most prospective part of the 8 Fingers target based on radiometric surveys conducted previously in the area.



Biogeochemical prospecting: how does it work?

Growth cycle of Mitchell grass (sp: *Astrebla lappacea*), Barkly Tablelands NT



Biogeochemical prospecting relies on the relative concentration of less mobile and immobile elements as a result of seasonal growth patterns.

Key issues favouring biogeochemical prospecting

- Veneer of transported black soils cover regolith across entire target area; conventional soil geochemistry was potentially unreliable,
- Monoculture of Mitchell grass across entire target,
- Redox front interpreted at contact between black soils (which were reduced) and the underlying regolith (which is oxidised).

Therefore; penetration of the Mitchell grass roots down to the underlying regolith contact in combination with an associated redox front indicated potential existed to identify anomalous uranium/thorium at depth.

Multi-element analysis; potential for other elements may also be examined by biogeochem.

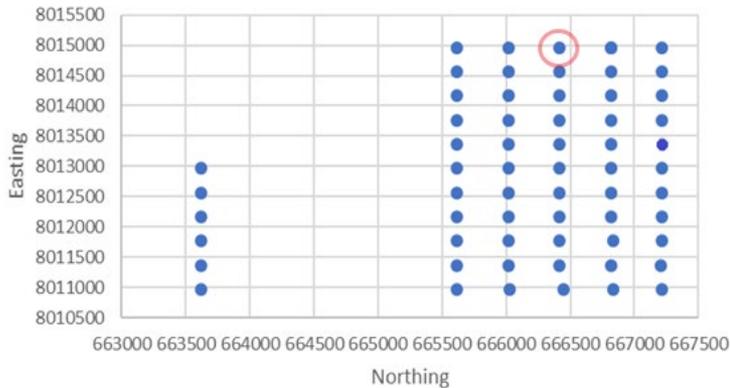


Bowgan project; 8 Fingers program

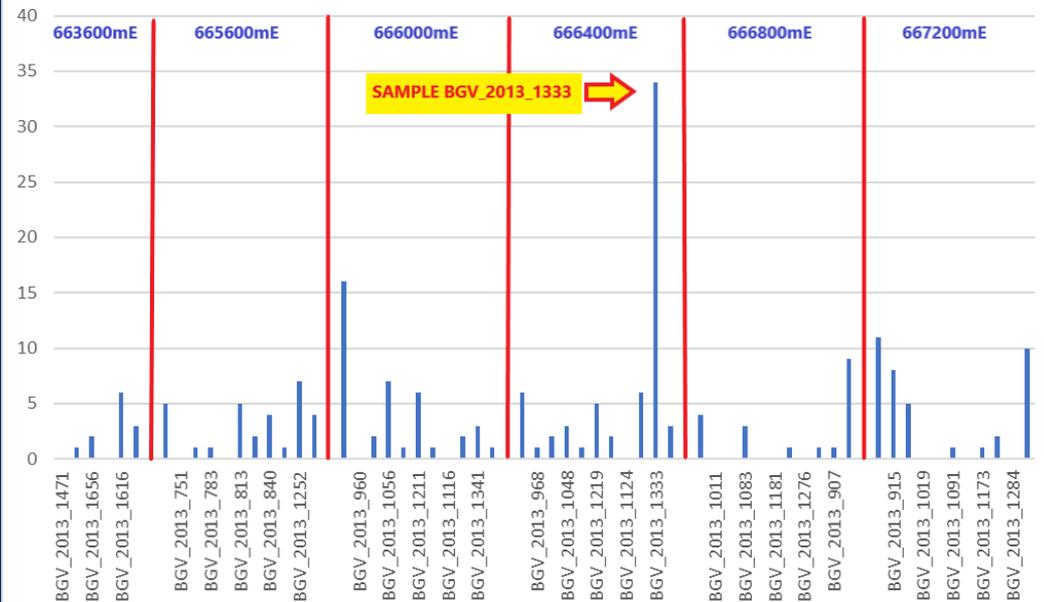
A total of 61 Mitchell grass samples were selected for multi-element analysis at Labwest (Perth) from the biogeochemical sampling program conducted during 2013.

Samples were selected along 6 N-S traverses (~2km X ~4km area) corresponding to peak anomalies interpreted from spectrometer surveys, along with surface expression of faults within a corridor of deeper regolith.

Sample location



Total number samples >95 percentile value



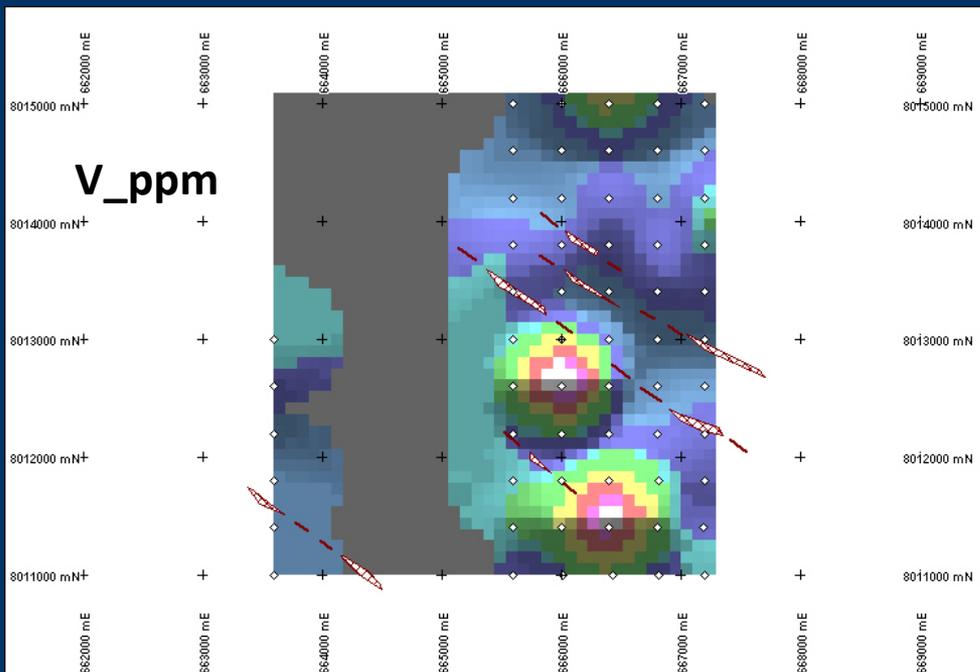
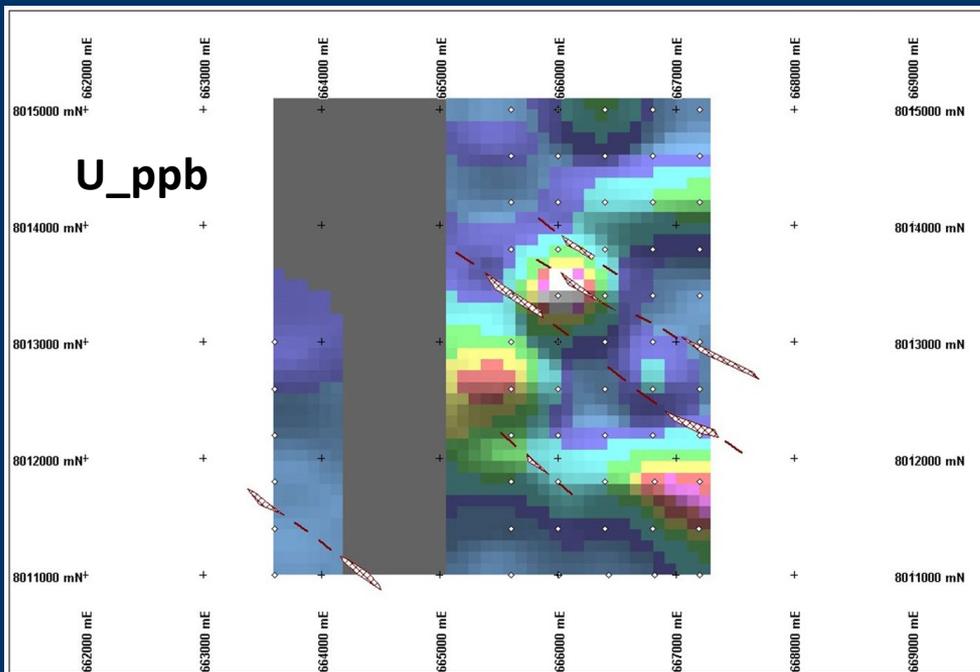
A clustering of maximum assay values for 35 elements (n=61) was identified for sample # BGV_2013_1333 (666400mE, 8015000mN)

Analytical results: Uranium vs Vanadium

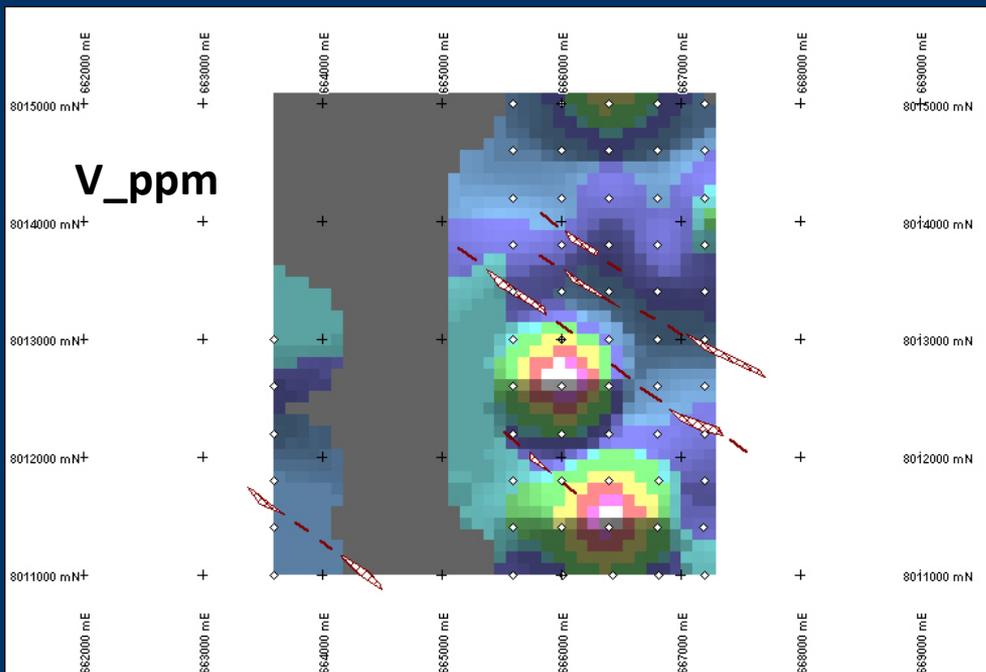
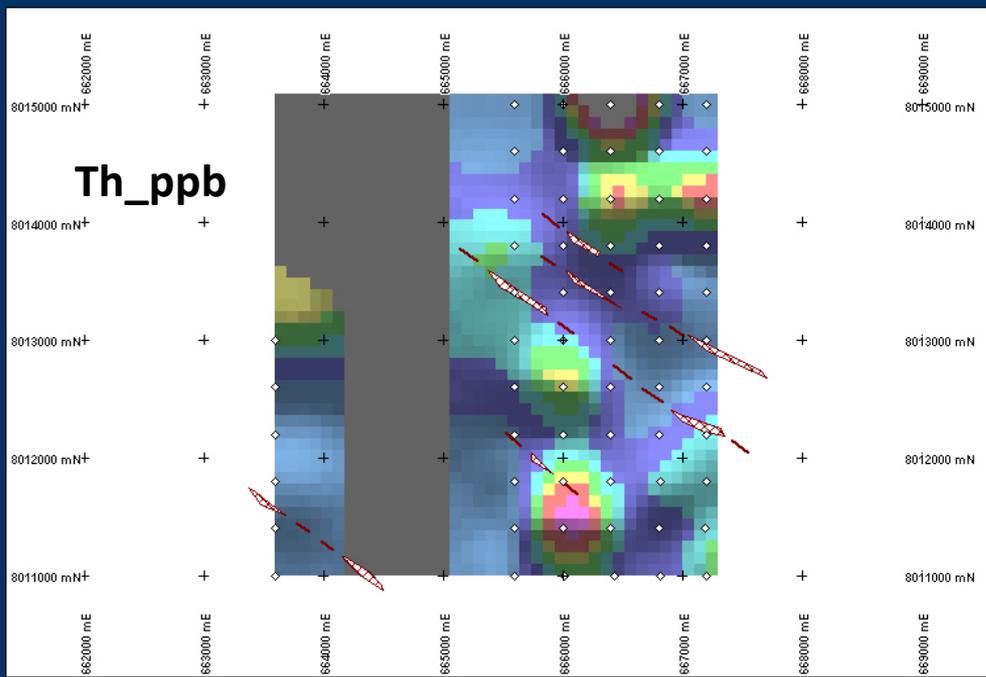
- Several potential bullseyes that are interpreted to follow the unconformity trend (040°-060° strike), poor correlation along NW/SE fault corridor.

- Max Uranium value 23.9ppb; good correlation with previous spectrometer surveys.

- Uranium-Vanadium interface within NW/SE fault corridor.



Analytical results: Thorium vs Vanadium



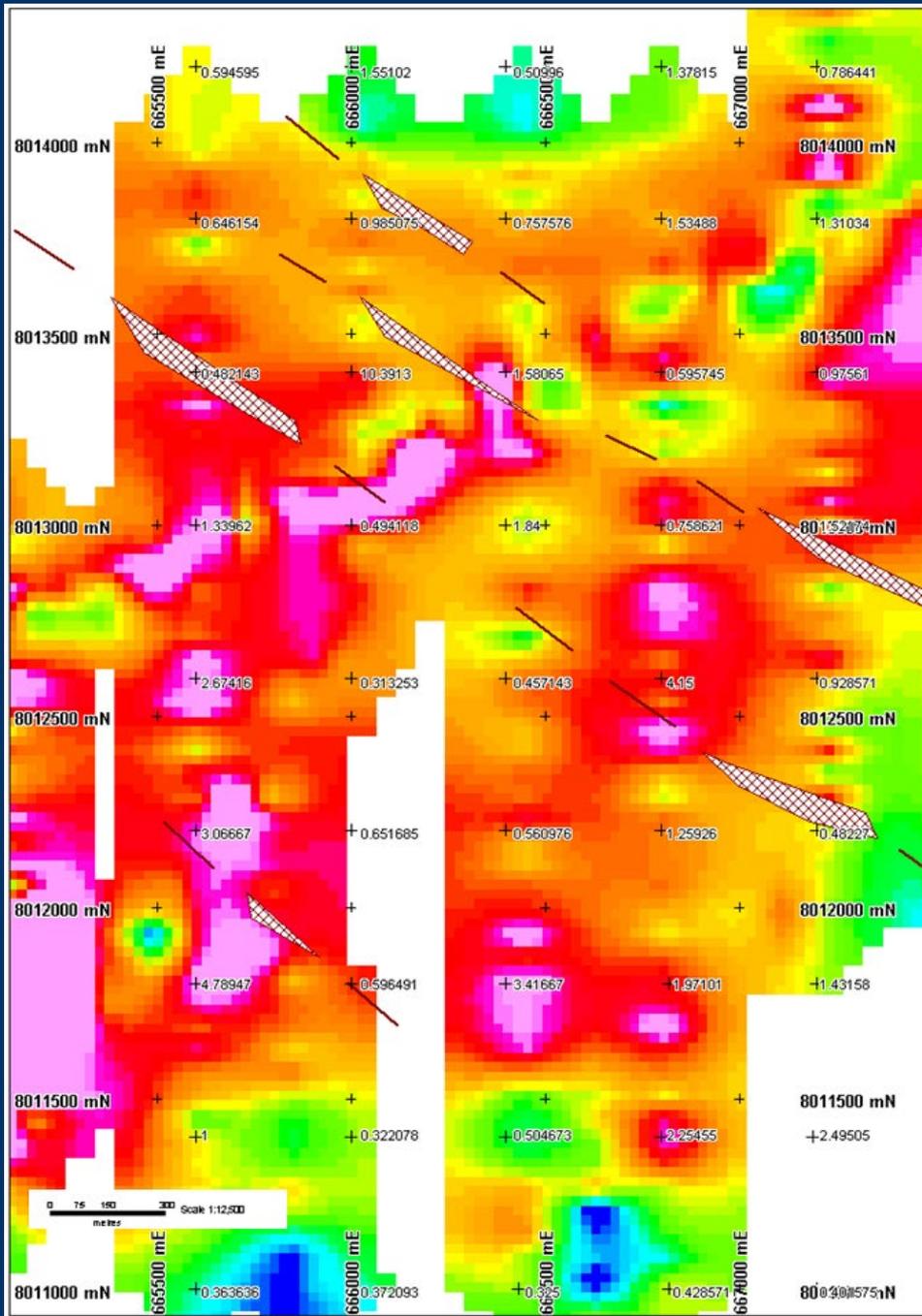
- Thorium exhibits a closer relationship with Vanadium, when compared to Uranium.

- Vanadium anomalies constrained by NW/SE fault corridor.

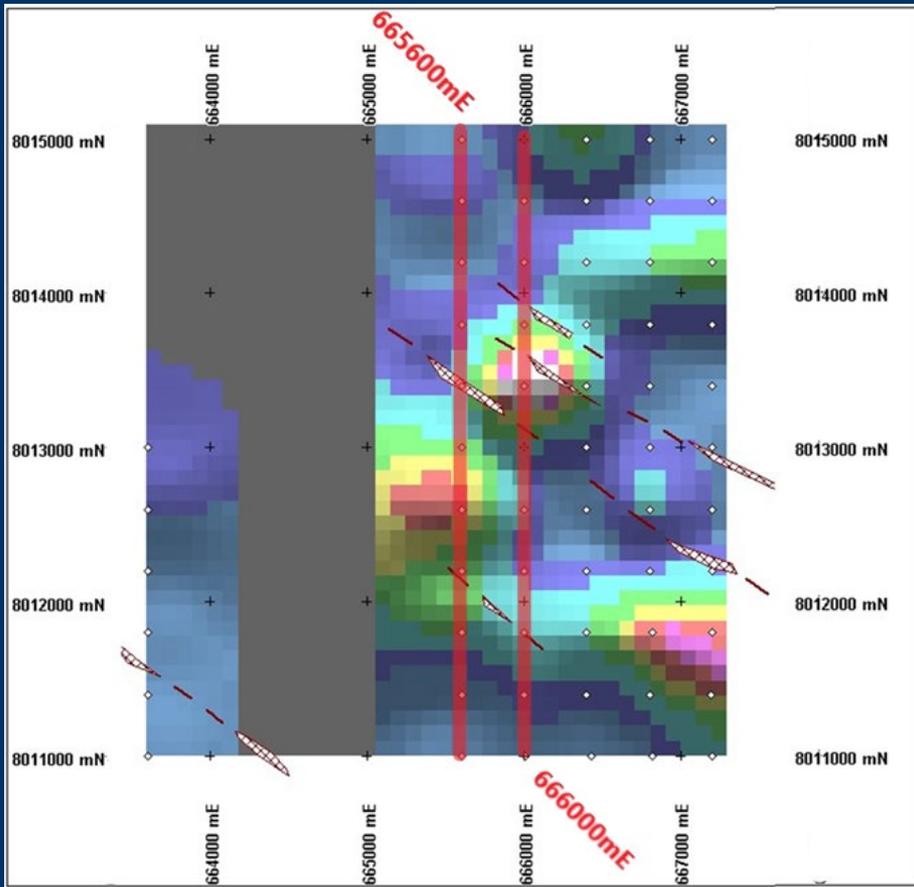
- Mafic intrusive source postulated for anomalous Vanadium (probably associated with dolerite dykes within fault corridor)

Analytical results: Ratio U²/Th

- Good correlation between U²/Th bullseye's with previous spectrometer data.
- Max U²/Th ratio ~10:1.
- Linear trend observed in anomalous Uranium; both with biogeochemical assay and radiometric survey datasets.



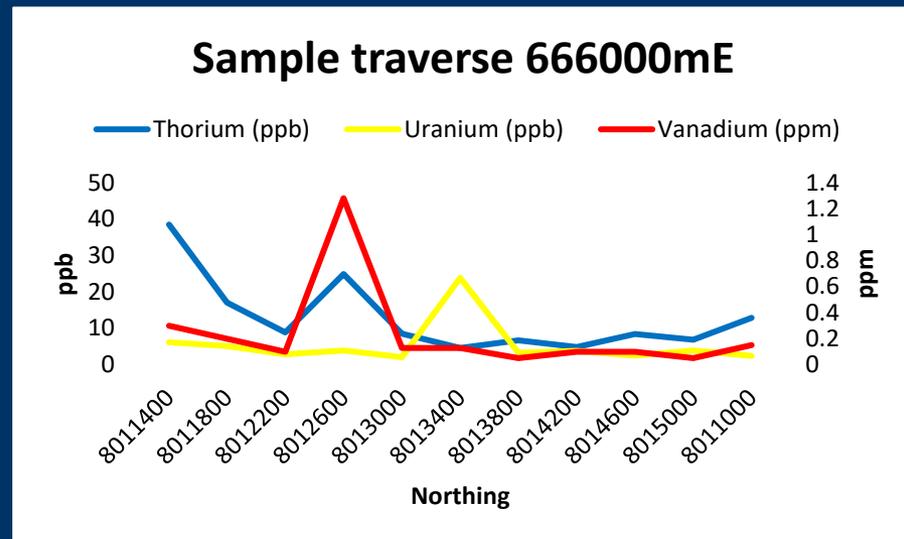
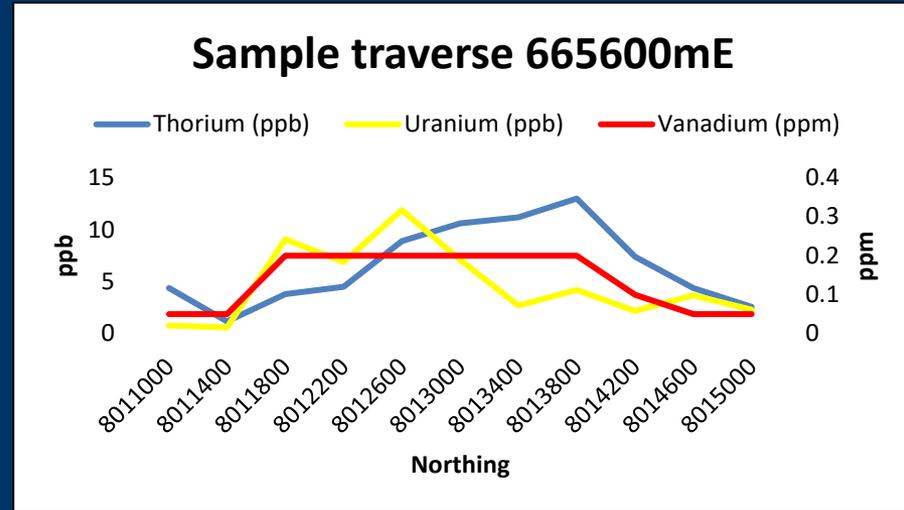
Analytical results: U vs Th vs V



- Comparison conducted for 2 sample traverses.

- Offset interpreted between Uranium and Thorium peaks, Vanadium variable.

- There was no 'Cat's ears' observed but, we are at 400mX400m sample density.

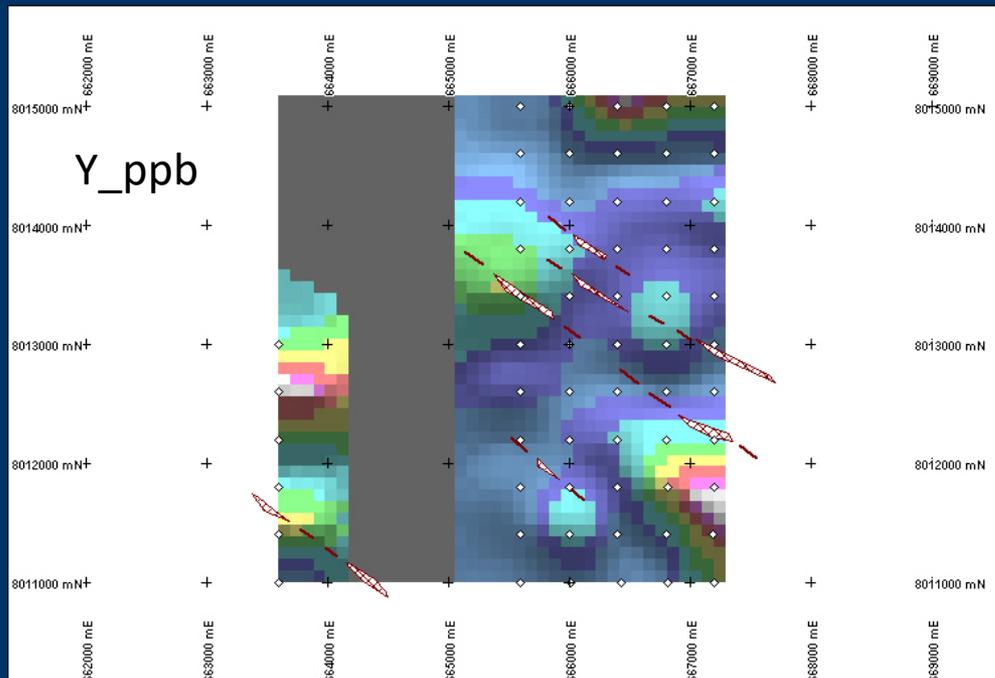
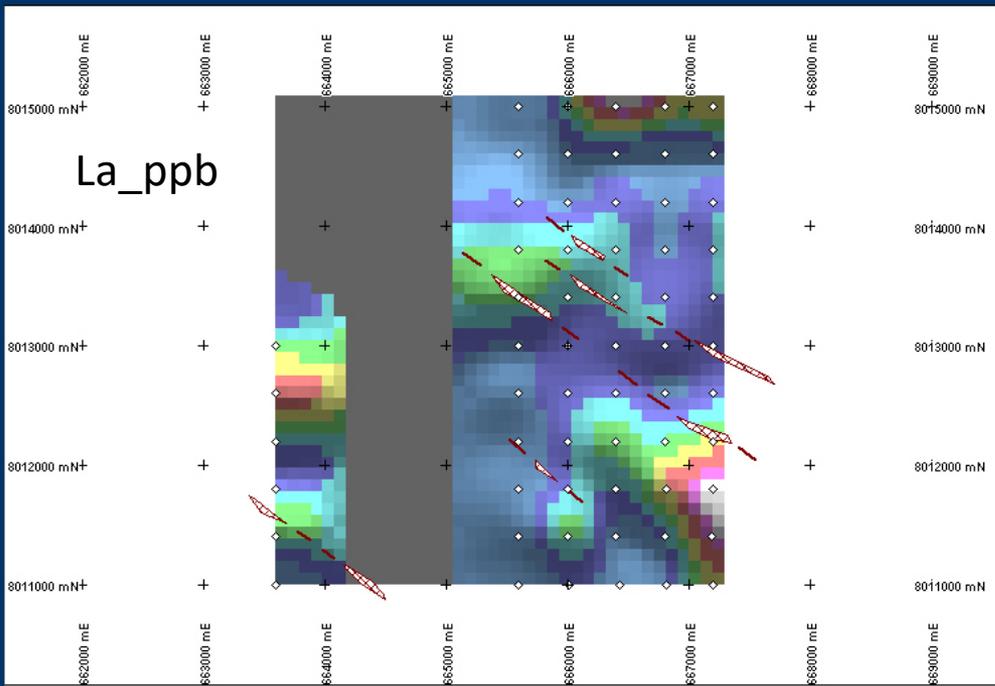


Analytical results: REE's

- Results for LREE's and HREE's and comparable, only a minor exception for Scandium.

- Plots presented for Lanthanum versus Yttrium.

- Highest values (clustering) occurs along north edge and in south-east corner; sub-crop mapped in both area.

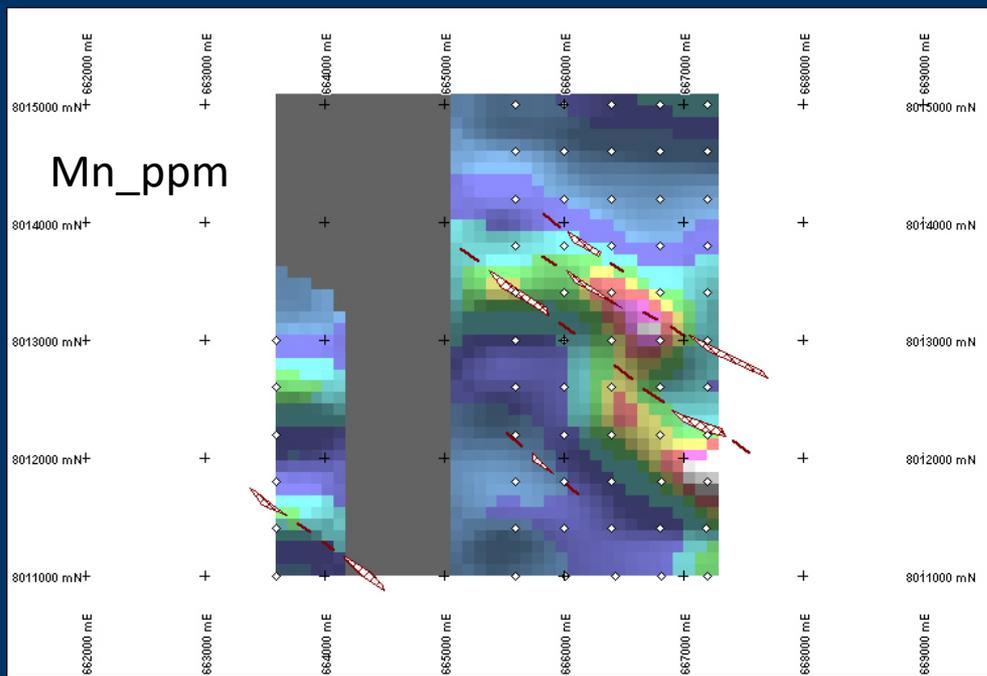
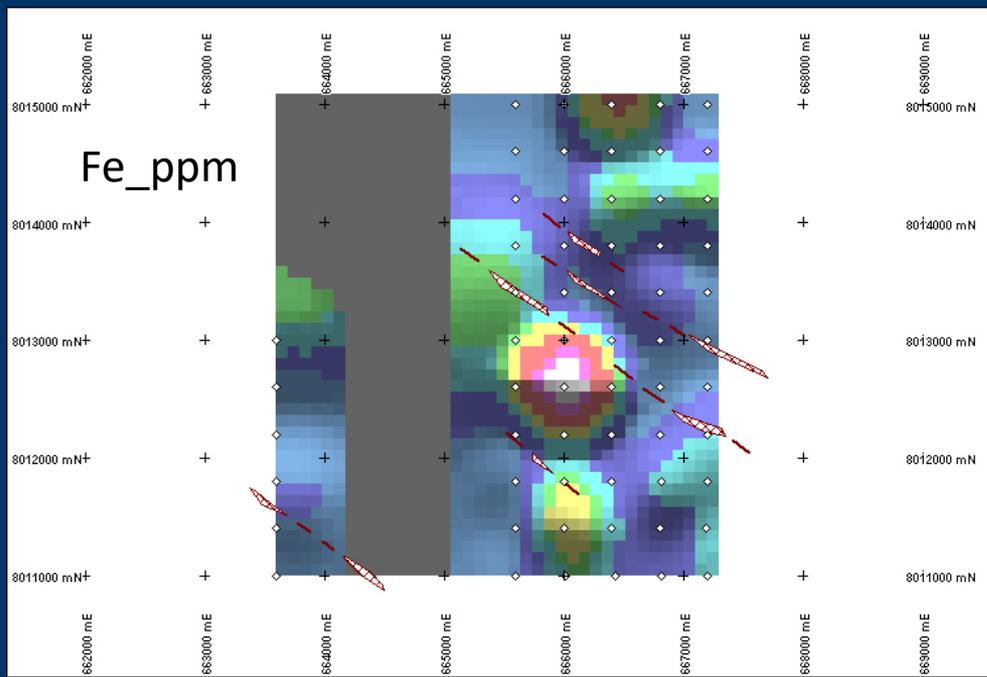


Analytical results

Iron vs Manganese

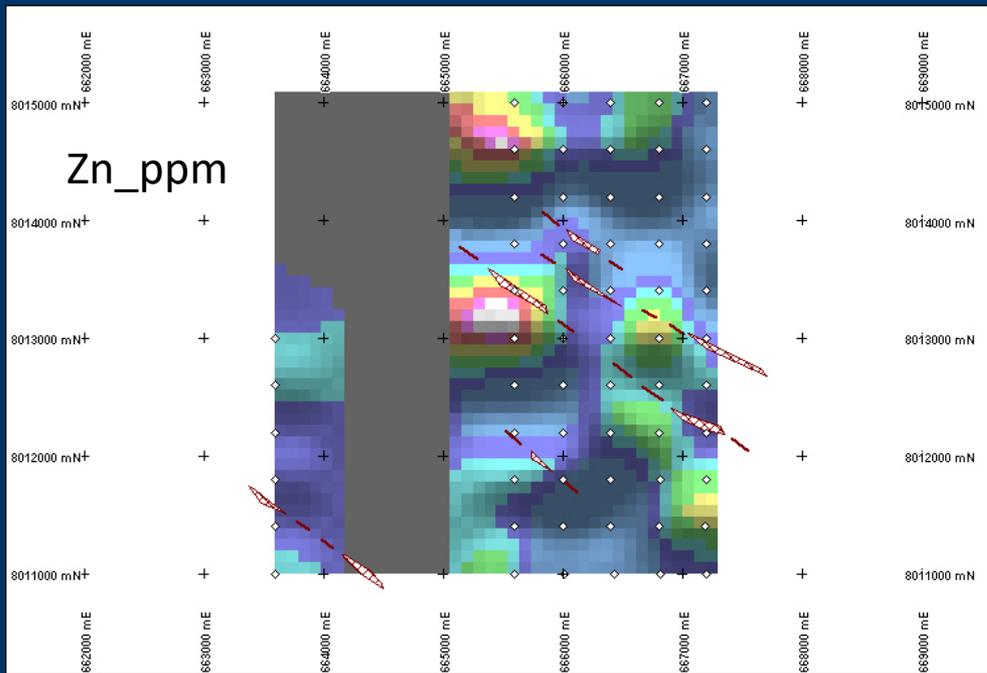
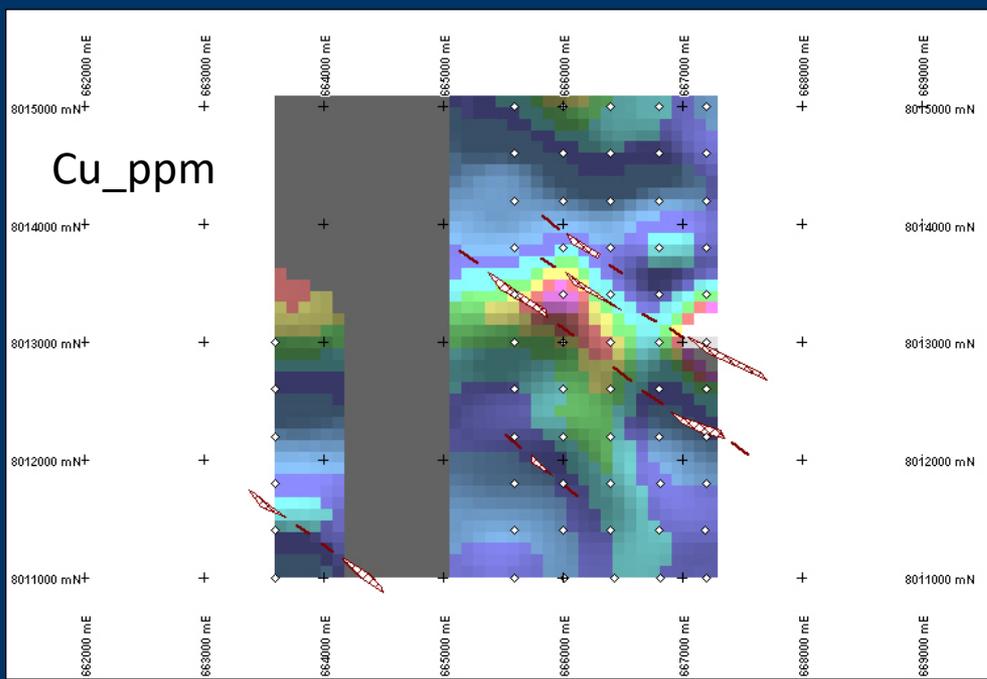
- Iron bullseye occurs within NW/SE fault corridor; may correlate with anomalous Vanadium.

- Manganese anomaly exhibits a more linear trend by comparison; follows NW/SE fault corridor.

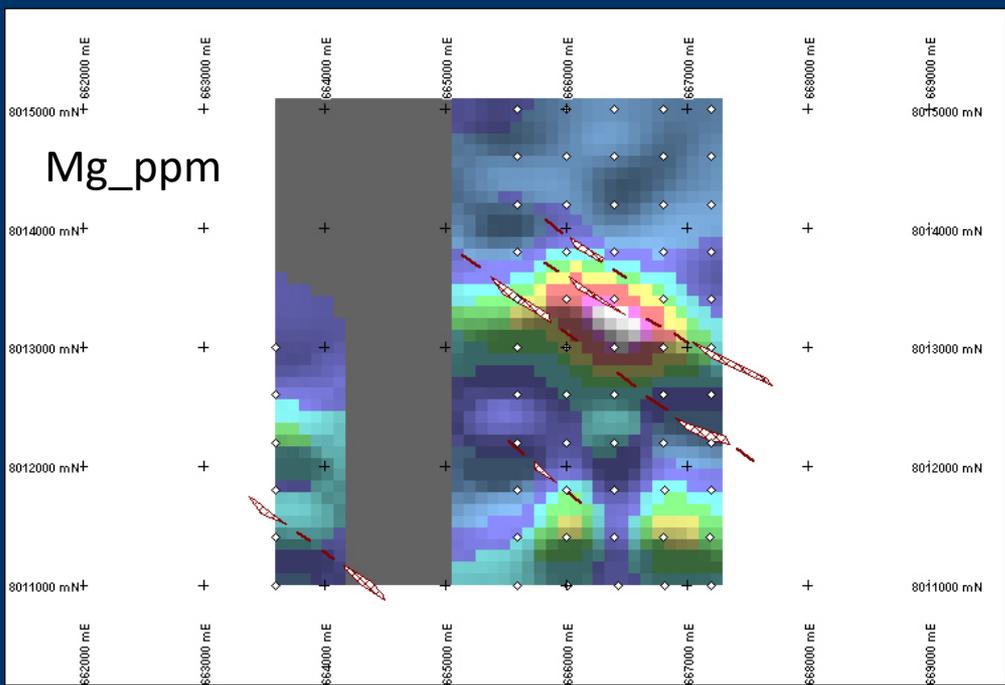
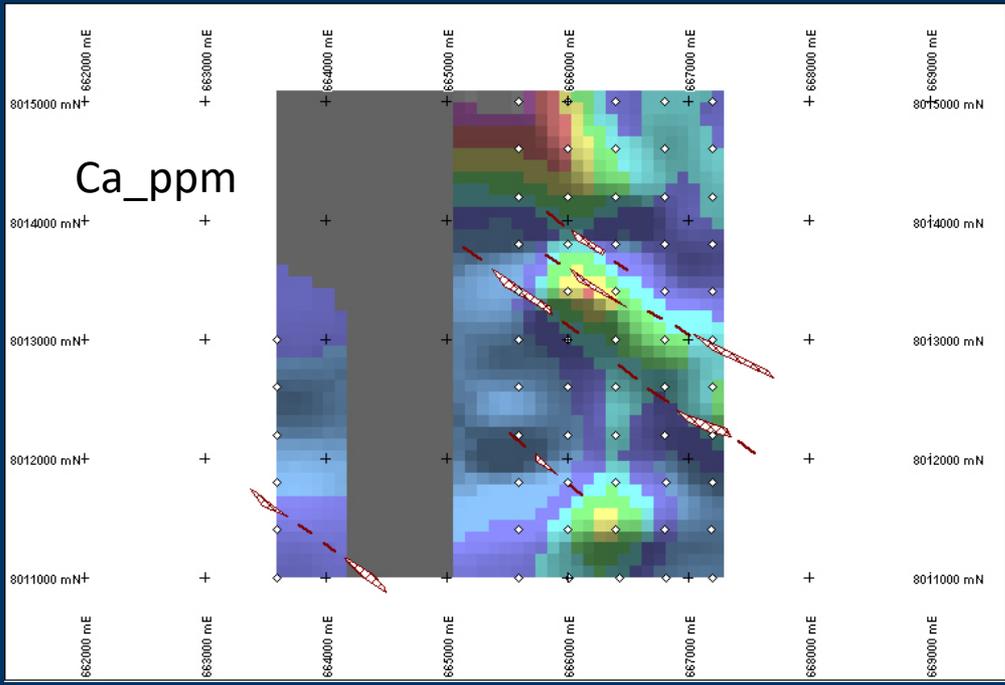


Analytical results: Copper vs Zinc

- Copper anomalism appears constrained within NW/SE fault corridor; possible mafic source in association with dolerite dyke?



- Zinc most discrete compared to copper; highest value on intersection between unconformity and NW/SE fault. Lead results were similar to zinc.



Analytical results: Calcium vs Magnesium

- Calcium shows a linear trend along NW/SE fault corridor,
- Highest values (clustering) occurs along north edge and in south-east corner; sub-crop mapped in both area,
- Discrete magnesium anomaly constrained within NW/SE-fault corridor; possibly sourced from mafic intrusive (dolerite dyke)?

Conclusions

- Anomalies confirmed for a range of elements at the 8 Finger target,
- Close correlation observed for Uranium between biogeochemical assays and previous radiometric surveys, both show anomalism along a linear trend and interpreted to follow the unconformity ($\sim 040^{\circ}$ - 060° strike),
- Uranium distribution did not correlate with NW/SE-faulting, which was originally expected; doubts raised regarding the original interpretation of prospectivity at a redox-front on the contact of a dolerite intrusive,
- Wide range of elements available via biogeochemical analysis which allows for analysis of elemental clusterings, section interpretations plus a focus of individual 'key' elements in association with individual lithologies,
- Biogeochemical sampling and analysis is far more versatile when compared to other contemporary methods (e.g. Radon caps, H/He Soil-gas analysis).

Bowgan Minerals Limited would like to thank the following individuals and organisations;

- AusIMM organising committee,
- Labwest (Perth), for sample processing and analysis,
- Curtin University of Technology, CET node (Bentley campus),
- Station managers at Walhallow and Benmara pastoral stations.

References

Some sections of this conference presentation were referenced from the following;

Price G., Brown A., Howard J.P. (2013). Exploration for Uranium under cover; trials of biogeochemical prospecting at the Bowgan Uranium project, Barkly Tablelands NT. AusIMM Uranium conference, Darwin 12th June 2013.

Gardiner N., Kirkland C., and Price G. (2017). Tenement detrital zircon geochronology suggests westward extension of Westmoreland conglomerate. AusIMM Uranium conference, Adelaide, 7th June 2017.

Price G. (2017). Use of botanical mapping and biogeochemical sampling as an exploration tool in the modern exploration environment. AIG Biogeochemistry Seminar, Perth, Friday, 16th June 2017.