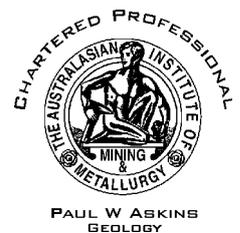




**Final and Annual Report  
for EL9/2011 Monarch Flats  
for the Period 14 August 2015 to 13 August 2016**

**Date: September 2016**

**Author:  
P W ASKINS, MSc MAusIMM CP Geo**



## **ABSTRACT**

This report describes the exploration activities completed within EL9/2011 during the period 14 August 2015 to 13 August 2016. This is the fifth and final annual report for the fifth year of grant of the Tenement. The Tenement has not been renewed for a further term.

The Tenement is located north-west and south-west of the town of Gladstone.

There has been a long history of prospecting since the mid 1870s, and mining for alluvial tin was carried out between 1874 and 1982.

The Tenement covers several major past producer alluvial tin mines, including Pioneer, Endurance, Monarch, New Dorset Dredge, and Scotia, and many smaller alluvial deposits. Past placer production is about 20,000t cassiterite, including:

- Pioneer - 10,814t
- Endurance- 6,240t
- Scotia - 1,270t
- New Dorset Dredge - 762t
- Monarch - 479t

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

Work done by Tin Dragon during the period consisted of

1. Failed attempts to attract a joint venture partner to advance the projects.
2. Preparation of and lodgement of Applications for three Retention Licences covering the alluvial tin resources at Scotia, Endurance, and Pioneer.

**KEYWORDS**

NE Tasmania  
 Geology  
 Mineralisation  
 Alluvial  
 Paleochannel  
 Leads  
 Primary Deposits  
 Tin  
 Retention Licences

**SUMMARY OF ACTIVITIES for EL9/2011 Monarch Flats  
 for the Period 14 August 2015 to 13 August 2016**

Work done by Tin Dragon during the period consisted of

- Failed attempts to attract a joint venture partner to advance the projects.
- Preparation of and lodgement of Applications for three Retention Licences covering the alluvial tin resources at Scotia, Endurance, and Pioneer.

**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**

<b>File name</b>	<b>Format</b>	<b>Contents</b>
EL9-2011_2016_report.pdf	pdf	Annual Report

## **CONTENTS**

- 1.0 Introduction
- 2.0 Geological setting and mineralisation
- 3.0 Review of previous work
- 4.0 Exploration completed during the report period
- 5.0 Retention Licence Applications
- 6.0 Expenditure

## **TABLES**

- Table 1 Tenement Details

## **FIGURES**

- Figures 1 to 5

## 1.0 INTRODUCTION

This report describes the exploration activities completed within EL9/2011 (The 'Tenement') during the period 14 August 2015 to 13 August 2016. This is the fifth and final annual report for the fifth year of grant of the Tenement. The Tenement has not been renewed for a further term.

For Tin Dragon's convenience the project is named "Pioneer", rather than the MRT designator of Monarch Flats.

The Tenement is located north-west and south-west of the town of Gladstone, Fig.1.

Table 1 - Tenement Details

Tenement	Holder	Date Applied	Date Granted	Size
EL9/2011 Monarch Flats	Tin Dragon Pty Ltd 100%	28 February 2011	13 August 2011 (Categories 1 and 5)	103km <sup>2</sup>

Excluded from the grant of the tenement are two small mining leases granted only for Category 3 Construction Minerals, (not for Category 1 Minerals and Category 5 Minerals such as tin and sapphires):-

8M/1993 10 ha, Dorset Council

10M/2008 86 ha, Sanbar Pty Ltd.

Crown Land covers most past mines and resources and prospective areas, and Private Land the remainder. There are no restrictive Reserves.

The project lies within the Tasmania NE (SK55-21) 1:250,000 map sheet, and the 1:25,000 map sheets of Tomahawk, Musselroe, Monarch, Gladstone, Pioneer and Lanka.

Access is via sealed roads, formed local roads and other rough tracks.

The Tenement covers several major past producer alluvial tin mines, including Pioneer, Endurance, Monarch, New Dorset Dredge, and Scotia, and many smaller alluvial deposits.

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

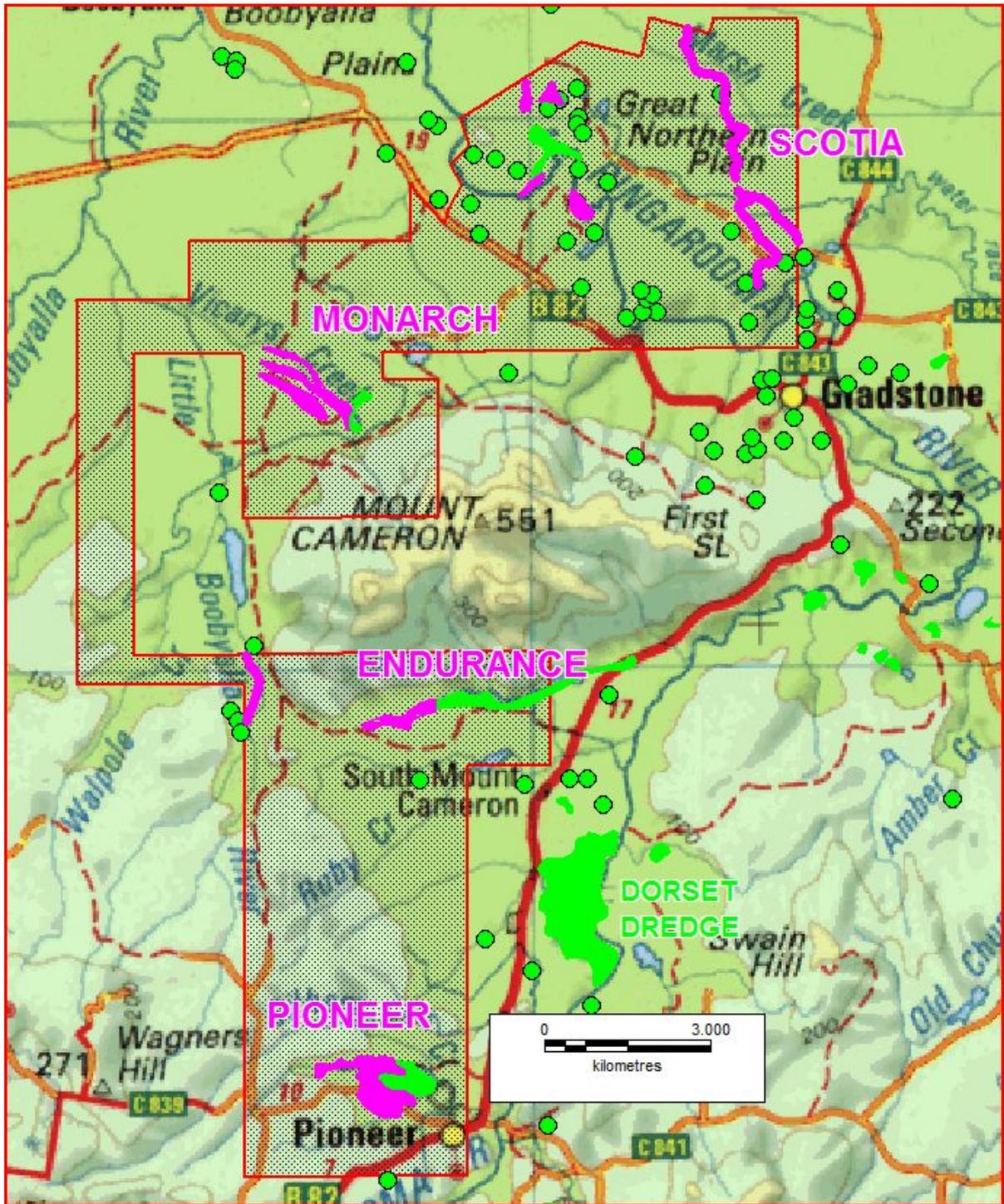


Fig. 1 Tenement Location

## 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), Fig 2. 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.

Past placer production is about 20,000t cassiterite, including from these main deposits:

- Pioneer - 10,814t
- Endurance- 6,240t
- Scotia - 1,270t
- New Dorset Dredge - 762t
- Monarch - 479t

In the region the original sources of the tin were phases of the Devonian tin-bearing granites of the Blue Tier Batholith, where 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.

A generalised history of development of the region's alluvial deposits is as follows:-

During Middle Eocene time (ca 46Ma) volcanic activity commenced along the Blue Tier with the extrusion of the Older Basaltic lava flows. It is likely that these were emplaced along stream valleys incised into the pre-Eocene granitic land surface, and so buried the older alluvial cassiterite deposits.

From the Mid Eocene to Late Oligocene (ca 46 to 24Ma) uplift and a humid tropical climate resulted in rapid erosion of the basalts, and renewed liberation of cassiterite from granites and reworking and upgrading of the earlier pre Middle Eocene alluvial deposits. The Middle Miocene (ca 14Ma) saw a second period of basaltic volcanism with extensive lava flows down many of the larger valleys in the Derby area.

Post Middle Miocene to Recent alluvial deposits were then formed along the alluvial flats of the major rivers.

In areas closer to the present coast there were marine incursions which have reworked the earlier alluvials.

In summary there has been a complex history of placer formation involving reworking and reconcentration of cassiterite.

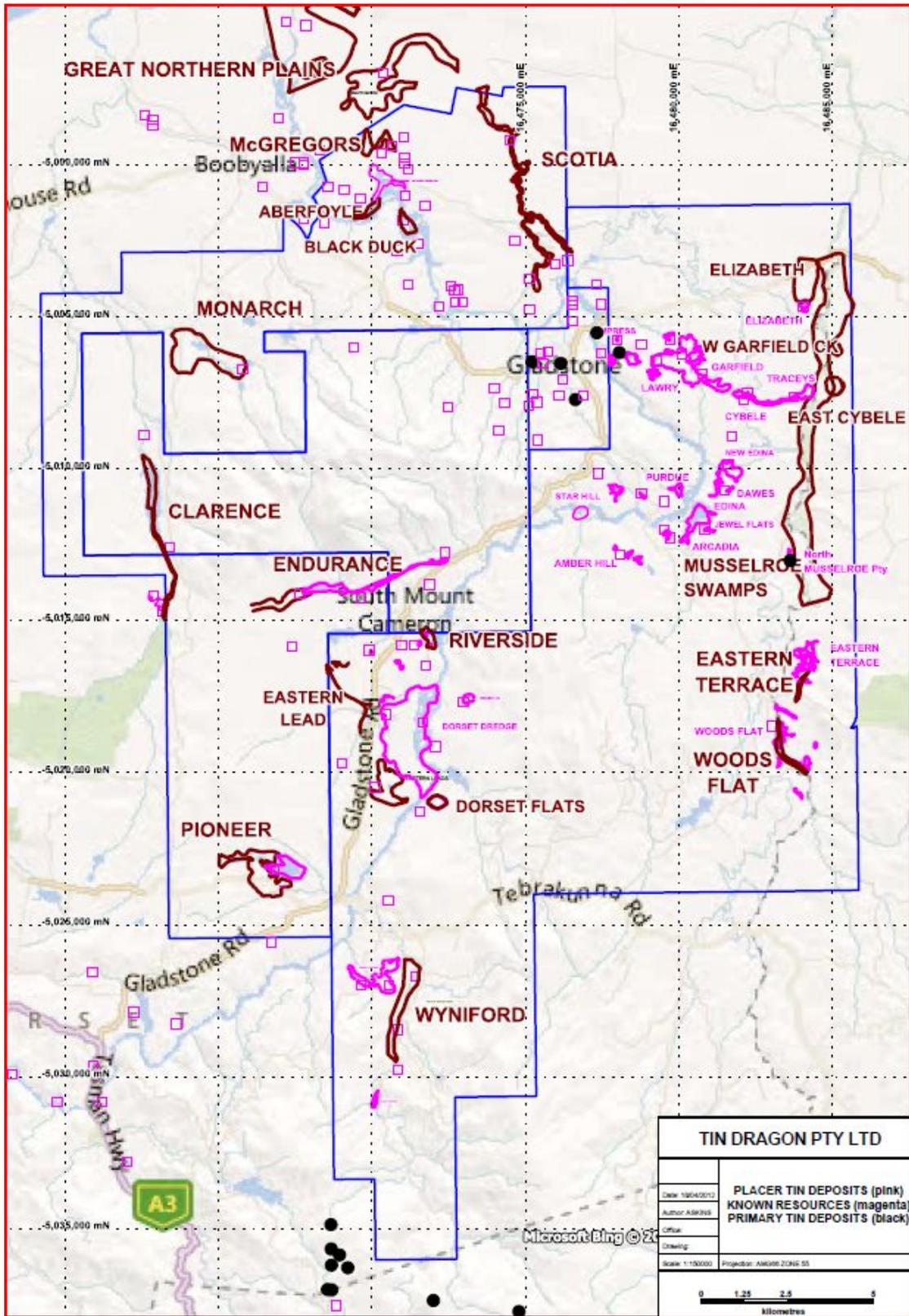


Fig. 2

The area is dominated by the topographically prominent Mt Cameron, consisting of one distinctive major phase of a Devonian granite suite. The phase is easily distinguished from those surrounding it because it has a prominent airborne thorium (and U and K) response.

Mt Cameron stands prominently in an otherwise flat landscape. Geomorphologically this attests to a neotectonic origin; it is interpreted to be a pop-up horst structure resulting from regional compression. The neotectonics are postulated to be no older than Eocene, and the main movement is likely to much younger, namely Miocene or younger, because otherwise erosion would have levelled the hill closer to the prevailing plain level. The bounding faults are not directly mapped though must occur near the change of slopes. These faults will be close to or on the contacts of the thorium rich granite phase.

Apart from a mineralised area south of Gladstone, outside Tin Dragon tenements, the central massif area contains no known basement mineralisation. It is possible that prior to uplift the carapace was mineralised with tin bearing greisen sheets and vein systems, but these have been entirely eroded and thus have contributed the tin (cassiterite) to the peripheral alluvial tin deposits such as Endurance.

### **3.0 REVIEW OF PREVIOUS WORK**

A generalised history of mining in the area was presented in Tin Dragon's first annual report and is not repeated here.

There has been very extensive and intensive exploration for alluvial tin in the Tenement, and no attempt is made to summarise that here.

Instead, work done by various companies and the Tasmanian Department of Mines has been covered within chapters covering the main mineralised areas in this report and in the prior annual reports.

Work reported in Tin Dragon's second annual report (to August 2013) covered a review of previous exploration and mining of, and a field visit to, the Scotia, Monarch and Pioneer Deposits.

Work reported in Tin Dragon's third annual report (to August 2014) covered an evaluation of past stream sediment geochemical exploration, compilation and evaluation of previous company exploration for the New Dorset Dredge area and the Ringarooma Flats area, plus an evaluation of the potential for extensions of the Monarch deposit and a re-appraisal of the Scotia Deposit.

Work reported in Tin Dragon's fourth annual report (to August 2015) covered an assessment of the area for basement tin and tungsten mineralisation, and assessment of the area for the following commodities:-

Sapphires and other gemstones

Gold

Tantalum

Zircon, Monazite and other heavy minerals

Clay

Rare Earth Elements

#### **4.0 EXPLORATION COMPLETED DURING THE REPORT PERIOD**

Work done by Tin Dragon during the period consisted of

- Failed attempts to attract a joint venture partner to advance the projects.
- Preparation of and lodgement of Applications for three Retention Licences covering the alluvial tin resources at Scotia, Endurance, and Pioneer.

### 5.0 RETENTION LICENCE APPLICATIONS

In the current industry downturn and at a time of low tin prices, it had not been possible to attract a joint venture partner to fund and advance the projects, so it was decided to retain the known largest alluvial tin resources as Retention Licences, and decided not to renew the Tenement.

Four deposits have previously been the subject of JORC compliant resource estimates. These are at Pioneer, Endurance, Scotia, and Monarch.

Applications for Retention Licences at Pioneer, located as shown on Fig 3, Endurance, Fig 4, and Scotia, Fig 5, have been lodged with MRT.

After a review of the data for Monarch, although a resource was calculated by Van Dieman Mines, it was apparent that most of that resource had probably been previously mined by BMI Mining, so there was no justification to apply for a Retention Licence there.

Each Retention Licence area was designed to be of sufficient size to cover the known alluvial cassiterite resource and possible untested extensions, and to cover nearby potential primary sources of the cassiterite in the basement rocks, and to cover areas likely to be needed for mining and beneficiation infrastructure.

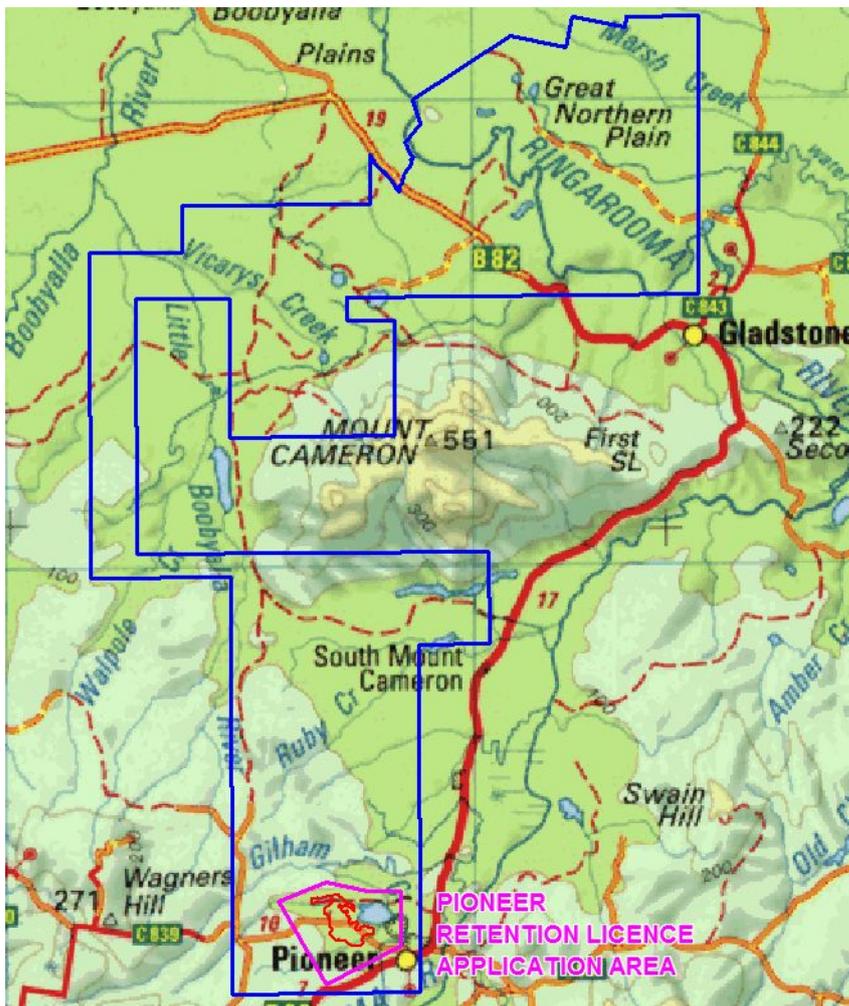


Fig 3. PIONEER RL APPLICATION AREA

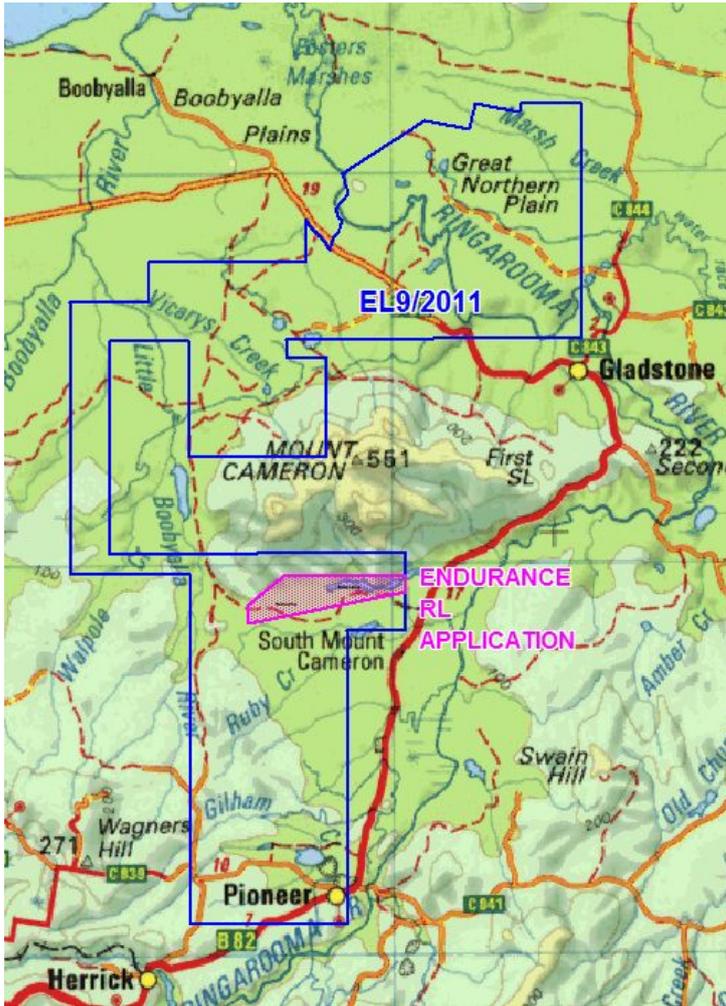


Fig 4. ENDURANCE RL APPLICATION AREA

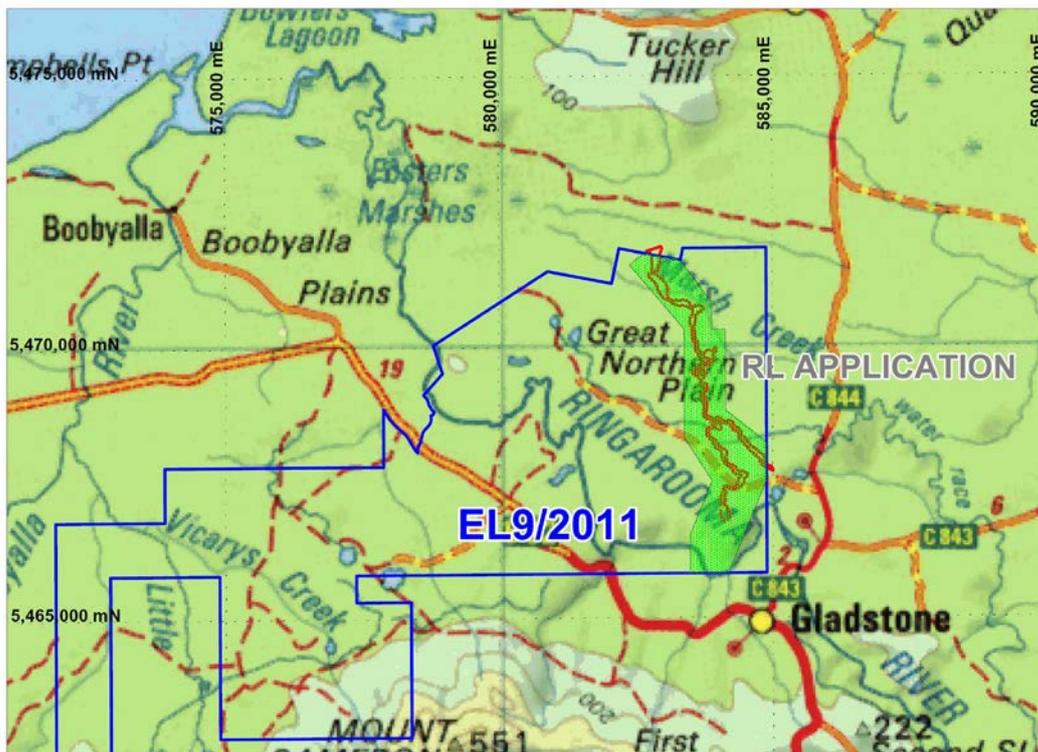


Fig 5. SCOTIA RL APPLICATION AREA

## **6.0 EXPENDITURE**

Expenditures have been reported via MRT Quarterly Returns.