

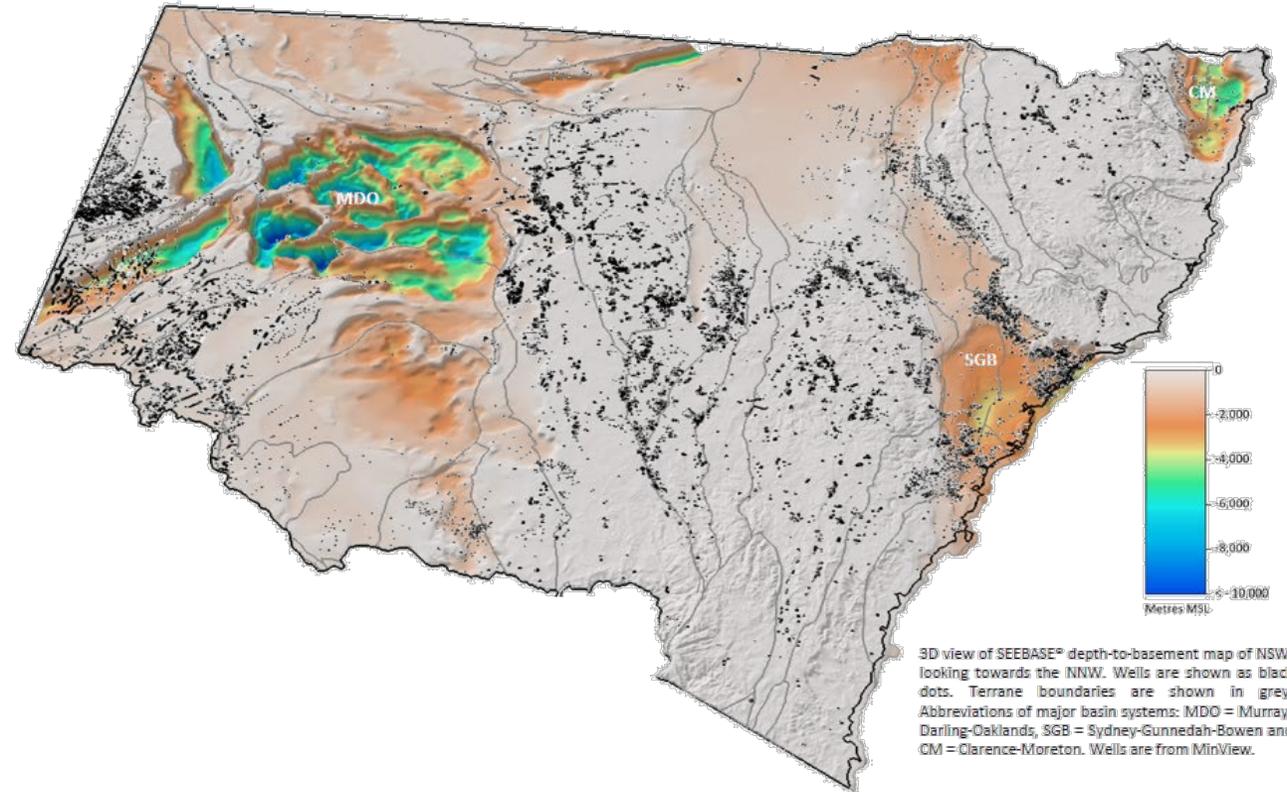
The Geological Survey of New South Wales: A year of achievement

Phillip Blevin
Chief Geoscientist and Head of the
Geological Survey of New South Wales

10 May 2024

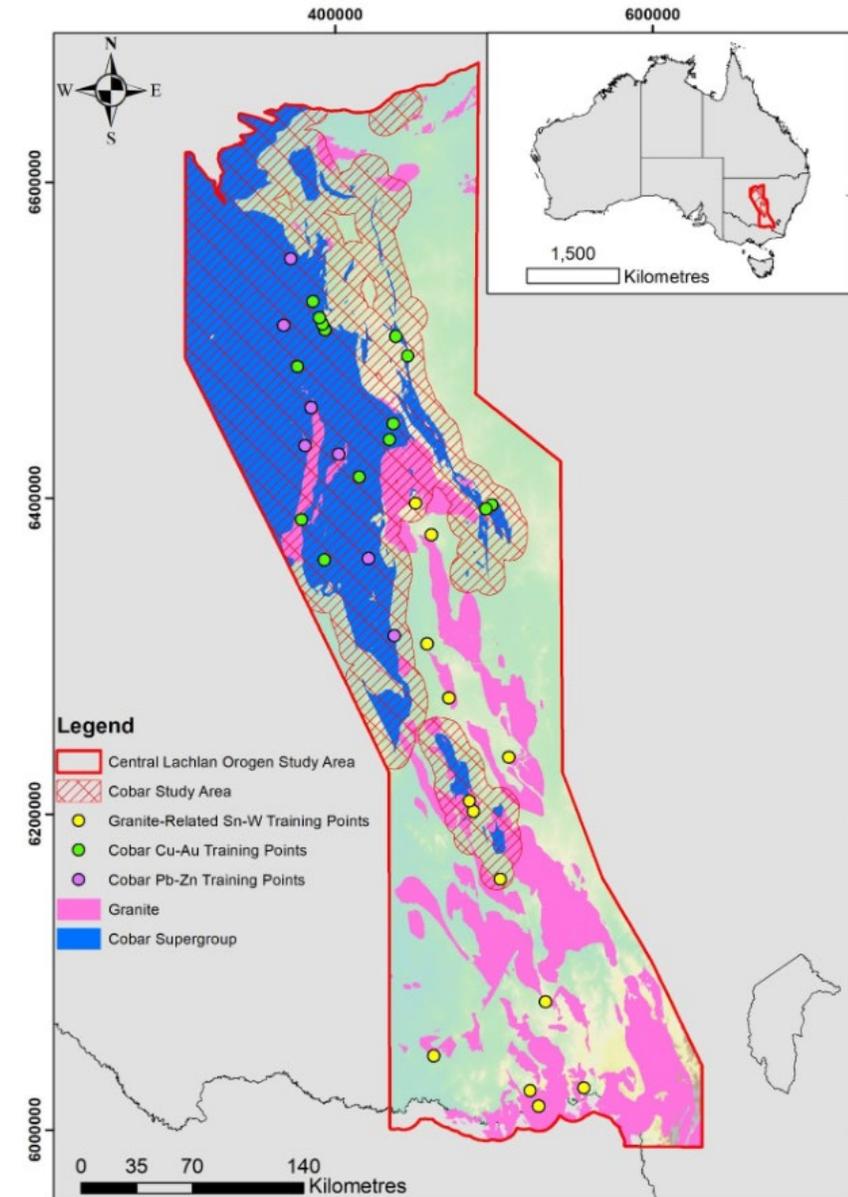
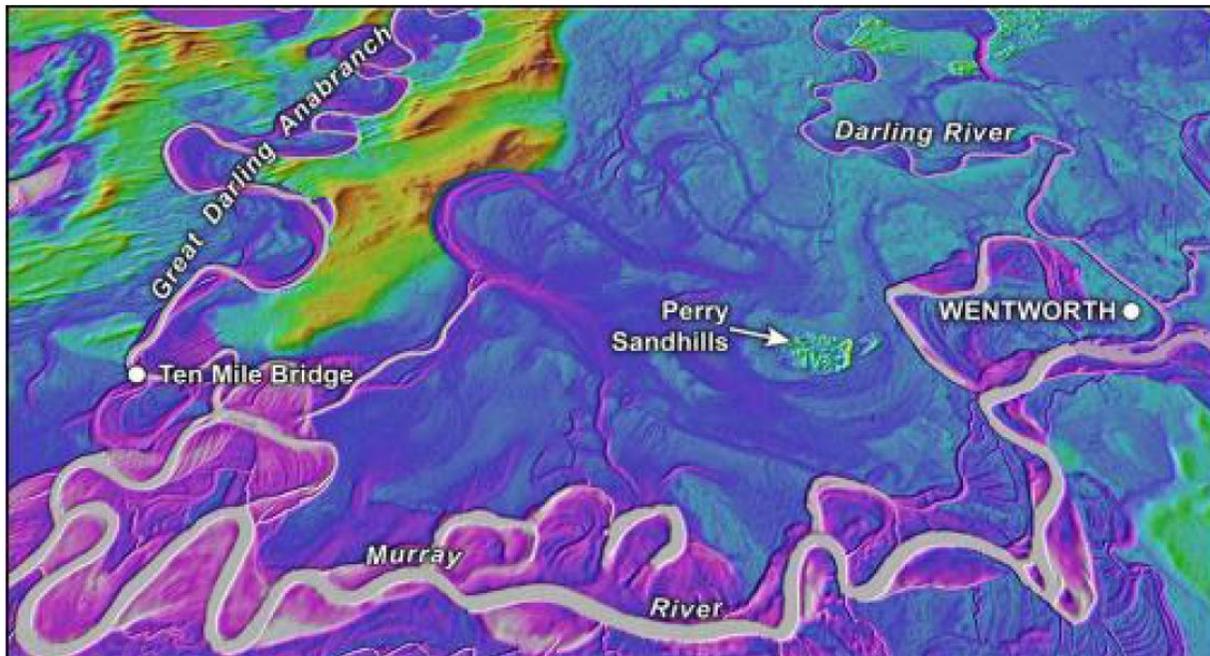
New data, new exploration futures

- Geophysics
- Mineral system studies
- Palaeontology
- Geothermal, hydrogen
- Mine tailings reuse
- Deepwater resources
- Advice
- New geochemical data:
GS2024/0026



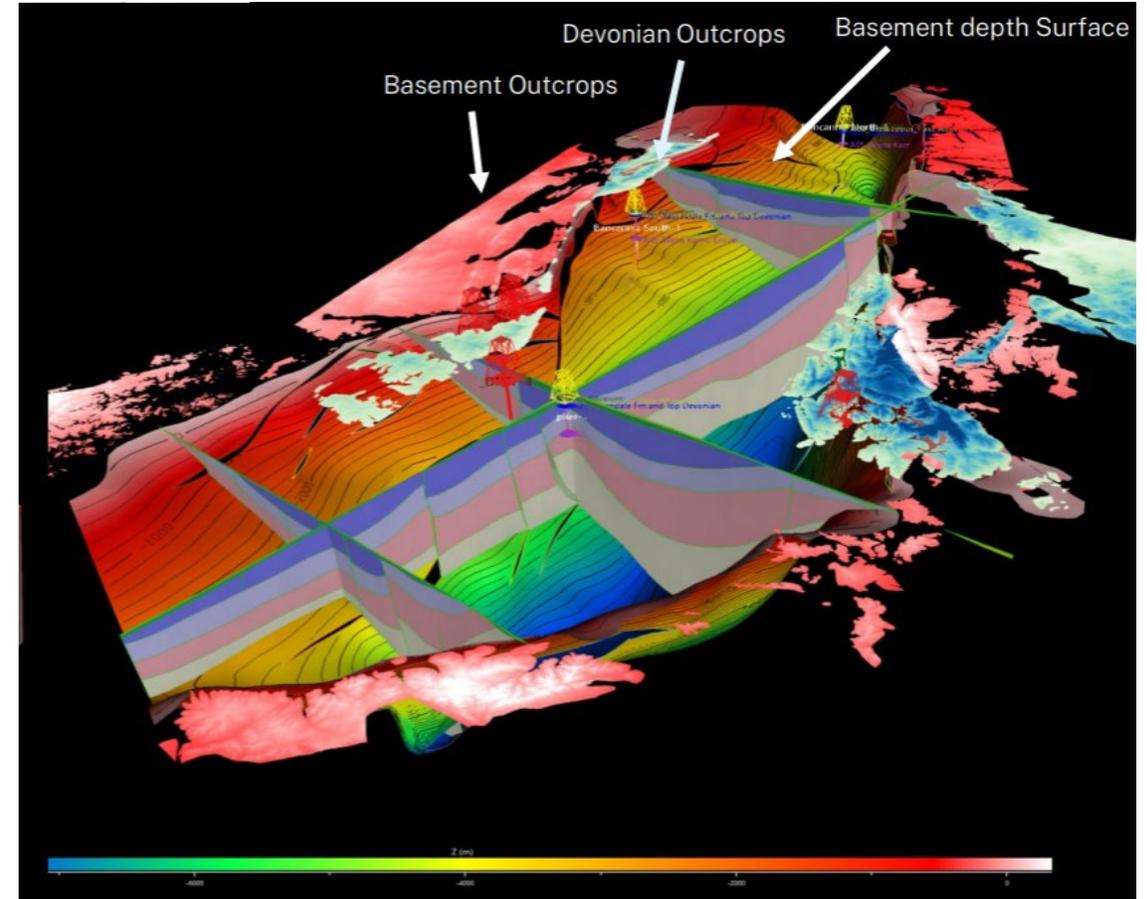
New data, new exploration futures

- Geotrails
- Upgraded mineral potential packages



Smart Mapping

- Gundabooka 100k field work reporting near completion
- Canbelego 100k – presentation today
 - 3D projects draped over high-res lidar/DEM
- South Cobar mapping updates
- Planned updates to Ordovician on Oberon and Blayney 100k
- 3D models Bancannia and Yathong–Ivanhoe to inform Seamless geology updates
- Ongoing additions to Seamless
- Cobar drilling program



Smart Mapping

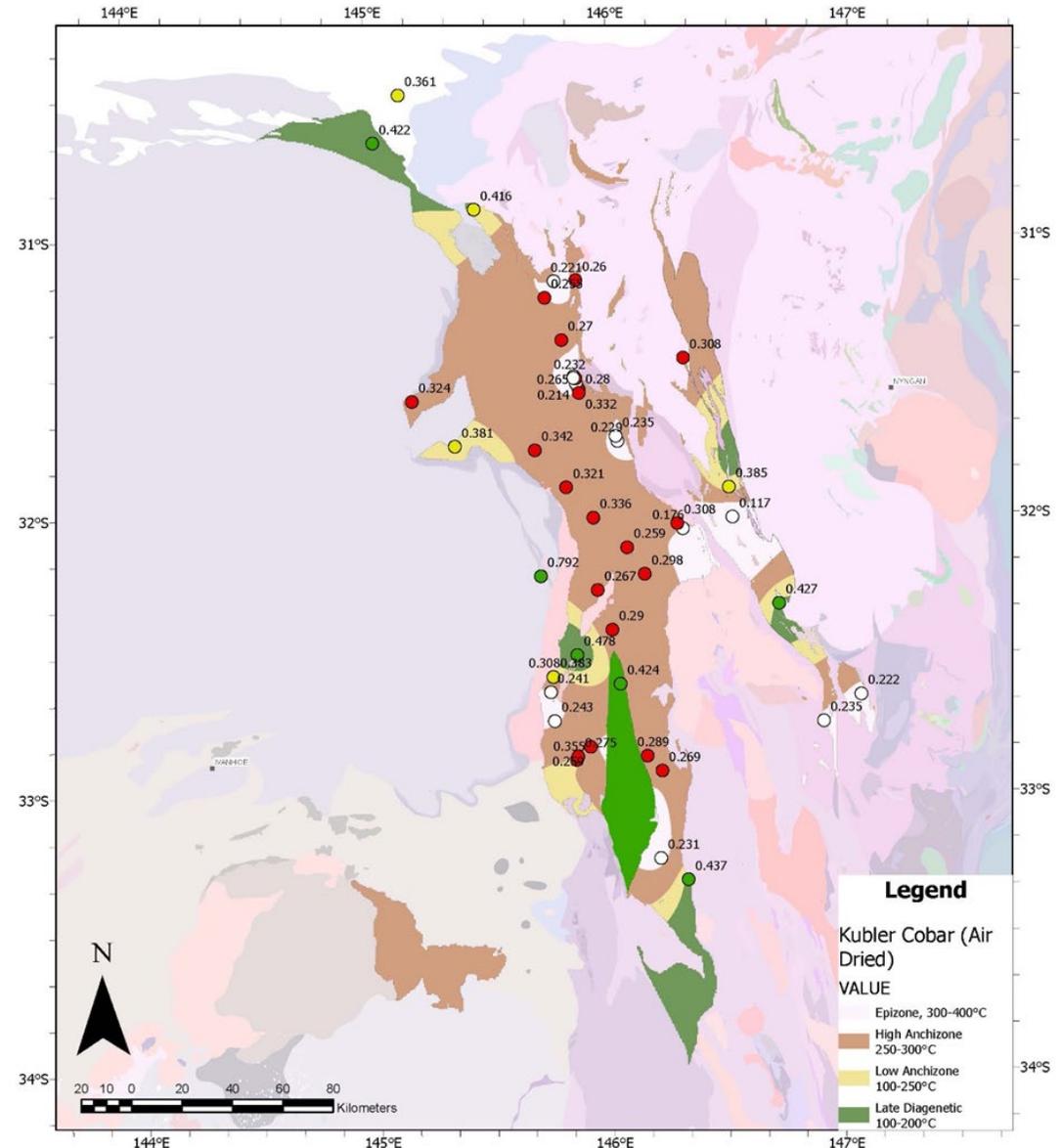
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- Ongoing additions to Seamless
- Cobar drilling program
- Drone capacity being added



- RGB and multi-spectral imaging
- Centimetre-scale positioning system
- Downward-facing sensors

Thermochronology

- Kübler (ill) and Árkai (chl) indices
- White mica b-cell dimensions record an intermediate pressure, basin-wide paleogeothermal gradient of 25–35°C/km
- HyLogger™ mapping of state
- Ar–Ar on feldspars
- FT and U-Th-Sm/He on ap and zrc
- Heatflow in relationship to mineralisation
- Burial versus exhumation histories
- In DIGS: GS2024/0025



W B Clarke Geoscience Centre

- Substantial upgrades and refurbishments
- Moving to digital archiving and asset management
- Commitment to outreach



W B Clarke Geoscience Centre

- Substantial upgrades and refurbishments
- Moving to digital archiving and asset management
- Commitment to outreach
- Maintenance and enhancement of thin section, palaeontological and HyLogger™ operations

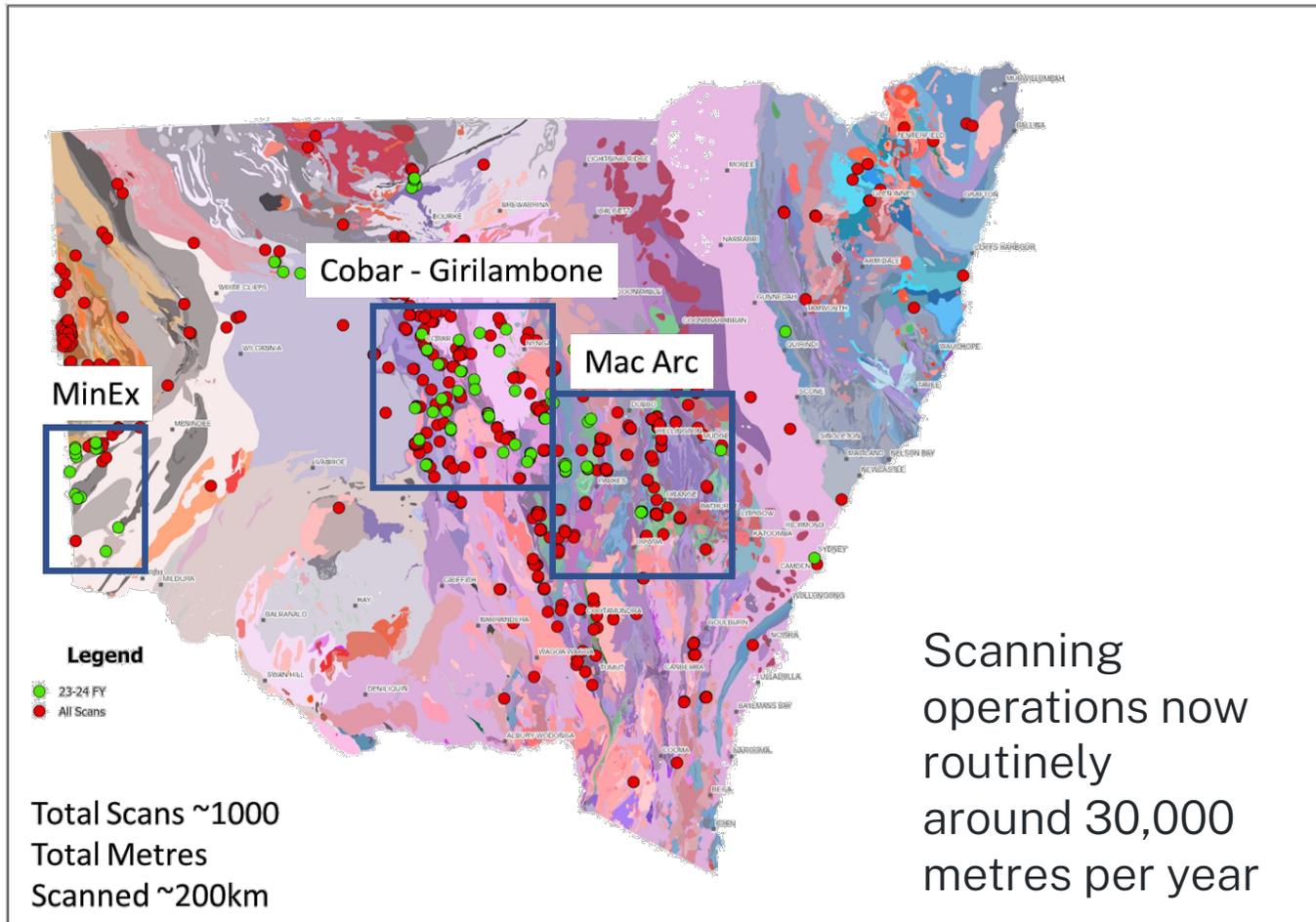


W B Clarke Geoscience Centre

- New hand-held instrumentation to merge lab-based, mineral validation and field application of analytical and hyperspectral data – pXRF, pXRD, Agilent™, Terraspec™
- Collaboration welcome



HyLogger™ operations

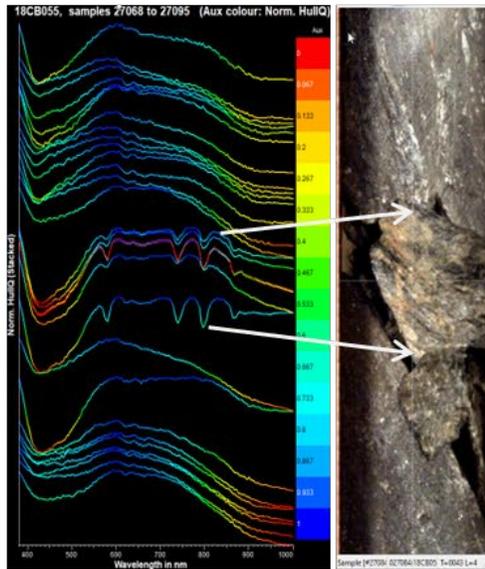


HyLogger-4

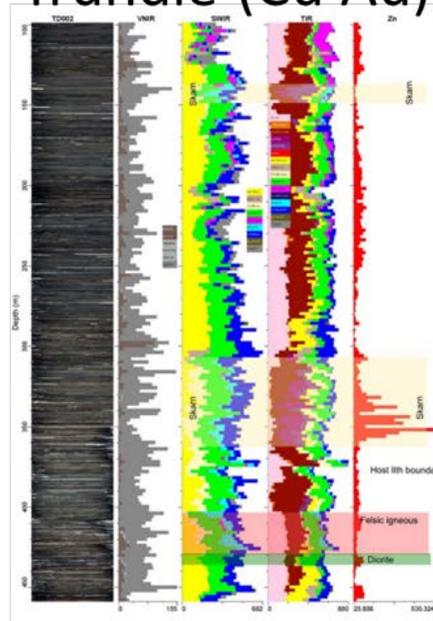
- First ever VNIR, SWIR, MWIR & TIR scanner
- More minerals + better confidence
- 4x image resolution
- Unique opportunities in the MIR for hydrous silicate minerals

HyLogger™ operations

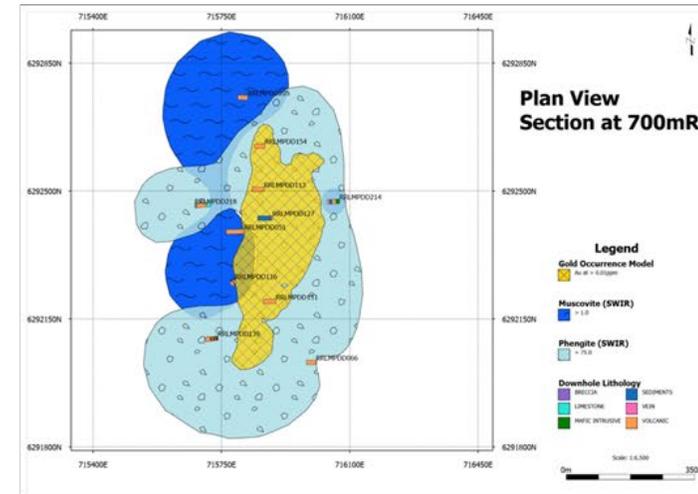
Copper Blow (REE)



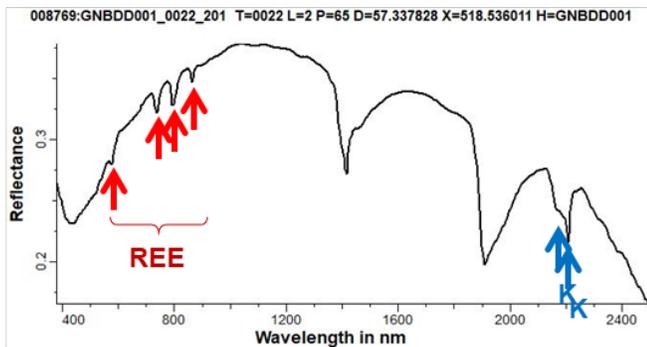
Trundle (Cu Au)



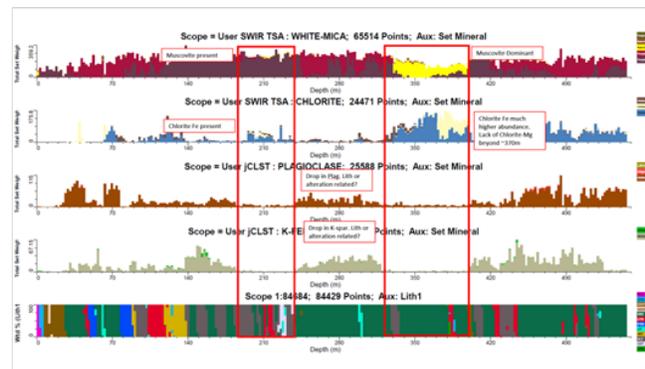
McPhillamys (Au)



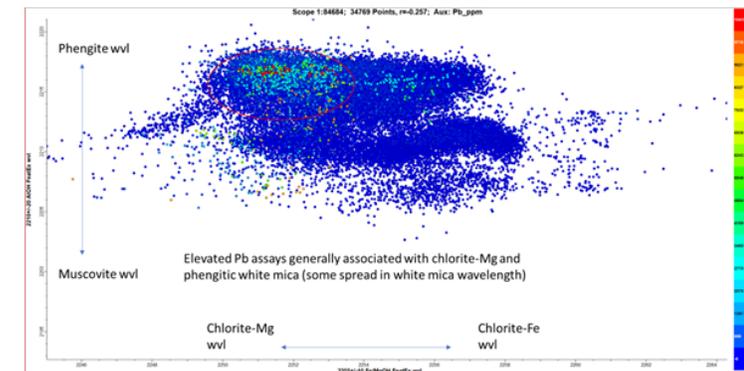
Narraburra (REE)



Cobar (Cu)



Cobar (Cu)



Palaeontology

- Digitisation of the GSNSW FC data.
- Palaeontology acid lab: 79+ samples have been processed for ongoing projects.
- Supporting GSNSW core programs: reviewing Ordovician to Devonian biostratigraphy.
- Collaboration with industry.
- Representations at international conferences.





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2023, 72, 1, 114–117

<https://doi.org/10.3176/earth.2023.11>

Ordovician stratigraphy of the Junee–Narromine Volcanic Belt in central New South Wales, Australia: conodont studies and regional correlations

Yong Yi Zhen and Ian G. Percival

Geological Survey of New South Wales, W. B. Clarke Geoscience Centre, Londonderry, NSW 2753, Australia

Late Ordovician Conodonts and Macrofossils from Subsurface Carbonates near Quandialla and Inferred Depositional Age of the Currumburrama Volcanics in South-Central New South Wales

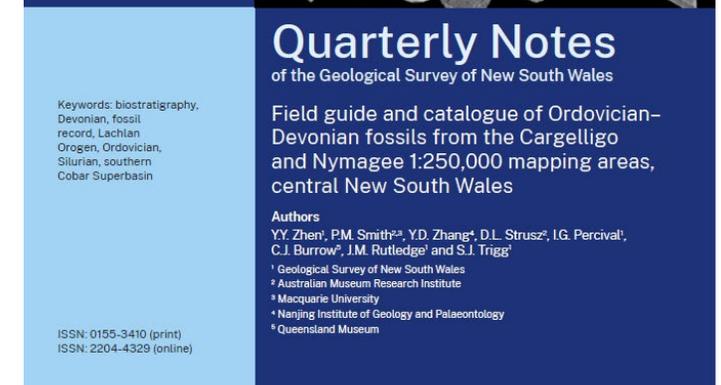
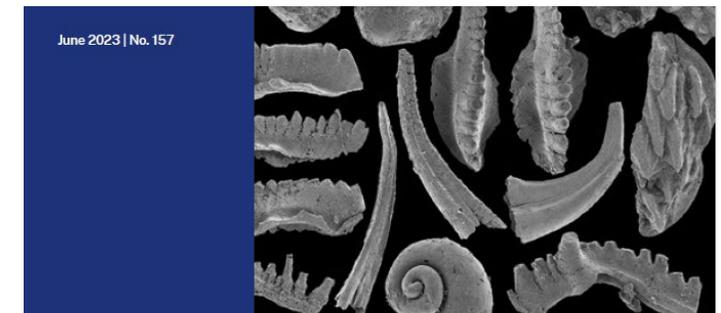
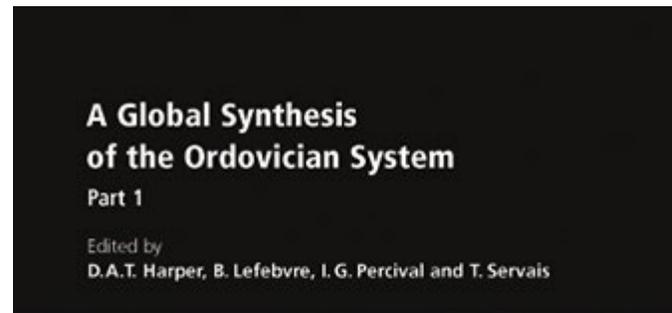
YONG YI ZHEN¹ AND IAN G. PERCIVAL¹

¹Geological Survey of New South Wales, 947–953 Londonderry Road, Londonderry, NSW 2753, Australia

Middle–Upper Ordovician conodonts from the Gunningbland area in central New South Wales with implications for regional correlations

Y. Y. Zhen, I. G. Percival & P. M. Smith

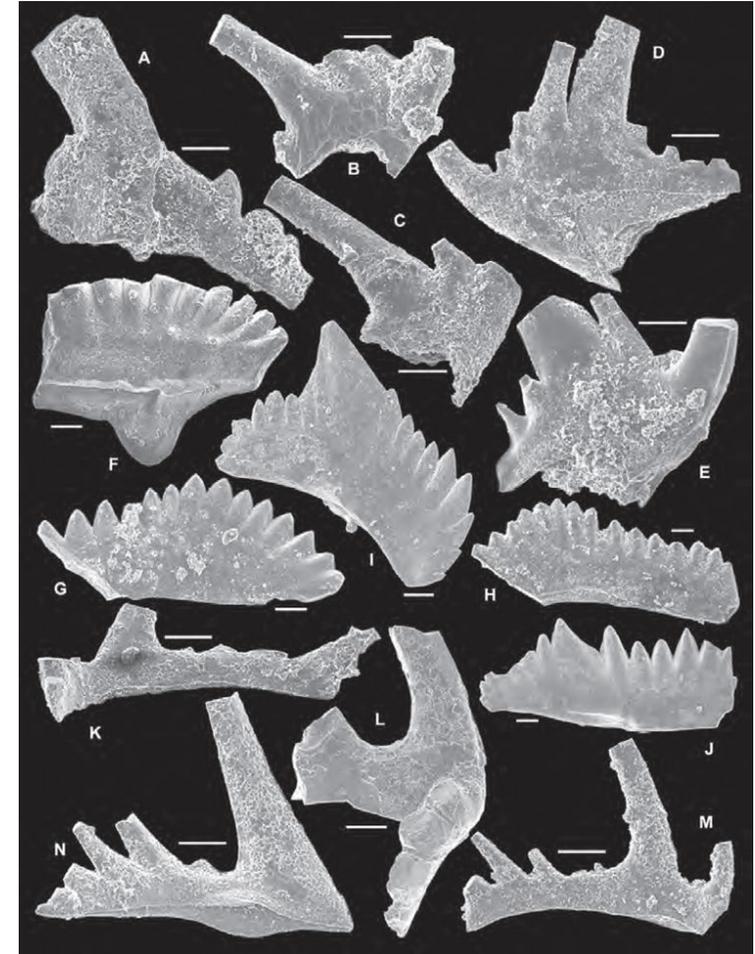
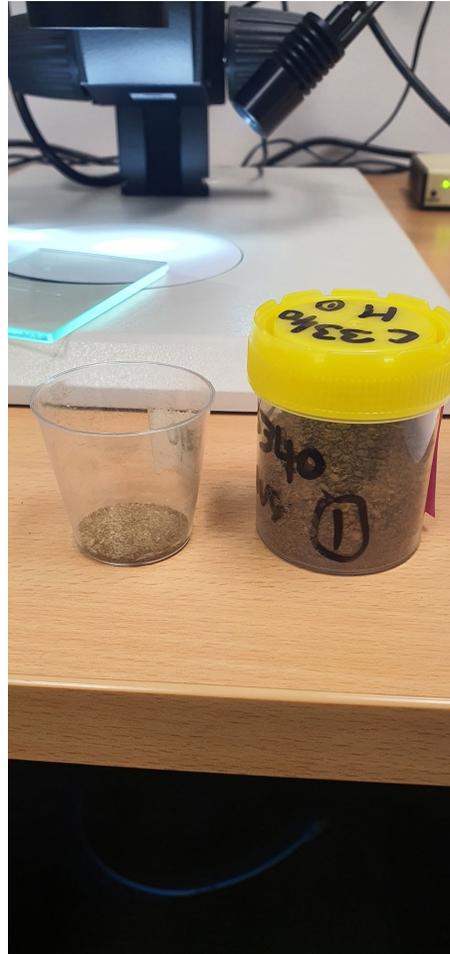
To cite this article: Y. Y. Zhen, I. G. Percival & P. M. Smith (2023) Middle–Upper Ordovician conodonts from the Gunningbland area in central New South Wales with implications for regional correlations, Australian Journal of Earth Sciences, 70:6, 815–839, DOI: [10.1080/08120099.2023.2210201](https://doi.org/10.1080/08120099.2023.2210201)



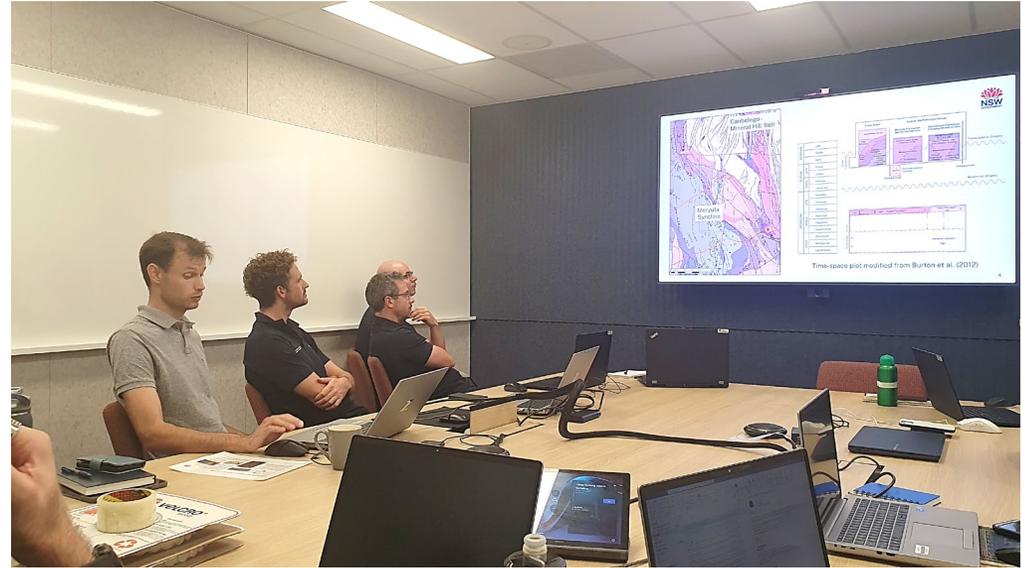
Palaeontology

-new conodont separation processes

- Not fossils, just exotically shaped masses of calcium carbonate fluorapatite.
- Excellent mineral separation expertise in conjunction with NIER.



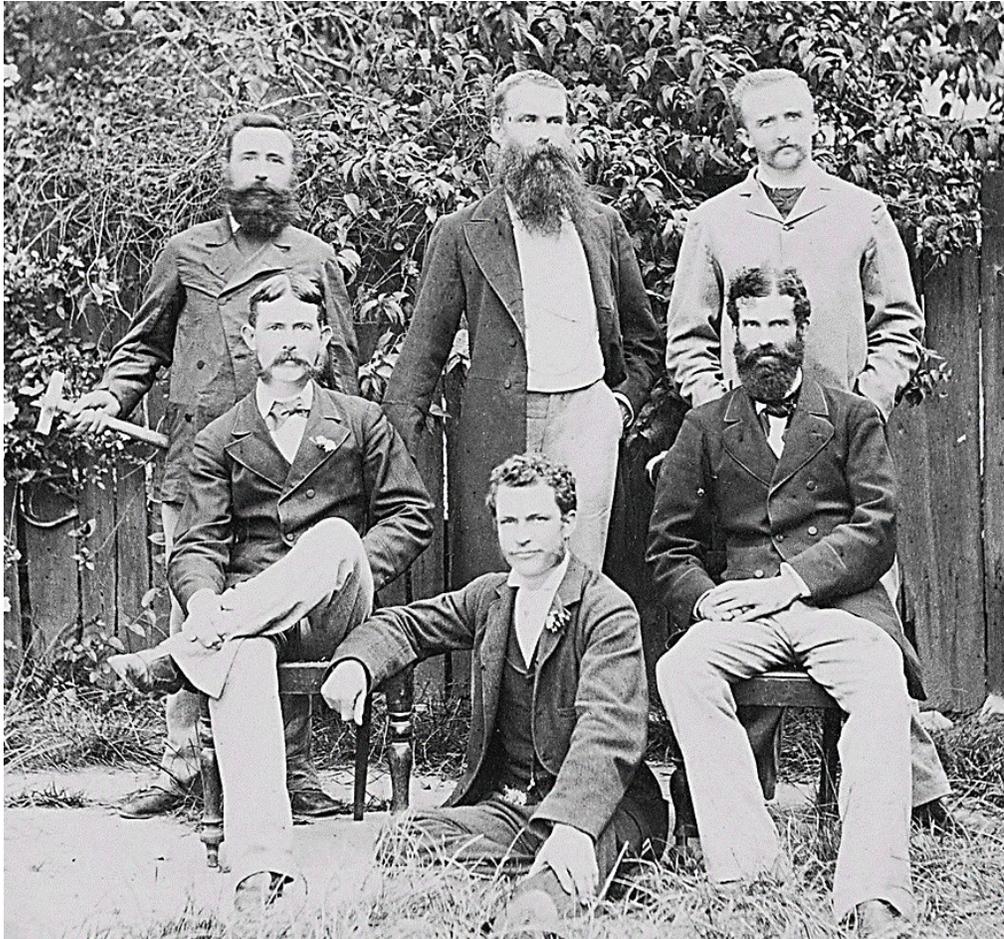
Maitland



Maitland



Sesquicentenary year 1875 to 2025



1879

'The (proposed) Mining Department should include a geological survey; it would be incomplete without one.'

Mining and geology are inseparable; they mutually contribute to each other's advancement.'

C. S. Wilkinson. Gold Fields Royal Commission 1870