

Department of INDUSTRY TOURISM and TRADE

# The Territory's new exploration boom – highlights, trends and emerging opportunities

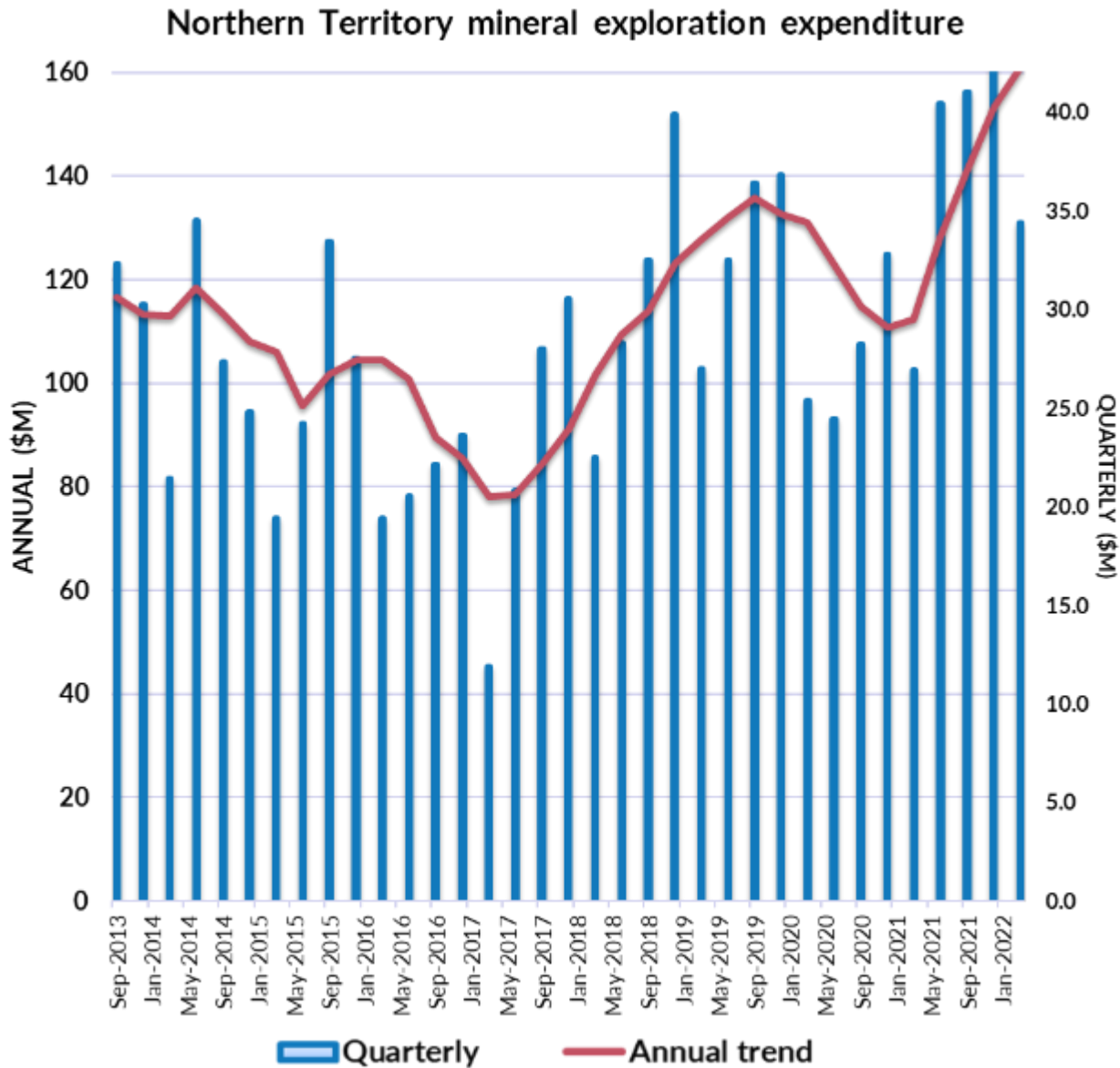
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Senior Executive Director  
Northern Territory Geological Survey

Mining the Territory  
24 August 2022

**RESOURCING  
THE TERRITORY**



*Drillrig at  
Orlando,  
July 2022*

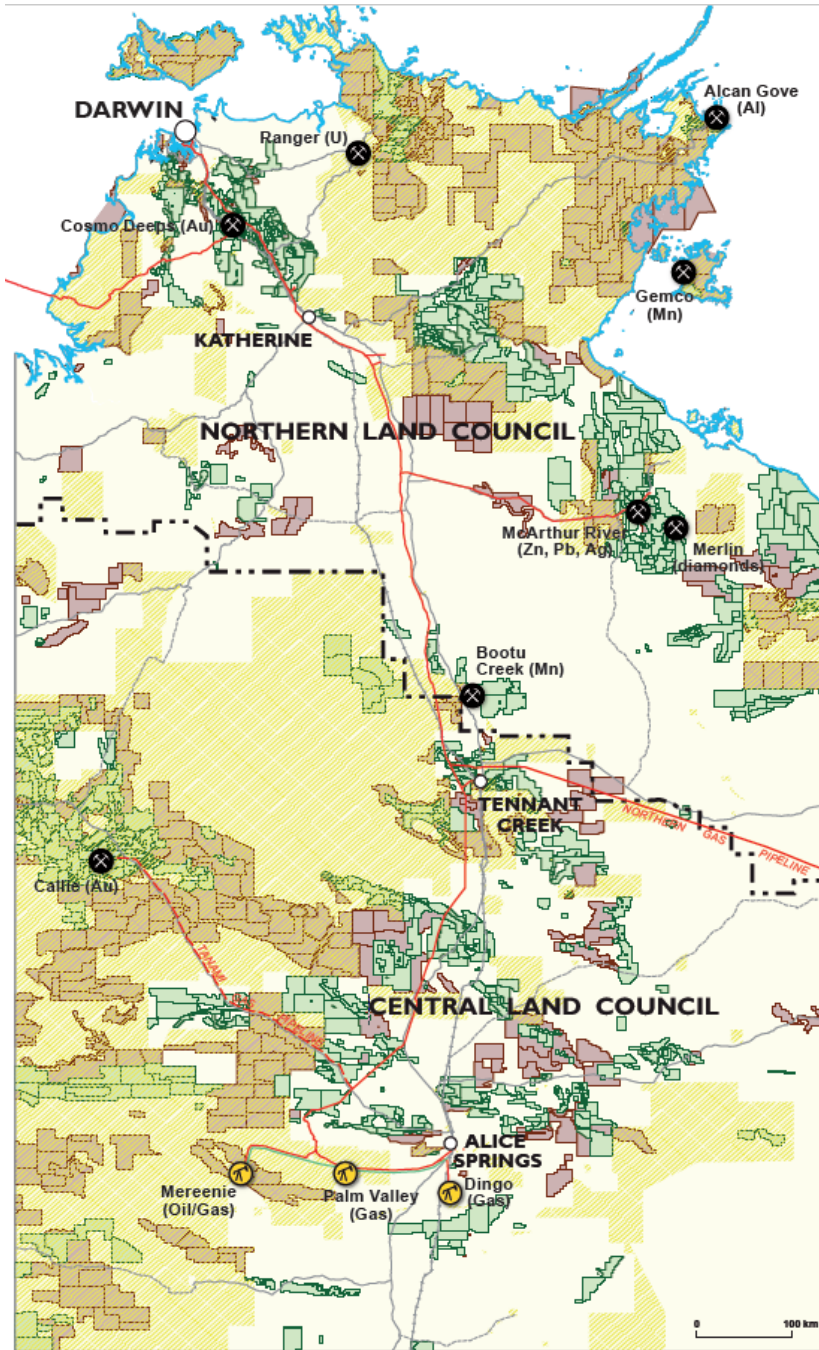


## Mineral exploration in the Territory

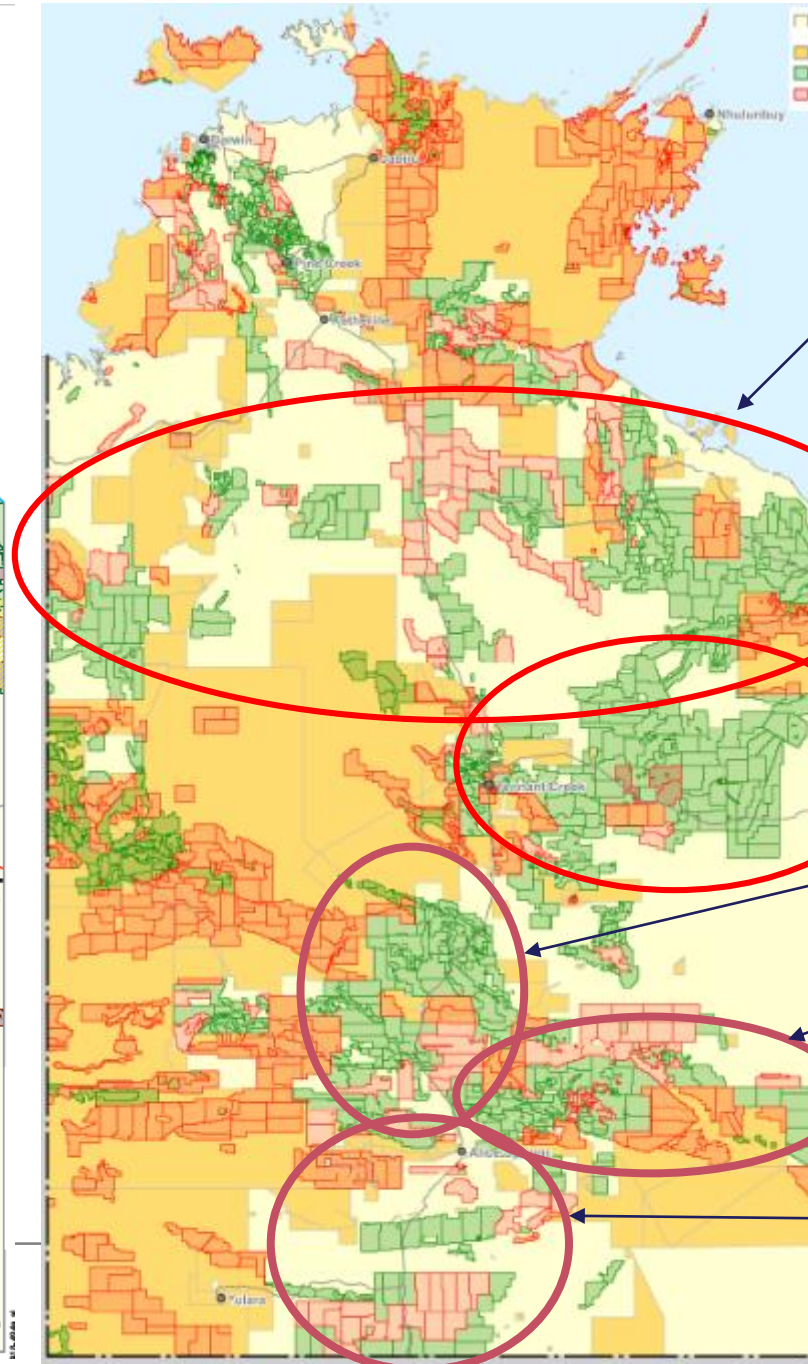
- Mineral exploration expenditure is at its highest levels since 2011
- \$153 million spent in 2021 but still tracking up
- Growth led by copper, critical minerals, uranium – ongoing strong gold exploration
- Exploration sector is underpinned by pre-competitive geoscience from NTGS and its partners, and supported by NT Government exploration grants







Oct 2018



July 2022

### Sed-hosted Cu, Zn

- Encounter (with BHP)
- Resolution/OZ Minerals
- NT Minerals Ltd
- Teck
- DGR Global
- (and many more)

### IOCG; Sed-hosted Cu, Zn

- Newcrest
- Encounter
- Teck
- Inca Minerals
- Greenvale Mining
- Strategic Energy Res
- Middle Island
- Red Metal
- King River
- South32

### Li, U, REE, Cu

- Australasian Metals
- Eastern Metals
- First Development Res.
- Encounter
- Pegmatite One

### Ni-Cu, Cu-Au

- IGO Ltd
- Inca Minerals
- Plutonic Ltd
- Rio Tinto
- Sandfire

### U, geological storage

- Tomorrow Minerals
- Core Uranium





## Growing importance of lithium in the NT

### Core Lithium – Finniss

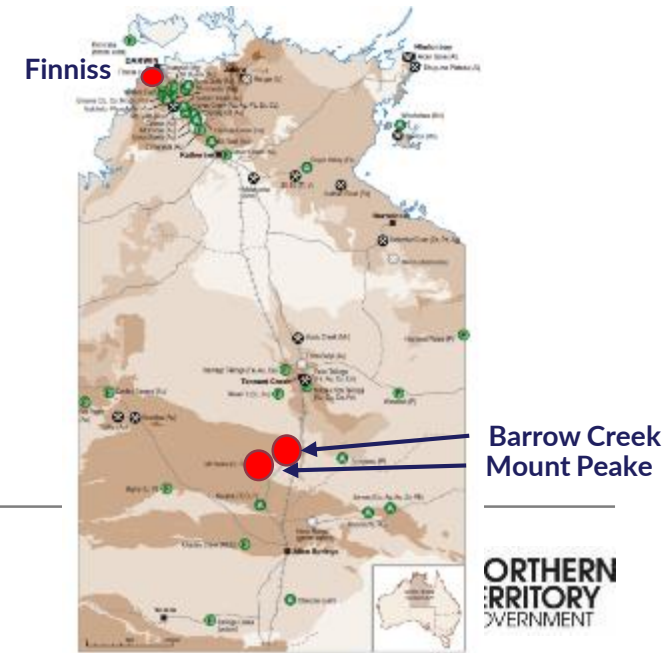
- Grants mine in construction
  - Ongoing resource growth (eg BP33 – 66.9m @ 1.78% Li<sub>2</sub>O)
  - 40,000m RC drilling campaign underway
  - NTGS co-funding ANT survey at Shoobridge, deep drilling at Sandras
- Lithium Plus** drilling at Lei prospect
- New players include Charger Minerals and Ragusa Minerals

## Lithium exploration in central Australia

Numerous companies commencing lithium exploration in Barrow Creek and Mount Peake pegmatite fields in central Australia

(eg Australasian Metals, Core Lithium, Eastern Metals, Askari Metals, Lithium Plus, TNG Ltd)

NTGS co-funding first diamond drilling of Mount Peake lithium prospects

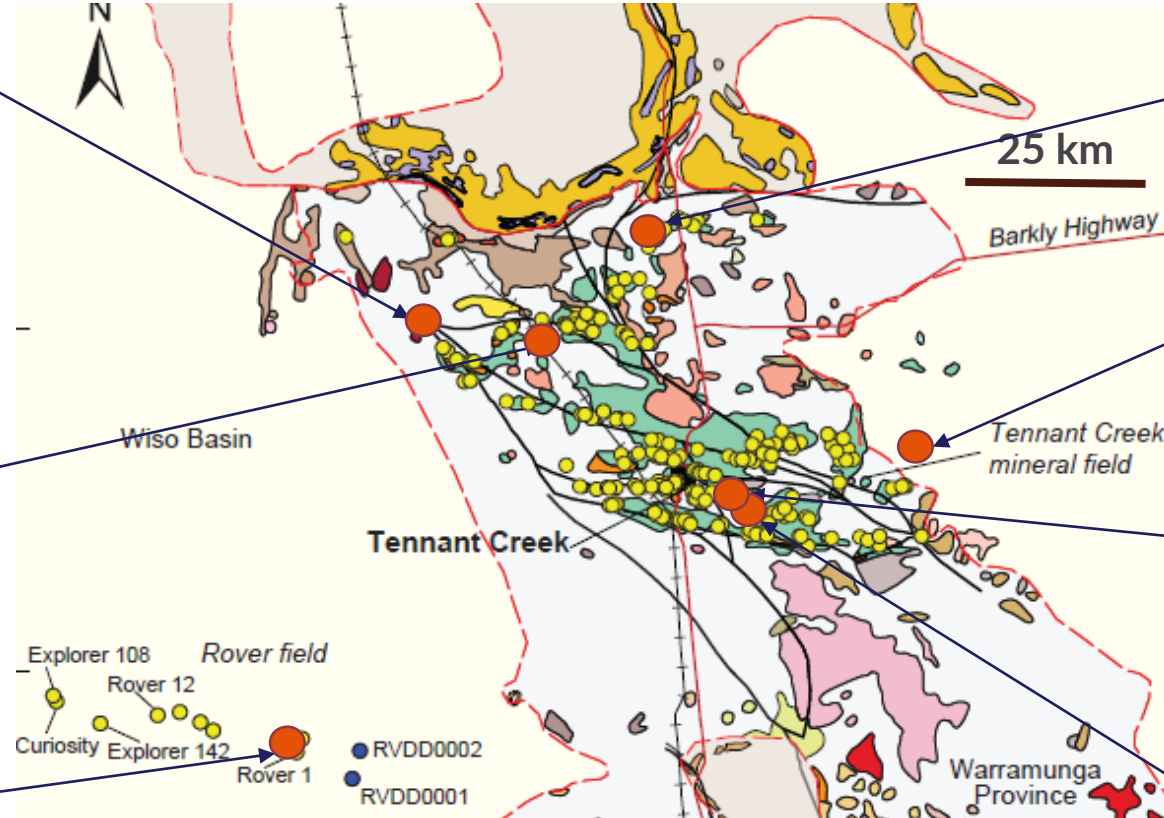


# New phase of mining emerging in Tennant Creek area

**Warrego Tailings (Northern Iron Pty Ltd)** – processing tailings to produce magnetite concentrate; 30 to 40 jobs over a 3 to 6 year mine life. Mining Authorisation issued June 2022.

**CuFe Ltd - Orlando**  
Drilling underway to increase resources at Orlando mine

**Castile Resources – Rover 1**  
Pre-feasibility for development of Rover 1 copper-gold-cobalt-iron project in advanced stages



**Emmerson Resources – Hermitage**  
New high-grade copper-rich discovery

**Tennant Minerals – Bluebird**  
New high grade copper-gold discovery

**Elmore Ltd – Peko tailings**  
Magnetite production commenced in early 2022; moving into full production

**Tennant Mining – Nobles Nob**  
Gold plant planned at Nobles Nob to process waste rock and be central processing plant for numerous small mines

*NTGS co-funding deep drilling under Nobles Nob (Tennant Mining), magnetic remanence study and drilling at Golden Forty and a drone-mag survey (Emmerson), and deep drilling at Babbler (Tennant Minerals)*

# New high grade copper-gold discoveries in Tennant Creek field

ASX Announcement

17 August 2022



Further high-grade copper-gold and cobalt-bismuth intersected at Hermitage  
94.4 m @ 2.74% Cu, 5.58g/t Au, 17.88g/t Ag, 0.44% Bi including:  
4.8m @ 19.44% Cu, 214.39g/t Au, 103.8g/t Ag, 13.75% Bi and 0.12% Co

ASX ANNOUNCEMENT

17 August 2022



**Bonanza 63m @ 2.1% Copper and 4.6 g/t Gold Intersection at Bluebird**  
**Including 27.55m @ 3.6% Copper and 10 g/t Gold**

*Latest results herald the discovery of a gold-rich zone within the broader  
high-grade copper-gold deposit*

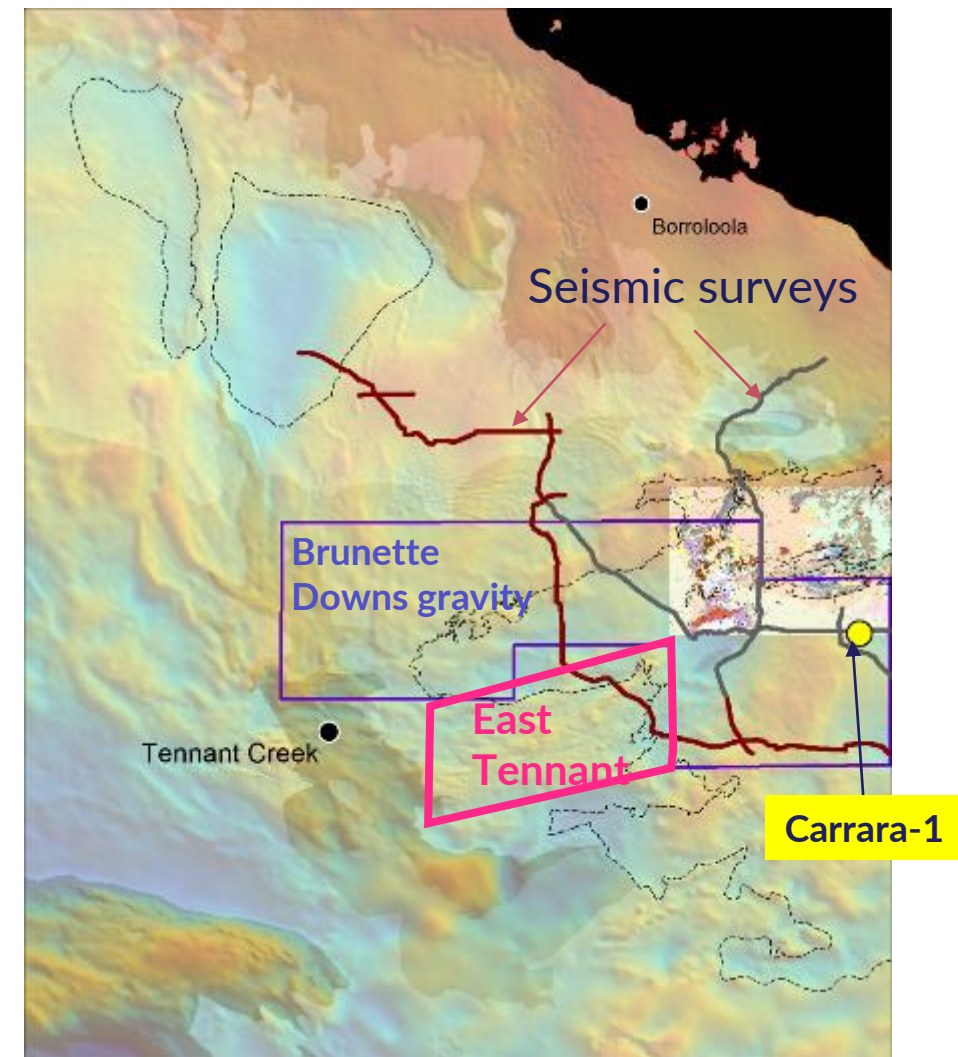


## 2019-2022 – major Government geoscience programs in the Barkly Tableland

Integrated geoscience at a range of scales opening up entirely new areas for exploration

*Collaboration between Geoscience Australia, NT Geological Survey and MinEx Collaborative Research Centre*

- Geological studies suggested high potential of area east of Tennant Creek for buried copper-gold deposits
- Drilling of 'East Tennant' region confirmed potential
- Seismic in Barkly Tableland highlighting new provinces for sediment-hosted copper and zinc, as well as shale gas potential of Carrara Sub-basin
- Carrara-1 well intersected geology that hosts Century zinc mine
- NTGS recently completed 57,000 km<sup>2</sup> ground gravity geophysical survey across Barkly to support further exploration



# Exploration activity in the Barkly Tableland

**BHP - Encounter** –\$25 million earn-in into Encounter Resources' Elliott project; drilling in September

**Newcrest Mining**  
2021 drill program at Lantern and Sabretooth

**Rio Tinto Exploration**  
Greenfields exploration in Tennant Creek field

**Strategic Energy Resources**  
gravity survey (2020), diamond drilling (2021) and IP survey (2022) co-funded by NTGS

**King River Resources** – 100m mag-rad (2021) and VTEM survey (2022) co-funded by NTGS

**Resolution Minerals** – maiden drill program at Benmarra project in 2021; OZ Minerals farm-in in 2022

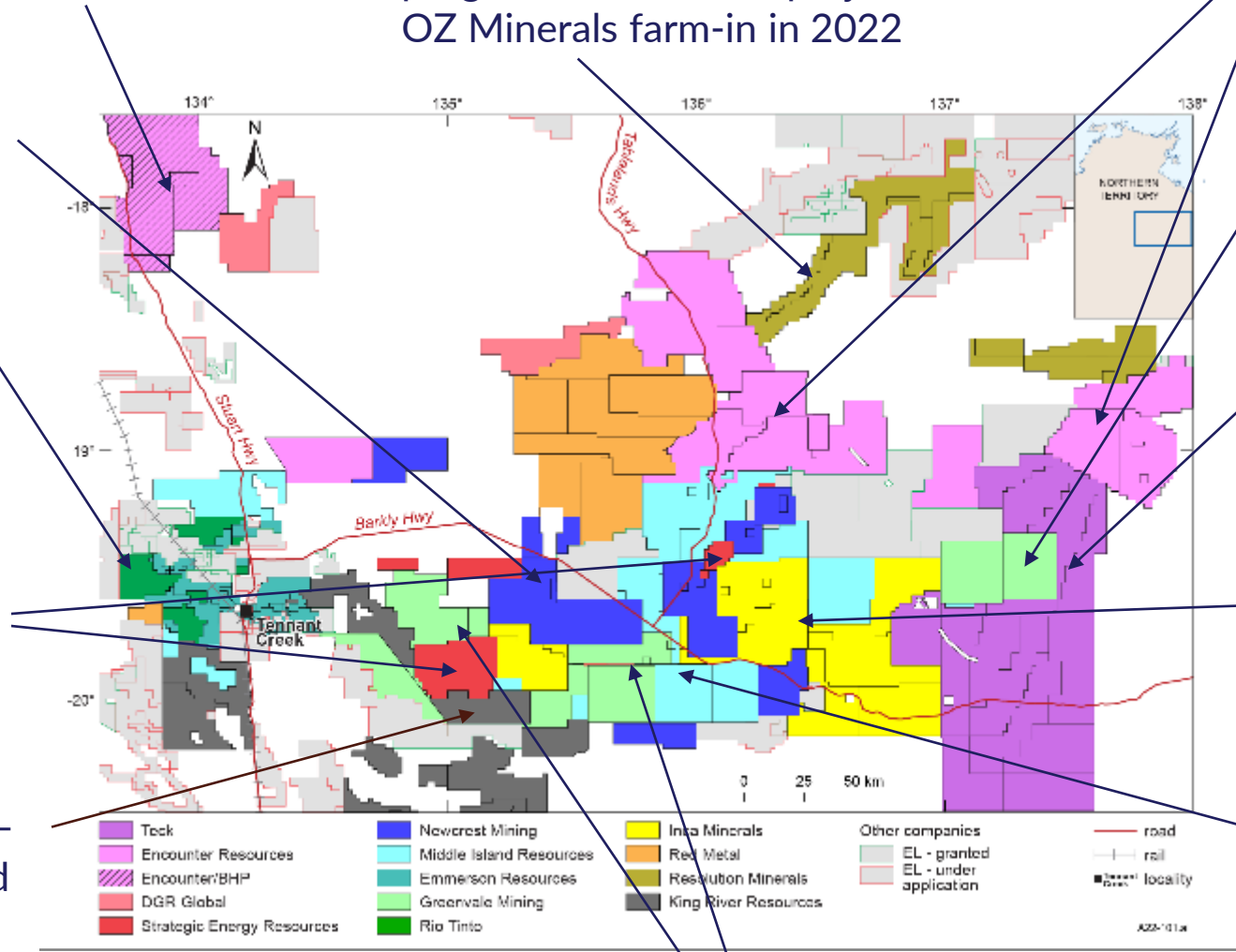
**South 32 - Encounter Resources** – \$25 M farm-in by South 32 for copper and zinc

**Greenvale Mining**  
ground gravity co-funded by NTGS in 2022

**Teck Resources**  
contributed to NTGS gravity survey; MT surveys co-funded by NTGS in 2022

**Inca Minerals**  
50m-spaced mag-rad surveys co-funded by NTGS; new gravity data; drilled 7 holes for 7113m in 2022

**Middle Island Resources**  
100m mag-rad survey co-funded by NTGS; NTGS co-funded 2 x 700m holes in July-Aug



## Greenvale Mining

100m mag-rad and gravity co-funded by NTGS in 2021; drilling at Twin Peaks target in 2021 and Leichardt and Banks targets in 2022



# The search for greenfields sediment hosted copper and zinc in the NT gaining momentum



13 May 2022

## SIGNIFICANT FARM-IN AND JV AGREEMENT WITH OZ MINERALS - BENMARA PROJECT, NT

- Resolution Minerals Ltd and OZ Minerals Limited (ASX: OZL) enter into a Farm-in and JV agreement on the Benmara Project in the Northern Territory, Australia



### Elliott Copper Project - NT

(up to \$25m farm-in funding)

- Diamond drill program scheduled to commence in Sep 22



### Jessica and Carrara Projects - NT

(up to \$25m farm-in funding)

- Two farm-in agreements completed Jun 22
- \$1.3m first year program commenced



## Gold in the Pine Creek Orogen

### Vista Gold – *Mount Todd*

- 26 drillholes for 8887m in 2021 and 2022; verified continuity of gold mineralisation extending 1.4 km NE from the Batman deposit
- Definitive Feasibility Study released February 2022

### China Hanking Pty Ltd – *Mount Bundy*

- Substantial increase in Resource (109 Mt @ 0.9 g/t Au, including 2.5 Mt @ 6.3 g/t Au at Toms Gully)

### TM Gold – *Spring Hill*

- MMP approved for mining
- Deep drillhole co-funded by NTGS

### Bacchus Resources – *Woolwonga and Brocks Creek*

- New resources defined

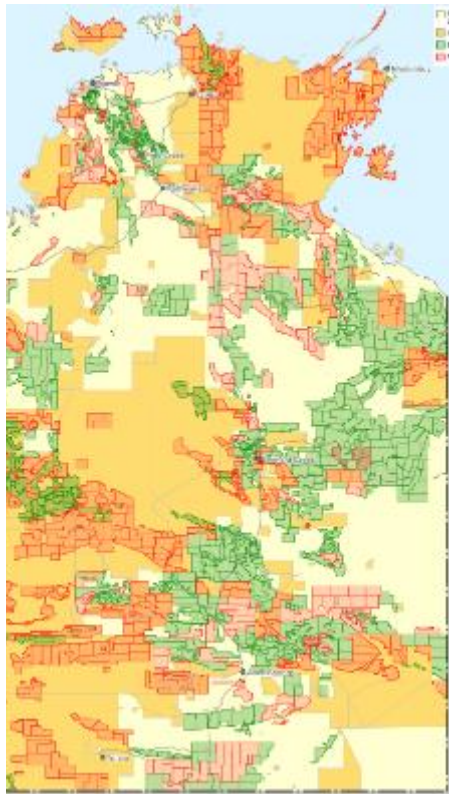
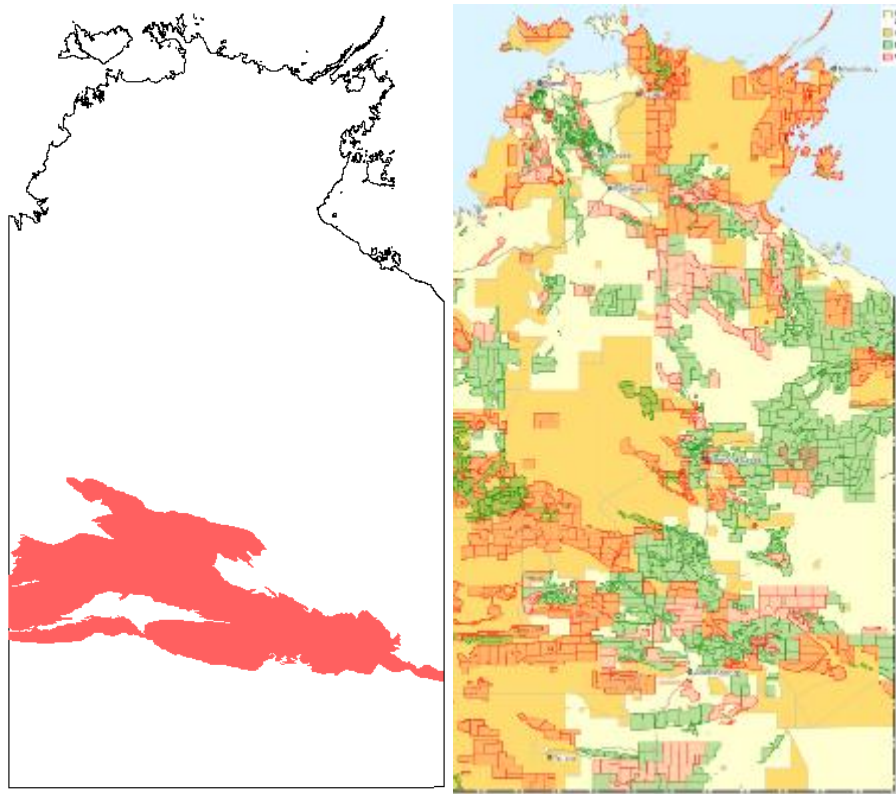
### Agnico Eagle Mines – *NT Operations*

- \$4.2 million budgeted for 9,800m of drilling to test new targets at Pine Creek, Maud Creek, Mt Paqualin and Union Reefs – NTGS co-funding deep hole under

### PNX Metals – *Fountain Head and Glencoe*

- Resource extension drilling at Glencoe and project approvals
- Drone magnetic survey





## Aileron and Irindina provinces

The Territory's most exciting region for critical minerals exploration

- Key targets include copper, nickel, rare earths, lithium, tungsten and gold
- Major projects approaching FID at Jervois (copper), Nolans (rare earths) and Mount Peake (vanadium-titanium)

### IGO Ltd/Prodigy Gold – Lake Mackay

- Gold and copper drilling in 2022

### Inca Minerals – *Lorna May and Jean Elson Cu-Au projects*

- Airborne EM survey in 2022

### Eastern Metals – *Home of Bullion Cu*

- Drilling underway in 2022, co-funded by NTGS

### IGO Ltd – nickel exploration

- IGO progressing large tenement holding in northern Aileron Province (Raptor project)
- Entire area covered in new high-resolution magnetics, NTGS co-funding EM surveys
- Major new tenement package in Irindina Province – NTGS co-funding mag-rad geophys

# Exploration activity in the Barrow Creek/Mount Peake region

**Prodigy Gold** –  
Orogenic Au  
exploration

**IGO Ltd** –  
Province-scale Ni-  
Cu-Co exploration

**TNG Ltd** - TIVAN  
processing plant  
relocated to  
proposed minesite

**U/REE explorers:**

- Toro Energy
- First Development
- Megawatt

**Other Li explorers:**

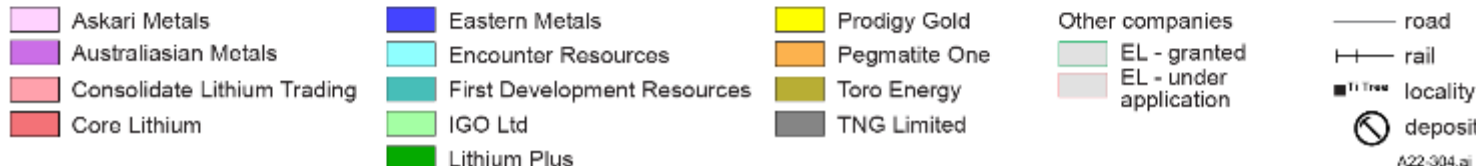
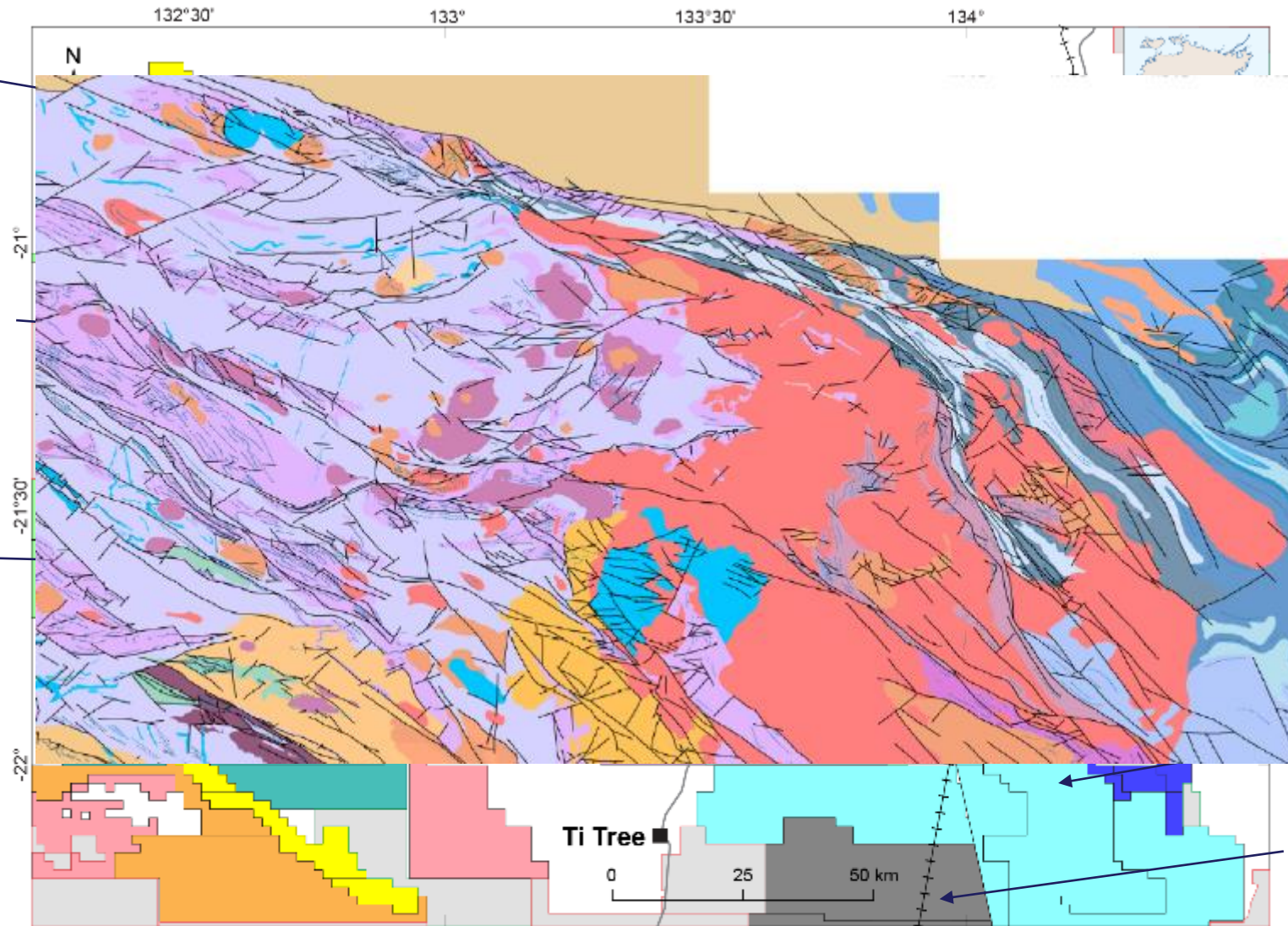
- Core Lithium
- Lithium Plus
- Pegmatite One
- Askari Metals

**Eastern Metals** – Drilling at  
Home of Bullion VMS deposit;  
also proposing Li exploration

**Australasian Metals** – lithium  
exploration underway; rock  
chips up to 1.6% Li<sub>2</sub>O; diamond  
drilling co-funding by NTGS

**Encounter Resources** –  
exploring for Zambian-style Cu

**TNG Ltd** – New lithium  
exploration project





# Other commodities

## Uranium

- DevEx Resource drilling at Nabarlek South - 10.7m @ 1.20% eU<sub>3</sub>O<sub>8</sub> from 123.4m, incl 3.2m @ 3.05% eU<sub>3</sub>O<sub>8</sub>
- Drilling underway at Angularli (Deep Yellow)

## Iron ore

- Northern Territory Iron Ore exporting 300,000t of stockpiles from Roper Valley to Vietnam
- CuFe Ltd drilling at Yarram iron ore

## Phosphate

- Verdant Minerals undertaking DFS on Ammaroo project including ammonium phosphate fertiliser production
- Avenira Limited to release scoping study on development options for Wonarah including production of precursors to LiFePO<sub>4</sub> batteries; REE potential also identified



# RESOURCING THE TERRITORY

## Four strategic themes:

1. Accelerating resource development in known mineral provinces
2. Attracting and supporting resource exploration in frontier areas
3. Applying geoscience to support a low emissions future
4. Modernising geoscience data to support a digitally enabled industry

Expanded to \$9.5m pa from July 2022

## Key activity streams:

- ❖ **Promoting industry growth**
  - Geophysics and Drilling Collaborations grants
  - Promotion and industry engagement
- ❖ **Building geoscientific knowledge**
  - Upgrading geophysical data coverage
  - Resource potential of onshore sedimentary basins
  - Framework and mineral potential of basement provinces
  - Geological potential for critical minerals and low emissions energy
- ❖ **Modernising geoscience and exploration data**
  - Digital capture of legacy exploration data
  - Modernising databases and systems



# Enhanced Resourcing the Territory program

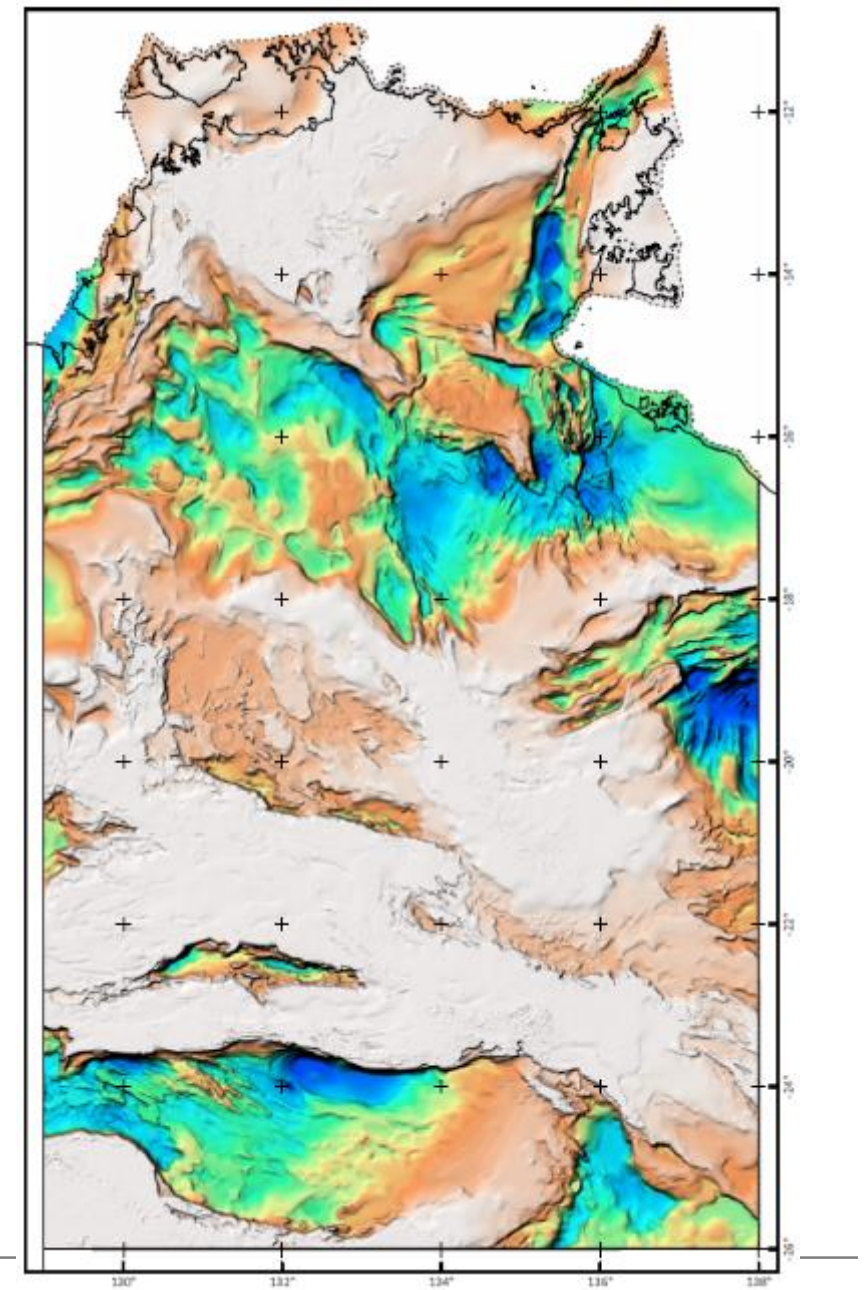
## RESOURCING THE TERRITORY

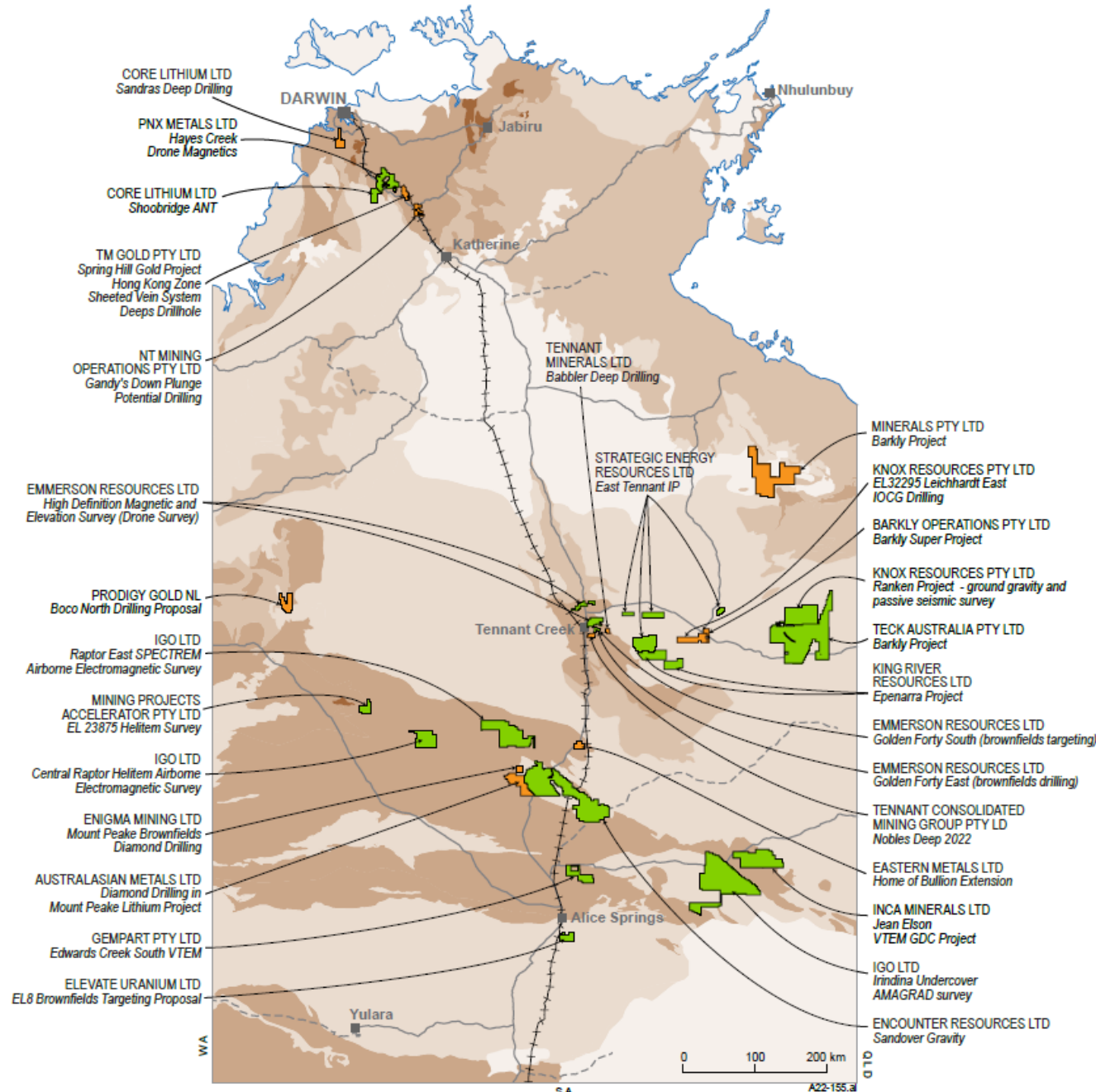
### What's changing

- Substantial expansion and redesign of grants program
- Increased focus on supporting brownfields resource developments
- Focus on Pine Creek region to reinvigorate exploration in the region
- Increased focus on critical minerals, CCS, hydrogen

### What's staying

- Territory Supplier Incentive to encourage use of local suppliers for grants program
- Ongoing acquisition baseline geoscientific datasets to attract and support exploration in new areas
- Ongoing focus on central Australia and the Barkly
- Promoting the Territory's resource potential and opportunities





# RESOURCING THE TERRITORY

## Geophysics and Drilling Collaborations grants

Substantial increase in funding amount and scope of program

Over \$3 million in co-funding awarded to 29 projects from 23 companies in 2022/23

- 6 greenfields drilling
- 7 brownfields drilling
- 8 greenfields geophysics
- 8 brownfields targeting

### Round 16 (2023)

- Applications open 20 Feb 2023
- Applications close 3 May 2023



Co-funded projects underway in 2022



PNX Metals drone mag,  
Fountain Head



Emmerson Resources  
Drone mag, north of  
Tennant Creek



Middle Island  
Resources drilling,  
Barkly Tableland



# Annual Geoscience Exploration Seminar (AGES)

The Territory's premier exploration-focussed technical event

Alice Springs, April 18-19 2023





