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# North East Queensland Mineral Deposit Atlas

12 May 2022

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# Mineral Deposit Atlas Concept

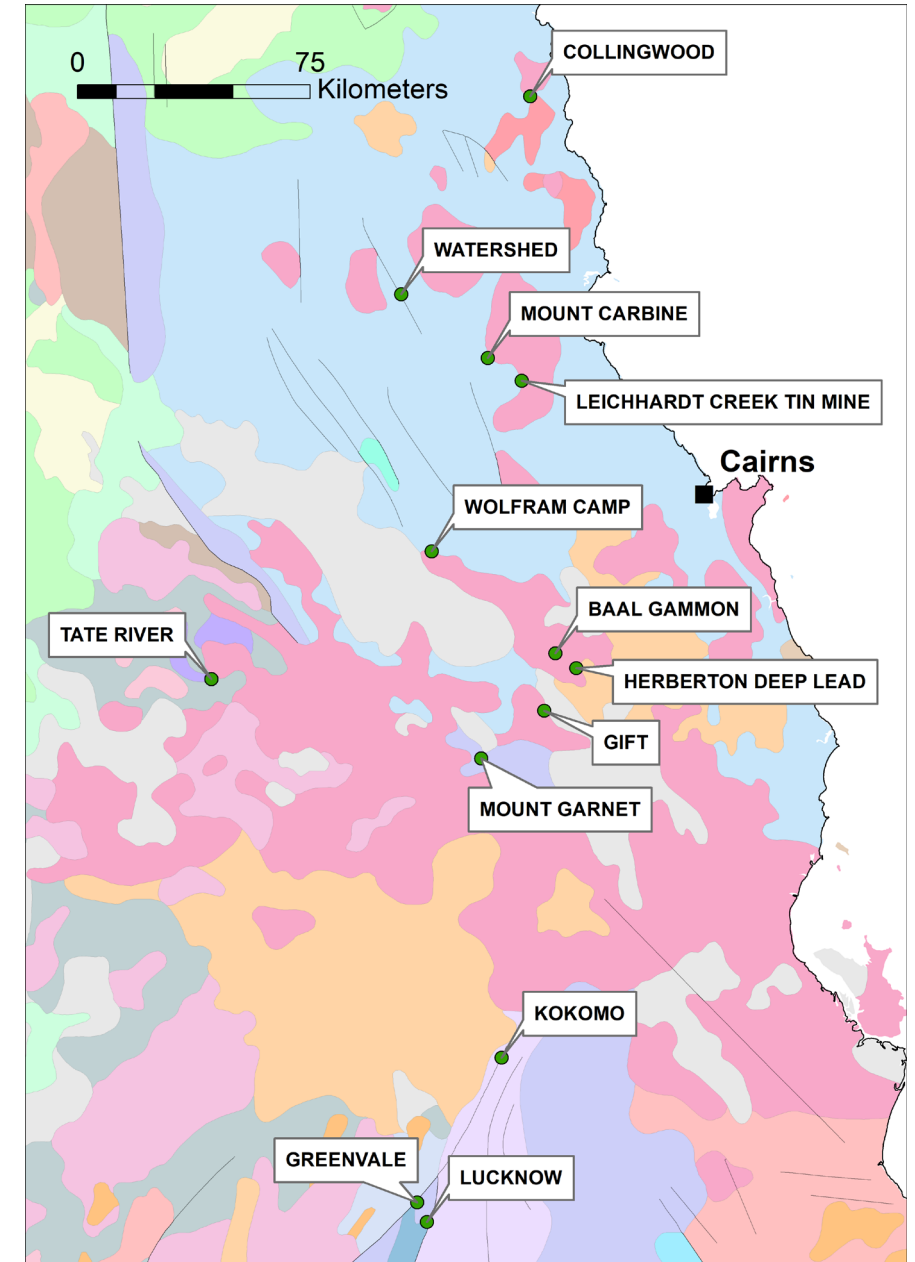
- To act as a reference and compilation document, with a focus on:
  - documenting the deposit characteristics,
  - halo and signature from an exploration perspective
- Each chapter comprised of two parts:
  - the descriptive PDF document
  - the 3D Atlas
- 3D atlas is:
  - compiled in the Geoscience Analyst platform, but
  - raw data also provided where possible for people to utilise their platform of choice



# Mineral Deposits in Atlas

11 deposits/fields covering four metal associations:

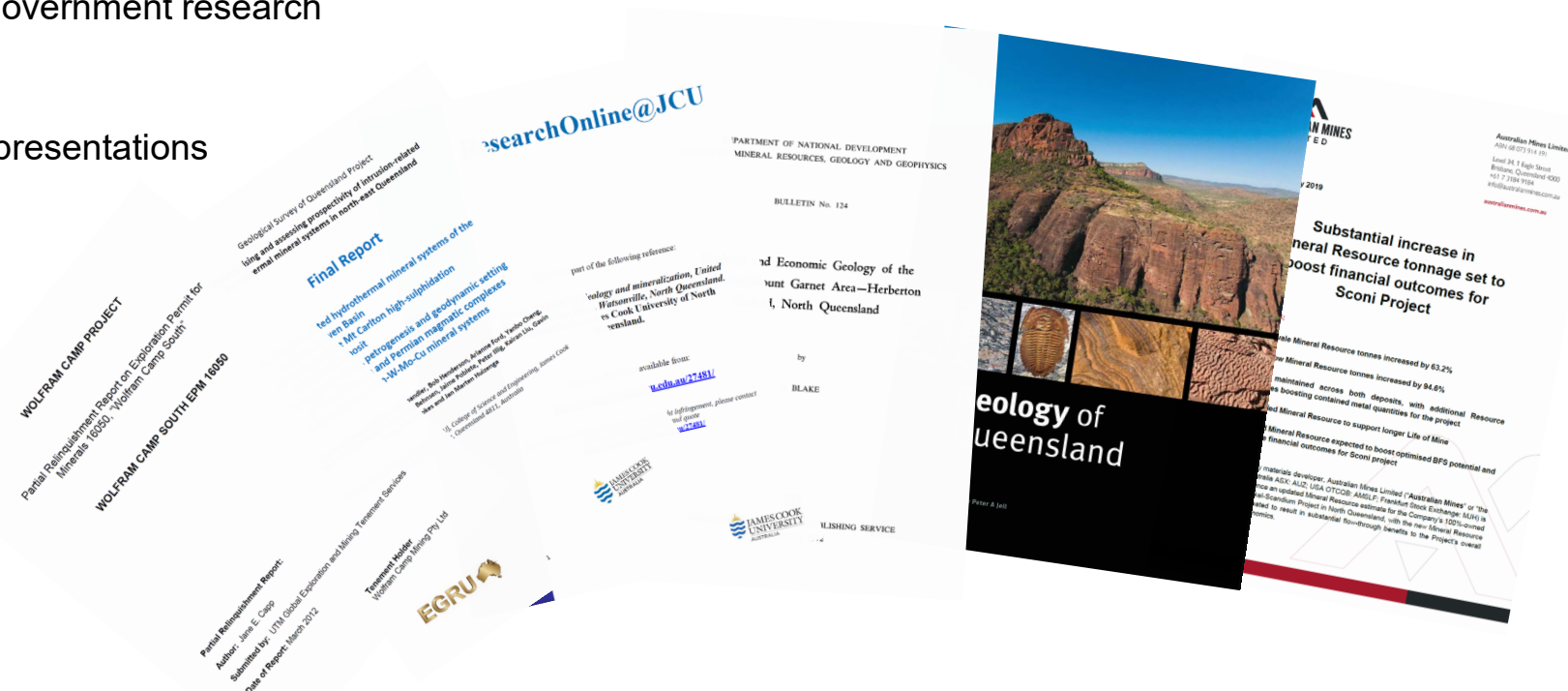
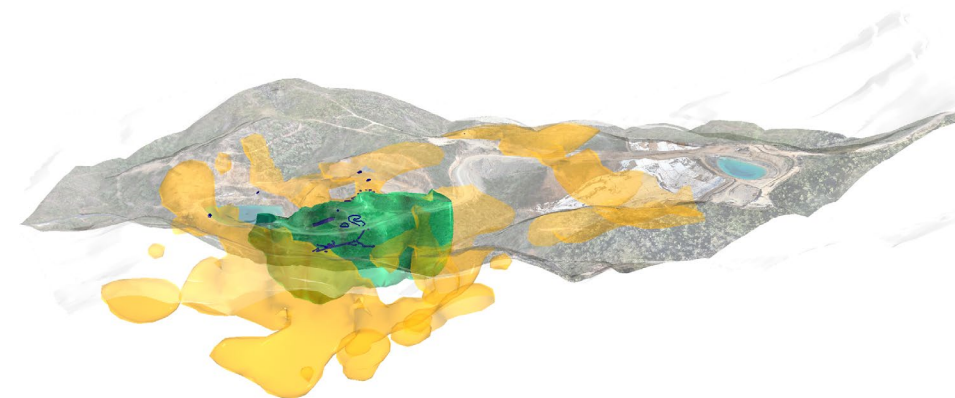
- three **tungsten** (Wolfram Camp, Mount Carbine, Watershed)
- one **nickel-scandium** (SCONI)
- Five **tin** (Gift-Sailor, Herberton, Tate River, Leichhardt Creek, Collingwood)
- Two **base metals + tin** (Mount Garnet, Baal Gammon)



Deposit Name	Metal/Mineral	Type	Date of Discovery	Method of Discovery
Gift/Silver Valley tin district	Sn	Greisen	N/A	N/A
Herberton tin district	Sn	Greisen/stockwork/alluvial	1879	Prospecting
Mount Garnet tin district	Sn	Greisen/stockwork/skarn	1880	Prospecting
Kangaroo Creek Alluvials	Sn	Alluvial	1880(?)	Prospecting
Tate River Alluvials	Sn	Alluvial	1880(?)	Prospecting
Collingwood	Sn	Sheeted veins/greisen	1880(?)	Prospecting
Mount Carbine	W	Sheeted veins	1883	Prospecting
Wolfram Camp	W	Greisen	1888	Prospecting
Baal Gammon	Sn-W-Cu-(In)	Greisen/stockwork	1892	Prospecting
Mount Garnet Zinc	Zn-Cu-Ag	Skarn	1897	Prospecting
SCONI	Ni-Co-Sc	Laterite	1957	Rock chips
Watershed	W	Sheeted veins	1978	Stream sediments
Leichardt Creek	Sn	Alluvial	1984	Dredging/drilling

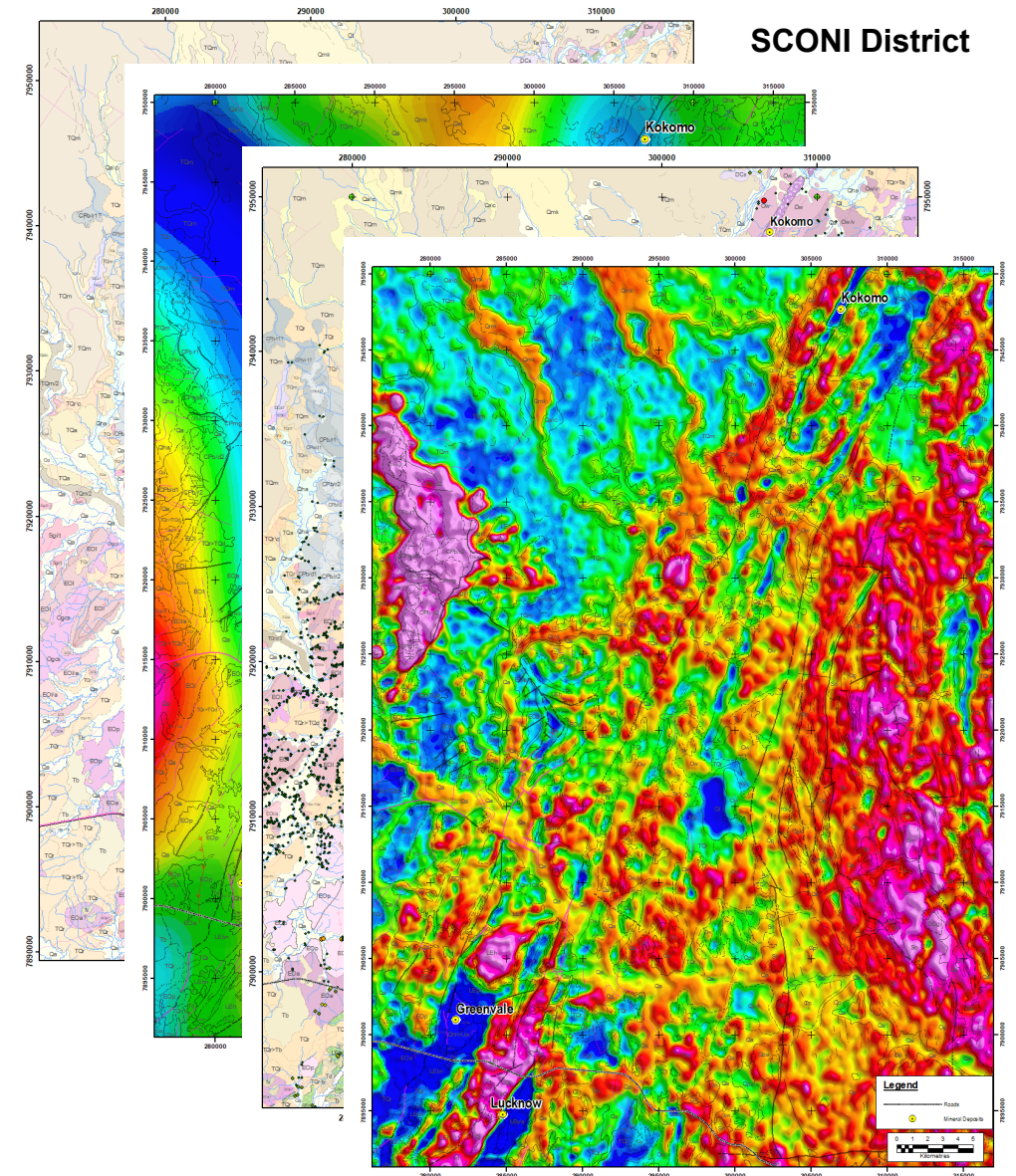
# Data sources

- Department of Resources
  - Particularly from abandoned sites, drill data, geophysical datasets, 3D geological models, internal reports, site infrastructure
- Historic research
  - theses, collaborative research projects, government research
- Public material
  - Published papers, monograph volumes, presentations
  - Stock exchange releases, websites
- Government databases
  - GSQ - Geoscience Data Portal
  - Geoscience Australia



# Regional datasets

- Regional dataset presentation over an area surrounding deposits of approximately 40km x 25km
- Classical atlas-style high-resolution presentation of these datasets
- Allows readers to view datasets in consistent spatial context
- Minimal accompanying text, expecting images to tell the story
- Geology, geophysics, geochemistry

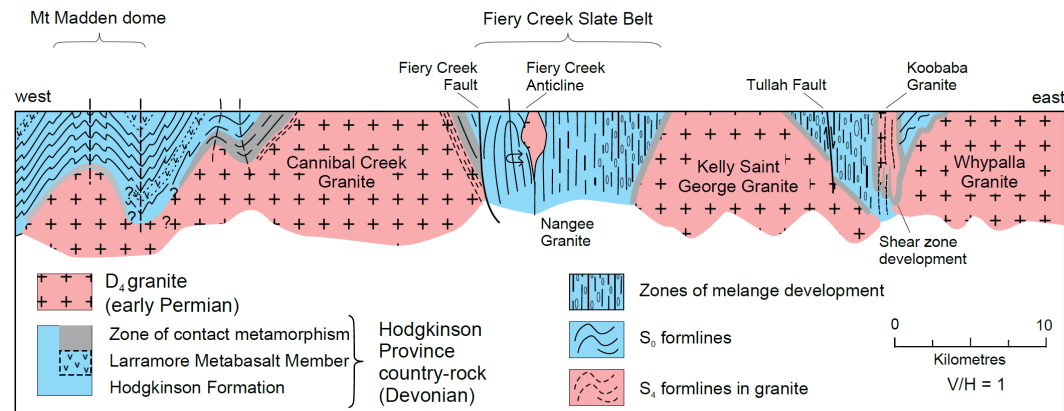




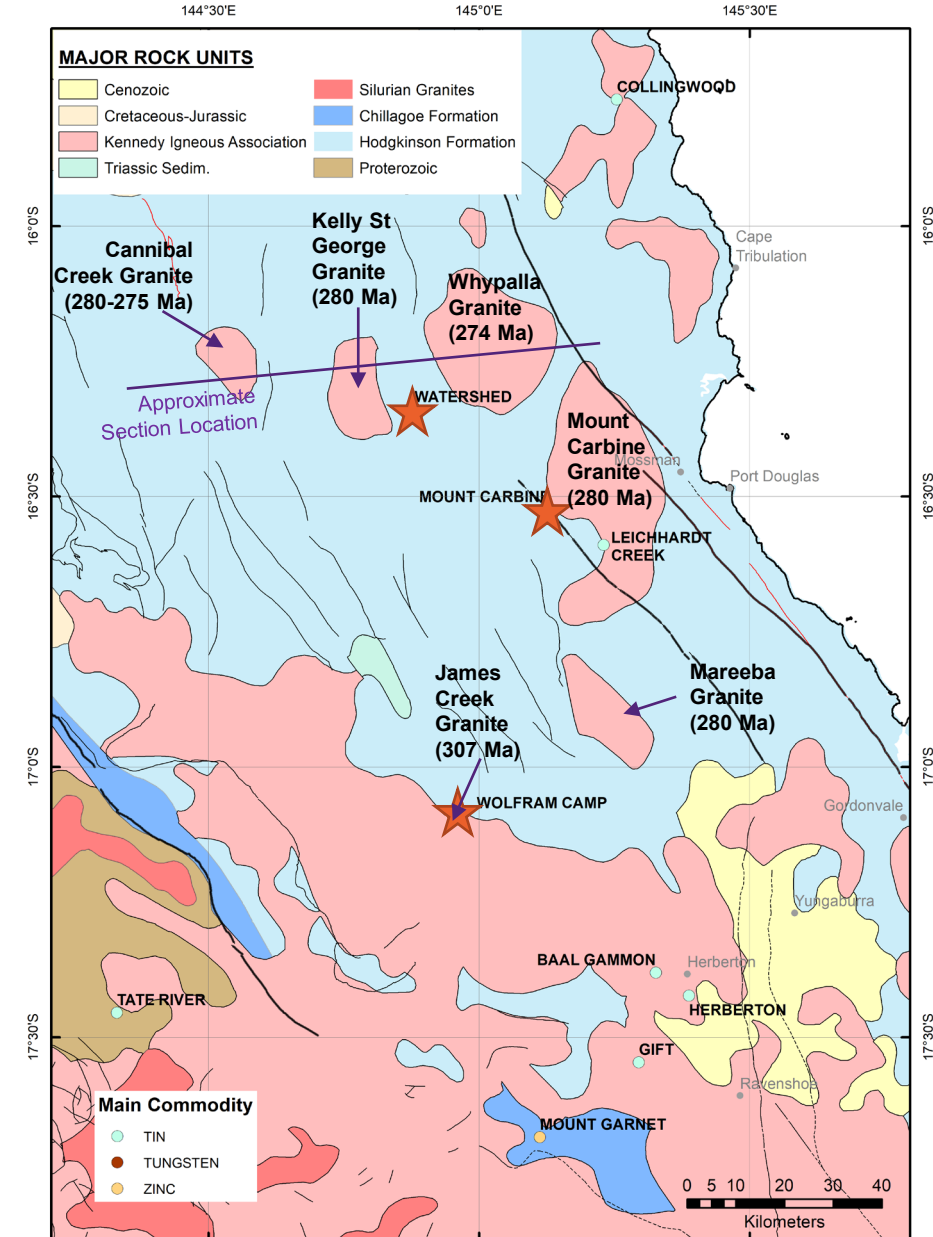
# THE TUNGSTEN DEPOSITS

Wolfram Camp { Ootann Supersuite  
(I-type) 308-304 Ma }

Mount Carbine  
Watershed { Whypalla Supersuite  
(S-type) 285-265 Ma }



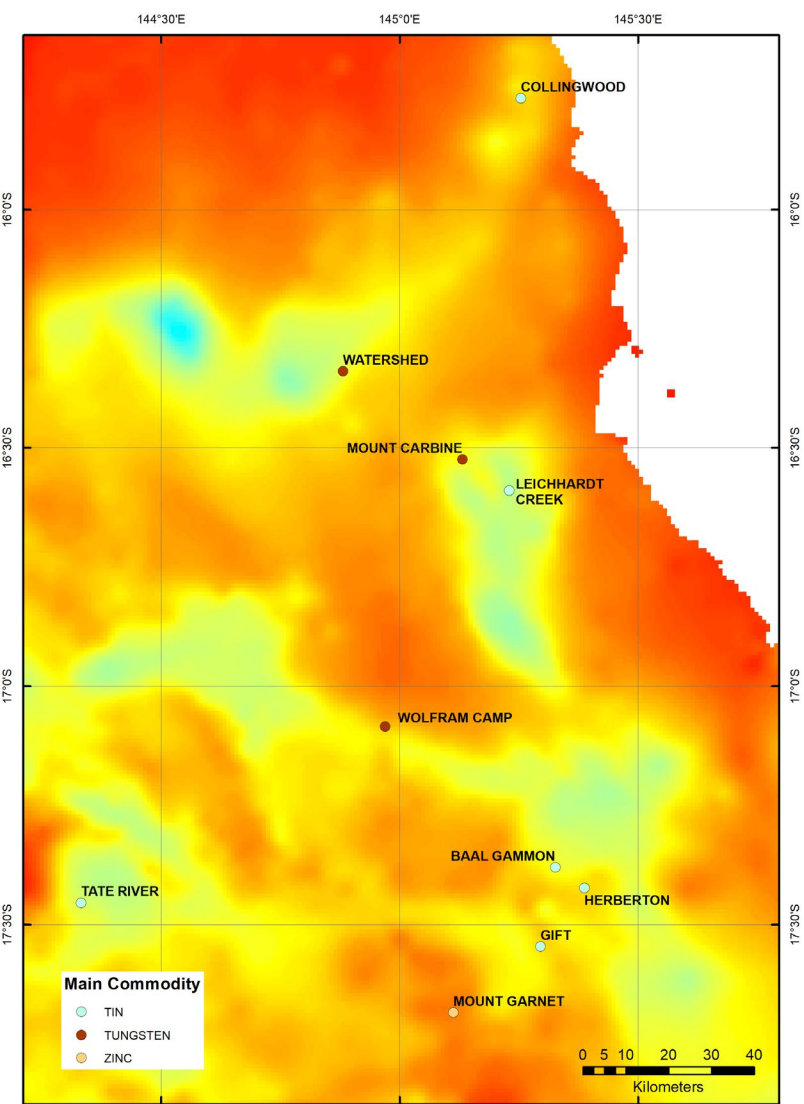
Henderson and Donchak in Jell (2013)



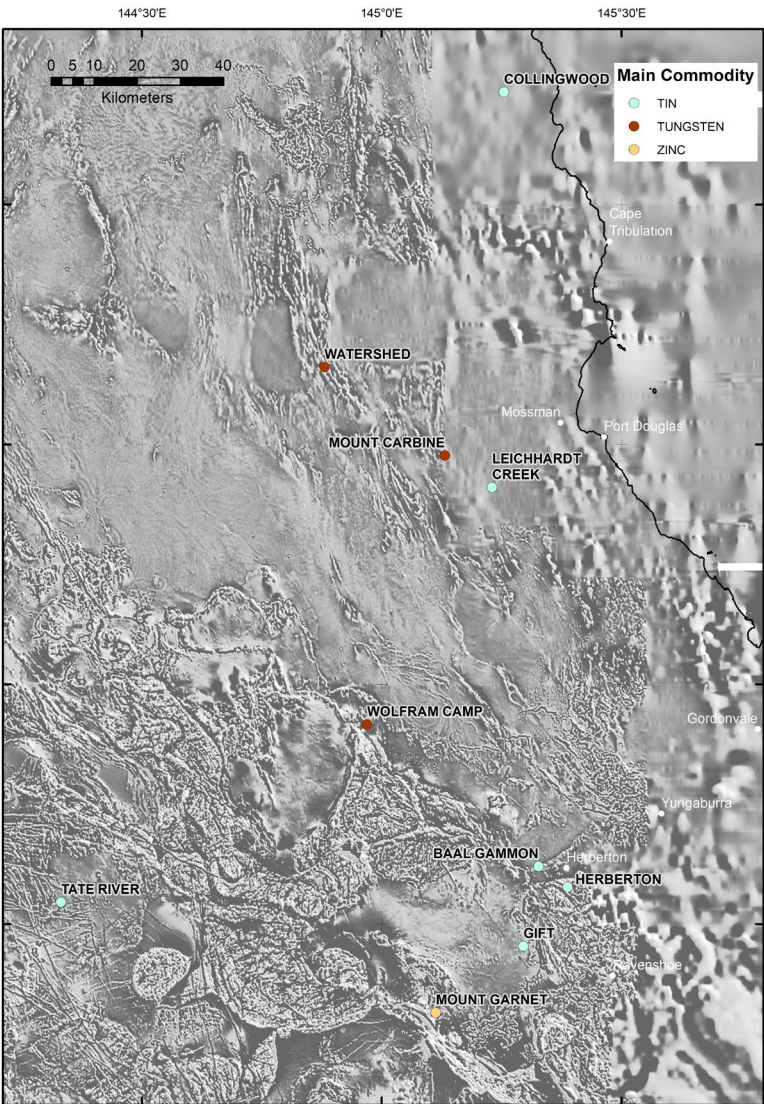
Granite dates  
from Jell (2013)  
except James  
Creek Granite  
(Cheng et al,  
2017)

# Kennedy Igneous Association

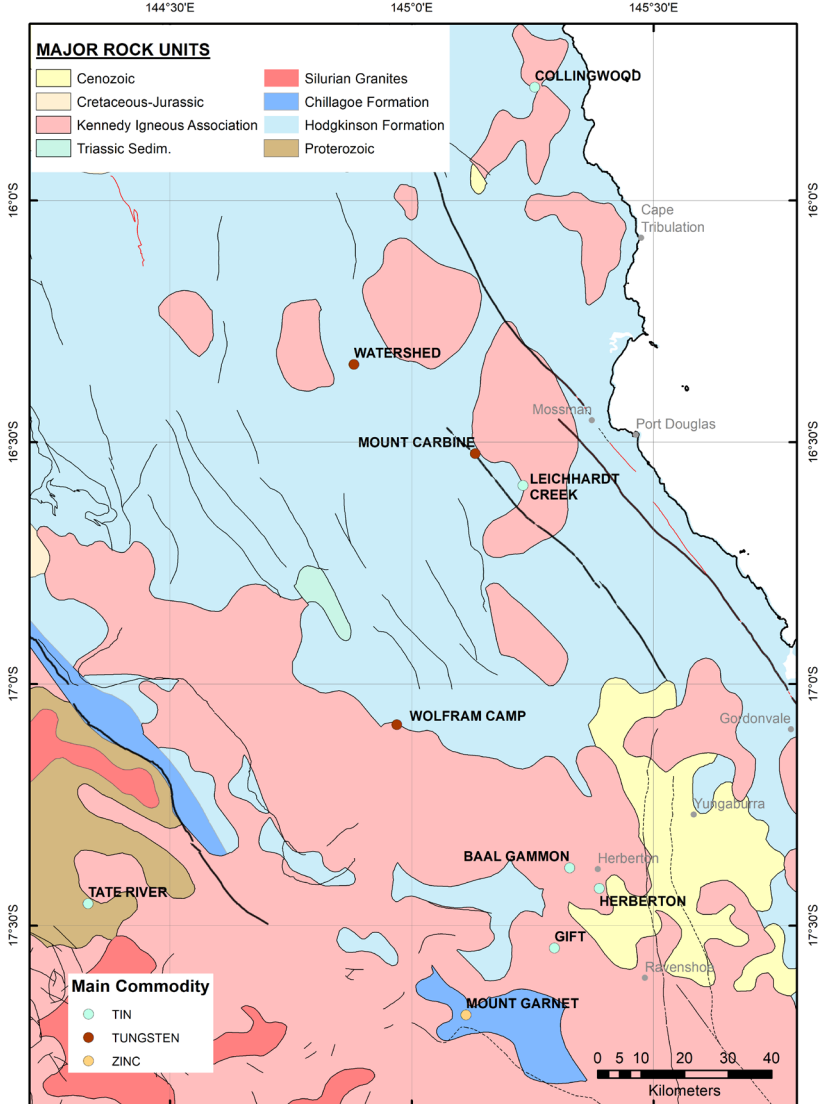
Residual Gravity image



Aeromagnetic (1VD) image



1:2.5M geology summary map



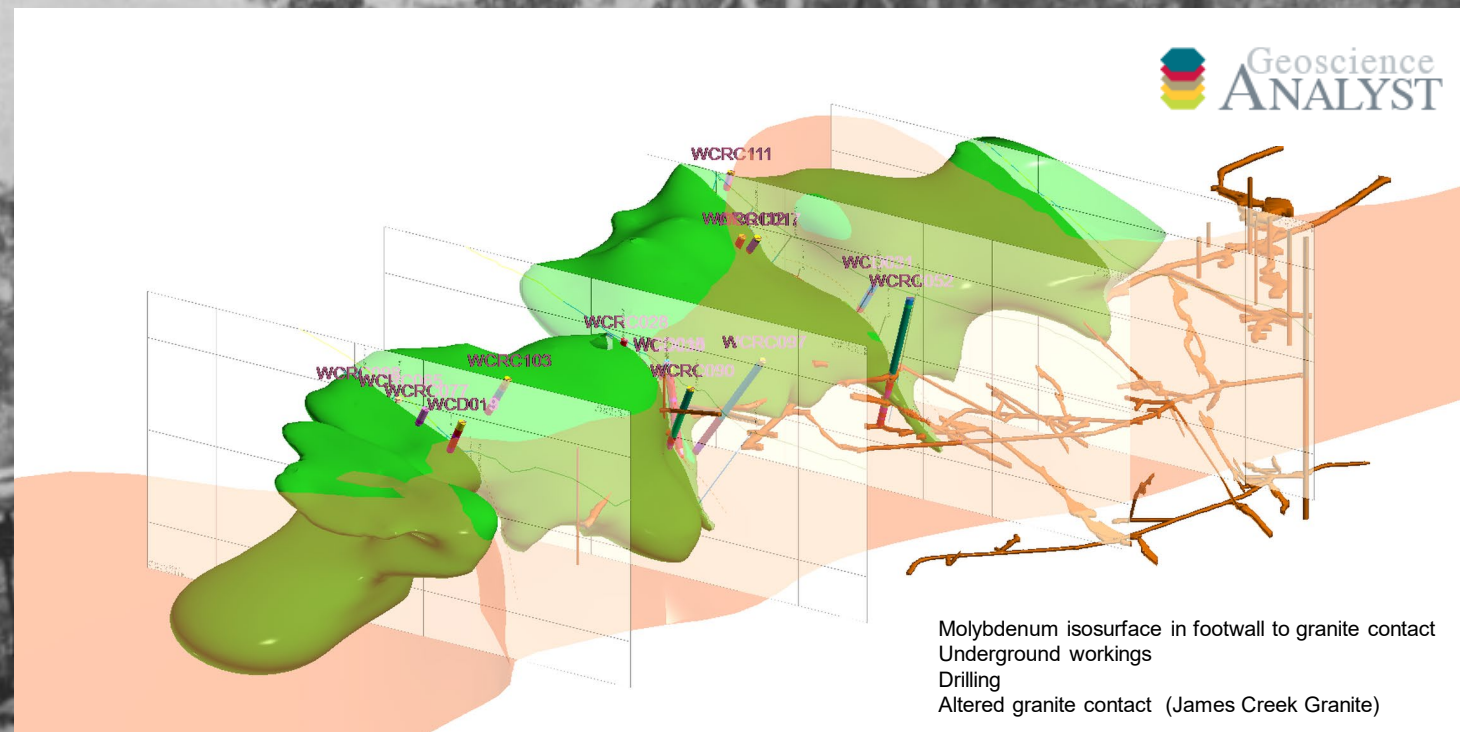


# Wolfram Camp

## W-Mo-Bi mineralisation

Discovered in 1888, closed in 2018

## Intrusion-related greisen system

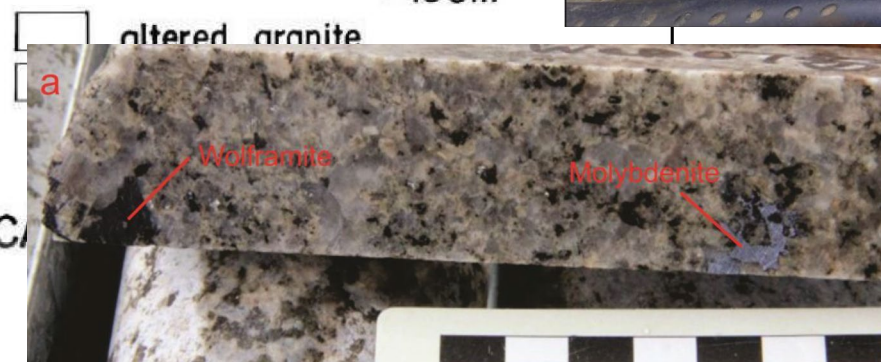
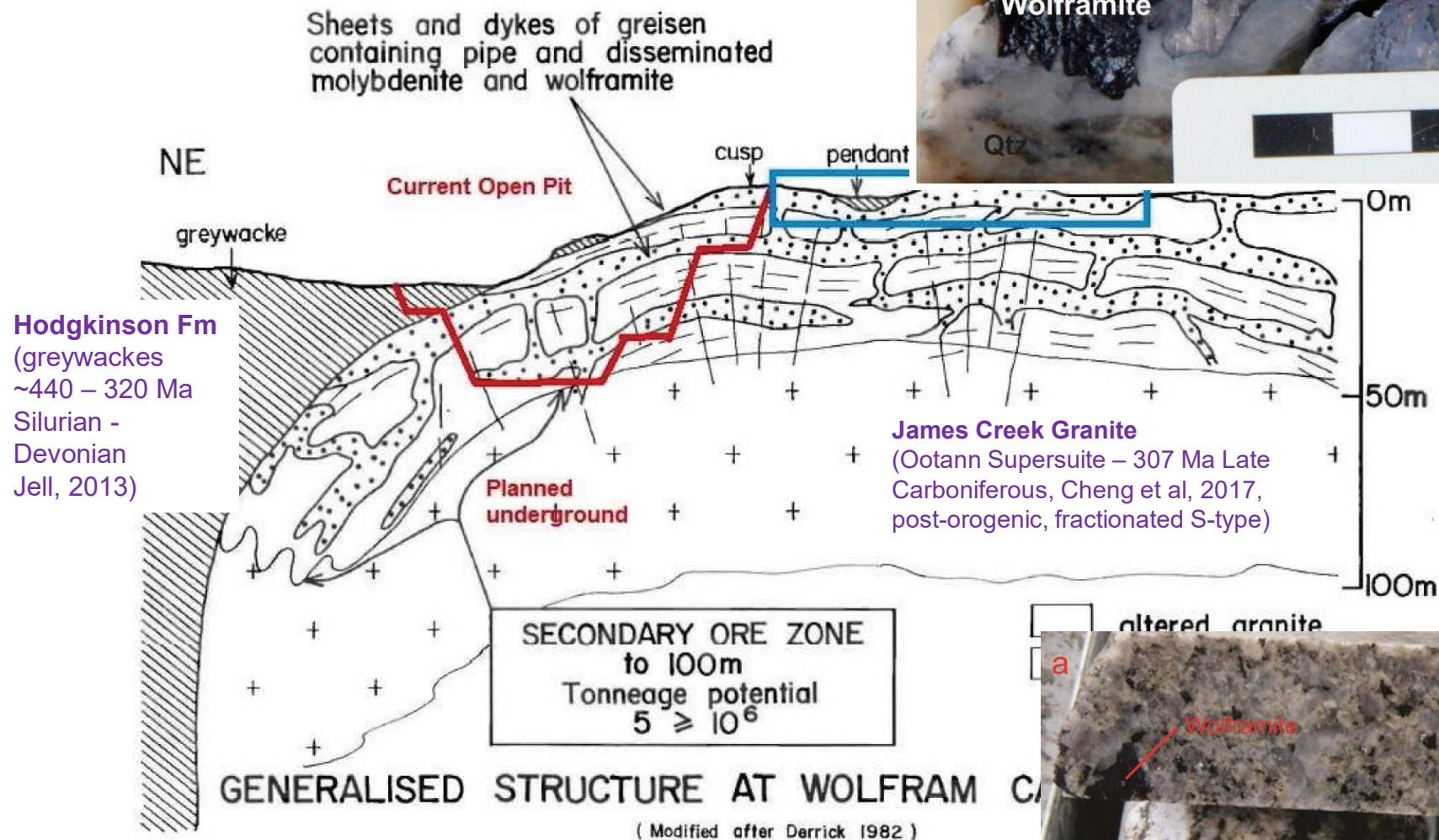
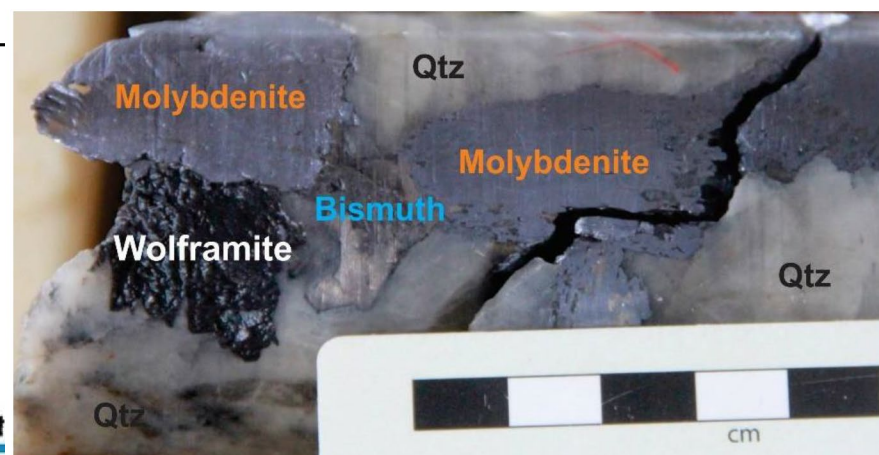


Classification	Tonnage	Grade
Reserve - Probable:	375,000t	0.22% WO3
Resource - Indicated:	514,000t	0.23% WO3 and 0.07% Mo
Resource - Inferred:	1,879.000t	0.31% WO3 and 0.08% Mo

**As of 2015**

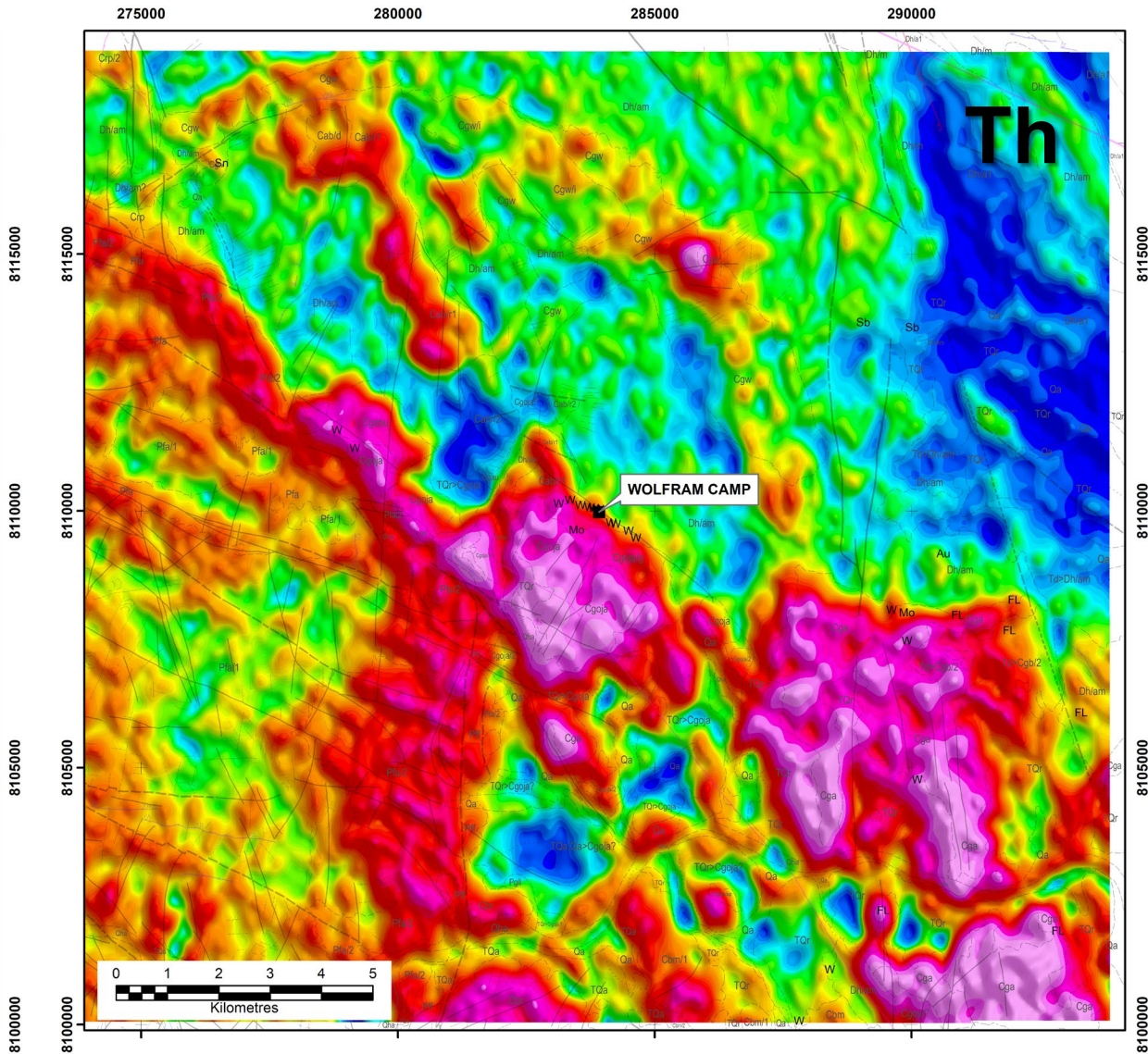
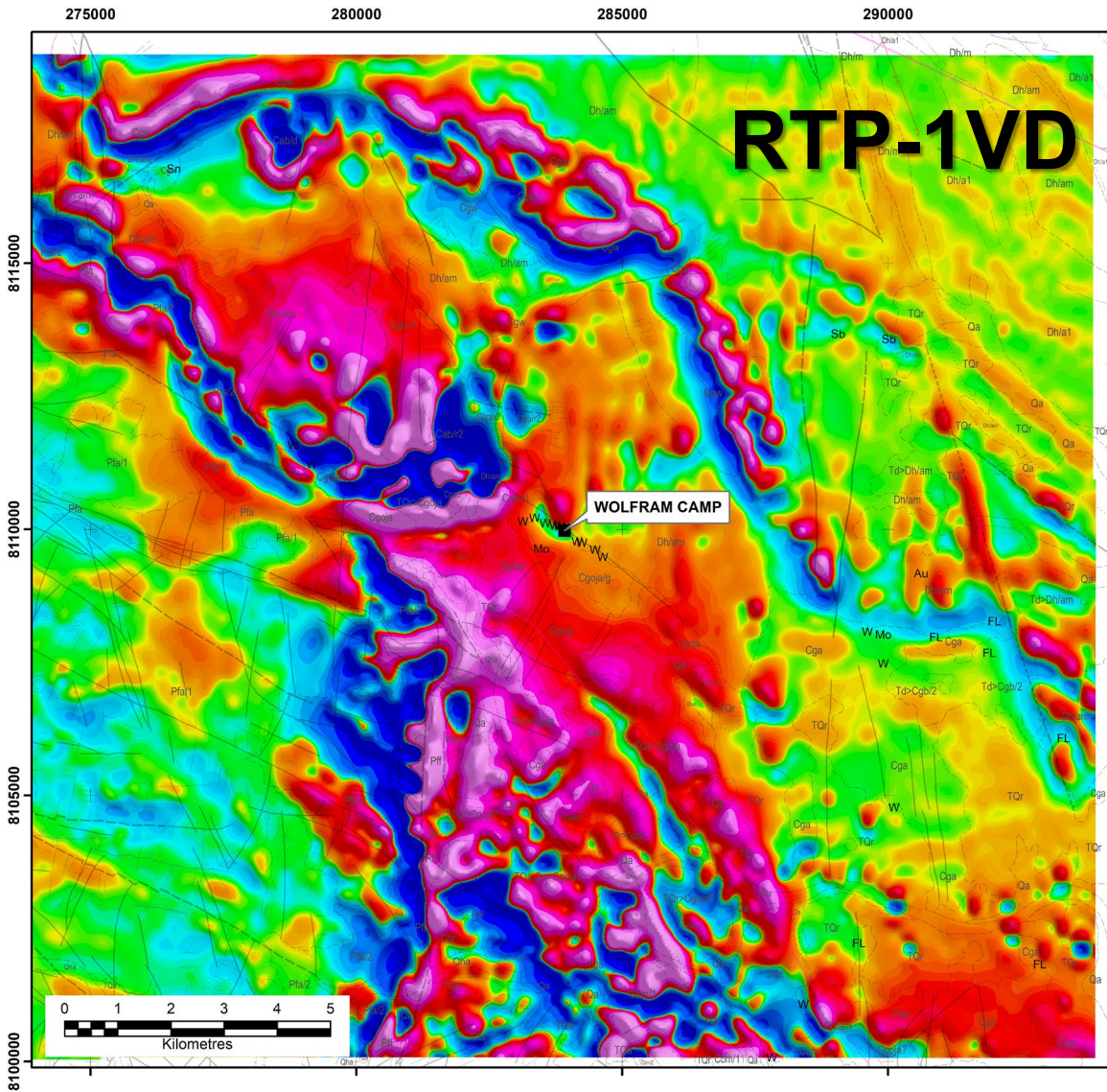


# Wolfram Camp



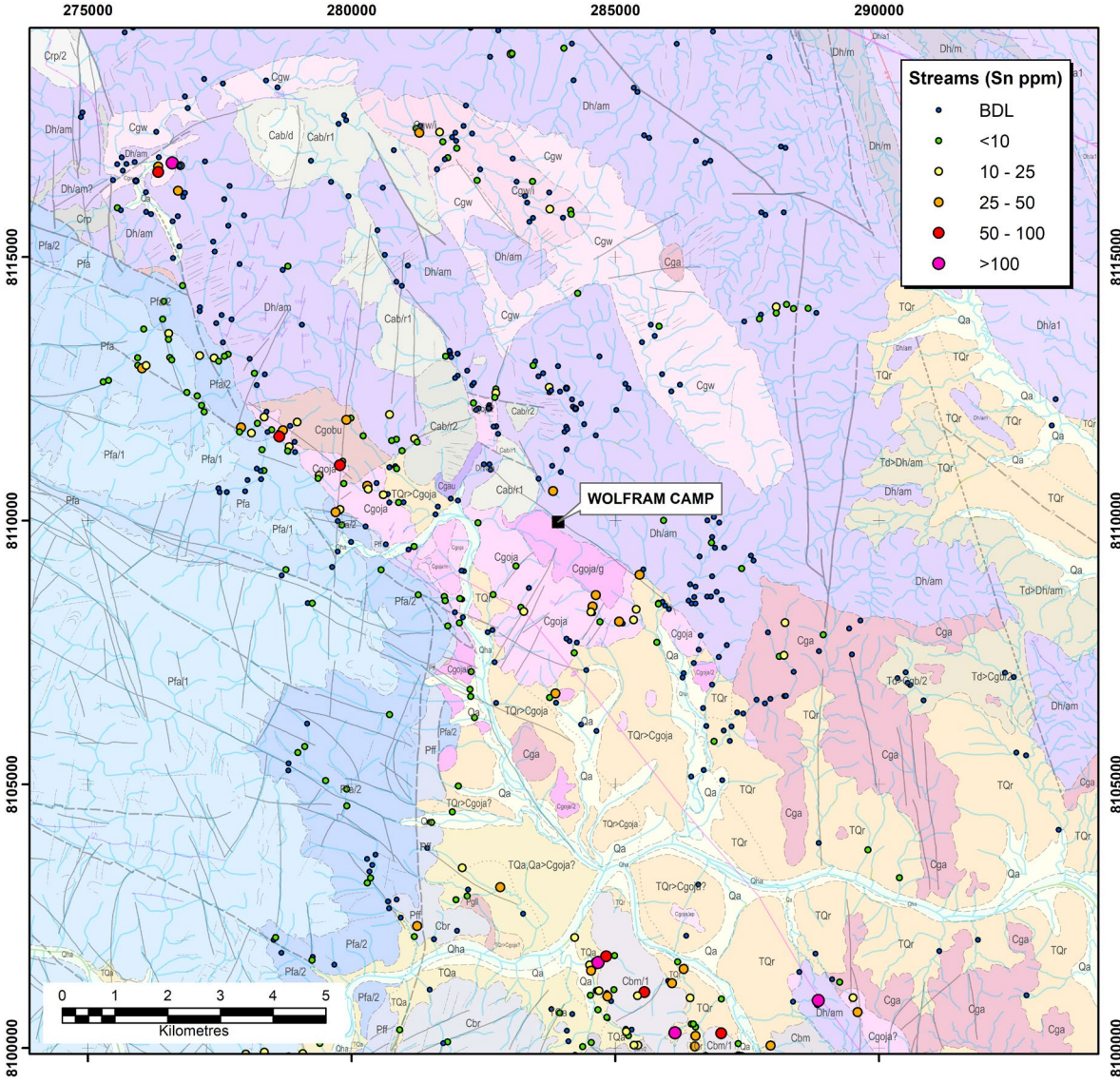
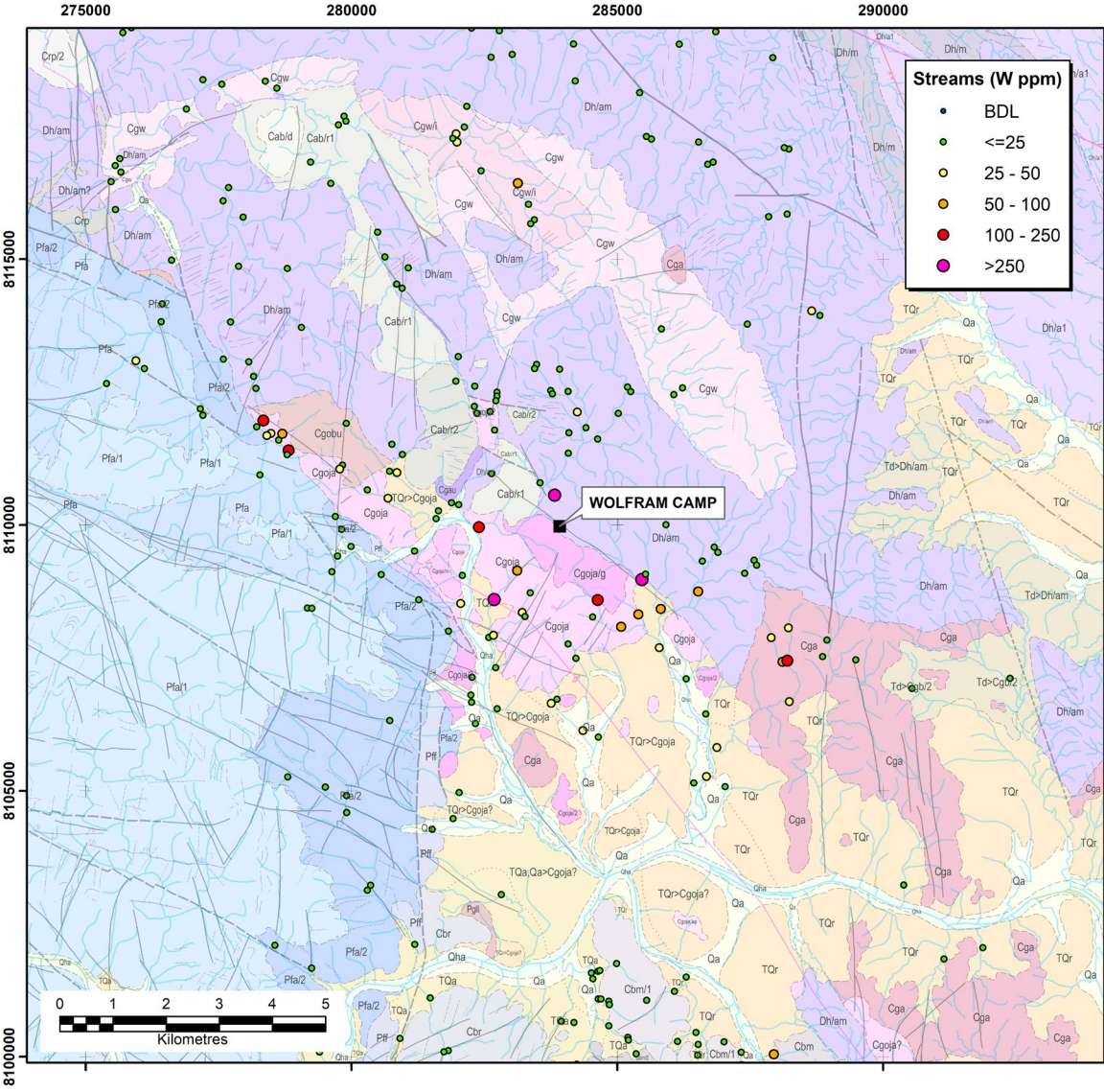


# Geophysical Data





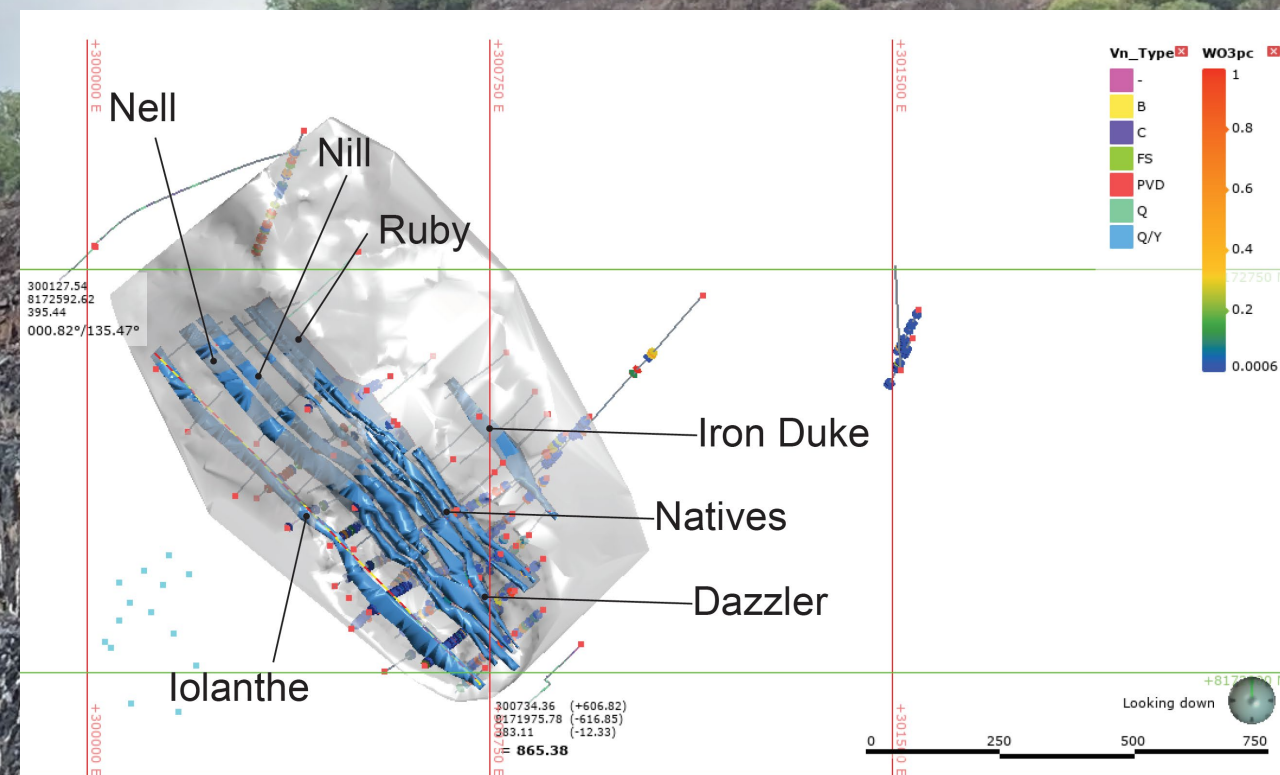
# Stream Sediment Data





# Mount Carbine

Resource Category	Grade, Tonnage and contained metal		
In situ hard rock	Mt	WO <sub>3</sub> (%)	WO <sub>3</sub> (mtu) <sup>#</sup>
Indicated	18.0	0.14	2,520,000
Inferred	29.3	0.12	3,516,000
Low-grade stockpile			
Indicated	12.0	0.075	840,000
Ore sorter rejects			
Inferred	4.0	0.059	
Coarse Tailings (TSF4)			
Inferred	2.0	0.1	
<b>Total</b>	<b>65.3</b>		<b>6,876,000</b>

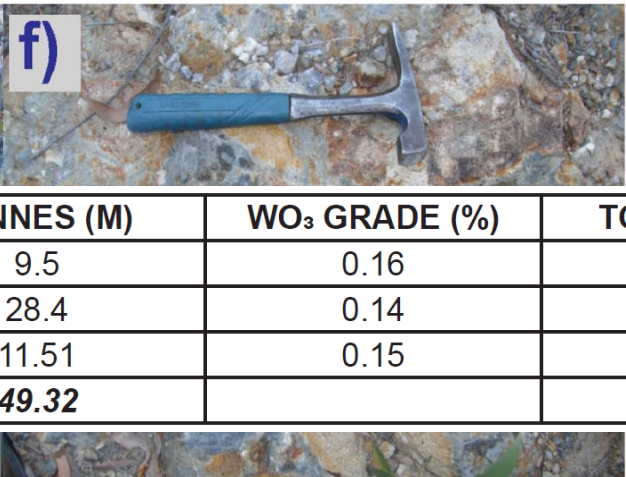
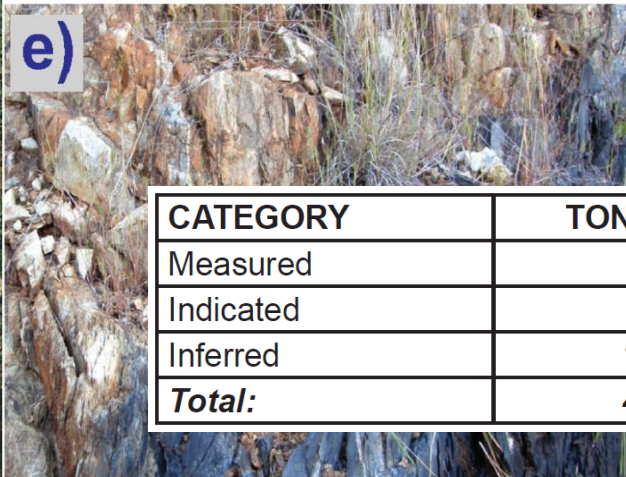






# Watershed

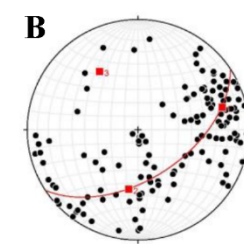
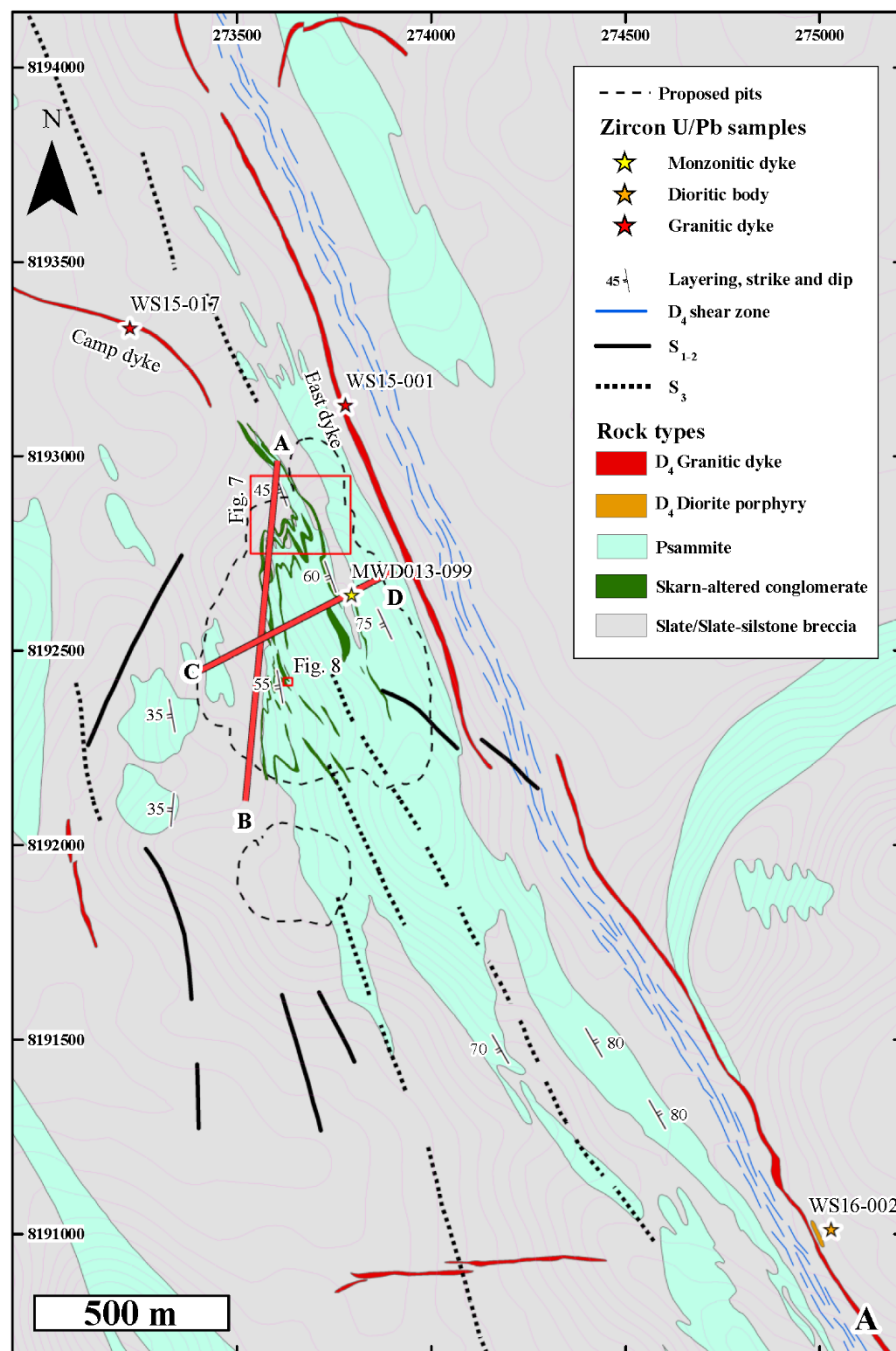
Scheelite sheeted veins



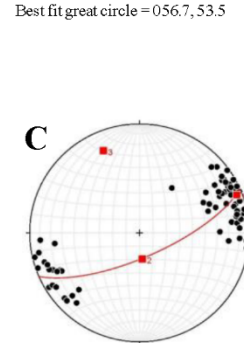
CATEGORY	TONNES (M)	WO <sub>3</sub> GRADE (%)	TOTAL WO <sub>3</sub> (t)
Measured	9.5	0.16	15,200 t
Indicated	28.4	0.14	39,760 t
Inferred	11.51	0.15	17,265 t
<b>Total:</b>	<b>49.32</b>		<b>72,225 t</b>



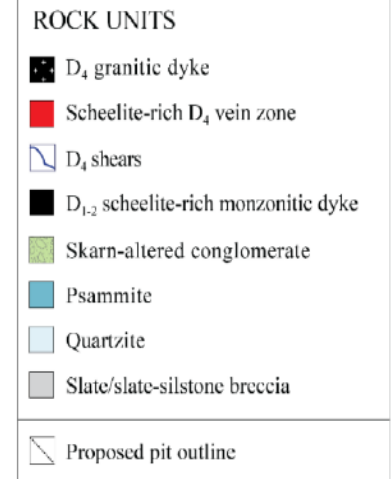
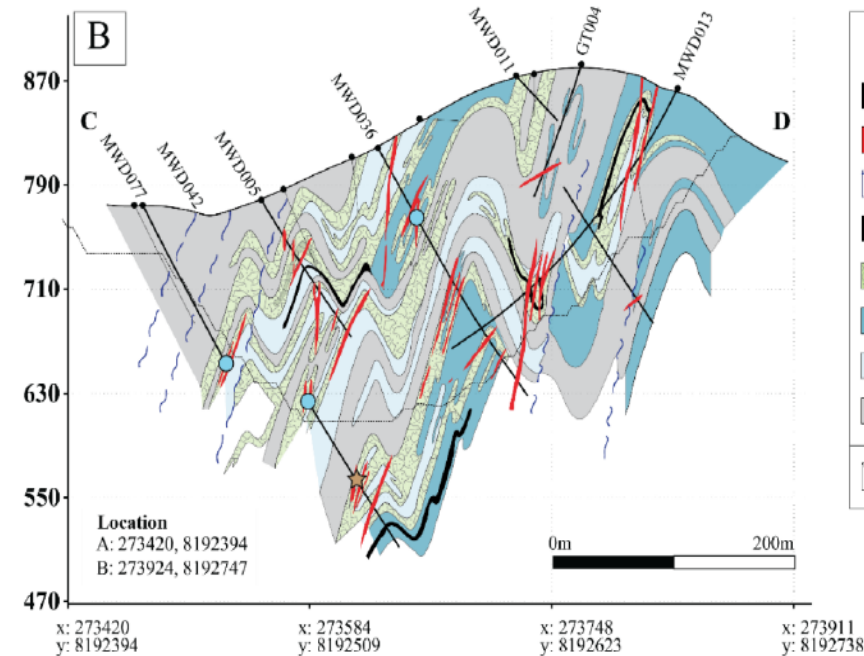
# Watershed



Axis	Eigenvalue	Trend	Plunge
1.	0.5753	074.7	22.7
2.	0.3051	189.2	44.8
3.	0.1196	326.7	36.5

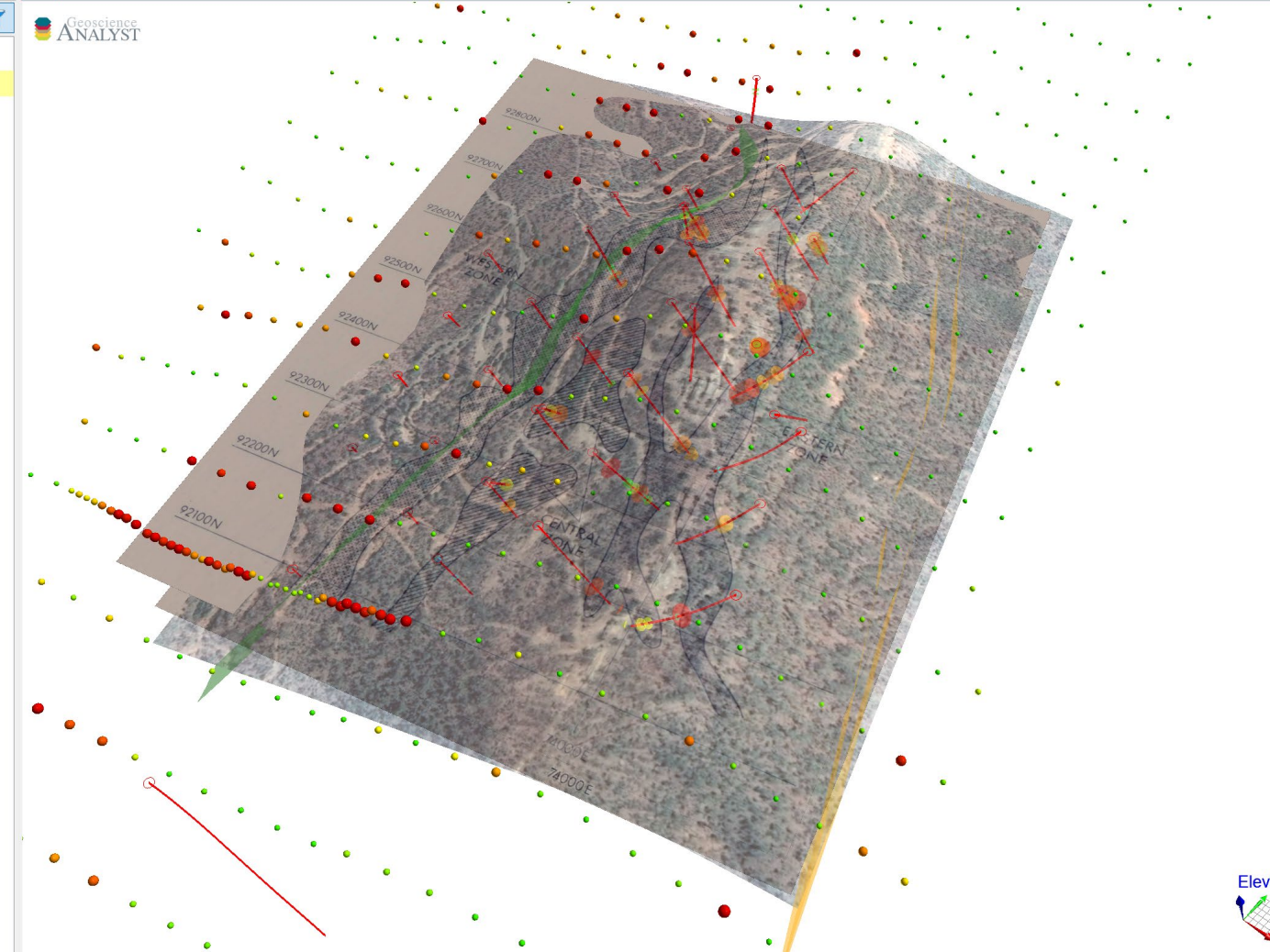


Axis	Eigenvalue	Trend	Plunge
1.	0.8947	068.3	05.7
2.	0.0633	174.9	70.7
3.	0.0420	336.4	18.4



**Mapping of Poblete Alvarado (2019)**

- Workspace
  - ☒ Drilling Container Group
  - ☐ DTM Container Group
  - ☒ Geochemistry Container Group
  - ☒ Geology\_Deposit Container Group
  - ☐ Geology\_Regional Container Group
  - ☒ Geology3D Container Group
  - ☐ Geophysics Container Group
  - ☒ Google\_Earth Container Group
  - ☐ Images Container Group
  - ☐ Sections Container Group



128 objects

Colour :   

Transparency : 0.0  1

1.0

+

-

ElevNorth

East

Project : Watershed\_GDA94\_v04.geoh5 Comments

Contributors : uqsaivaz  
uqdesser  
uqpgow

Created : Wed Sep 30 08:19:54 2020

Last modified : Wed Sep 30 08:19:53 2020

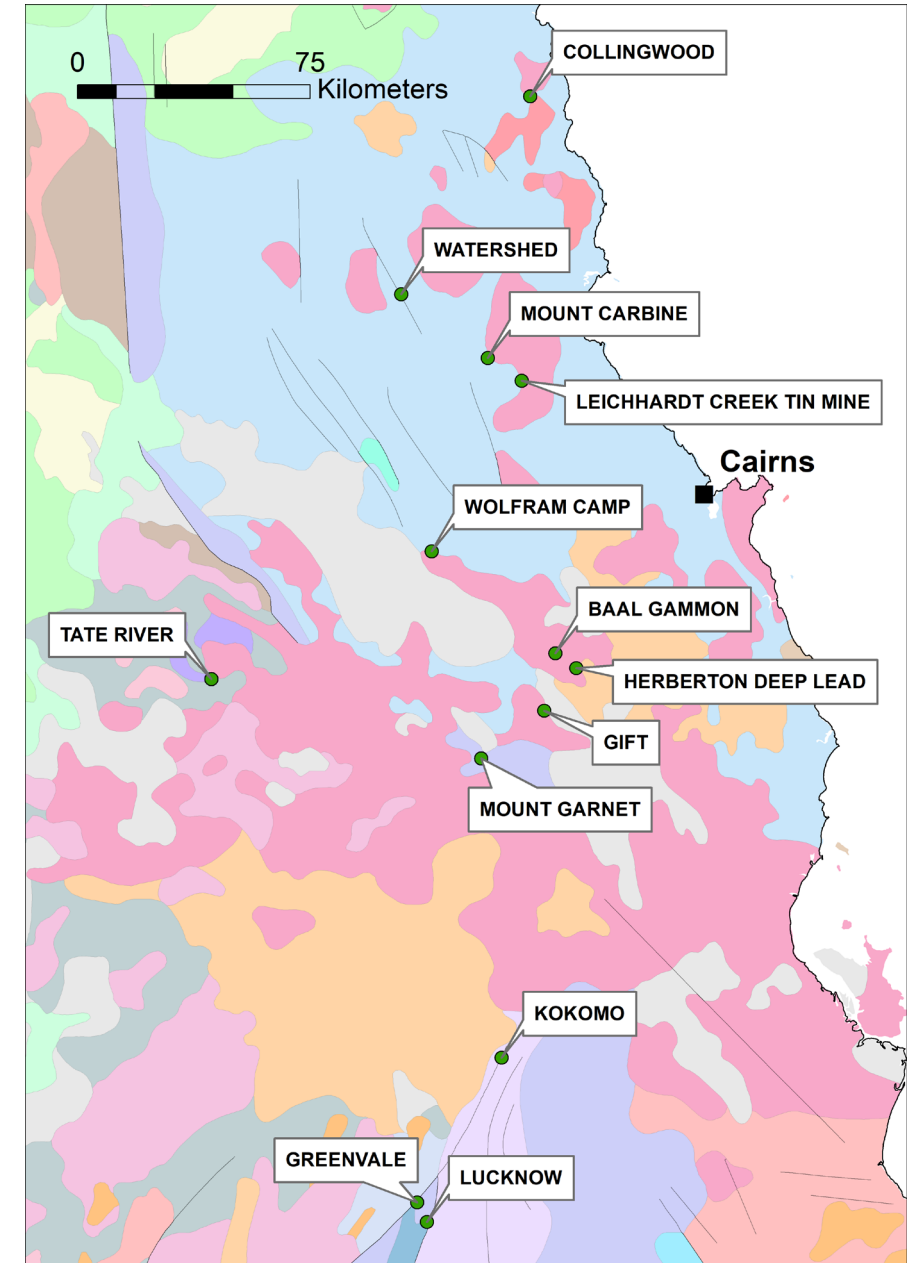
Files

Name	Size	Type

# Mineral deposits in NEQ Atlas

Eleven deposits/fields covering four metal associations:

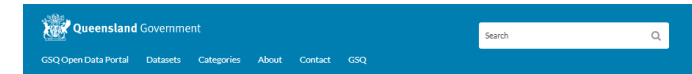
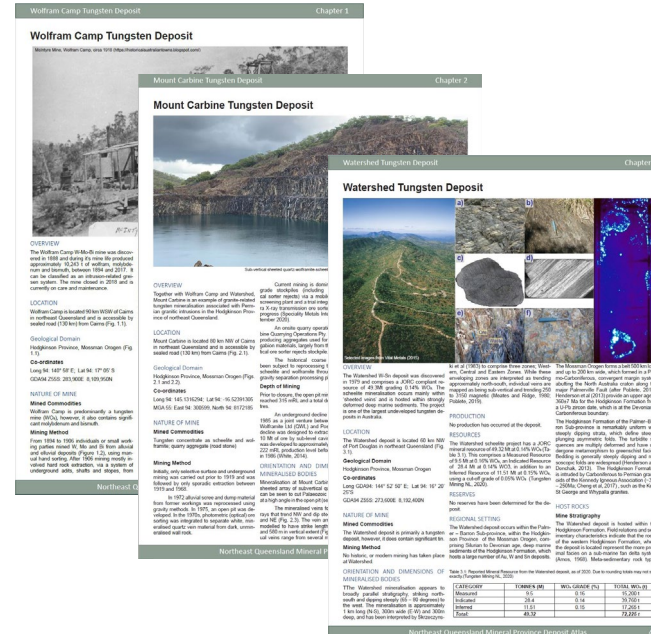
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# Delivery

- Hardcopy (PDF) Atlas
- 3D Data Compilation and Model
  - Model for the Geoscience Analyst platform
  - Base data
  - Data description and source attribution



## North East Queensland Mineral Deposit Atlas

Download all Add all to your selected downloads

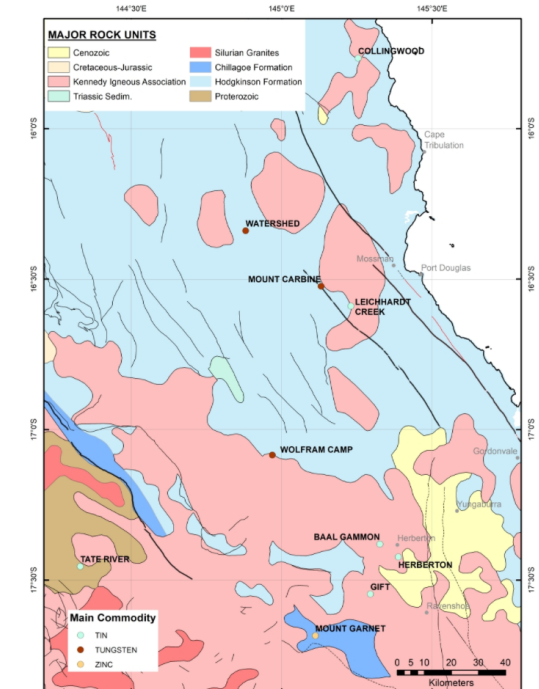
As part of the New Economy Minerals Initiative, the W.H. Bryan Mining & Geology Research Centre (BRC) compiled an atlas of the major deposits in the Northeast Queensland. This atlas serves as a resource for explorers to help recognise the signatures and hues of major deposits in the region, and to provide material which is complementary to the core collections being assembled in the state's core libraries.

A set of Deposit Atlases for the North West Mineral Province was created as part of the Strategic Resources Exploration Program and can be found here.

Each Deposit Atlas contains a pdf document describing the deposit system, discovery history, geophysical and geochemical signatures and alteration of the system as well as a 3D Atlas of datasets of all publicly available data. The 3D Atlases were compiled in Geoscience Analyst, a free 3D visualisation and communication software for integrated, multi-disciplinary earth models and data. Download it here.

This Dataset will contain the entire Deposit Atlas as a zipped file. Each deposit and their corresponding 3D Atlas can be found per chapter below:

- Chapter 1 - Wolfram Camp Tungsten Deposit
- Chapter 2 - Mount Carbine Tungsten Deposit
- Chapter 3 - Watershed Tungsten Deposit
- Chapter 4 - Baal Gammam & Gift Deposits
- Chapter 5 - SCOH Deposit
- Chapter 6 - Mount Garnet Zinc Deposit
- Chapter 7 - Kangaroo Creek and Tate River Deposits
- Chapter 8 - Collingwood Deposit
- Chapter 9 - Herberton Deposit
- Chapter 10 - Leichardt Creek Deposit

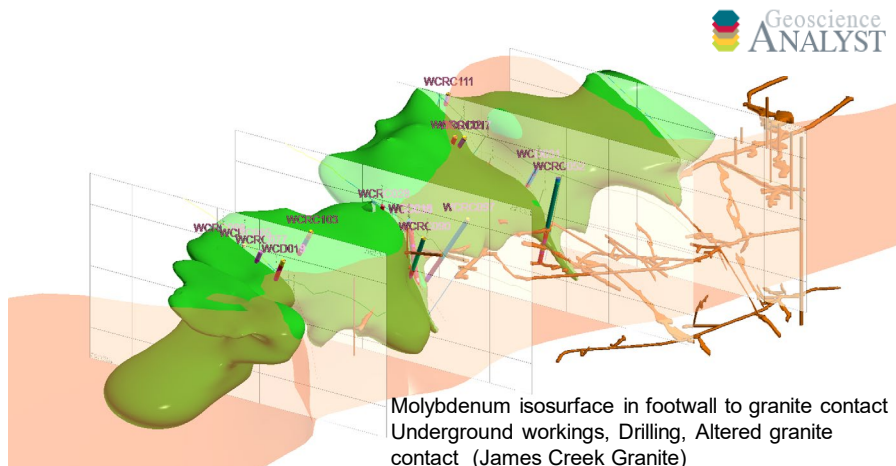


Locations of Deposit Atlas sites across the North East Queensland Mineral Atlas

Files	Sort resources by:	File Type	File Name
Link to BRC case for North East Queensland Mineral Deposit Atlas		Download	

<https://geoscience.data.qld.gov.au/dataset/ds000058>

<https://smi.uq.edu.au/project/northeast-queensland-mineral-deposit-atlas>



Molybdenum isosurface in footwall to granite contact  
Underground workings, Drilling, Altered granite contact (James Creek Granite)



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# Thank you

Assoc. Prof. Paul Gow | Acting Group Leader - Total Deposit Knowledge  
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<https://geoscience.data.qld.gov.au/dataset/ds000058>

<https://smi.uq.edu.au/project/ne-queensland-mineral-deposit-atlas>