



# BACCHUS

RESOURCES

## TABLETOP PROJECT

### EL31356 Annual Report For the Period 1/06/2017 to 31/05/2018

**Tenure Holder:** Bacchus Resources Pty Ltd  
**Project Operator:** Bacchus Resources Pty Ltd  
**Commodity:** Gold and base metals  
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**Mapsheets:** 1:250,000 Pine Creek (SD5208)

Authority	Grant Date	Expiry Date
EL 31356	1/06/2017	31/05/2023

**Distribution:** NTGS  
Bacchus Resources Pty Ltd

## Contents

Abstract

1. INTRODUCTION.....	2
1.1 Location and Access .....	2
1.2 Tenure and Land Status .....	2
2. GEOLOGY AND MINERALISATION .....	4
2.1 Regional Geology .....	4
2.2 Local Geology .....	6
3. PREVIOUS EXPLORATION .....	8
4. CONCLUSIONS.....	13
5. REFERENCES.....	13

## List of Figures

Figure 1: Map showing location of EL31356.....	3
Figure 2: Map showing geology for EL31356 and mineral occurrences in the Pine Creek area.....	7
Figure 3: Tabletop Project- drilling completed near Copperfield mine .....	13

## List of Tables

Table 1: Authority details for Tabletop Project.....	2
Table 2: Stratigraphy within the Tabletop Project area.....	5

## Abstract

EL31356 is located near the town of Pine Creek and covers an area of 83 graticules. EL31356 was granted to Bacchus Resource on the 1st June 2017 for a period of six years. During the first year of tenure, previous exploration was reviewed, with historical drilling and sampling data compiled into database.

Historically, significant gold and base metals have been mined in the Pine Creek area, with most gold production from quartz veins, lodes, sheeted veins, stockworks and saddle reefs, for example Enterprise Mine and Union Reefs located near the town of Pine Creek. Most of the deposits are found near or within the Pine Creek Shear Zone, which stretches from Katherine to Darwin, within the contact metamorphosed metasediments adjacent to the granite plutons of the Cullen Supersuite.

Within the exploration area, exploration will focus on testing the potential for economic gold and base metal deposits within the metasediments adjacent to the granites of the Cullen Batholith.

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## 1. INTRODUCTION

This report details all exploration activities carried out on the Tabletop Project (EL31356) by Bacchus Resources Pty Ltd for the period 1st June 2017 to 31st May 2018.

### 1.1 Location and Access

EL31356 is located approximately 220km south of Darwin and about 3km west of the Pine Creek township. The main roads within the project area are the Stuart Highway, which cuts through the northern region of the exploration licence and Umbrawarra Road, which provides access to the southern areas (Figure 1). Station tracks provide access within the EL, outside of the wet season.

The tenement is located on the Pine Creek (SD 5208) 1:250,000 sheet. The area consist of granites outcropping over the western areas, with hills, flats and undulating terrain which generally support tall and mixed open woodland with tall grassy understory.

### 1.2 Tenure and Land Status

EL31356 covers an area of 83 graticules and was granted to Bacchus Resources Pty Ltd on the 1st June 2017 for a period of 6 years. This exploration licence excludes the areas underlying the following mining licences: MLN 21, MLN 134, MLN 1130 authorised holdings: HLDN18 and HLDN115 and EMP 22932, EMP 30298

*Table 1: Authority details for Tabletop Project*

Tenement	Holder	Grant Date	Expiry Date	Area (units)
EL31356	Bacchus Resources Pty Ltd	1/06/2017	31/05/2023	83

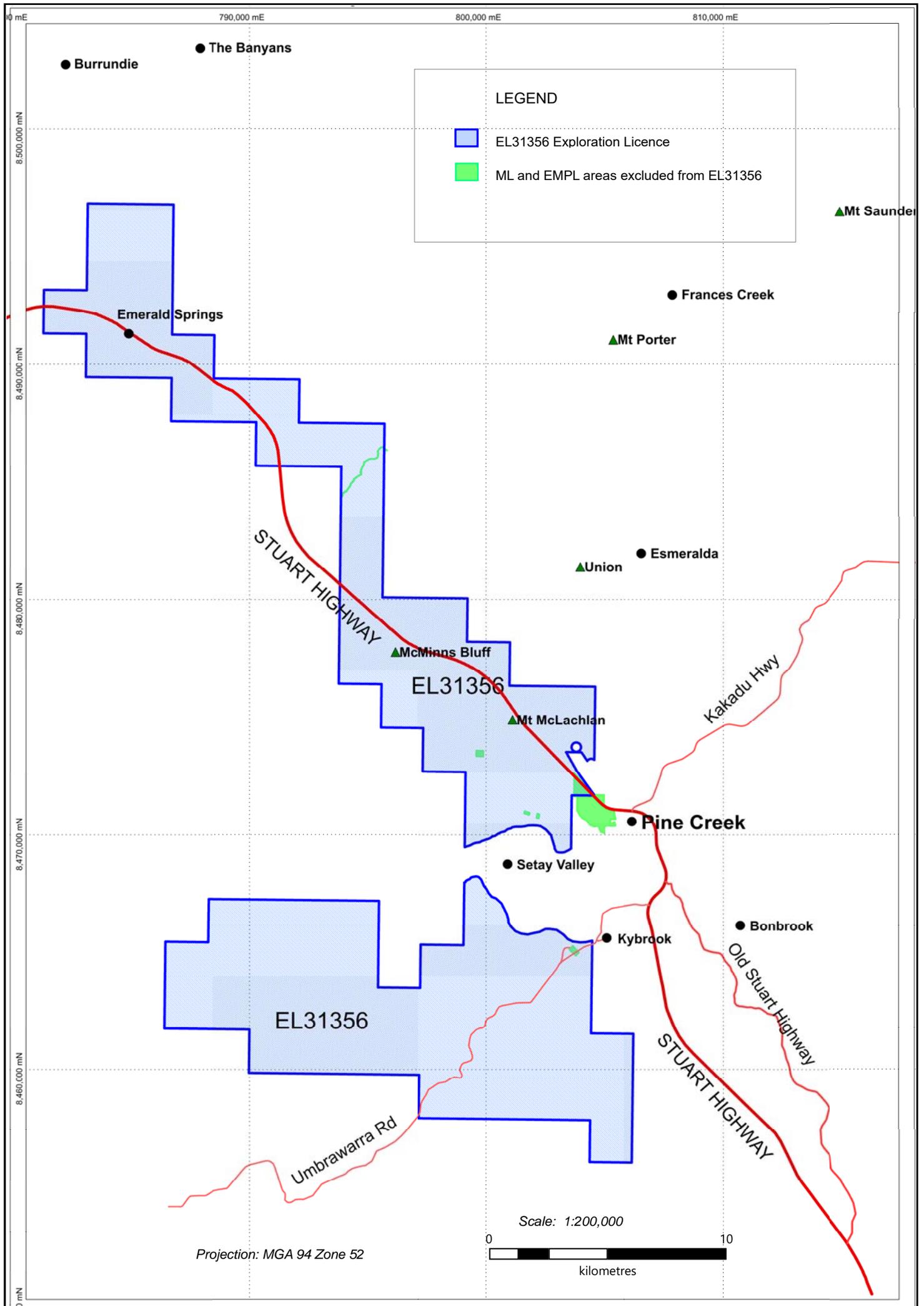


Figure 1. Tabletop Project- EL31356 Tenement Location Plan

## 2. GEOLOGY AND MINERALISATION

### 2.1 Regional Geology

The Tabletop project area is located within the Central Domain of the Pine Creek Orogen. The Central Domain contains Early Proterozoic metasediments representing a preserved basinal sequence up to 14km thick, which unconformably overly gneissic and granitic Neoproterozoic basement. This sequence was intruded by quartz dolerite sills of the Zamu Dolerite (1870 Ma), then tightly folded and metamorphosed to greenschist facies between 1860-1835Ma (Hollis et al 2011). This also resulted in generally northwest trending structures and geology. Widespread felsic volcanism followed, with I-type granites of the Cullen Supersuite intruded (1835 Ma). The metasediments underwent contact metamorphism, with previous metamorphic features overprinted in aureoles 500m to 2km wide surrounding granite intrusions. In the Pine Creek area, the granite plutons of the Cullen Supersuite formed a 'V', centred beneath the town of Pine Creek.

The Paleoproterozoic sediments have been subdivided into two supergroups; the Woodcutters Supergroup (2020Ma) and the Cosmo Supergroup (1860 Ma), refer to table 2 for detailed description of units present within the project area. The Woodcutters Supergroup contains the Manton, Namoonna and Mt Partridge Groups, which consist of clastic sedimentary rocks, shales, greywackes and felsic and mafic volcanic rocks. These units were deposited within an intracratonic basin, and sourced from the Neoproterozoic basement rocks, during a period of continental rifting, 2020 Ma. (Hollis et al 2011).

The Cosmo Supergroup contains the South Alligator and Finniss River Groups, which were sourced from younger material, with age of source rocks similar to date of deposition, most likely from an active margin source (Hollis et al 2011). These units host most of the gold and base metal deposits within the Pine Creek Orogen, including the Cosmo-Howley, Woolwonga, Golden Dyke, Mount Bonnie, Iron Blow, Langleys, Davies, Enterprise and Union Hill deposits.

Cainozoic sediments cover large areas over the granites and metasediments of the Pine Creek area, consisting of sandy, silty rubbly lateric cemented material overlying lower hill slopes while alluvial silts, sands and gravels dominate in river and creek flats.

Most of the gold deposits within the Pine Creek Orogen share some common characteristics, including:

- Belong to the metasediments of the South Alligator Group and lower parts of the Finniss River Group, with units of the Wildman Siltstone, the Koolpin Formation, Gerowie Tuff, Mount Bonnie Formation and the Burrell Creek Formation all hosting gold deposits in the Pine Creek area.
- Situated within zones enabling transport of ore fluids, including major lineaments, shear zones, anticlines, strike-slip shear zones and duplex thrusts.
- Located within the contact metamorphic aureole of I-type granites (Ahmad et al 2013).

**Table 2. Stratigraphy within the Tabletop Project area ( from Ahmad et al 2013, and Stuart-Smith et al 1987 for Tolmer group sandstones)**

UNIT	FORMATION	LITHOLOGIES	Depositional Environment
Tolmer Group	Stray Creek Sandstone	Fine grained laminated quartzite, micaceous sandy limonitic siltstones	
	Depot Creek Sandstone	Thickly bedded pink, brown medium to coarse sandstone	
<b>CULLEN SUPERSUITE</b>			
<b>COSMO SUPERGROUP</b>			
Dolerite Bodies	Zamu Dolerite <1500 m,	Grey, medium to coarse quartz dolerite; minor granophyre; rare biotite hornblende-augite pegmatite	
Finniss River Group	Burrell Creek Fm 3000 m	Siltstone, shale and greywacke	Proximal mid- Submarine fan (deeper water turbidites)
South Alligator Group	Mount Bonnie Fm <1200m	Siltstone, shale, greywacke, crystal and vitric tuff, rare banded ironstone, dolomudstone.	Shallow-marine inner shelf to deeper mid-shelf (turbiditic)
	Gerowie Tuff <750m	ignimbrite, chloritic volcanoclastic shale, lapilli tuff; porphyritic dacite	Subaerial, shallow marine
	Koolpin Fm <350m	Haematitic metasiltstone and phyllite with chert bands, lenses and nodules, graphitic phyllite and slate, silicified dolomudstone; minor quartz metagreywacke	Low energy supratidal to subtidal shallow marine.
<b>WOODCUTTERS SUPERGROUP</b>			
Mount Partridge Group	Wildman Siltstone <2000 m	Carbonaceous shale, haematitic siltstone, quartz sandstone, quartzite, greywacke	Shallow marine: prodelta or midshelf

## 2.2 Local Geology

The geology of EL31356 has been described by Stuart Smith *et al* 1987, in the discussion accompanying the 1:100,000 Pine Creek geological map.

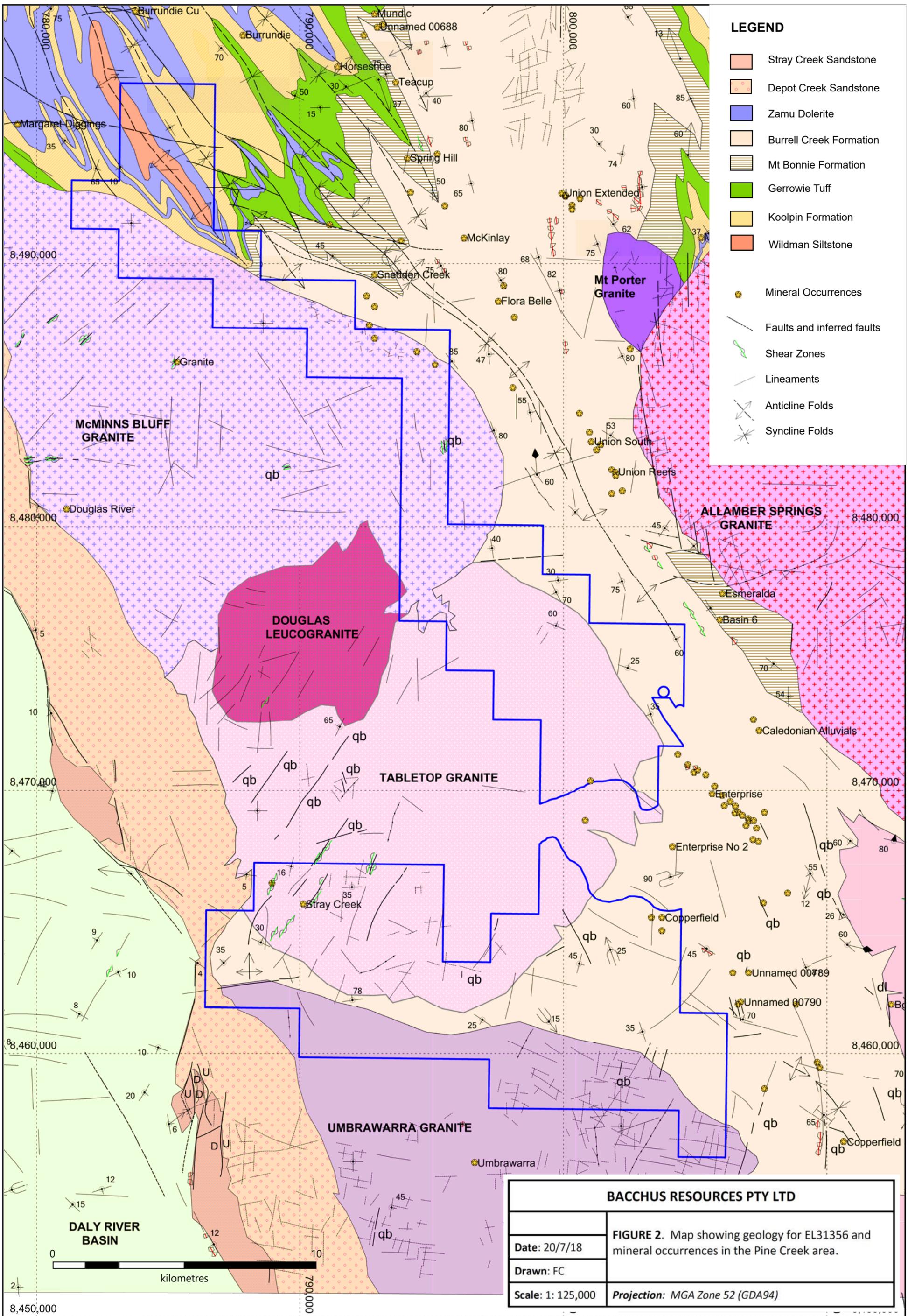
The Tabletop Granite covers the central western region of the tenement with the Umbrawarra Leucogranite to the south and the McMinn's Bluff Granite to the north (shown in fig 2). These granites all merge into the Cullen Batholith at depth. The McMinn's Bluff Granite is a pink-green coarse grained porphyritic hornblende biotite granite which has been dated at 1835 Ma (Stuart Smith and Page, 1991). It is exposed over most of the area. The Tabletop Granite outcrops over most of the central western area of the tenement and is a pink coarse to equigranular biotite leucogranite. The Umbrawarra leucogranite is a light grey coarse grained porphyritic biotite leucogranite.

The Pine Creek Shear Zone is located along the eastern side of the tenement, within sediments of the Burrell Creek Formation. Units of the Burrell Creek Formation also occur along an east-west belt between the Tabletop Granite and the Umbrawarra Leucogranite.

The northernmost area of the exploration licence contains highly faulted anticlinal and synclinal northwest-southeast trending folded units of the Zamu Dolerite, Koolpin Formation and Wildman Siltstone, with minor units of the Gerowie Tuff and Mount Bonnie Formation. The southern region of the Burrundie Dome underlies these units.

Within the exploration licence, small scale mining of tin, copper and gold has been undertaken, including at the Copperfield mine, located within MLN 21, (excised from this lease ), with ~3450 tonnes of ore averaging 25% Cu produced. The copper mineralisation is hosted in hornfelsed greywackes and phyllite sediments of the Burrell Creek Formation, within a 1m wide quartz filled brecciated lode (Ahmad *et al* 2013).

Mineralisation in the Pine Creek Orogen is dominantly quartz vein hosted, often within anticlines, in greywacke and siltstones, for example Big Howley, Enterprise, Fountain Head and Woolwonga. At the Enterprise mine, gold mineralisation occurs near the contact between the Mount Bonnie Formation and the Burrell Creek Formation. The gold is hosted in greywackes, siltstone, shale, mudstone and chert, within the Enterprise anticline, a simple, upright, moderately tight fold which plunges gently to the south. Extensive shearing and fracturing occurs throughout orebody, particularly concentrated close to the anticlinal axis.



### 3 PREVIOUS EXPLORATION

Previous exploration in the project area has mainly focussed on gold within quartz veins, associated with anticlines hosted in Mount Bonnie or Burrell Creek Formations, similar to the nearby Enterprise and Union Reef mines, with minor exploration for tin, copper and diamonds.

The following overview describes work completed within Tabletop project area, with drilling locations near the Copperfield mine shown in figure 3.

#### **AP1959 Central Pacific Minerals (1969-1973?) CR1971-0009 details work in tabletop area**

This covered an extensive area with most exploration north of tabletop. 21 soil geochem samples were collected north of Emerald Springs within the project area, and tested for Cu, Pb, Zn, with best result of 1600ppm Cu, 112ppm Pb, and 1000 ppm Zn returned from different samples.

#### **AP2518 CRA (1971-1972?) CR1972-0019**

11 stream samples, collected within project area were analysed for Pb, Zn, Cu, Co, Ni, Ag and U. Uranium results ranged from 4ppm to 22ppm for drainage samples taken over the Cullen granite, concluded the sandstone on the western side of Stray Creek, as well as the eastern side of the fault zone require further work. The remainder of elements tested returned poor results. No shear zones noted during sampling, with fairly homogenous granite observed.

#### **EL2436 PR Evans/ Costain Australia (1981-1986) CR1982-0398, CR1983-0128, CR1984-0113, CR1985-0283, CR1986-0162**

Explored area around Stray Ck, with tin mineralisation found in a number of zones within greisen dykes containing cassiterite near the source of Stray Ck. Both alluvial gold and tin found along Edna Ck and alluvial tin along upper reaches of the Douglas River system- 8 traverses across Stray Ck with 38 pits dug within tabletop project area- results not considered good enough to warrant further testing of alluvials, but still possibility of primary source upstream of the Stray Creek and Edna River systems.

#### **EL3138 Geopeko/ Anaconda (1981-1987) CR1982-0396, CR1982-0397, CR1983-0017, CR1984-0003, CR1985-0063, CR1986-0108**

304 stream samples collected in Mineral Springs area. Dry stream sediment samples taken at a density of 10 per km<sup>2</sup>, (sampling biased towards the sand-silt fraction); most samples below detection level, with best result of 85.6 ppb Au. 3 lines of soil sampling completed in 1984, within emerald springs area from the "C" horizon at 10m or 20m intervals. the -80 mesh fraction assayed for Au, As, Cu, Pb, Zn, Mn and Cr. A zone 60m wide on one line returned anomalous values, with peak of 528 ppb gold, with most gold values less than 30ppbAu. Anomalous values of As, Cu, Zn, Pb up to 600, 530, 520, 550ppm respectively, were returned in this zone. Two of these lines (82/61 and 62) were over middle Koolpin lithologies, with the higher Au-As probably indicative of the BIF's. On line 82/61 the higher Pb values coincide with ironstone intersected in drillhole by CRA, within the carbonaceous mudstone, which returned up to 2000ppm Pb. (this ironstone appears to be from the lower part of the Upper Koolpin) Line 82/63 appears to be over Upper Koolpin Fm lithologies. Anomalous gold found on one line of sampling, not considered worth following up as no significant strike length suggested. Concluded anomalous base metal results not high enough to warrant further investigation as CRA has

already drilled a hole (77ESD1) in this area following up anomalous base metals, with no significant results returned. Note: report detailing CRA drilling not found.

**EL3262 PR Evans/ Costain Australia (1981-1988) CR1983-0010, CR1984-0114, CR1985-0102, CR1986-0121, CR1987-0126, CR1988-0113**

Explored for tin in 3 blocks in SE corner of Tabletop area. 47 grab samples were collected from the weathered granite profile, with tin present in greisen dykes and greisenised zones of the granite. 30 creek traverse samples collected. Best results were 647g/t SnO<sub>2</sub> from grab sampling and 9461 g/t SnO<sub>2</sub> from creek traverses. In 1987, feasibility study by Costain with 96 20-30kg samples concentrating on coarser alluvials and gravels from 34 pits sited on alluvials or possible eluvial, approximately 3m x 1m, excavated to bedrock, with granite commonly bedrock, were submitted to Normet. Pits E1-3 and N1-6, located within Tabletop. Sub economic cassiterite and xenotime present in all catchments, returning mean of 29g/t Sn from N1, 2,5 and mean of 160g/t Sn from E1-E4, E6. Concluded Wesleyan Ck tonnages limited, with floodplain sampled being a maximum of 1km long, likewise for Copperfield Ck.

**EL4398 Enterprise Gold Mines & Circular Quay Holdings (1983-1986) CR1984-0255, CR1986-0073**

Exploration over Enterprise area, including blocks within tabletop closest to Enterprise, with focus on quartz reefs and veins- lack of outcrop made structural mapping difficult. No major fold closures noted. 34 waterbores, W1-34 were drilled, with W9-11, W14 & 27 in tabletop area (several close to the boundary of tabletop). Drillholes sampled for Au, Cu, Pb, Zn, Ag, with W14 returning best result of 0.024, and best result of 230ppm Pb for base metals from W27. 21 rockchips samples collected with best result of 0.694ppm Au from a gossanous outcrop near MLN21, south of the Copperfield mine.

**EL4734 CSR/ Cypress Gold Australia (1985-1990) CR1986-0222, CR1987-0156, CR1988-0390, CR1988-0391, CR1989-0784, CR1990-0065, CR1990-0402**

Targeted fine disseminated gold mineralisation associated with sulphides within the Zamu Dolerite, similar to that found in Kalgoorlie, within the Golden Mile Dolerite. 2 stream samples and 2 rock chip samples collected from 1 block in NW corner of Tabletop, with best result of 1.54ppAu from stream sample, and 0.1ppm Au from graphitic to limonitic rockchip sample. The stream sediments were classified into 3 groups according to the reactive iron, carbon and quartz contents. An aeromagnetic survey aimed to define areas of Zamu Dolerite, but unsuccessful due to close contact with the highly magnetic Koopin Formation. The Prices Springs Granite is defined by area of low magnetic relief, with the spot magnetic highs in the Prices Springs granite relating to inliers of Koolpin Fm.

**EL4764 Rosequartz Mining (1988-1990) CR1989-0402, CR1990-0560**

Explored area close to Union Reefs, in central eastern area of Tabletop. 18 rock chip samples collected, with most returning very low gold, except for 0.62 ppm Au, just west of MLN21. Gold panning was conducted over colluvium with up to 9 specks of gold returned. Rock chip sampling of quartz veins returned trace of gold. Concluded that colluvium is from an old land surface, indicating that sampling colluvium unreliable.

**EL4774 Geometal Resources and Costain Australia (1985-1986) CR1986-0309**

Reported with EL3262

**EL4817 CSR Limited/ Cyprus Gold Australia (1986-1990) CR1987-0257, CR1988-0065, CR1988-0170, CR1989-0285, CR1989-0425, CR1990-0274, CR1990-0585**

19 rock chips and 8 stream sediments collected in northern 7 blocks in Emerald Springs area, with best result of 5.7ppb Au from a stream sample attributed to the Koolpin Fm, and 0.53ppm Au from a rock chip sample collected from small gold digging near Emerald Springs area.

**EL4901 AJ Quest (1986-1989) CR1988-0012, CR1988-0406, CR1989-0010**

One rock chip sample collected, grab sample AQ15, from a quartz vein within greywacke, within old copper workings site ~5km south of Copperfield mine, returning .01 ppm Au, 120 ppm As, 850 ppm Cu, 142 ppm Pb and 1 ppm Ag.

**EL5080 AJ Ross/ Coronation Hill Gold Mines (1987-1989) CR1988-0178, CR1989-0579**

3 blocks, 1 within tabletop area, near Union Reefs area. Sampled the loose covering assumed to be from the underlying rocks, excluding granitic areas, returned best result of 0.1 g/t Au 430 g/t As. After the survey had been completed, it was realised that there could be an old erosion surface, associated with auriferous gravel consisting of rounded quartz pebbles, often broken, and ferruginous nodules-named the Wave Hill surface, present in the area. this surface seems to occur about 200m above AHD in this area and to the south at least as far as Pine Creek. Concluded that results not likely to be useful, better exploration methods would be to complete detailed geological mapping followed by sampling of bedrock or outcropping material, as well as a self potential method targeting the sulphides assoc with the gold, following heavy rains soaking the ground.

**EL5244 Rosequartz Mining (1987- 1990) CR1988-0379, CR1990-0002**

Explored area around Stray Creek, with 68 rock chips collected, from quartz veins and gossans. Assayed for Au (Fire Assay), As & Ag (AAS), and some Cu, Pb, Zn (AAS). In general gold assays were poor, with one sample returning 0.1 ppm Au. Completed 10 days mapping the Burrell Creek Fm, with no anticlines noted.

**EL5424 R Johnstone/ Zapopan (1987-1989) CR1989-0060**

Mapping completed and 21 rock chip samples collected from outcropping rocks within the central southern tabletop area. ST122 returned an anomalous value of 640ppm Cu, within a small patch of boxwork, with some other minor elevated copper noted. Gold and arsenic values low, with best value of 0.02 ppm Au and 140 ppm As returned.

**EL6068 AJ Quest / Rosequartz Mining (1989-1991) CR1989-0651, CR1991-002316**

Stream samples collected from the southeast of Tabletop, with best result of 8.5 ppb Au from site which drains the granite contact containing a small gold/tin working.

**EL6357 & EL6423 Rosequartz Mining (1989-1990) CR1990-0127, CR1990-0126**

Exploration conducted over the eastern area of the southern Tabletop area. 51 rock chip samples collected from quartz veins and assayed for Au, As, Ag, Cu, Pb and Zn. Best result of 0.11 ppm Au from FMC25. 46 Stream samples collected, with best result of 12.4 ppb Au from PCS8. Limited outcrop mostly confined to main channel and tributaries of the Four Mile Ck. Mapping completed with a broad

anticlinal feature trending NW-SE mapped within the Burrell Creek sediments in the south-eastern part of the tenement.

**EL6529 Western Mining (1989-1991) CR1990-0663, CR1991-0013**

Completed exploration over 5 blocks within Emerald Springs area, with initial stream sampling returning weak gold and base metal anomalies, including 13.5ppb Au. These were investigated with follow up stream and soil sampling with no significant results.

**SEL8497 (originally EL7369, EL7518, EL7813, EL7814) Acacia Resources/ AngloGold (1992-2001)**

This area covers the central eastern area of Tabletop. Extensive soil, stream and rock chip sampling programs have been conducted, with most of the work focussed west of Tabletop. Results within the Tabletop area were insignificant.

**SEL7707 & EL7387 Northern Gold/ Acacia Resources/Anglogold (1992-2001)**

This exploration licence covers the northern steps of tabletop near the Snaddens Creek deposit, with most work focussed to the west of Tabletop. No significant results obtained within the Tabletop area.

**EL8230 Peel Investments/ Collotran Holdings (1995- 2001)**

Exploration focussed ~1-2km to west and SW of the Copperfield mine. Aerial photos compared with the ACRES level 8 SPOT print using stereographic methods on colour prints to define fold axes in areas of poor outcrop with a couple of interpreted fold axis obtained. Rock chips collected; PEL1 returned 1.96ppm Au, was a composite sample taken along a 60m long quartz vein striking 285degrees and up to 0.25m wide and appears to dip steeply to North. This sample comes from the same quartz vein as that sampled by G Orridge which gave values of 3.4 and 3.5g/t Au. Soil sampling results ranged from <0.1-7.6ppb Au, <0.1-100ppb Ag, and <1-20ppm As. 8 RC drillholes drilled to 50m, within the Peel Gold Prospect area, with results mostly below detection. Drilling intersected greywacke and siltstone with some quartz veining.

**EL9467 & EL9515 Acacia Resources (1996-1998) CR1997-0721, CR1997-0760, CR1998-0481**

184 soil auger samples collected from central area of tabletop, ~1km west of circular excised area of exploration licence. These were analysed for low level Au by Fire Assay and Cu, Pb, Zn, and As by AAS, with weakly elevated Au results in the south area of sampling program, ranging from 6-11 ppb Au; most results below detection level.

**EL9485 Northern Gold & Camelot NT (1996-1998) CR1998-0481, CR1998-0591**

Explored Emerald Springs area, with GIS and remote sensing imagery assessed. Zamu Dolerite dominates the EL, outcropping along low NW to SE trending ridges. The Wildman Siltstone is indicated by the darker shade of grey shown on satellite image, trending NW to SE through the central northern area.

**SEL10341 Buffalo Creek Mines and Territory Goldfields (2003-2007) CR2005-0388 in Tabletop area**

Spot image covering northern half of Tabletop excluding Emerald Springs blocks. The Pine Creek fault set can be seen trending NNW-SSE across the whole map. Can also see a set of cross fractures of limited displacement. These linears are evident on the SPOT image and appear to be more

abundant in the vicinity of known gold occurrences. There is limited evidence of north- south cross fracturing within SEL10341.

**EL24092 Comprehensive drainage/ Davos Resources (2004-2005) CR2005-0474, CR2006-0270, CR2007-0370, CR2008-0469**

Soil sampling program just SW of MLN21, with best result from sample 1085 of 1.08% Cu and 0.68 ppm Au. Suggested further work required.

**EL24815 United Uranium (2008- 2012)**

Looking for uranium, mostly south of Tabletop, with geophysics data reprocessed, with 2 anomalous areas classified as second order anomalies, located in southern area of Tabletop area.

**EL29025 Darwin Mining and Exploration (2012-2014) CR2013-0584, CR2014-0986**

Exploration area similar to Tabletop. 3 aeromagnetic anomalies defined, along the south eastern edge of the Tabletop granite with a gravity high (positive) over this area as well, while granites have a negative anomalous gravity. 4 gossan samples were taken from the small gossans along eastern margin of granite, with best grade of 390ppm Cu, 54ppm Zn, 930ppm Pb, and 8588 ppm Sn.

**EL29523 Thundelarra (2013-2016) CR2014-0437, CR2015-0185, CR2015-0364, CR2016-0017**

Drilled TMLRC1-10 in 2011 testing IP anomalies. RC holes drilled over Cu mineralised horizon traced for over 800m on the surface containing some old mine shafts and shallow workings. Drilling failed to return any significant results, with best result of 1.03% Cu from 22-23m in TMLRC004. Soil sampling and drilling less than 1km north, and west of MLN21, Soil sampling results were disappointing, with moderate copper anomaly in a very low background, and Au at or below the 1ppb detection limit. These results suggest outcrop sampling and mapping more useful. Rock chips samples from quartz veins east of MLN21 returned anomalous results including 1.01, 1.57 and 2.03 ppm Au.

Drilled TMLRC11-14 to test the NNW-SSE trending inferred shear zones where copper and gold anomalies were identified from soil sampling. Several quartz veins were intercepted, but no significant values returned from assays.

Due to clear relationship from drilling of copper mineralisation and presence of significant iron sulphides (pyrite and pyrrhotite) high powered Downhole TEM logging of 2 RC drillholes (TML011RC and TML014RC) was completed. No significant anomalies were found.



Figure 3: Tabletop Project- drilling completed near Copperfield mine

## 4 CONCLUSIONS

There has been extensive exploration over this area including drilling, mapping and sampling as well as focus on identifying favourable structures such as anticlines, faults and sheared veins in the metasediments. There is potential for economic deposits to be hidden in areas of alluvial cover and poor outcrop, with drilling to be completed in following reporting year.

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