

# Resources industry trends in the NT

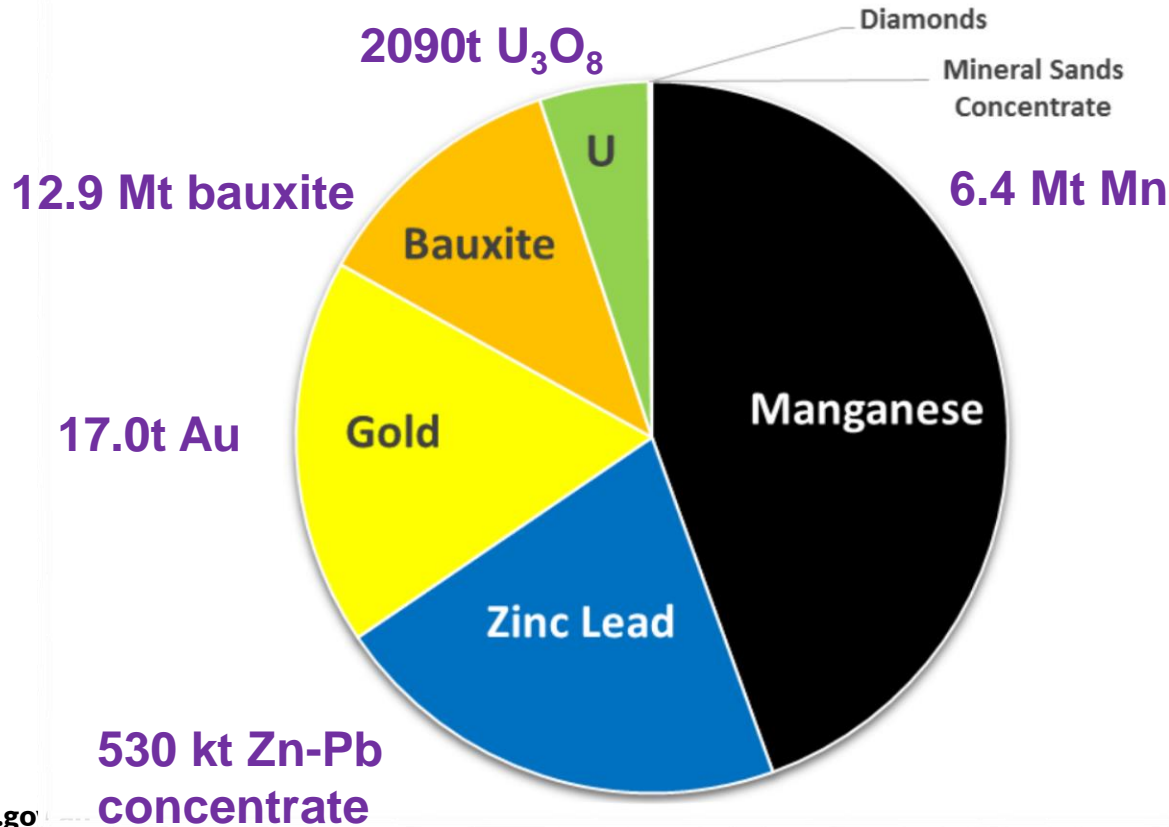
Ian Scrimgeour  
Executive Director, NT Geological Survey

30 April 2019

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

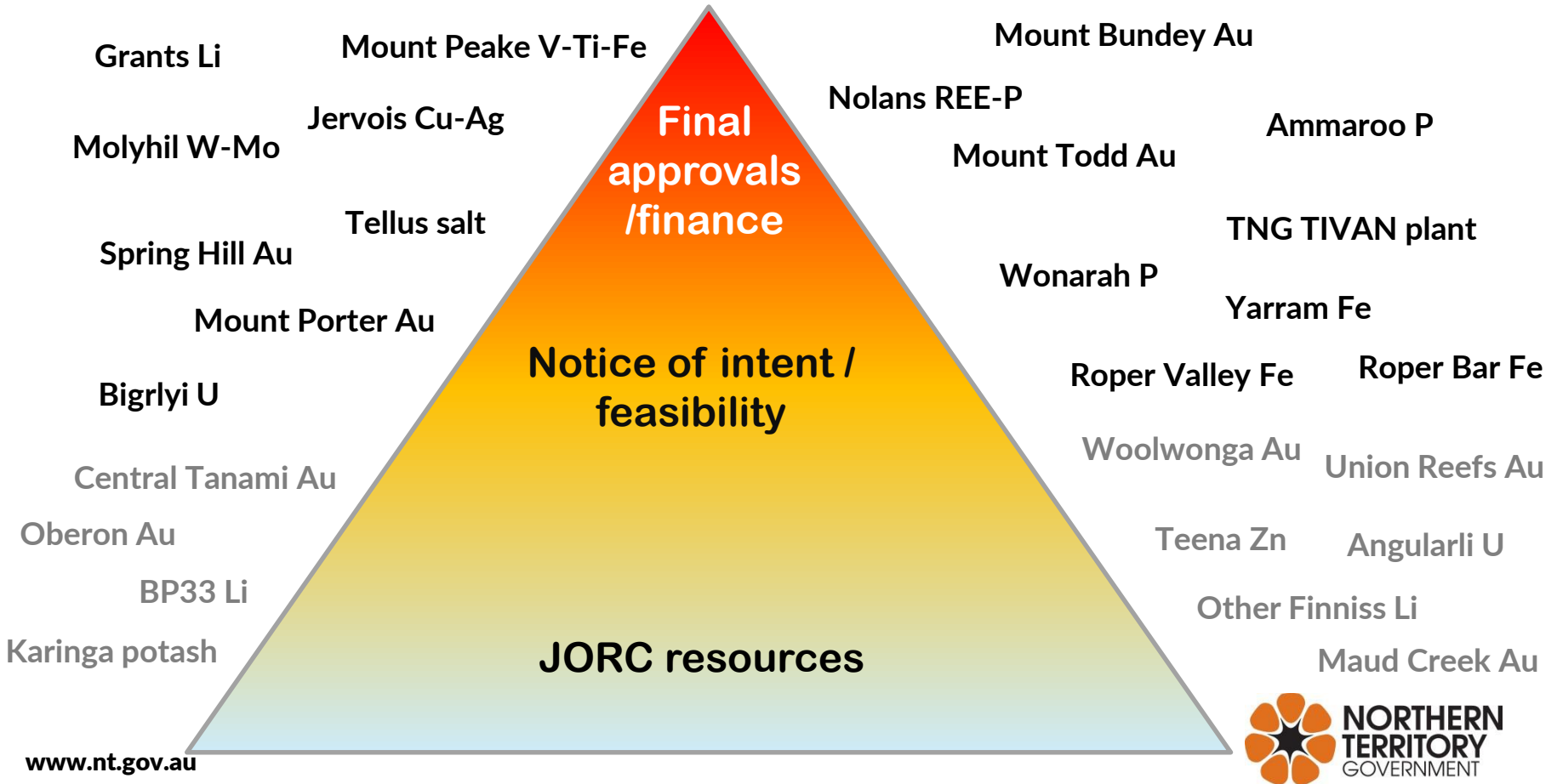
# NT mineral production value 2017/18

Area reflects value of production



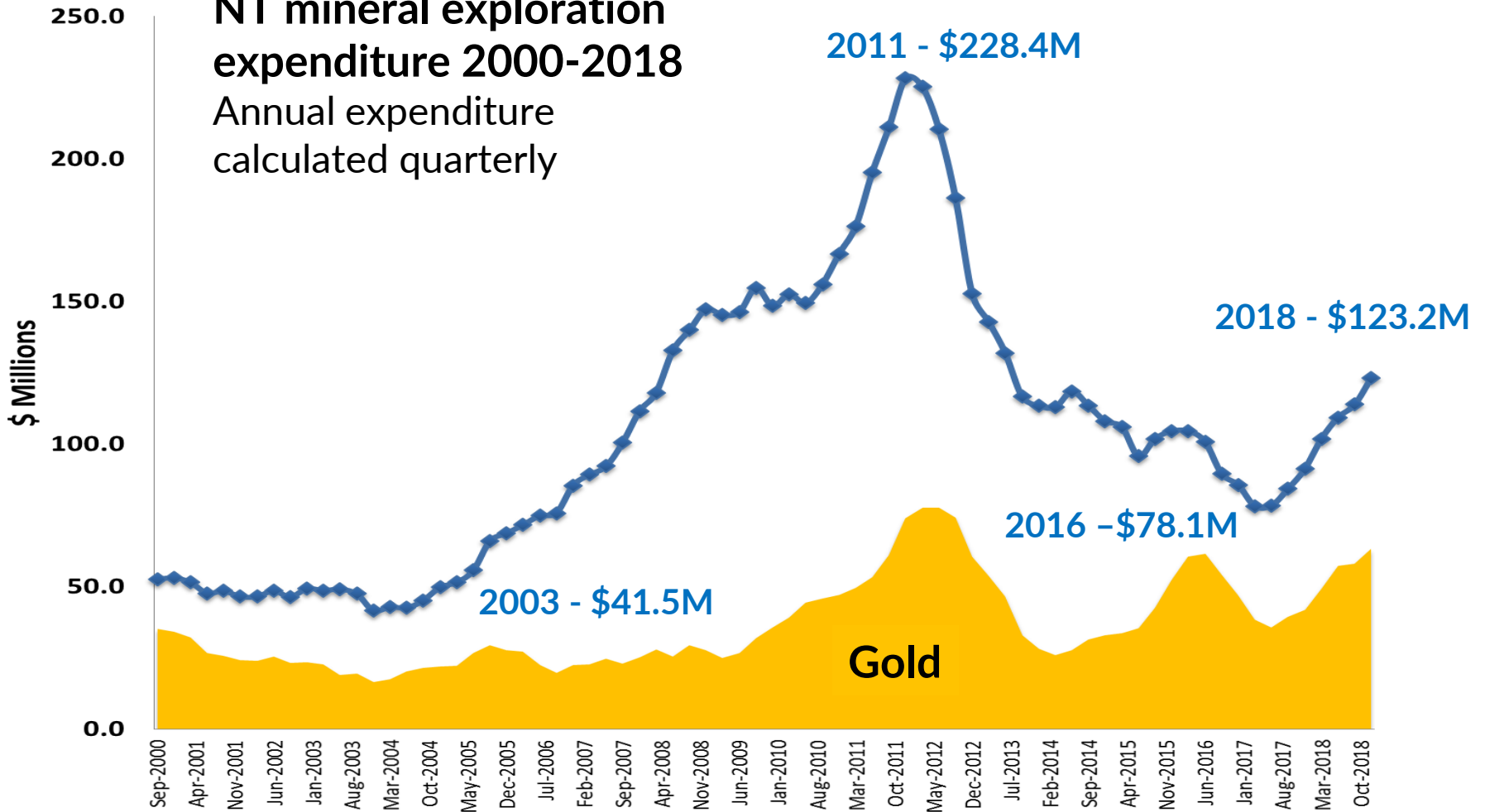
Record mineral production of \$4.49B

# The Territory's pipeline of mining projects

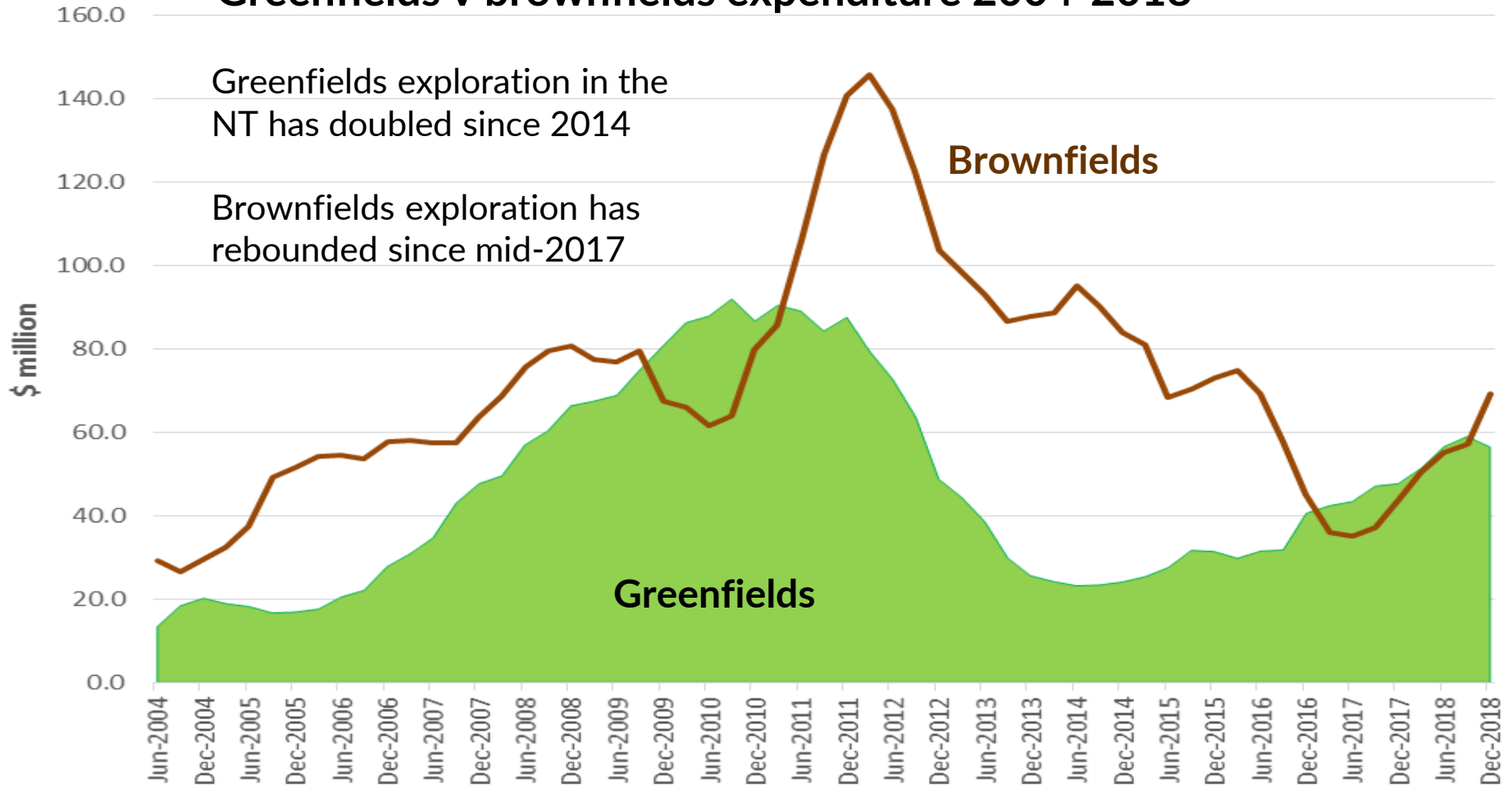


# NT mineral exploration expenditure 2000-2018

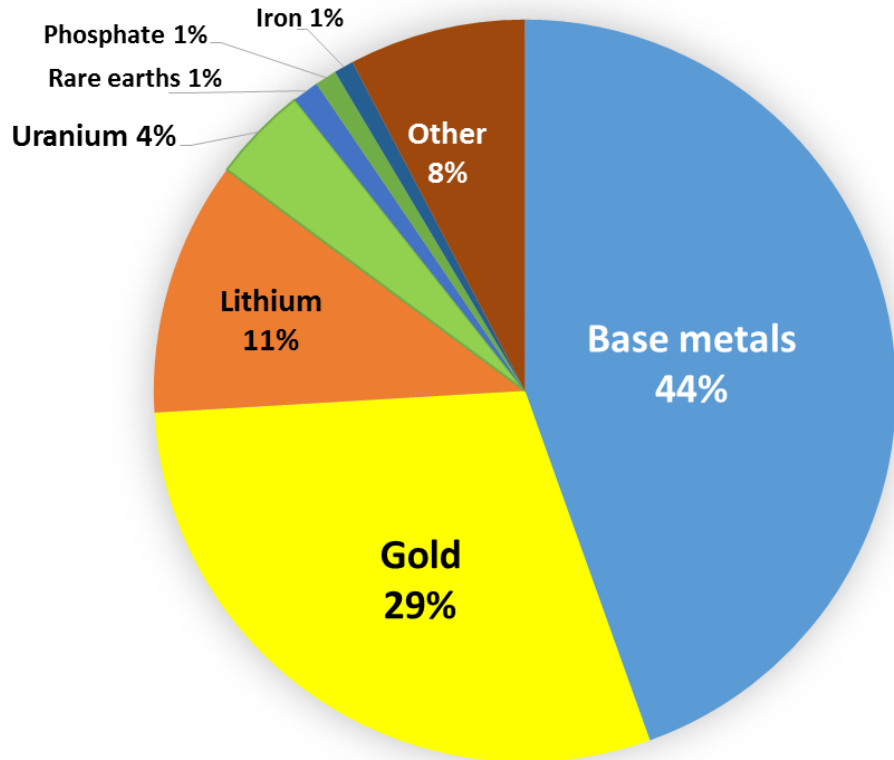
Annual expenditure  
calculated quarterly



# Greenfields v brownfields expenditure 2004-2018



## Mineral exploration expenditure by commodity reported to DPIR in 2018



Tangible on-ground expenditure only (excludes overheads, desktop and feasibility studies)

## Mineral exploration

- Key commodities are **copper, zinc, gold, uranium** and **lithium**
- Large areas very underexplored
- Other main commodities for exploration and developing projects: **cobalt, potash, phosphate, vanadium, rare earths, salt, tungsten, magnesium**
- Many projects seeking partners for joint ventures, equity investment, project finance, construction and/or offtake

# Producers with strong cash flow investing in the NT as a growth area

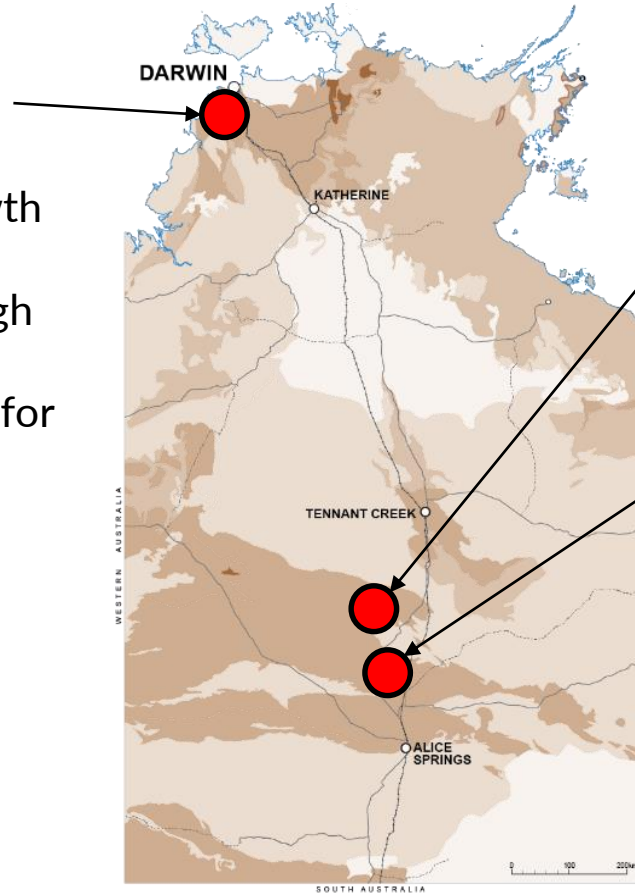


KIRKLAND LAKE GOLD

# The NT's future as a supplier of critical minerals

## Core Lithium- *Finniss project* 8.85 Mt @ 1.3% Li<sub>2</sub>O

- Four resources defined
- Discovery and resource growth ongoing
- Grants project passing through development approvals – investment decision planned for 2019



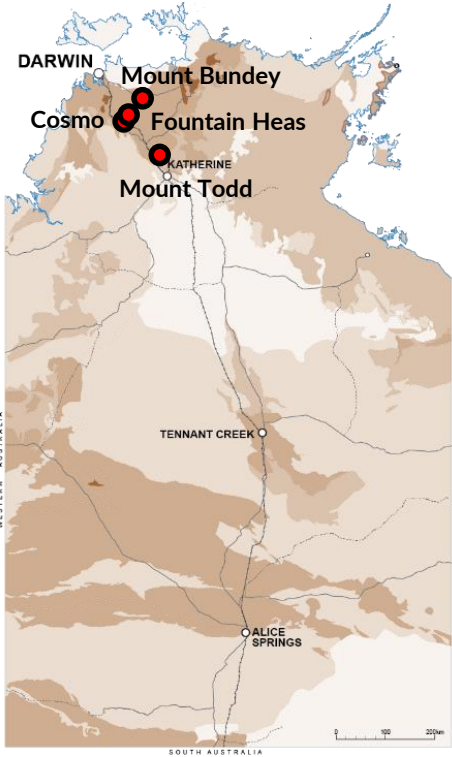
**TNG Ltd: *Mount Peake V-Ti-Fe* project** – processing plant to be located in Darwin

**Arafura Resources:**  
***Nolans rare earths*** - final REO product to be produced at mine site

Other projects for ***cobalt, tungsten, titanium***

# Gold (Pine Creek)

Au



## Kirkland Lake Gold - *Cosmo*

- Underground development and exploration at *Lantern*
- High grade gold intersected at depth at *Union Reefs*

## Bacchus Resources - *Woolwonga*

Substantial drilling during 2018

## Primary Gold - *Mount Bundey*

Acquisition by Hanking Australia Pty Ltd, planning redevelopment of Toms Gully underground mine

## Vista Gold - *Mount Todd*

DFS well advanced, NT EPA environmental assessment process complete

## PNX Metals - *Fountain Head*

High grade gold discovered at Banner prospect



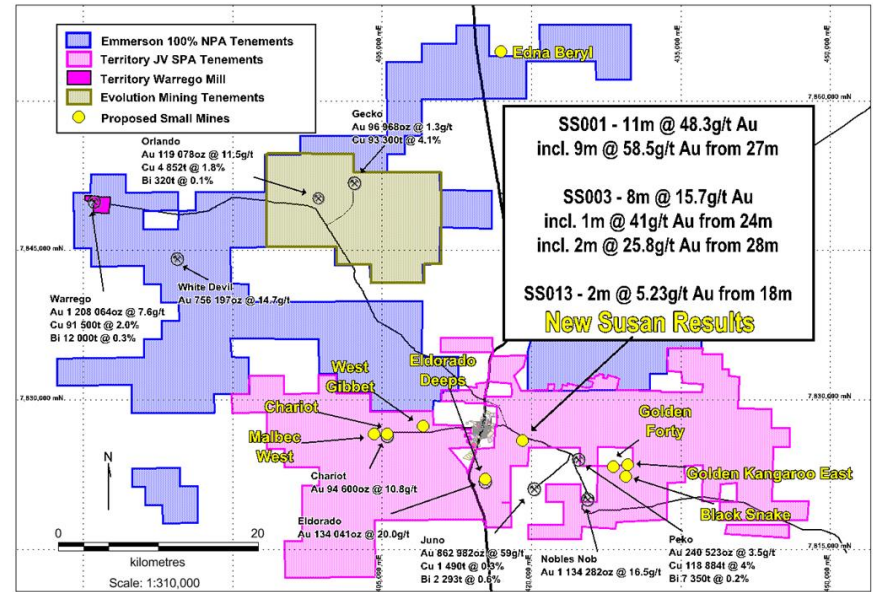
Drillcore from Lantern

# Gold (Tennant Creek)

Au Cu



- Emmerson-Evolution JV restructured in early 2018
- Strategic alliance between Emmerson and Territory Resources:
  - JV and farm-in over ERM's Southern Leases, plus Nobles Nob and Juno
  - **Central Processing Facility at Warrego**
- Territory Resources purchased Edna Beryl mine to recommence mining
- High grade gold-copper results from Emmerson at Mauretania and The Susan prospects
- Potential for multiple new small mines



# Gold (Tanami)

Au

## Newmont Tanami Operations:

- Pre-mining endowment now over 14 million ounces and growing
- 439 km gas pipeline from Amadeus pipeline to Dead Bullock Soak completed



**Newcrest Mining:** Major new entrant into Tanami in 2018, through *Euro JV* with Prodigy Gold and 100% tenure

## Northern Star Resources:

- Substantial footprint in the Tanami
- Aircore and RC drilling at numerous prospects in CTP and 100% owned tenure in 2018

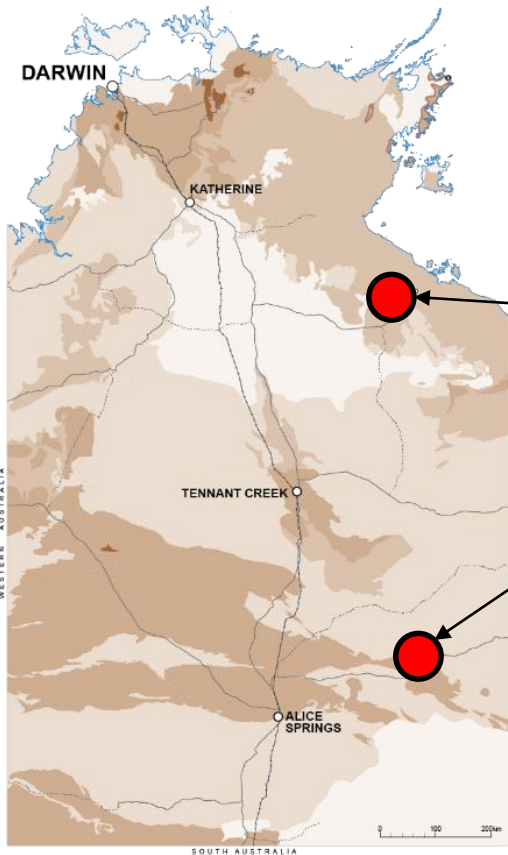


## Prodigy Gold:

- Aggressive greenfields exploration at *Capstan* and *Galaxy*
- Upgraded resource for *Suplejack*

# Base metals (copper, zinc, lead)

Cu Zn Ag



The NT has outstanding potential, but only one operating zinc mine

## Teena zinc project (Teck Australia)

- Largest zinc discovery in Australia this century

## Jervois copper-silver project (KGL Resources)

- Investment decision planned for 2019

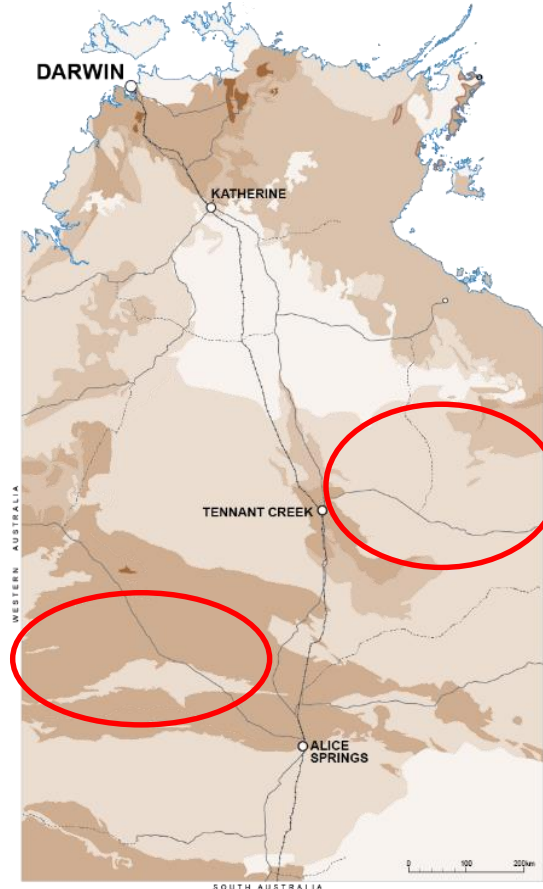


# New frontiers for exploration

Cu Zn Au Ag

## Western Aileron Province

- Effectively unexplored, largely under sand cover
- Major greenfields exploration by **Independence Group** targeting nickel, copper, gold
- 9600m drilling program underway testing 63 undrilled targets
- New high-grade zinc-copper discovery by **Todd River Resources** at Hendrix new Yuendumu



## Barkly region

- Effectively unexplored under black soil and limestone cover
- New geoscience suggests potential for copper and gold east of Tennant Creek and zinc and petroleum towards Qld border
- Major gold producer **Newcrest Mining** has taken out licence applications east of Tennant Creek

## Section 6 – Environmental Management

By checking these boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	Drill holes will be securely capped immediately after drilling



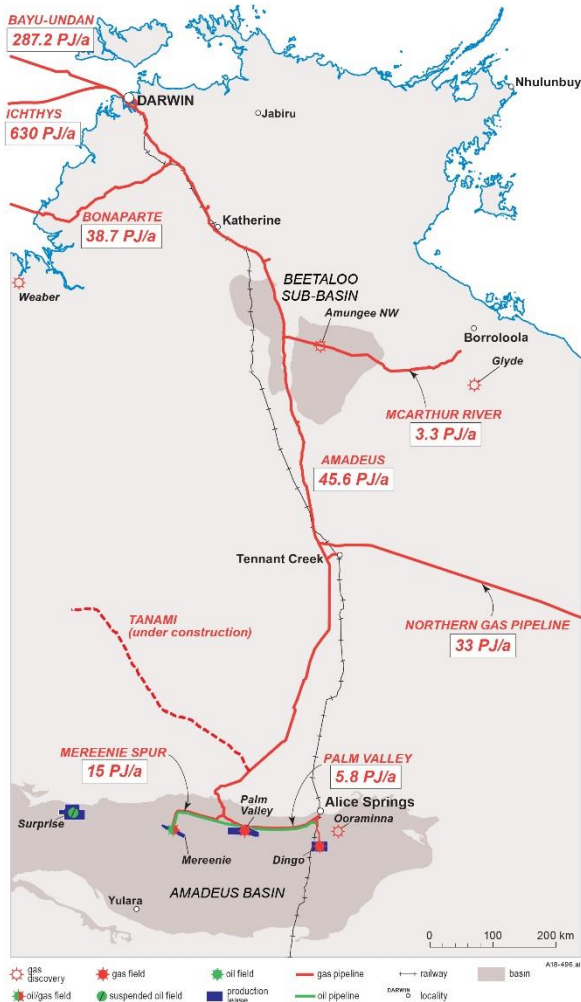
## Streamlining regulation

- Simplified mining management plans (MMPs) for exploration activities now in place
- Simplified MMPs for mining and extractives activity in development
- Focus on risk-based assessment and more field-based auditing

## Minerals industry development plan

- To be developed by DPIR and DTBI in close consultation with industry (MCA and AMEC)
- Completion by end of 2019

## Gas pipelines of the Northern Territory



# Onshore oil and gas

Implementation of recommendations from HFI being progressed across Government

## Building Trust through Transparency

Strengthening Regulation

Ensuring Accountable Industry Practice

Safeguarding Water and the Environment

Respecting Community and Culture

Maximising Regional Benefits and Local Opportunities

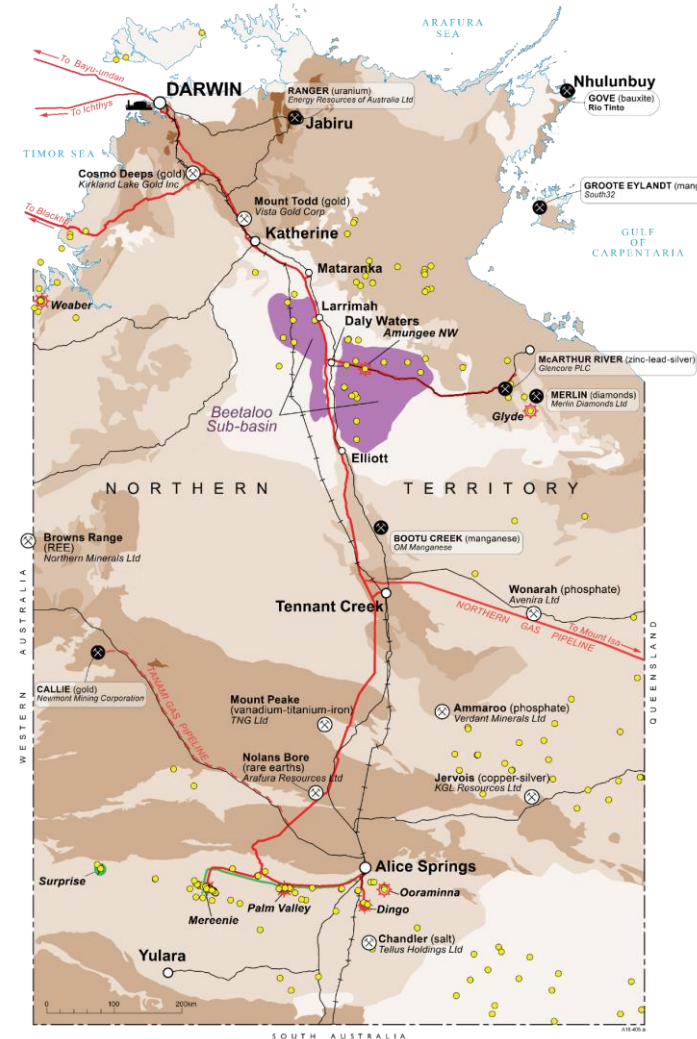
Planning for Industry

Exploration to recommence in Beetaloo Sub-basin this dry-season

New gas pipeline infrastructure opening new markets for gas

# Onshore oil and gas: Beetaloo Sub-basin

- Vast, geologically continuous shale gas basin
- Similar in scale and geology to US shale plays
- >500 Tcf of gas in place within B-shale of Velkerri Formation
- First horizontal hydraulically fractured well in 2016 successfully flowed gas
- Multiple dry gas and liquids-rich plays
- Drilling to restart this dry season



# Onshore oil and gas: Other basins

## greater McArthur Basin

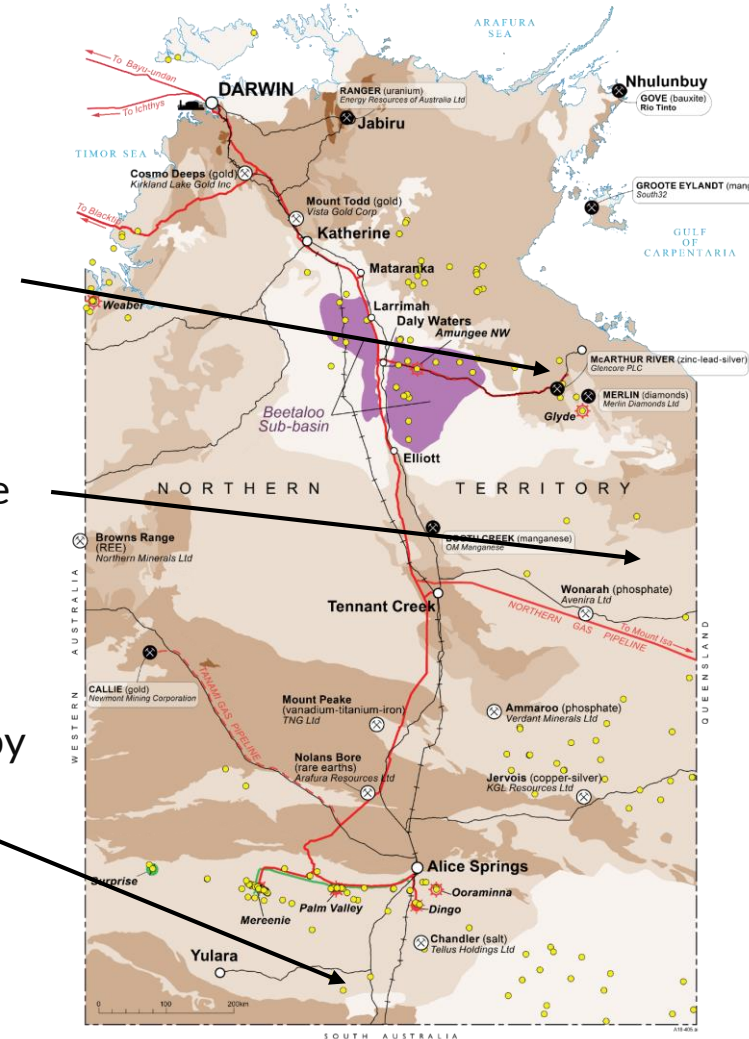
- Additional gas bearing shales (older than Beetaloo) in basin, especially in Gulf region

## South Nicholson Basin

- Unexplored potential correlative of the Beetaloo in the eastern Barkly region

## Amadeus Basin

- Dukkas well currently being drilled to >3000m depth by Santos testing large sub-salt play



# ***Resourcing the Territory initiative***

4 year (2018-2022), \$26 million NT Government initiative to grow the exploration sector

*Tanami airborne survey: Photo courtesy of Prodigy Gold*



Supporting industry innovation through grants for greenfields exploration

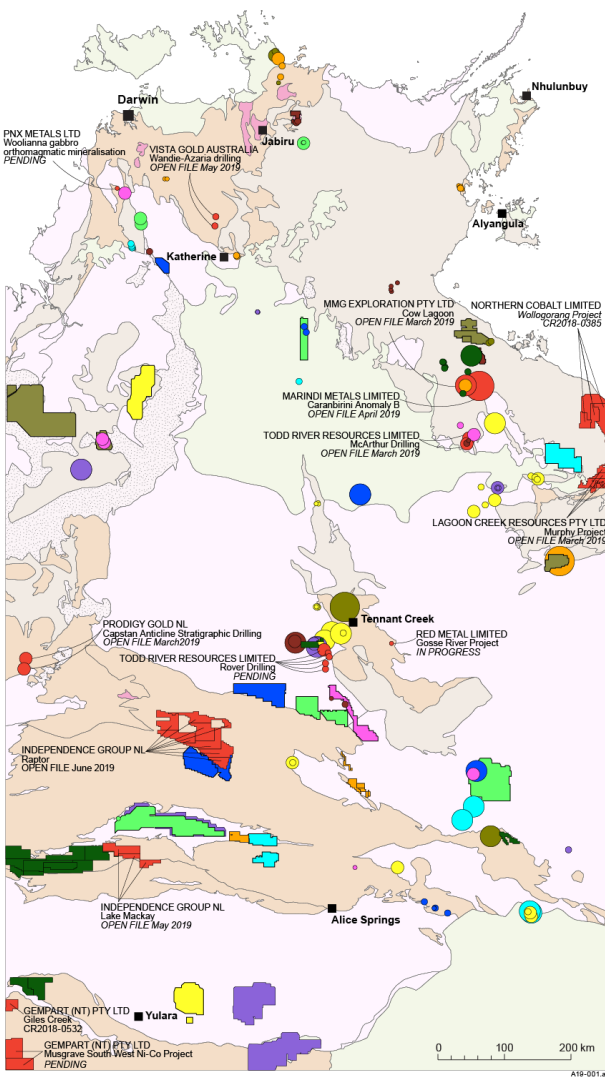
Upgrading the Territory's coverage of geophysical data

Unlocking the resource potential of the Barkly and Gulf regions

Stimulating greenfields exploration in central Australia

Promoting the Territory's resource potential and investment opportunities; and

Making exploration and geoscience data more accessible



# Theme 1: Supporting industry innovation through grants for greenfields exploration

## NT Government co-funding of greenfields exploration since 2008

48 Drilling projects completed

130 holes: >47,000 m drilled

37 Geophysics projects completed

~55,000 ground gravity stations

~122,000 line km of airborne magnetic and radiometric surveys

~30,000 line km of airborne EM surveys

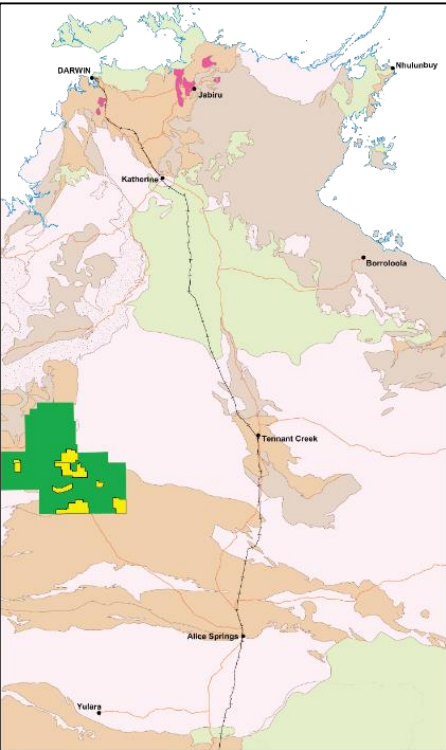
plus MT, seismic, SAM, 3D IP and passive seismic surveys

## Changes to program under *Resourcing the Territory*

- More funding available, expanded eligibility
- Additional funding for utilising local service and supply

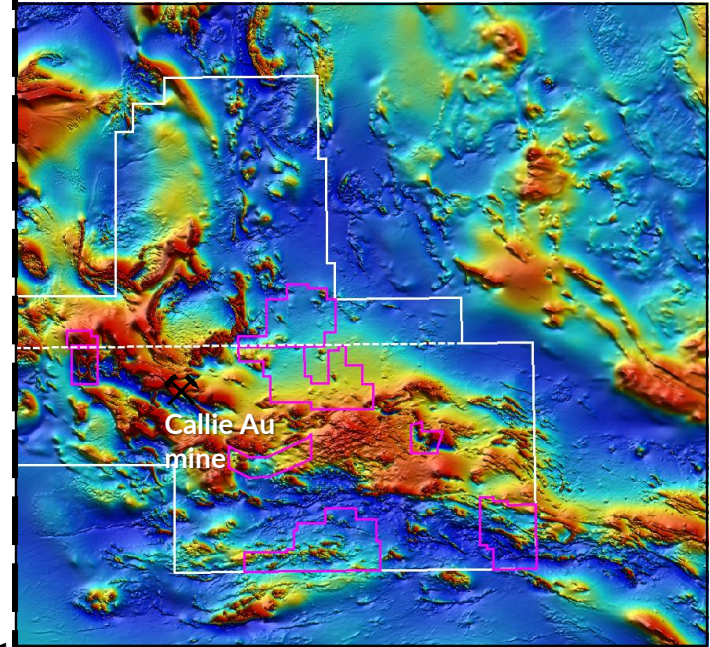
## Theme 2: Upgrading the Territory's coverage of geophysical data

### 2018 Tanami Region Magnetic and Radiometric Survey



- Seamless coverage of highly prospective, non-outcropping gold province
- ~ 270,000 line km @ 100-200 m line spacing
- Total area >42 000km<sup>2</sup>
- Funded by NTGS with infill funded by industry
- Release imminent

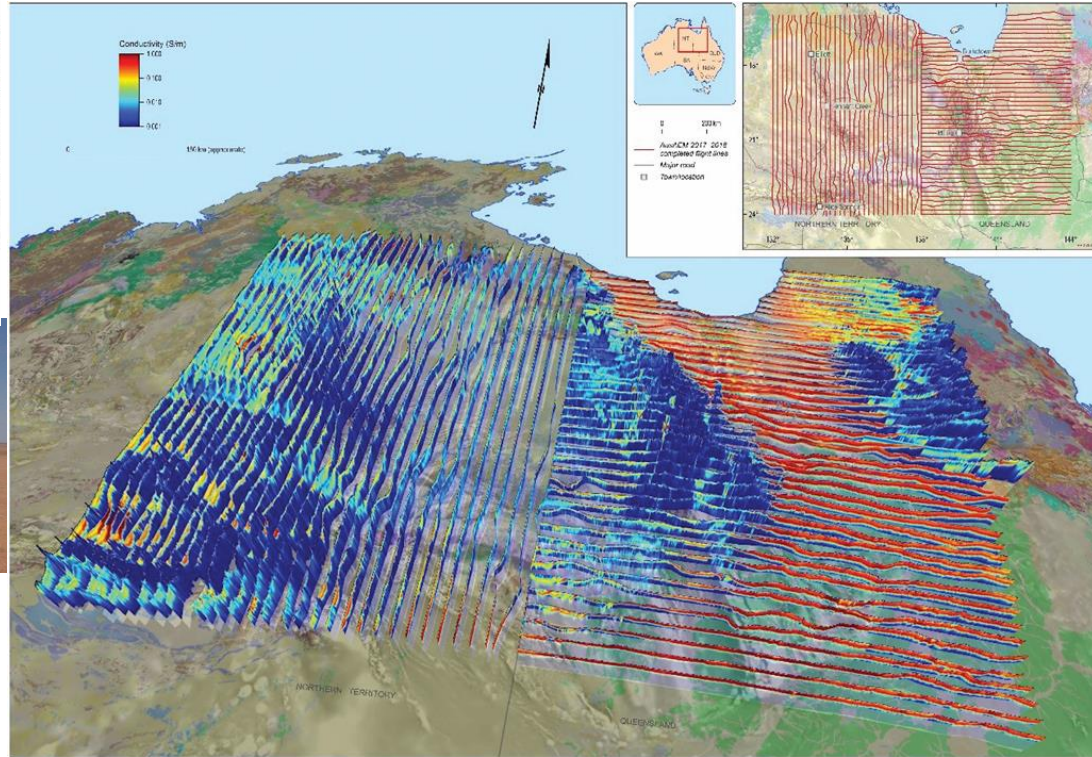
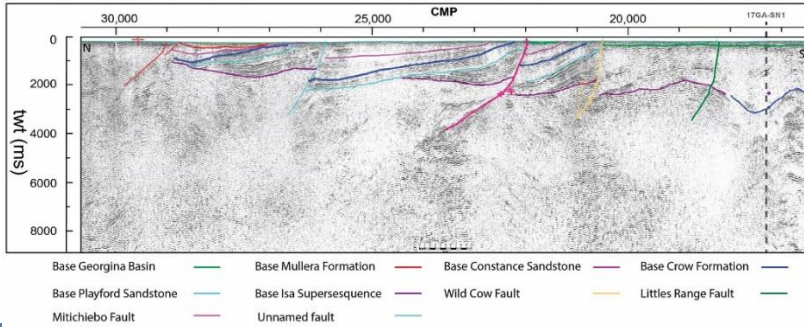
NTGS Tanami Survey (industry infill in pink)



WA

100 km

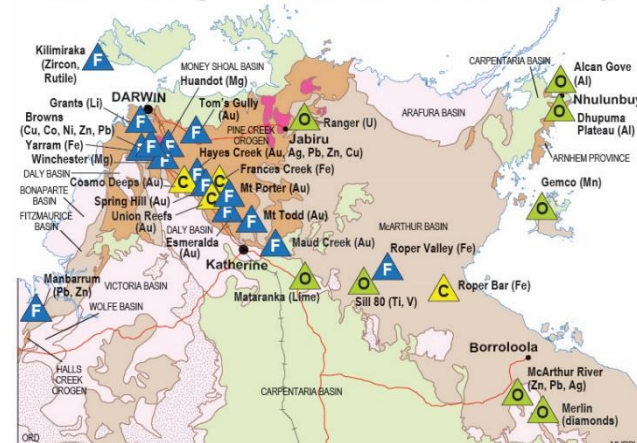
# Major Commonwealth-NT focus on new geoscience in the Barkly region



South Nicholson seismic survey

Background image: 1.1 million acre Surface Geology of Australia with background outcrops. Grey scale, 0.5 vector derivative of total magnetic intensity.

## Mineral Projects of the Northern Territory



More information:  
[resourcingtheterritory.nt.gov.au](http://resourcingtheterritory.nt.gov.au)

## Annual Geoscience Exploration Seminar (AGES)

AGES 2020  
Alice Springs  
March 24-25, 2020

[www.ages.nt.gov.au](http://www.ages.nt.gov.au)



# Thank you