



Geotech International Pty Ltd

Mt Paris

**First Annual Report for EL19/2014
for the Period 29 January 2015 to 28 January 2016**

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ABSTRACT

This report describes the exploration activities completed within EL19/2014 during the period 29 January 2015 to 28 January 2016. This is the first annual report for the first year of grant of the Tenement.

The Tenement is located south of the town of Derby, and (directly) about 60km east of Launceston.

Tin and to a much lesser extent tungsten occur in quartz veins, in greisen and altered phases of the Devonian Mt Paris pluton in the roof zone near the contact with overlying Ordovician-Silurian Mathinna Beds. Lithium occurs as zinnwaldite in the granites and to an as yet unknown extent in the greisens. Some of the clay altered granite may be lithium bearing.

The Tenement covers past producer alluvial tin mines and several small tin deposits in the basement. There has been only minor production of tin, mainly from secondary alluvial/eluvial deposits. The source of the major past production of alluvial cassiterite in the several Ringarooma valley leads was the Mt Paris pluton.

The company's main focus is exploration for tin, tungsten and lithium deposits.

Work completed during the period comprised a review of past investigations and of past exploration work, and assessment of prospectivity, and recommendations for future work. All work was desk-based with no field input.

KEYWORDS

NE Tasmania
 Geology
 Mineralisation
 Alluvial
 Primary Deposits
 Granite
 Greisen
 Mathinna Group
 Tin
 Tungsten
 Lithium
 Exploration Targets

**SUMMARY OF ACTIVITIES for EL19/2014 Mt Paris
 for the Period 29 January 2015 to 28 January 2016**

- Thorough compilation of previous published research and open file data, including Mines Department reports and company exploration,
- Review of all reports to determine extent and quality of work done, and evaluate the distribution, nature and controls of mineralisation,
- Assess the prospectivity for untested or undiscovered tin and tungsten deposits
- Assess the prospectivity for undiscovered lithium deposits,
- Generate targets for future work.

CO-ORDINATES

All lat/long co-ordinates in this report refer to the GDA94 Datum, unless stated otherwise.

All AMG co-ordinates in this report refer to the GDA94 - Zone55, unless stated otherwise.

FILE SUMMARY LIST

File name	Format	Contents
El192014_2016_01_report.pdf	Pdf	Annual Report

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1.0 INTRODUCTION

This report describes the exploration activities completed within EL19/2014 during the period 29 January 2015 to 28 January 2016. This is the first annual report for the first year of grant of the Tenement.

The Tenement is located south of the town of Derby, and (directly) about 60km east of Launceston, Fig.1.

Table 1 – Tenement Details

Tenement	Holder	Date Applied	Date Granted	Size
EL19/2014 Mt Paris	Geotech International Pty Ltd 100%	29 July 2014	29 January 2015 (Categories 1 & 5)	115km ²

Excluded from the grant of the tenement is one small 5ha mining lease for stone and gravel south of Bells Hill as illustrated on Fig 2.

Most of the land encompassing known mineralisation is logged state forest, timber plantation and timber reserves.

The project lies within the Tasmania NE (SK55-21) 1:250,000 map sheet, and the 1:25,000 map sheets of Ringarooma (5643), and Derby (5644).

Access is via the formed Branxholm-Weldborough Road, running through the centre of the Tenement, with logging tracks and other rough tracks providing further access.

The tenement covers past producer alluvial tin mines and several small tin deposits in the basement. There has been only minor production of tin, mainly from secondary alluvial/eluvial deposits.

The company's main focus is exploration for tin, tungsten and lithium deposits.

Work completed during the period comprised a review of past investigations and of past exploration work and assessment of prospectivity, and recommendations for future work. All work was desk-based with no field input.

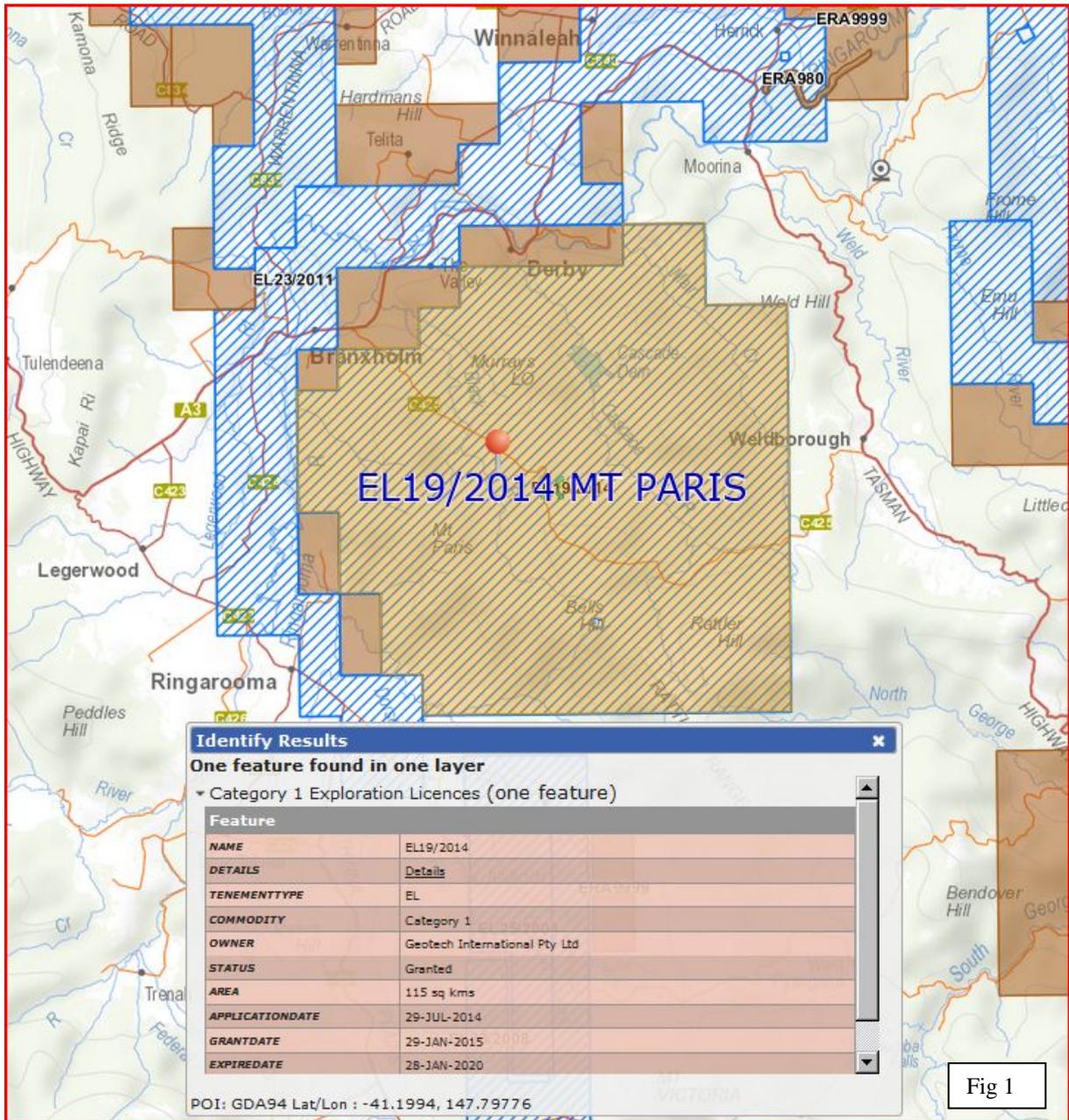
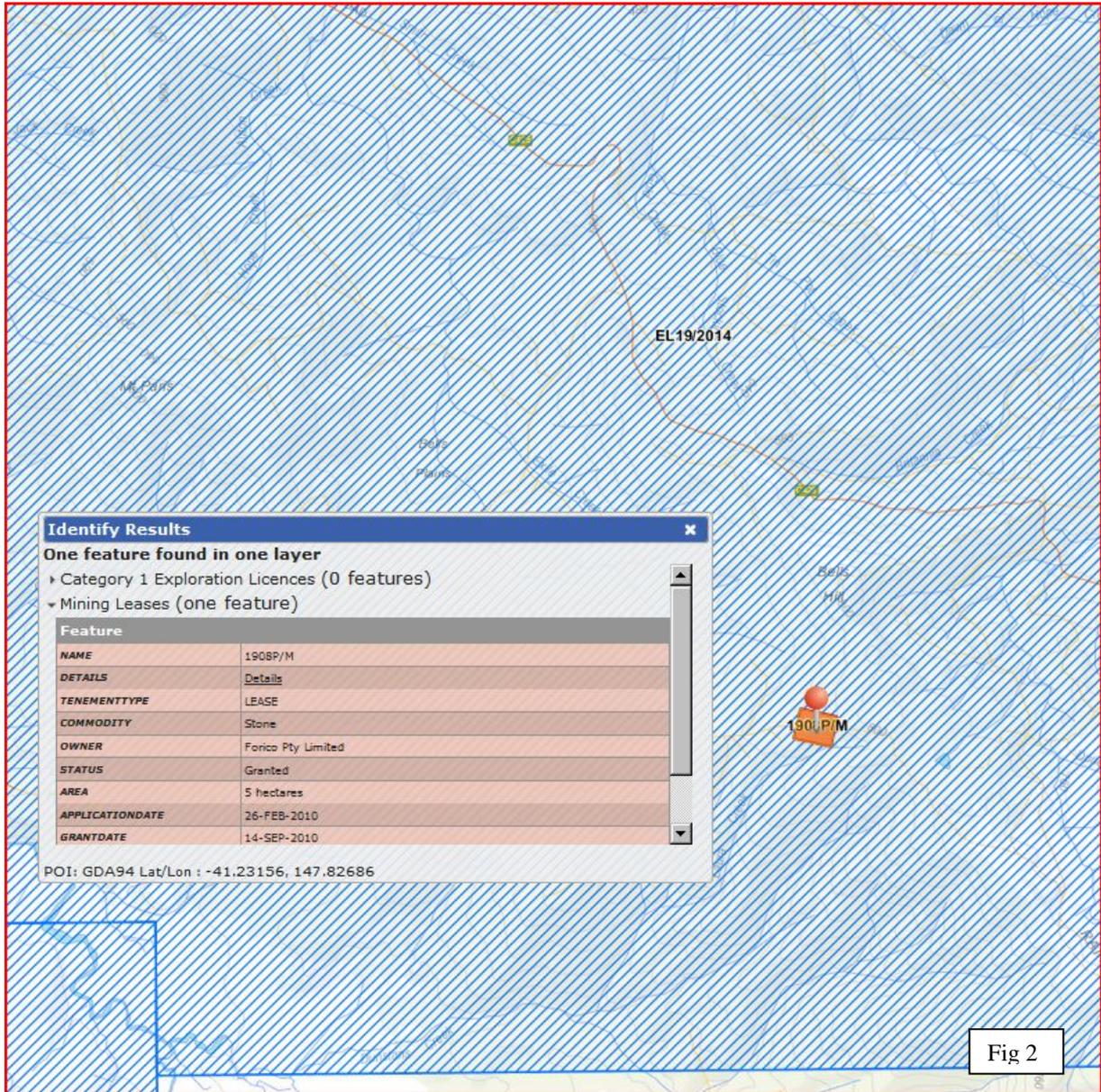


Fig 1



2.0 GEOLOGICAL SETTING and MINERALISATION

The Mt Paris tenement area contains Siluro-Devonian Mathinna Bed meta-siltstones and quartzites, intruded by Devonian biotite muscovite alkali feldspar granite (the Mt Paris Granite, a phase of the Blue Tier Batholith) and minor Tertiary basalt flows and ?plugs. There is minor alluvial cover.

The 1:25 000 scale MRT geological maps for Ringarooma and Derby cover the area.

Particularly in the south of the area, an undulating granite roof zone is extensively exposed. In this zone there are known tin (tungsten, molybdenum) deposits concentrated in an ENE trending 12km by 2km corridor, Fig 3.

Known mineralisation in bedrock is confined to the granite, (and altered granite) with little mineralisation in the overlying slightly contact-metamorphosed Mathinna Beds. Bedrock mineralisation styles are (a) quartz-greisen veins containing coarse cassiterite with minor sulphides such as chalcopyrite, (b) micaceous greisen veins, usually steeply-dipping, also carrying cassiterite, (c) flat lying greisen sheets, and (d) clay (?kaolinite rich) altered granite.

Most historic cassiterite mining has been from sluicing of secondary eluvial and alluvial material and soft clay-altered granite. This has been poorly documented, and so production figures are not reliably known, but descriptions of the main deposits and workings are given by Solomon (1971), Nye(1924, 1933), McIntosh-Reid (1926), Keid (1944) and Jack (1962,1966).

3.0 REVIEW OF PREVIOUS MINING and EXPLORATION WORK

The first documented discovery of tin in the area was in 1876 just outside the tenement at the Briseis alluvial deposit. Most production occurred before 1900 from alluvial deposits in several leads along the Ringarooma valley. The cassiterite in all those deposits, totalling over 23 000 tonnes of metallic tin, would have had its primary source in the Mt Paris area.

The mining and exploration history up to 2011 has been well and thoroughly documented by W Herrmann (2011) for Torque Mining, so I will not unnecessarily repeat its contents here.

After Herrmann's report was completed the results for exploration on a small surrendered exploration licence at Bell's Hill were released. The essential work is in de Vries (2008) and de Vries (2009). Work consisted of a review of mining history, very limited surface sampling and two diamond drill holes. The holes, to test the Bell's Hill lode, suffered from very poor recovery in the weathered granite, and so unfortunately the results are of little value.

Torque Mining reported on work done after the date of Herrmann's report, in Macdonald (2011). This work consisted of processing of MRT's airborne magnetic and radiometric and DEM datasets, and two traverses of soil sampling between Mullins and Mt Terror and south of Mt Paris with analyses done via a portable XRF device.

No further work has been done since Torque surrendered their tenement, Farrell (2013).

4.0 EXPLORATION COMPLETED DURING THE REPORT PERIOD

Work done by Geotech International Pty Ltd during the period consisted of

- Thorough compilation of previous published research and open file data, including Mines Department reports and company exploration,
- Review of all reports to determine the extent and quality of work done, and to evaluate the distribution, nature and controls of mineralisation,
- Assess the prospectivity for untested or undiscovered tin and tungsten deposits
- Assess the prospectivity for undiscovered lithium deposits,
- Generate targets for future work.

5.0 PROSPECTIVITY FOR TIN AND TUNGSTEN DEPOSITS

(a) Apparently absent primary mineralisation in the northern sector of the Tenement.

A vast amount of cassiterite has been won from the Ringarooma valley alluvial tin leads, and all from Ringarooma to Derby has had its primary source in the Mt Paris tenement area.

The source of cassiterite in the south of the area is obvious - the known deposits in the Ruby Flat-Mt Paris- Bell's Hill – Rattler trend, Fig 3. But the biggest alluvial producer in the Ringarooma valley, the Briseis, contained over 21 000 tonnes of metallic tin, and its source is not obvious. The necessary source area is upstream in the Cascade River in the northern sector of the Tenement, but it contains no known primary tin deposits. Is this because they are yet to be found or is it because the sources of greisen-related mineralisation in the granite's roof zone have been totally eroded? Surely the area must have been thoroughly checked by prospectors? Nothing recorded presumably means nothing there.

A first pass appraisal of available modern stream sediment geochemistry data in MRT's database has been made, to see if there are anomalous samples in this northern sector. The data seem of limited use because the only samples taken in that area by past explorers, (mainly Geophoto Texins in the 1980s), were analysed chiefly for Cu, Pb, Zn and not Sn and W. This contrasts with the area along the known mineralised trend to the south which has been sampled and analysed for Sn W etc (Mortimore 1974)- these samples are highly anomalous, merely confirming that the area is mineralised. [Note that in section 7.0 of this report more investigation of stream sediment data is recommended because some samples are missing in the MRT database, and a study of the value of using Cu and other elements as pathfinders for tin mineralisation may be fruitful].

Regional rock chip samples of granites collected by Aberfoyle (Young, 1979) were examined to see if these could yield clues to mineralisation. Trace element studies, for example of Rb, Sr, Ba and Sn are useful to assess the tin potential of a granitoid. Unfortunately only four samples were taken in the northern sector. Anomalous tin contents of around 20ppm are recorded, Fig 4, compared to regional background of around 10ppm, though samples from around the southern mineralised belt contain up to 55ppm. Similarly the same anomalous zone shows on Aberfoyle's plots of Rb/Sr and Rb/Ba. From this data it can be concluded that the granite in the northern sector has high potential for tin mineralisation.

The RockChem data from MRT for the Tenement area was downloaded, processed in Mapinfo, and examined. The samples are mainly of granites used in petrochemical studies of the Blue Tier Batholith. The Sn content of analysed granites is plotted on Fig 5. There are samples in the northern sector with tin values the same order of magnitude as those collected by Aberfoyle, so again I conclude that prospectivity of this area is high.

A series of structures in the granite trending WNW is readily apparent as ridges and valleys on topographic maps, DEM images, and Google satellite imagery, and show also on airborne

magnetic imagery. It is possible that there are mineralised faults and fractures in softer recessively weathered altered granite in the valleys, now obscured by recent sediments and so undiscovered. It is also possible that the ridges are mineralised and resistant to erosion perhaps because of silicification or albitisation. Albite-altered granite carrying tin may have been unrecognised by prospectors because it looks like fresh unaltered unprospective granite.

Obviously a first step to check these possibilities is a field visit.

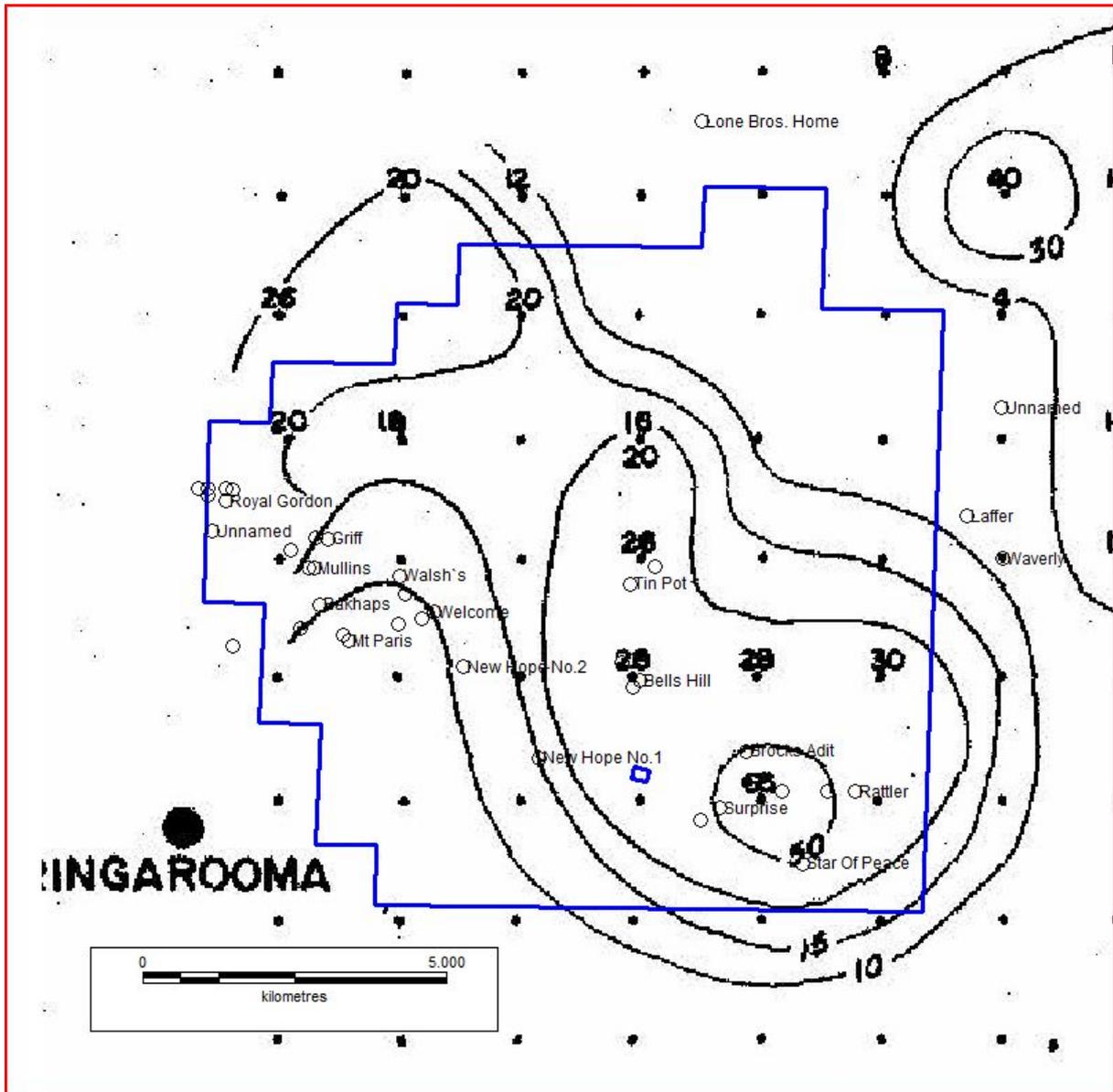


Fig 4. Tin content, ppm, in fresh granites, from Aberfoyle regional sampling.

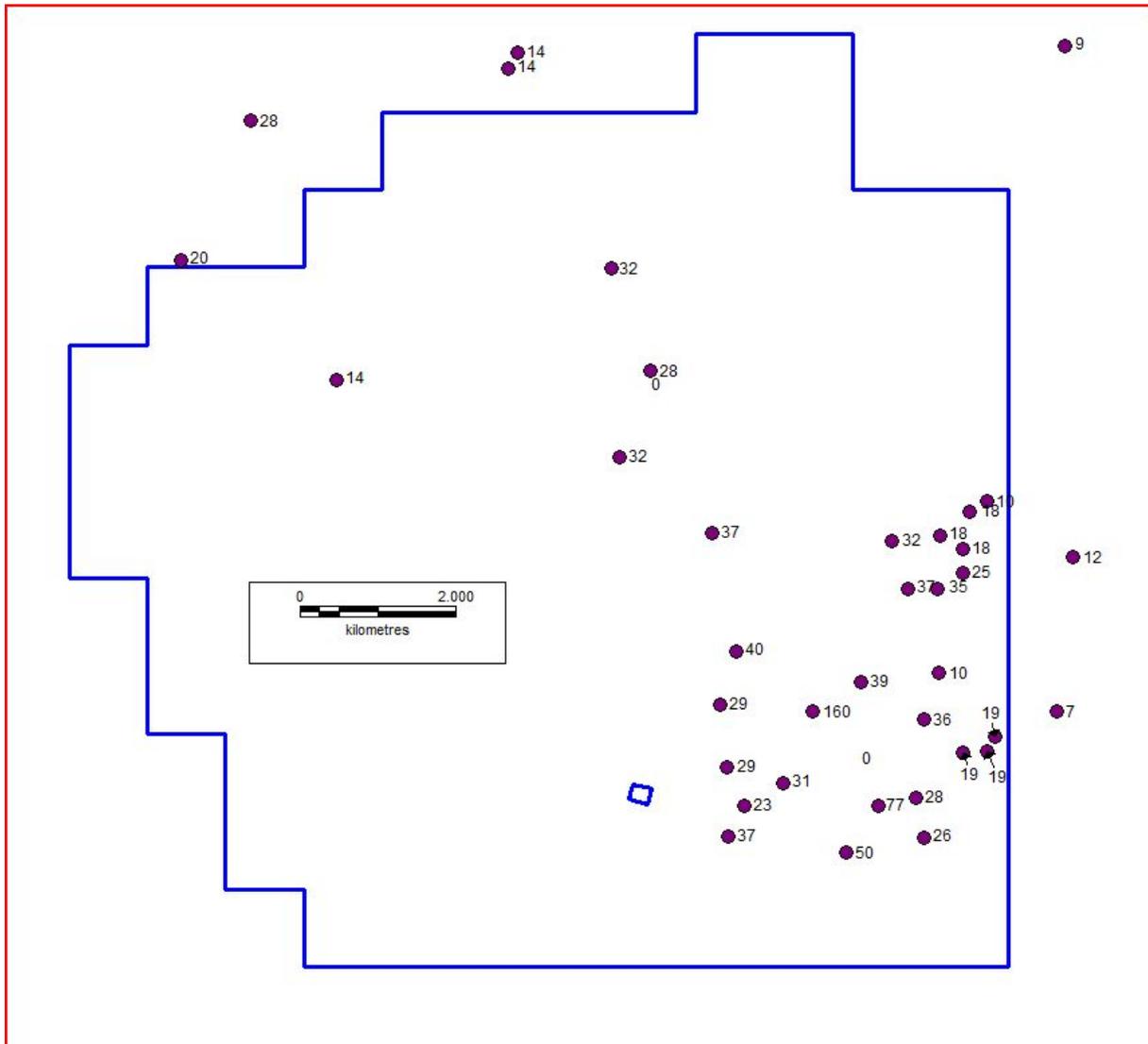


Fig 5. Tin content, ppm, in granites, from MRT database.

(b) Alluvial deposits in the known Ruby Flat-Mt Paris- Bell's Hill – Rattler trend.

Most past production was from sluicing of altered clay rich granite, weathered lodes, eluvium and alluvium. Although work was impeded by the high elevation and lack of good water sources, it is unlikely major deposits still exist. An exception however is the possible presence of large undiscovered mineralised clay-altered zones, which could be attractive readily mined open pitable material.

(c) Primary deposits in the known Ruby Flat-Mt Paris- Bell's Hill – Rattler trend

The known deposits are hosted mainly in clay-altered zones, mentioned above, in quartz-greisen veins and greisen veins and in complicated bodies such as at the Mt Paris mine of

brecciated fine grained granite (aplite)/ greisen/ and granite, all of which are in the uppermost 80m of the granite's roof.

Most veins are narrow and much past surface sampling and drilling has demonstrated that grades are erratic and unfortunately mostly low, averaging less than 0.1% Sn.

Sheeted greisens or mineralised granite at open pitable depths at the granite contact with Mathinna beds have been sought in percussion drilling especially by Newmont, with no encouragement. However drilling did not cover all prospective areas so the model is not yet totally discounted. There is still for example ample room to find repetitions of Mt Paris style mineralisation northwestwards towards Mullins and northwards. Mineralised cupolas may exist especially below areas of Mathinna beds- these blind targets would be a challenge for exploration, but smart analysis of structures, using geochemical vectors and geophysical techniques such as gravity, IP, resistivity, and seismic may be appropriate.

Tungsten is relatively rare in all the known deposits so one must conclude that prospectivity for tungsten in the Tenement is low.

6.0 PROSPECTIVITY FOR LITHIUM DEPOSITS

Analogy with the Cinovec deposit.

The famous Cinovec lithium deposit near Zinnwald on the Czech Republic- German border has obvious geological similarities to deposits in the Mt Paris area. The lithium is contained in zinnwaldite, a lithium mica.

At Cinovec a pervasively altered and greisenised lithium-albite granite (with quartz, topaz, zinnwaldite and cassiterite) occurs in the upper part of a cupola, (European Metals, 2016).

Cinovec is an historic mine containing a significant undeveloped lithium-tin resource with by-product potential including tungsten, rubidium, scandium, niobium and tantalum. It is a globally significant hard rock lithium deposit with a total Inferred Mineral Resource of 514.8Mt @ 0.43% Li₂O. Within this resource lies one of the largest undeveloped tin deposits in the world, with total Indicated and Inferred Mineral Resources of 79.7Mt grading 0.23% Sn for 183kt of contained tin.

Metallurgical pilot testing of the Cinovec South ore in the 1970s achieved good recoveries (96% Sn and 84% W) using gravity and gravity/flotation flow sheets. Zinnwaldite reports to the gravity reject, from which it can be concentrated by magnets. Lithium carbonate was produced on industrial scale during mining in the 1970s.

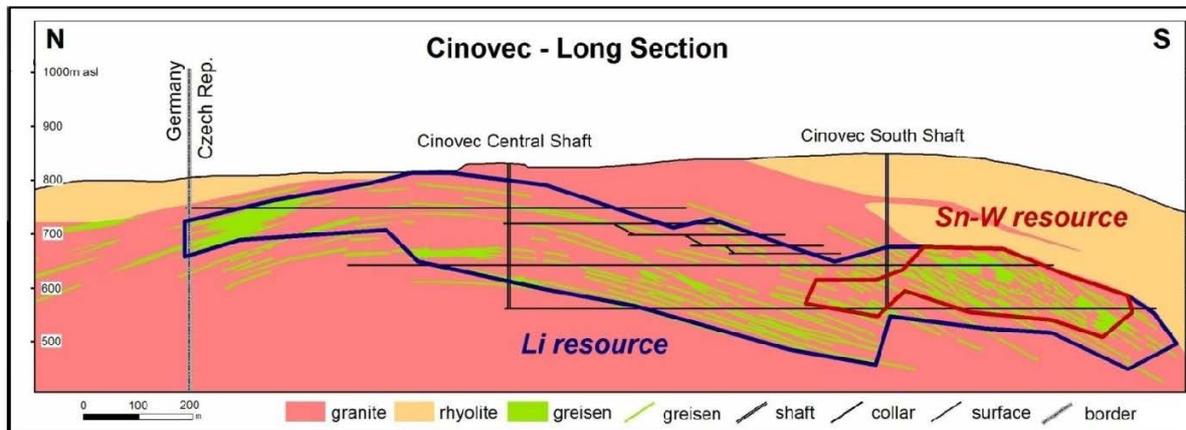


Fig 6. Cinovec schematic long section

It is interesting that much of the Cinovec lithium resource carries little or low grade tin, so the known low grades of tin in greisens in the Mt Paris area need not be discouraging for lithium potential.

Previous records of and exploration for lithium in the Tenement.

Zinnwaldite is known in the Mt Paris Pluton. Higgins, (1990) reported its presence: "the Lottah and Mt. Paris granites contain three distinct mica phases. Light brown siderophyllite micas occur as remnant patches in light green to colourless zinnwaldite.....zinnwaldite is a hydrothermal mineral....not restricted to the Anchor mine area, but .. pervasive in the Lottah and Mt. Paris granites".

The MRT RockChem database includes two samples whose origin is Higgins. One, containing 272ppm Li, is 500m east of Brocks Adit, and the other, containing 85ppm Li, is in the northern sector of the Licence. The remainder of the samples in the Tenement are concentrated in the east. The Li content of the samples is shown on Fig 7. Content ranges from around 100ppm up to a maximum of 315ppm. These values are high compared to Li content of non-specialised granites in the database; these generally contain less than 60ppm Li.

The importance of these samples is that they are granites showing the presence of zinnwaldite; they are not samples of the more evolved greisens, which therefore can be expected to carry significant contents of Li micas.

De Graaf, (1983) reported on 5 alkali granite samples collected in the Mt Paris Granite body. Three are in the northern sector of the licence. All are unmineralised, but all contain topaz, and some contain fluorite. Zinnwaldite is not mentioned but the muscovite in thin section is described as pale pink, so may actually be zinnwaldite. The three samples in the northern sector carry 100 to 135ppm Li, and the two southern ones, 170 and 250ppm Li. Tin contents range from 10 to 28ppm.

Apart from references to lithium in the granites, the only direct reference to lithium in the greisens is in McIntosh-Reid, (1926) where in description of the mineralisation at the Mt Paris Mine he states there are "Greisen veins, consisting essentially of quartz and *lithic* (sic) mica in varying proportions". I presume 'lithic' is a typographical error and it should be 'lithia'. No other information or description is given.

An indirect reference to lithium in the greisens is in Petterd (1897), "*Zinnwaldite* (*Lithia muscovite*). Occurs in granite, and thus forms the common white mica of the stanniferous rocks of the East Coast."

Despite a thorough search of all past reports I can find no mention of previous exploration for lithium.

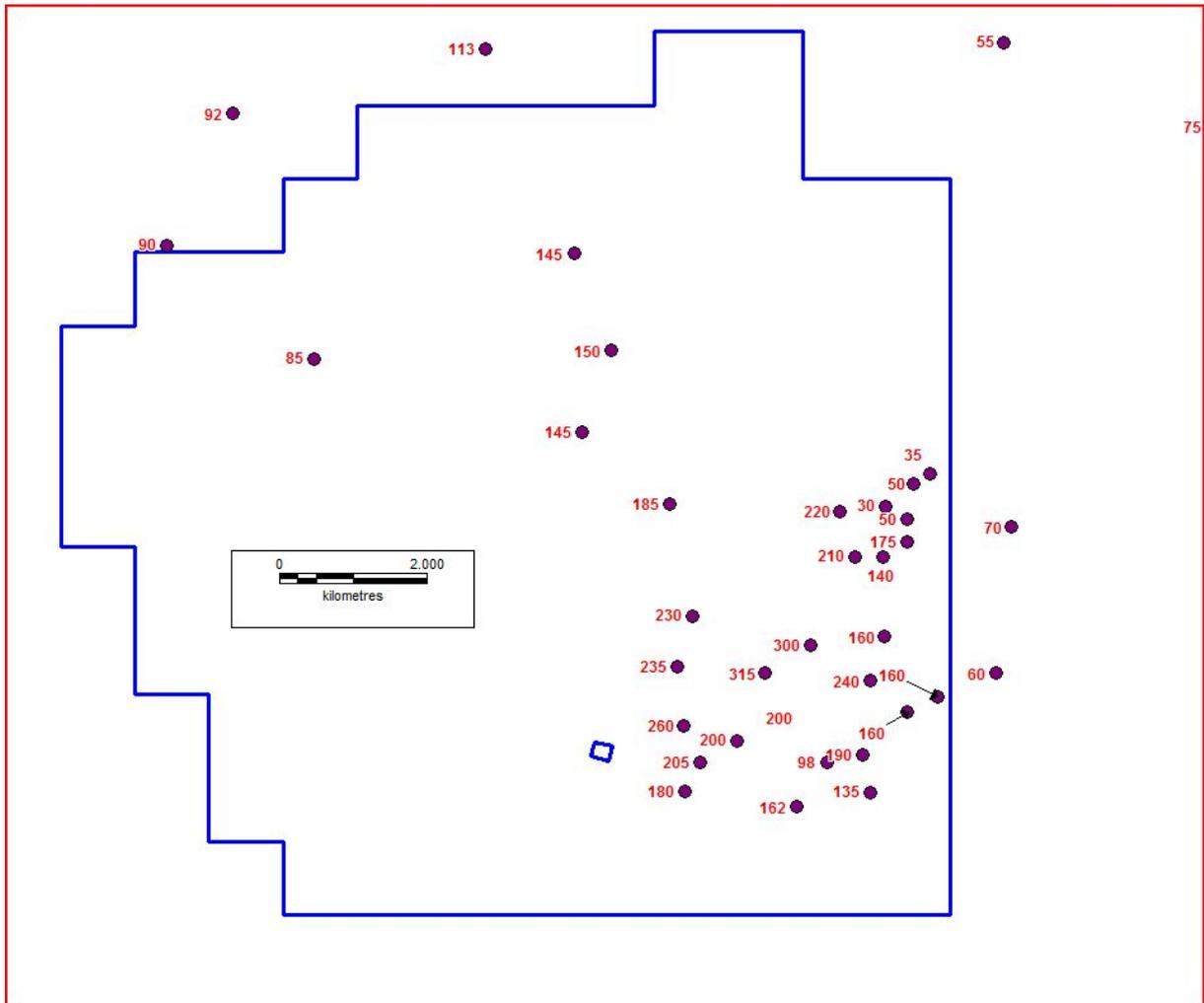


Fig 7. Lithium, ppm, in granites, from MRT database.

Potential for lithium

A study of the mineral resource potential of the Rattler Range-Mt Paris area by the Department of Mines (Anon, 1991) states briefly without any supporting evidence that the area has lithium potential.

Lithium could occur in the Mt Paris area in lithium micas such as zinnwaldite and lepidolite, or in lithium clays such as hectorite. All of these are viable sources of lithium world-wide.

Zinnwaldite

Micas in greisens are abundant in the Tenement, but it is not known to what extent zinnwaldite is present as the dominant mica. Past descriptions of the mica in hand specimen and thin section refer only to white mica. Lepidolite because of its pink colour would probably have been recorded if it were present in the area, but zinnwaldite without chemical analysis can be difficult to identify and so may have been unrecognized. Most zinnwaldite can be a buff colour so especially in weathered rocks its identity can be masked.

Assuming that indeed the greisens are rich in zinnwaldite then the largest individual greisen bodies or the best swarms of greisens should be sought.

The most impressive known single body of greisen in the area is at the Mt Paris Mine, at Mt Terror. Its dimensions have been proven by surface mapping and drilling by Union Corp; a cross section of the mineralisation is shown on Fig 8. Tin contents in the drill samples are low, but the real potential may be for zinnwaldite which has not yet been evaluated.

The best known swarm of greisen veins appears to be at Rattler Hill, and was evaluated for tin by Amax, as summarized by Herrmann (2011). Some more interesting tin grades occur here, but again no evaluation for lithium has been done.

Many of the other known greisens are narrow, vertical and have short strike lengths and so are not attractive as exploration targets.

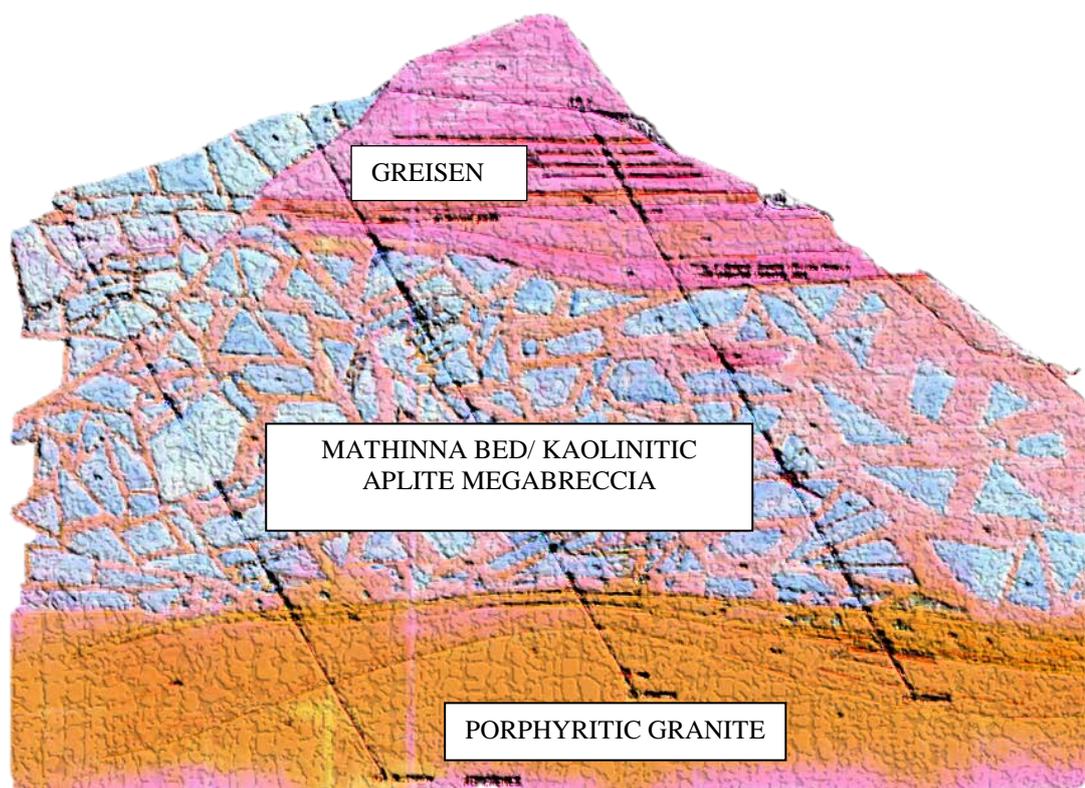


Fig 8. Mt Paris Mine (Mt Terror) cross section, after Winnall 1981. Drill holes are each 100m.

Lithium clays

As mentioned above there are large areas of clay altered granite, much of which was the focus for historic sluicing in the area. It has been debated whether this clay is hydrothermal or caused by weathering. The presence of cassiterite in the clay, and brecciation, points to a hydrothermal origin. It is possible that the clays are not simple kaolins but are lithium rich. Although the clays have been evaluated for use in paper coating/filling, there has been no previous documented analysis of them for lithium.

Areas of clay rich granites have been mapped by Union Corp, and shown in Winnall (1982). The most extensive areas are at Ruby Flat and Mt Terror.

7.0 TARGET GENERATION AND FUTURE WORK

Tin

Future work to evaluate the tin potential should focus on the northern sector of the licence because of its untested prospectivity.

(a) compile in detail past stream sediment sampling, to locate specific anomalous areas. The MRT database is incomplete and the nature of samples/ analytical methods is not recorded. Union Corp's work for example is not plotted. If tin and tungsten were not previously analysed then Cu, Pb, As, Bi etc may provide useful vectors to undiscovered mineralisation.

(b) reconnaissance field inspection/ sampling of rock types guided by the structurally controlled possibly altered granite in the prominent ridges and valleys.

Lithium

The greisens and clays should be inspected and sampled. The focus for greisens should be on Mt Terror and Rattler Hill, and for clays Mt Terror and Ruby Flat. Samples should be analysed for lithium, and if positive results are obtained some mineralogical/ XRD work should be done to identify the mineral species.

Samples of drill cores stored at MRT core library in Hobart should be collected, relogged, and analysed for lithium. If positive results are obtained the possibility of fully mapping the core for mineral species using the hylogger should be investigated.

8.0 EXPENDITURE

Expenditures have been reported via MRT Quarterly Returns.

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