



Annual Report
for EL31/2011 Great Musselroe River
for the Period 5 December 2012 to 4 December 2013

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Date: December 2013



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GEOLOGY**

ABSTRACT

This report describes the exploration activities completed within EL31/2011 during the period 5 December 2012 to 4 December 2013. This is the second annual report for the second year of grant of the Tenement.

The Tenement is located generally north, east, and south of Gladstone, a small mining town located 140 km east of Launceston.

The Tenement covers a number of past producer alluvial tin mines and many known alluvial tin deposits, but there are very few known basement tin deposits.

There has been a long history of investigations since 1874. Large scale mining for tin ceased in 1982. Past production of cassiterite is about 3,100 tonnes, and unmined resources, calculated by various authors, total about 1,400 tonnes.

The company's main focus is exploration for tin, in alluvial deposits and in bedrock. Prior to Tin Dragon's activities there has been no past exploration for bedrock tin mineralisation.

The area is characterized by relatively poor outcrop. Much of the basement rocks are covered with various types of unconsolidated sediments, from Eocene to Recent in age, most of which are tin bearing.

In the district the original sources of the tin were phases of the Devonian tin-bearing granites of the Blue Tier Batholith. Tin occurs as cassiterite in quartz and greisen vein systems in the roof zone of the granites near the contact with overlying Silurian Mathinna Beds.

Exploration work included a continuing review of previously compiled datasets to help target basement tin mineralisation. This was concentrated on stream sediment geochemical data and geophysical datasets such as airmagnetics, and gravity surveys. This data was then reviewed to aid targeting for undiscovered basement tin mineralisation. Visits were made to local people, to the History Room at St Helens, and to the Queen Victoria Museum in Launceston, so as to garner useful information. Reconnaissance field inspections of several areas were done to check access, the nature of the alluvial deposits, and search for basement alteration and mineralisation.

Data processing of airmagnetics and gravity data have shown them to be useful future targeting tools. Using these, concealed mineralised faults are identified in the north of the Tenement. They correspond to known alluvial deposits and thus nearby basement sources could exist in these faults. These areas are the prime basement exploration targets in the Tenement.

Stream sediment geochemical data for tin and tungsten is generally absent in those prime areas.

Initial field inspections in the Dorset Dredge area- a zone of very productive alluvial deposits- confirm the likely proximity of now eroded mineralised roof pendant Mathinna beds. Thus the current level of exposure is close to the top of the granite, where sheeted vein systems can be expected, as yet undiscovered because of the extensive alluvial cover.

The potential to find undiscovered alluvial and basement tin deposits is rated to be very high.

KEYWORDS

NE Tasmania
Geology
Mineralisation
Alluvial
Paleochannel
Leads
Primary Deposits
Granite
Mathinna Group
Tin

SUMMARY OF ACTIVITIES for EL31/2011 Great Musselroe River for the Period 5 December 2012 to 4 December 2013

A continuing review of previously compiled datasets to help target basement tin mineralisation.

This was concentrated on

- Stream sediment geochemical data
- Geophysical datasets such as airmagnetics, and gravity surveys.

This data was then reviewed to aid targeting for undiscovered basement tin mineralisation.

Visits were made to local people, to the History Room at St Helens, and to the Queen Victoria Museum in Launceston, so as to garner useful information.

Reconnaissance field inspections of several areas were done to check access, the nature of the alluvial deposits, and search for basement alteration and mineralisation.

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
El312011_2013_01_report.pdf	pdf	Annual Report

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- 2.0 Geological setting and mineralisation
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- 10.0 Wyniford River area
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1.0 INTRODUCTION

This report describes the exploration activities completed within EL31/2011 (The 'Tenement') during the period 5 December 2012 to 4 December 2013. This is the second annual report, for the second year of grant of the Tenement.

For convenience the project is named "Musselroe Project".

The Tenement is located generally north, east, and south of Gladstone, which is a small mining town located 140 km east of Launceston, in north-east Tasmania, Fig.1.

Table 1 – Tenement Details

Tenement	Holder	Date Applied	Date Granted	Size
EL31/2011 Great Musselroe River	Tin Dragon Pty Ltd 100%	20 May 2011	5 December 2011 (Categories 1 and 5)	190km ²

There are small Mining Leases for category 1 minerals which are excluded from the tenement in the Riverside and Dorset Flats areas. The bulk of land within the tenement is logged state forest, timber plantation and timber reserves. Some private farming land is concentrated in the northern-most parts of the Tenement.

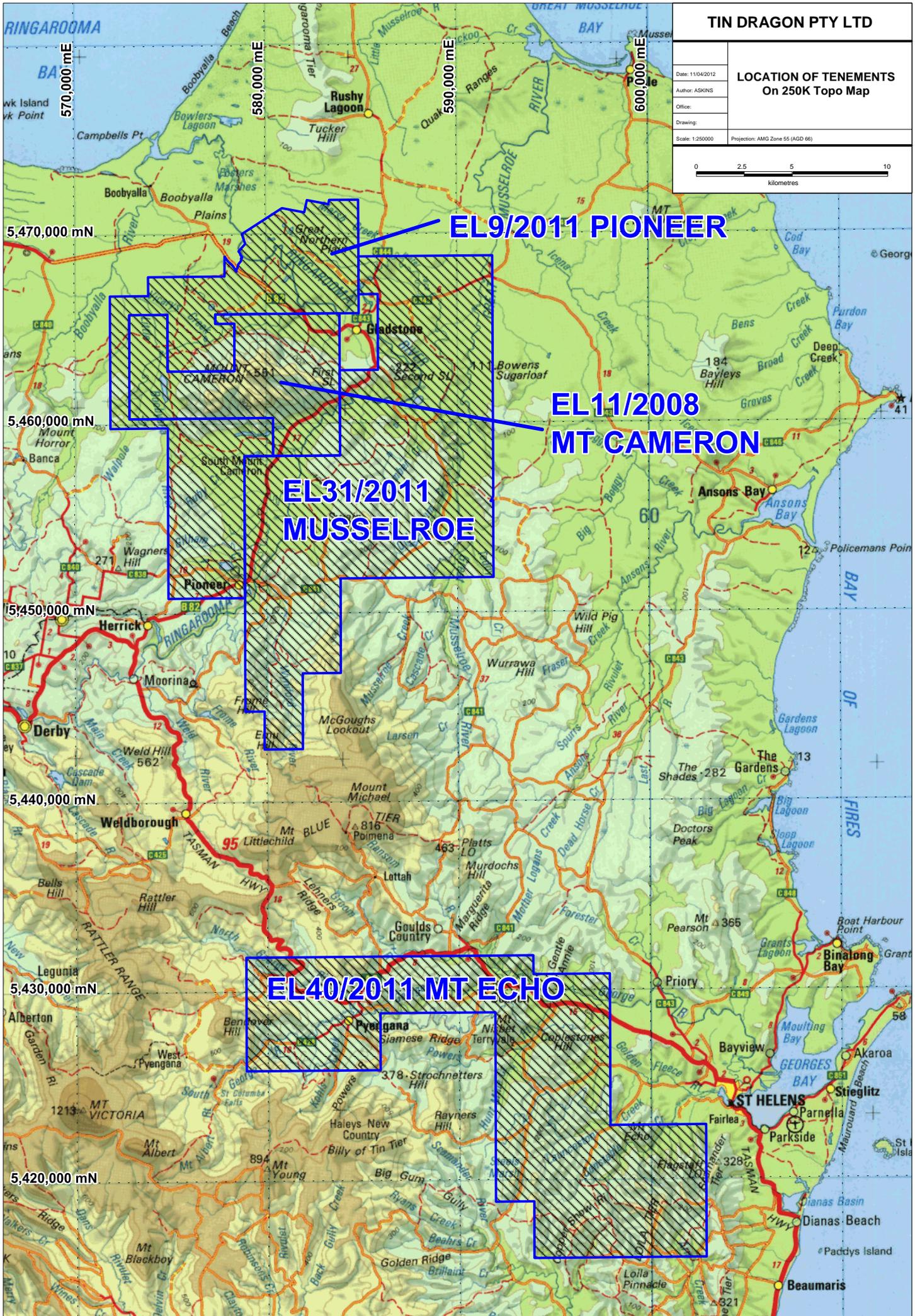
The project lies within the Tasmania NE (SK55-21) 1:250,000 map sheet, and the 1:25,000 map sheets of Gladstone, Lanka, Spurrs Rivulet, Derby and Pioneer. Access is via a sealed major road between Gladstone and Pioneer. Formed local roads and logging tracks and other rough tracks provide access within the project area.

The tenement covers a number of past producer alluvial tin mines and many known alluvial tin deposits, but there are very few known basement tin deposits. Past production of cassiterite is about 3,100 tonnes, and unmined resources calculated by various authors total about 1,400 tonnes.

The company's main focus is exploration for tin, in alluvial deposits and in bedrock.

As stated in the 2012 Annual Report the potential for primary tin resources in the Tenement has not been addressed by previous owners of the deposits and leases. There is a natural tendency for alluvial miners to seek alluvials and not bedrock tin sources-and vice versa for hard rock explorers.

The cassiterite and the other heavy mineral suites have traditionally been regarded as derived from greisen systems in the main ranges of the Blue Tier to the south, but there is the likely possibility that a large proportion is derived from local sources. Basement rocks in these local areas are almost completely unexplored for any style of deposit. The area has very high potential for discovery of basement deposits.



TIN DRAGON PTY LTD

Date: 11/04/2012
 Author: ASKINS
 Office:
 Drawing:

LOCATION OF TENEMENTS
 On 250K Topo Map

Scale: 1:250000

Projection: AMG Zone 55 (AGD 66)



EL9/2011 PIONEER

**EL11/2008
 MT CAMERON**

**EL31/2011
 MUSSELROE**

EL40/2011 MT ECHO

FIG 1

2.0 GEOLOGICAL SETTING and MINERALISATION

The area is characterized by relatively poor outcrop. Much of the basement rocks are covered with various types of unconsolidated sediments, most of which are tin bearing.

Nearly all known metallic deposits in the Tenement are alluvial tin (with accessory gold, monazite, sapphires) hosted in paleochannels (leads). Some tin deposits in basement rocks occur around Gladstone, but this area is outside the Tenement. Given the widespread alluvial occurrences, the lack of known tin mineralisation in basement is striking.

In the district the original sources of the tin were phases of the Devonian tin-bearing granites of the Blue Tier Batholith, whose solid geology is shown on Fig 2. Tin occurs as cassiterite in quartz and greisen vein systems in the roof zone of the granites near the contact with overlying Silurian Mathinna Beds.

In the 2012 Annual report the distribution of known mineralisation was determined, as outlined in Fig 3.

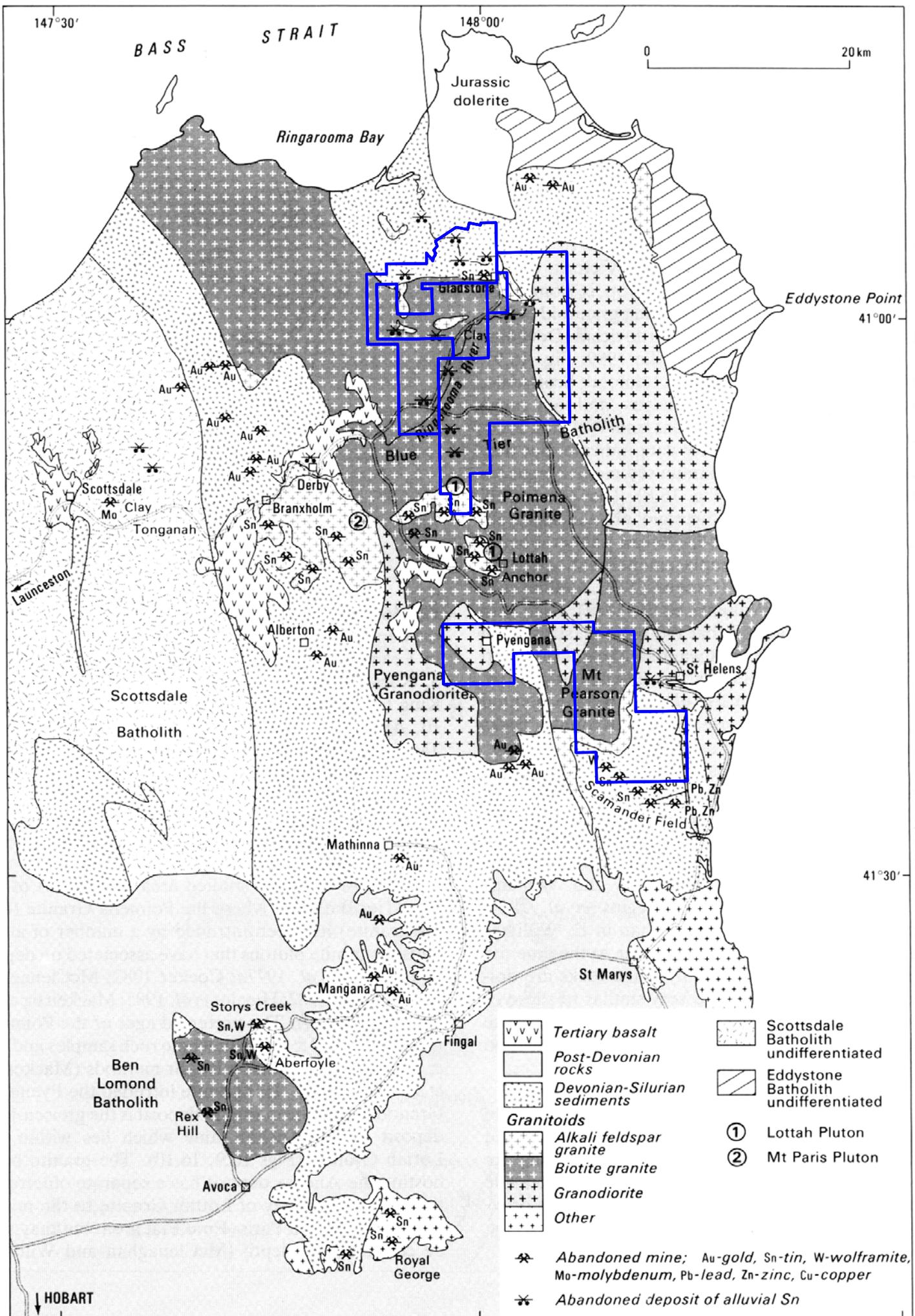
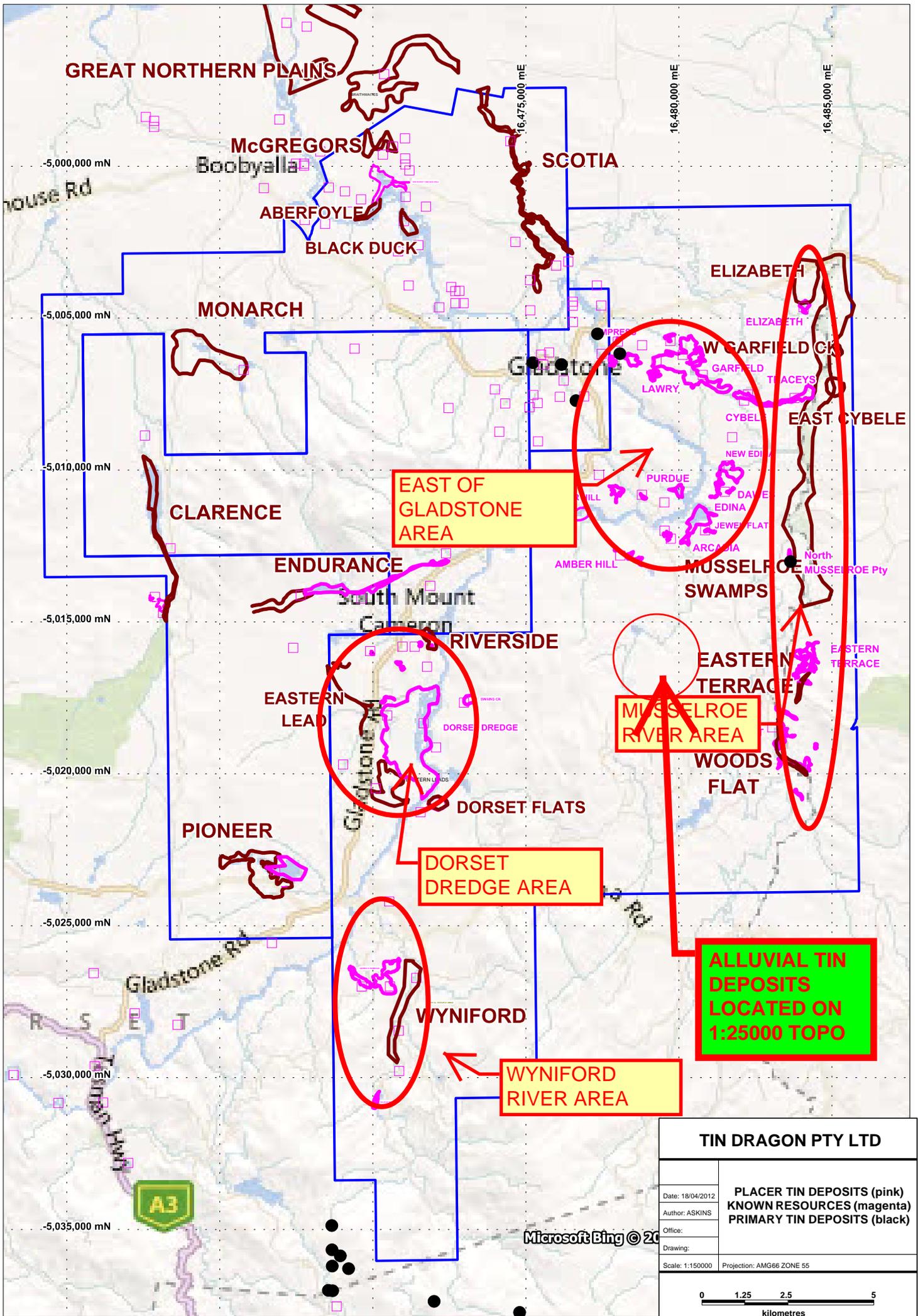


FIG 2



TIN DRAGON PTY LTD

Date: 18/04/2012	PLACER TIN DEPOSITS (pink) KNOWN RESOURCES (magenta) PRIMARY TIN DEPOSITS (black)
Author: ASKINS	
Office:	
Drawing:	
Scale: 1:150000	Projection: AMG66 ZONE 55



FIG 3

3.0 REVIEW OF PREVIOUS WORK

Exploration work by Tin Dragon during the previous period, and covered in the 2012 annual report, consisted of compilation of earlier company exploration, mining activities, and government surveys. This data was reviewed to determine the distribution and nature of known mineral deposits, to compile past production and estimates of remaining known resources, and to assess the prospectivity of the areas for untested or undiscovered alluvial tin and basement tin mineralisation.

No field work was undertaken.

4.0 EXPLORATION COMPLETED DURING THE REPORT PERIOD

Exploration work by Tin Dragon during the year to 4 December 2013 consisted of a continuing review of previously compiled datasets to help target basement tin mineralisation.

This was concentrated on

- Stream sediment geochemical data
- Geophysical datasets such as airmagnetics, and gravity surveys.

This data was then reviewed to aid targeting for undiscovered basement tin mineralisation.

Visits were made to local people, to the History Room at St Helens, and to the Queen Victoria Museum in Launceston, so as to garner useful information.

Reconnaissance field inspections of several areas were done to check access, the nature of the alluvial deposits, and search for basement alteration and mineralisation.

Details of these activities follow.

Continuing efforts to attract a joint venture partner for the project have been thwarted by the general industry downturn.

5.0 MORE ALLUVIAL DEPOSITS LOCATED

On the Lanka 5845 1:25 000 Topographic Map alluvial mines are shown south-east of Lanka Dam at (GDA940) 587700E/5457400N, on the eastern branch of Amber Creek. An inspection of Google imagery also suggests that alluvial deposits have been worked at Lanka Dam itself, at 586600E/5458400N.

Workings are likely to have been post World War 2, judging by their inclusion on the topographic map.

The general area of these deposits is shown on Fig 3.

6.0 STREAM SEDIMENT GEOCHEMISTRY

Stream sediment geochemical data from past explorers was reviewed. All data was obtained from the MRT database and processed.

Although many samples have been taken and analysed for elements such as copper lead and zinc, the number of samples which have been analysed for tin and for tungsten is very low, and data is virtually absent in the north of the Tenement, as shown on Figs 4 and 5.

Thus stream sediment geochemistry cannot be used in the north of the Tenement for exploration targeting. Clearly geochemical surveys in some areas would be very useful, though of course away from known alluvial deposits and known stream contamination.

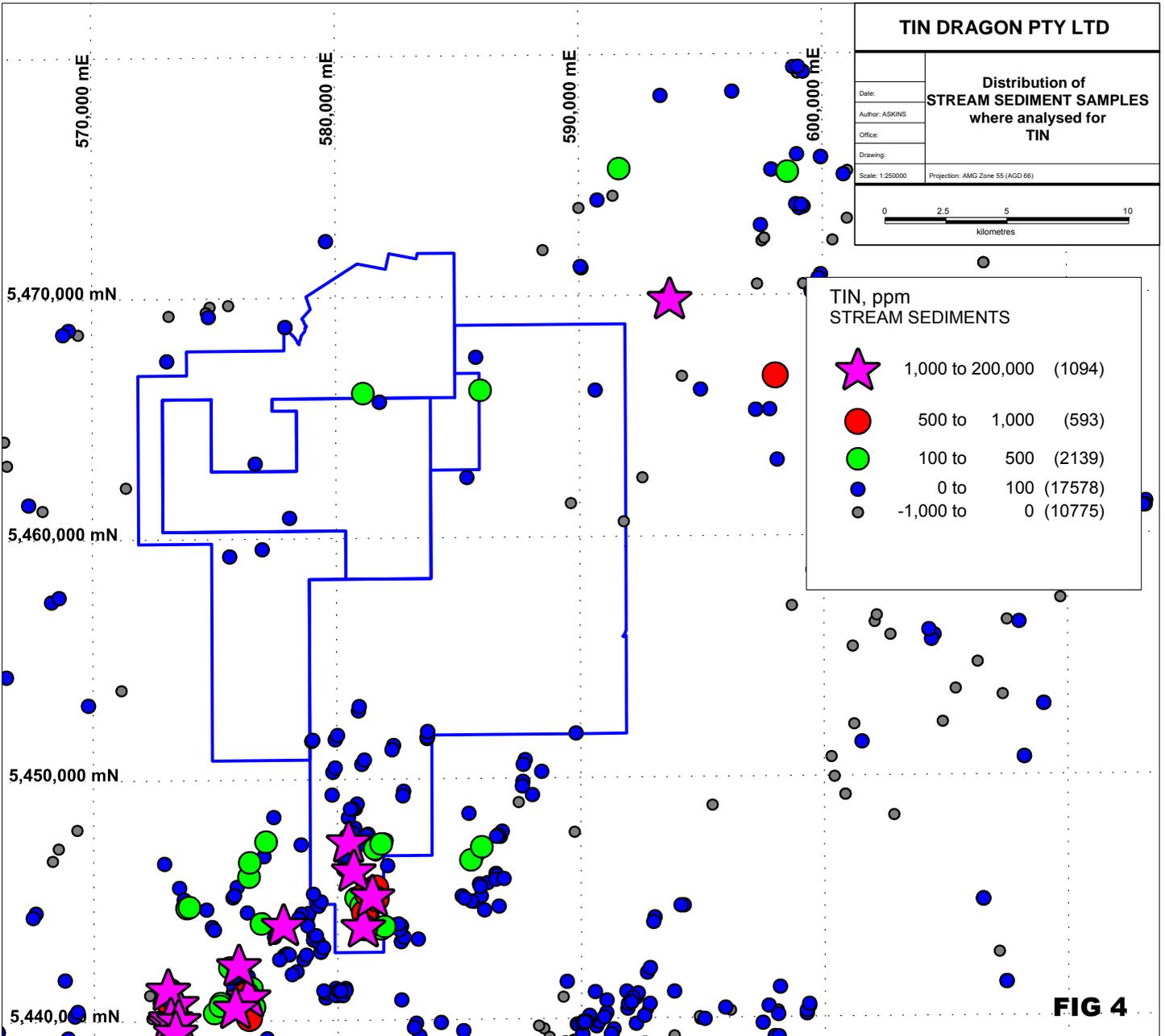
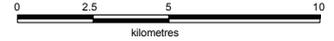
See Section 10 of this report for further discussion of stream sediment geochemistry in the south of the Tenement.

Date:
 Author: ASKINS
 Office:
 Drawing:

**Distribution of
 STREAM SEDIMENT SAMPLES
 where analysed for
 TIN**

Scale: 1:250000

Projection: AMG Zone 55 (AGD 66)



**TIN, ppm
 STREAM SEDIMENTS**

-  1,000 to 200,000 (1094)
-  500 to 1,000 (593)
-  100 to 500 (2139)
-  0 to 100 (17578)
-  -1,000 to 0 (10775)

FIG 4

TIN DRAGON PTY LTD

Distribution of STREAM SEDIMENT SAMPLES where analysed for TUNGSTEN

Date:

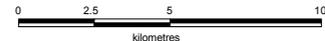
Author: ASKINS

Office:

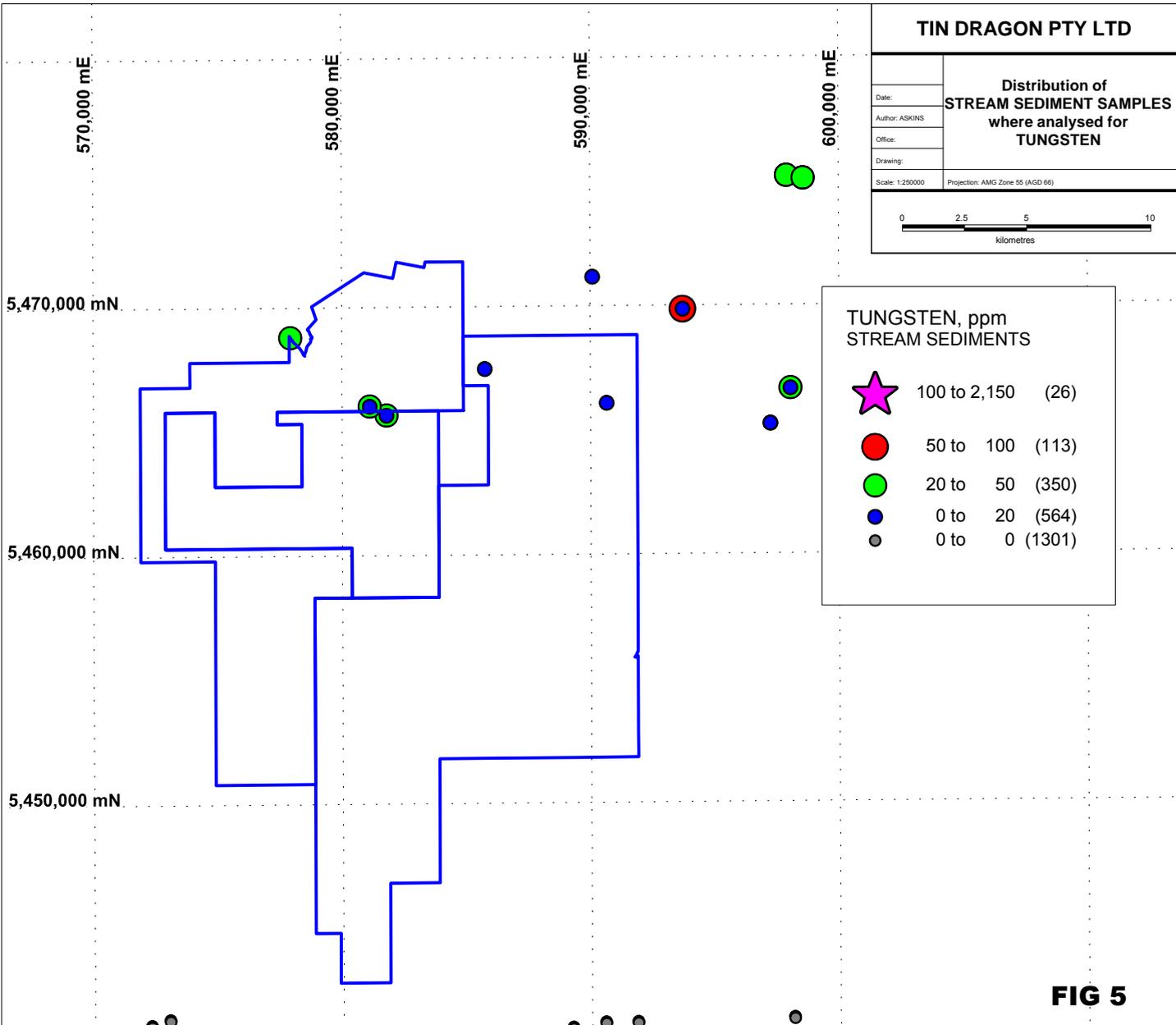
Drawing:

Scale: 1:250000

Projection: AMG Zone 55 (AGD 66)



TUNGSTEN, ppm STREAM SEDIMENTS



7.0 REGIONAL STUDIES OF GRAVITY AND AIRMAGNETICS

In an attempt to target regionally the location of basement mineralisation a study was made of gravity data and regional airmagnetics.

Gravity

Regional and local gravity data was assembled and studied.

A regional residual gravity and contour plot is shown as Fig 6. In the north of the Tenement there is a strong gradient corresponding to known alluvial tin mineralisation; this zone is interpreted to be a concealed mineralised fault system, and so is a prime area to search for bedrock mineralisation.

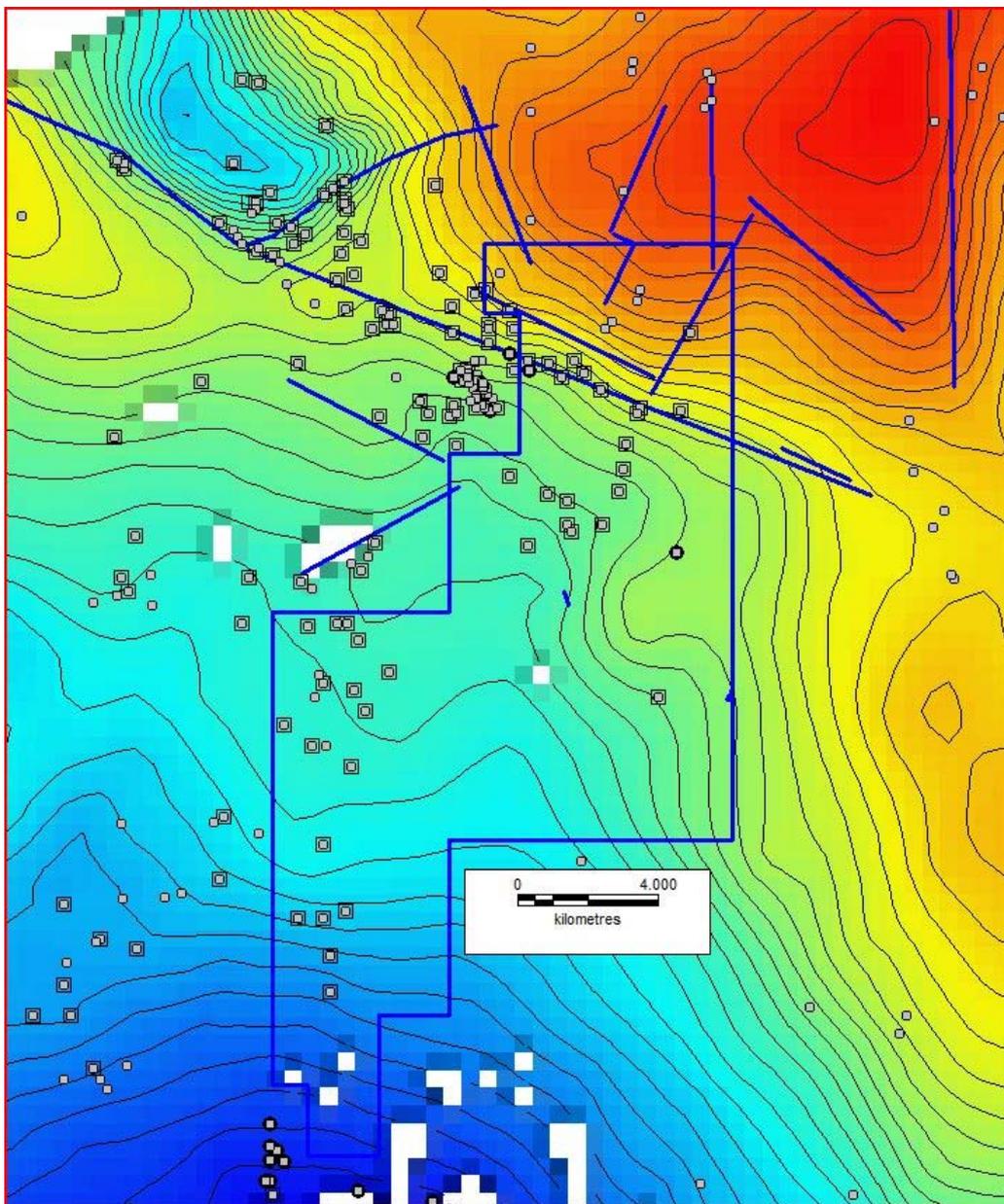


Fig 6. Contoured Residual Gravity image showing interpreted faults and their correlation with known alluvial tin deposits (squares).

The PhD Thesis of M Roach (1994) was examined because he had studied the controls on gold mineralisation in the same area. He collected detailed gravity data, and processed it to produce a model of thickness of Mathinna Beds; part of his model diagram is shown on Fig 7. The strong gradients reflect fault-bound grabens. If these faults pre-date the emplacement of the Devonian granite below, they can be expected to be a locus for mineralisation, and so are zones for future targeting.

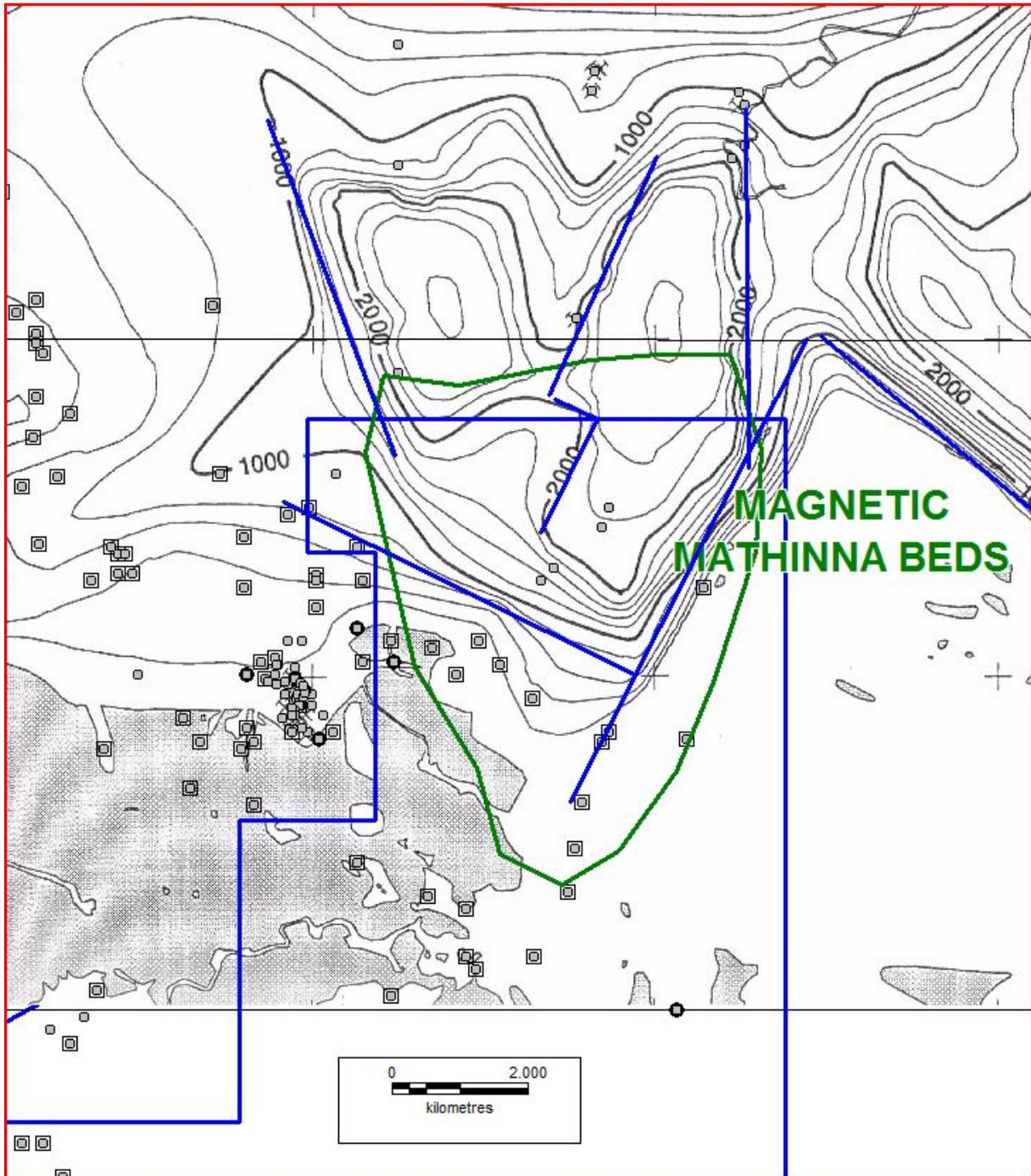


Fig 7. Modelled Mathinna Bed Thickness in metres, demonstrating fault control, and general correlation with mineralisation.

Magnetics

At the Great Pyramid deposit in the Scamander area it is known that the tin mineralisation hosted in Mathinna Bed quartzites has associated magnetite alteration, so magnetics has been used there as a targeting tool.

In the northern part of the Tenement a suite of magnetic Mathinna beds occurs, Fig 8. The magnetic units are extensive and likely to be primary features rather than be caused by secondary magnetite bearing alteration. They show little direct correlation with known tin mineralisation, though being alluvial they could be displaced from the magnetic source. Nevertheless future bedrock mineralisation targeting in this area should use magnetics as one of its tools.

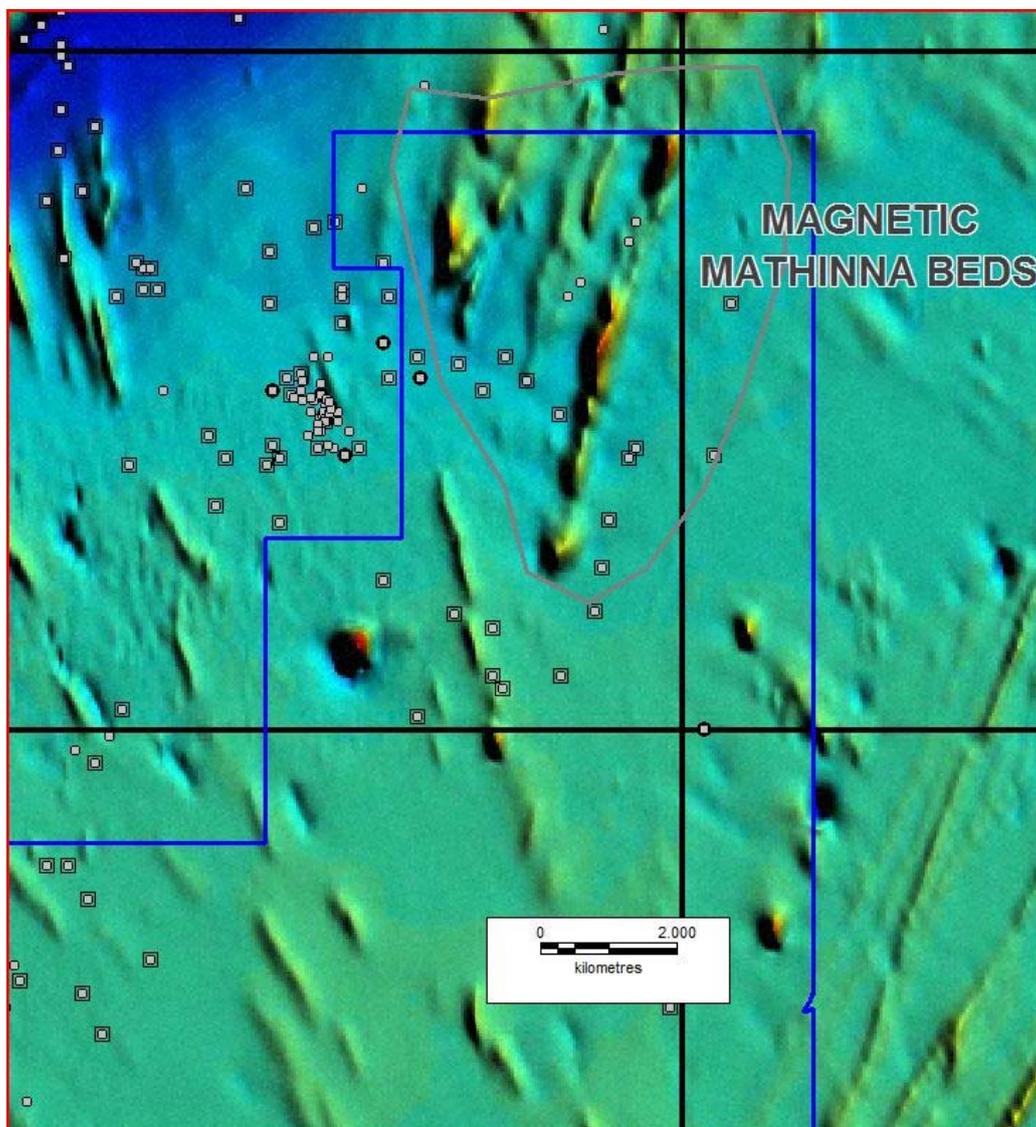


Fig 8. Known mineral deposits on TMI imagery.

8.0 EAST OF GLADSTONE AREA

Garfield/ Lawry's

In the 2012 Annual Report it was pointed out that there is considerable potential for basement tin mineralisation in the area between Garfield and Enterprise, Fig 9. In this area there is a zone of contact of granite with Mathinna Beds, so it is likely that the apical parts of the granite have only just been exposed and granite could be at very shallow depths below the Mathinna Beds. Reid reported in 1928 [UR1928A_076-86] of exposures of greisen and aplite at several alluvial mined localities. In some places such as Empress the greisen was visibly rich in cassiterite.

Despite this potential there are no recorded attempts to mine or explore the basement.

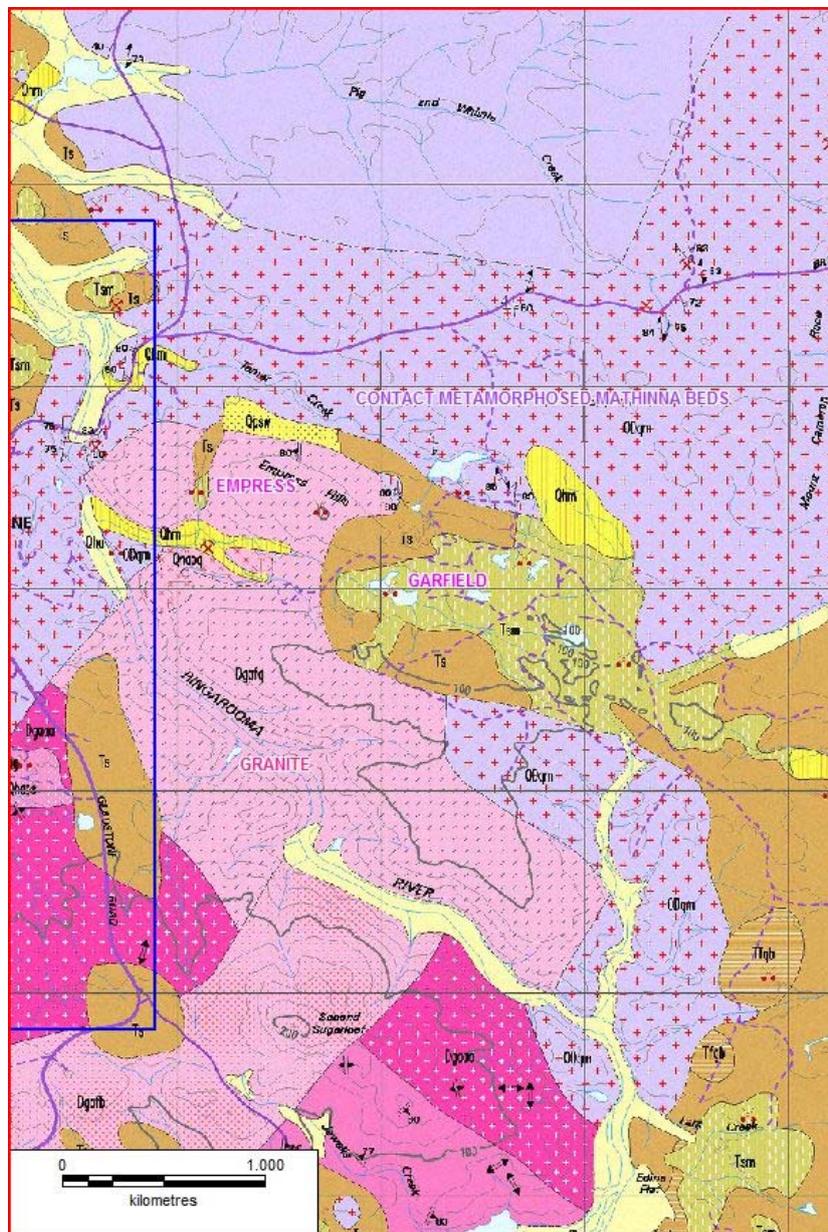


Fig 9. Contact zone granite with Mathinna Beds.

The area was visited to appraise the access and extent of outcrop and conduct an initial search for bedrock mineralisation. Amongst the alluvial workings there are many exposures of siltstones of the Mathinna Beds, all weathered, but none were observed mineralised. Granite is also exposed though no direct contacts with Mathinna Beds were observed. One float of vein quartz with coarse cassiterite was found. This area needs a thorough ground check in a search for bedrock mineralisation, though the extent of alluvial cover will hamper this.

The regional study of gravity/magnetics in Section 6.0 shows clearly that this is a prime target area.

9.0 DORSET DREDGE AREA

This area contains the site of the large former producer, the Dorset Dredge, and the recently producing deposits at Riverside and South Mt Cameron.

The presence of coarse grained cassiterite and other recovered heavy minerals like gold suggests that the basement source is nearby, Yim (1990, 1991). It has been assumed that there are cassiterite bearing greisen veins developed in granite near its upper contact with Mathinna Beds, and gold in quartz veins in the Mathinna Beds, and that this upper contact zone has been removed by erosion. However it is possible that basement deposits in the form of granite hosted sheeted micro-veins of quartz and greisen, like the systems in the Taronga area of NSW, do occur below the dredged alluvium, or close by. Such systems have never been explored. The large alluvial tin endowment here suggests a large bedrock source can be found.

Dorset Dredge

A summary history was presented in the 2012 Annual Report. In MRT files there are few readily accessible records of production and of the nature of the dredged deposits, so a thorough investigation is worthwhile, to glean information on controls and extent and origin of the alluvial deposits, and also to ascertain if any bedrock source mineralisation was found.

I had previously viewed in the MRT library undercoft a very large 2m wide plan compiled apparently by R Munro for Kibuka Mines, showing the production history and locations of the dredge. I tried to find this again on a visit in February 2013 to no avail. Apparently it had been dispatched for scanning but as at the date of this report it is not available in MRT's web based catalogue search facility.

A lady resident at the town of Pioneer is compiling a history of the dredge, so in future this could be a valuable source of information.

An old resident at Herrick, Mr Gilbert Salter, had worked on the dredge many years ago and showed me some photographs. He had no knowledge of bedrock mineralisation.

Riverside and South Mt Cameron

In 2008 Kangaroo Metals Ltd (KML) held, but failed to exercise, an option to purchase the Riverside Mining Lease 7M/2001 and the then surrounding EL21/2002. The mine area is currently closed, and has apparently been sold to a Launceston company. A visit to that mine would be worthwhile to see if bedrock mineralisation were present.

The extensive old alluvial workings close to the main road at South Mt Cameron were visited.

Greybilly (silicified alluvium) remnants abound, testifying to the former presence here of overlying basalt, though no basalt outcrop is known. Pebbles of the alluvium consist dominantly of meta-siltstones of Mathinna Beds, yet no known Mathinna Bed outcrop occurs for several kilometres around. These pebbles derive

either from a distal southern source, or more likely in my view, from close proximity in a now eroded roof-pendant. Thus it is likely that the area is close to the mineralised roof zone of the granite. Some of the pebbles carry veinlets of quartz, Fig 10.



Fig 10.

Granite is extensively exposed. In places there are extensive sheeted microveinlets, Fig 11, though no cassiterite within them was observed.



Fig 11.

10.0 WYNIFORD RIVER AREA

It has been assumed by previous operators that the cassiterite in the alluvials is derived from the well mineralised greisen bodies in the Blue Tier Range to the south, some distance away and outside the Tenement.

It seems more likely that there are nearby sources, and that undiscovered mineralisation hosted in the local granites exists widely. This is supported by the presence of cassiterite in greisen and quartz in the south of the area, (noted by Van Dieman Mines, see 2012 Annual Report). It is also supported by the extraordinary area of tin anomalism in stream sediment sampling in this area, as illustrated in Fig 12. There is no reported exploration of basement, yet the potential is rated high.

The former owner of the former Wyniford River alluvial tin mine, the now aged Mr Gilbert Salter of Herrick, was visited. Apart from confirming that the area was a rich source of quality sapphires – he has a polished collection, and jars of unpolished stones- he was unable to shed any light on whether basement mineralisation existed.

Garibaldi

The granite exposures in the Garibaldi workings and nearby Wyniford River bridge area were examined. There are sheeted altered joints in the bridge area, but elsewhere no alteration, no greisens, and no vein mineralisation was found.

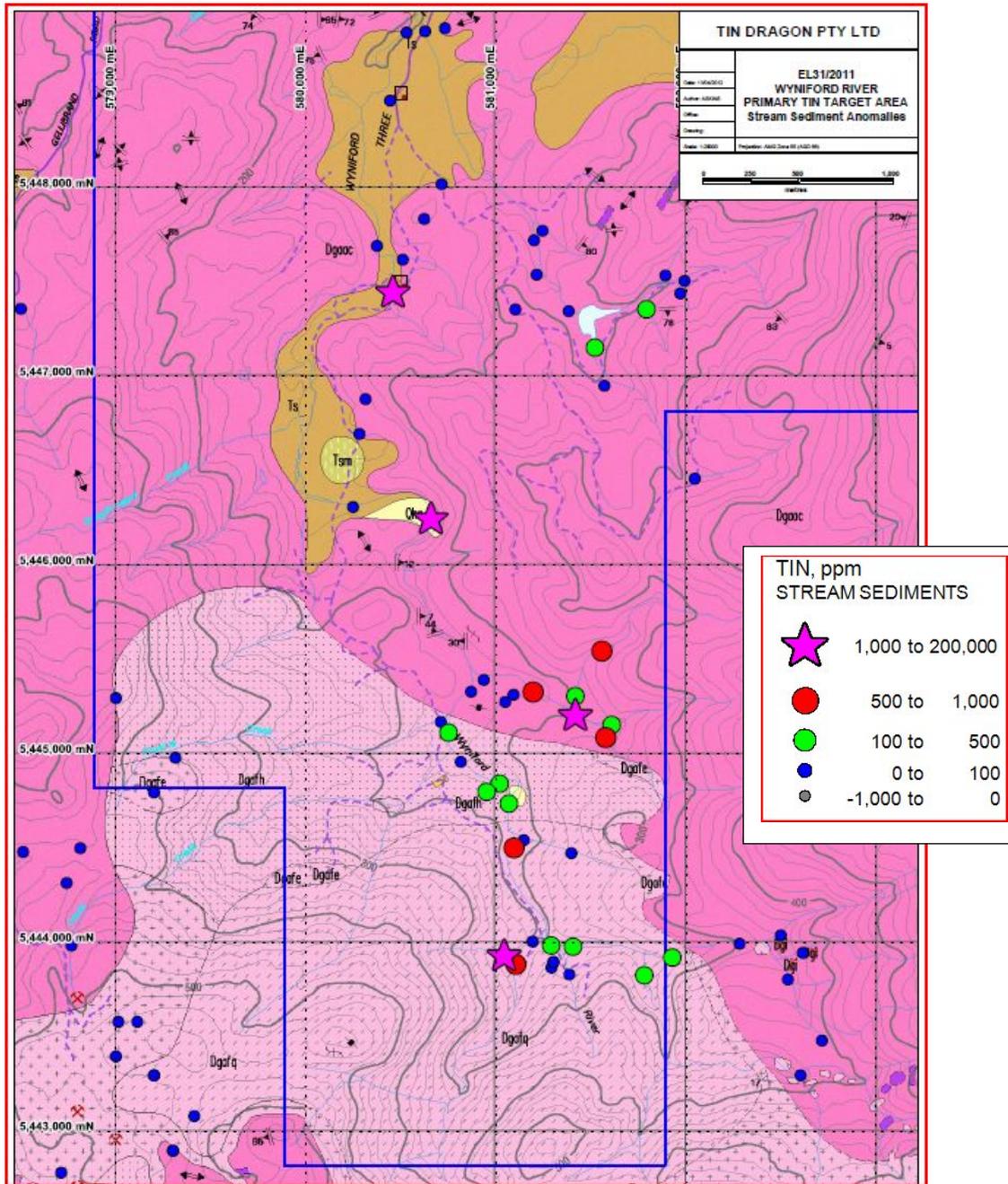


Fig 12. Regional Stream Sediment Sampling Wyniford River Area.

11.0 GENERAL CONCLUSIONS

A long history of investigations since 1874 has concentrated on finding, evaluating and mining alluvial tin resources. No systematic exploration for basement tin mineralisation has yet been done.

Data processing of airmagnetics and gravity data have shown them to be useful future targeting tools.

Concealed mineralised faults are identified in the north of the Tenement. These are the prime basement exploration targets in the Tenement.

Stream sediment geochemical data for tin and tungsten is generally absent in those prime areas.

Initial field inspections in the Dorset Dredge area- a zone of very productive alluvial deposits- confirm the likely proximity of now eroded mineralised roof pendant Mathinna beds. Thus the current level of exposure is close to the top of the granite, where sheeted vein systems can be expected, undiscovered because of the extensive alluvial cover.

The potential to find basement tin deposits is very high.

12.0 RECOMMENDATIONS FOR FUTURE WORK

For alluvial resources the Dorset Dredge area holds the most potential for large extensions to known deposits, hence a further compilation of information is required.

For basement resources, the prime target areas are in the north of the tenement. The first phase of future work should concentrate on field visits to search for basement mineralisation.

The known stream sediment geochemical anomalous areas in the south of the Tenement should be visited and more samples taken to assess the area's prospectivity.

Appropriate stream sediment geochemical surveys will help locate basement mineralisation.

13.0 EXPENDITURE

Expenditures have been reported via MRT Quarterly Returns.

14.0 REFERENCES

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