

**Annual Report on Exploration  
EL 42/2010 – “River Lea”  
April 2015 - April 2016**

## **Abstract**

EL 42/2010 "River Lea" was purchased by Moina Gold Pty Ltd from Torque Mining Ltd in the latter half of 2015 with licence transferral taking place early in 2016.

The licence is very prospective for skarn style Au +/- Bi (+/- other commodities) in the Transition Beds and overlying Gordon Limestone (where preserved), particularly in the cores of synclinal folds. Relatively thin Tertiary basalt obscures much of the prospective ground.

No fieldwork has been undertaken during the reporting year and there are no results to report. 3D modelling of 3D IP, inverted magnetics and geology for optimising drill targeting is ongoing.

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## **1.0 Introduction**

EL 42/2010 was purchased by Moina Gold Pty Ltd from Torque Mining Ltd in the latter half of 2015 with the transferral completed in early 2016. For this reason no fieldwork was undertaken during the reporting year.

### **1.1 Exploration Rationale**

Moina Gold Pty Ltd is actively exploring for gold principally but with Bi, Mo, W, Sn, Cu, Pb, Zn, Ag, F and rare earths also targeted.

Most mineralisation known in the licence area and district is associated with the Dolcoath Granite, largely as skarns but with some lode style also. There is also potential for disseminated or veinlet hosted Au.

In areas not under Tertiary cover soil sampling may be an effective tool

Beneath Tertiary cover (and in areas of poor outcrop) geophysics may provide vectors to favourable setting. Known gold skarn mineralisation is found in retrograde skarn assemblages which is magnetite bearing or immediately overlies magnetite rich skarn.

The regional 3D IP survey has shown correspondence between Stormont and the two adjacent syncline hosted skarn bodies (Western and Eastern Synclines) and shallow anomalous conductivity highs. This conductivity is apparently due to shale in the upper Moina Sandstone (i.e. stratigraphically just beneath the skarned sequence) but may be used to map out synclines, a favourable structural setting for the preservation of skarn.

Magnetics highs associated with deeper 3D IP conductivity anomalies either beneath shallow Tertiary basalt or associated with anomalous Bi in soils, are the ideal targets.

## 1.2 Geology

Cambrian quartz+feldspar+biotite porphyry of the Mt. Read Volcanics, Ordovician siliciclastic sediments of the Denison Group and the Devonian Dolcoath Granite form the basement geology to the licence area and are the host and/or source of all potential (hard-rock) mineralisation. A thin veneer of Tertiary basalt covers this basement geology in the far north-western corner of the licence.

Cambrian rocks only outcrop along the southern margin of the licence area where they are a quartz+feldspar+biotite porphyry.

These volcanics are unconformably(?) overlain by the lowermost unit of the Ordovician sequence, the Roland Conglomerate, a siliciclastic quartz pebble conglomerate of 10-20m thickness. The Roland conglomerate is conformably overlain by the quartzose Moina Sandstone which is up to 250m thick. The uppermost (approximately 40m thick) part of the Moina Sandstone is a sequence of interbedded calcareous siltstones with lesser calcareous sandstones and limestone and is known informally as the "Transition Beds". These two units constitute the upper units of the Denison Group. The "Transition Beds" are conformably overlain by the Gordon Limestone which is approximately 400m thick regionally though it is believed that this unit does not occur within the licence area.

The Cambrian-Ordovician sequence has been intruded by the Middle-Devonian Dolcoath I-type Granite with formation of a number of discrete skarn type ore bodies within the "Transition Beds". The granite outcrops in the south-eastern corner of the licence. Subsurface the granite is known to extend as a spine extending westerly from the area of outcrop.

The Cambrian-Ordovician sequence within the licence area lies on the southern limb of a broad (~10km wavelength) open east-west trending F1 syncline. This folding occurred early in the Middle Devonian Tabberrabberan Orogeny. Superimposed on this F1 fold are west-northwest trending shorter wavelength F2 folds with wavelengths. These folds formed later in the orogeny and are associated with southwest verging thrust faulting. The folded sequence is faulted by a number of known faults also of Middle Devonian age. The recent 3D IP has also suggested the presence of further brittle faults. Late in the orogeny the Dolcoath Granite intruded into this faulted and folded terrain.

Mineralisation in the district occurs in a range of forms and settings with the Higgs workings chasing disseminated to semi-massive Au+Ag+Pb+Zn with commonly a pyrrhotite gangue in biotite hornfelsed sediments and/or gold+pyrite in sandstone. The Round Hill workings targeted Au+Ag+Pb mineralisation reportedly in anticlinal fold hinges. On Tin Spur mining of surface concentrations of Sn and Au occurred at a small scale. Discrete quartz+/-W+/-Mo+/-Bi+/-Sn northwest to west-northwest striking veins have been exploited in old workings (e.g. All Nations, Shepard and Murphy) and have potential in both the discrete form or as a zone of smaller veinlets. Elsewhere in the district the Transition Beds have been shown to host skarns with concentrations of F (Shepard and Murphy), Au+Bi (Stormont, Fletchers Adit) and Au+Zn+Sn (Hugo Skarn).

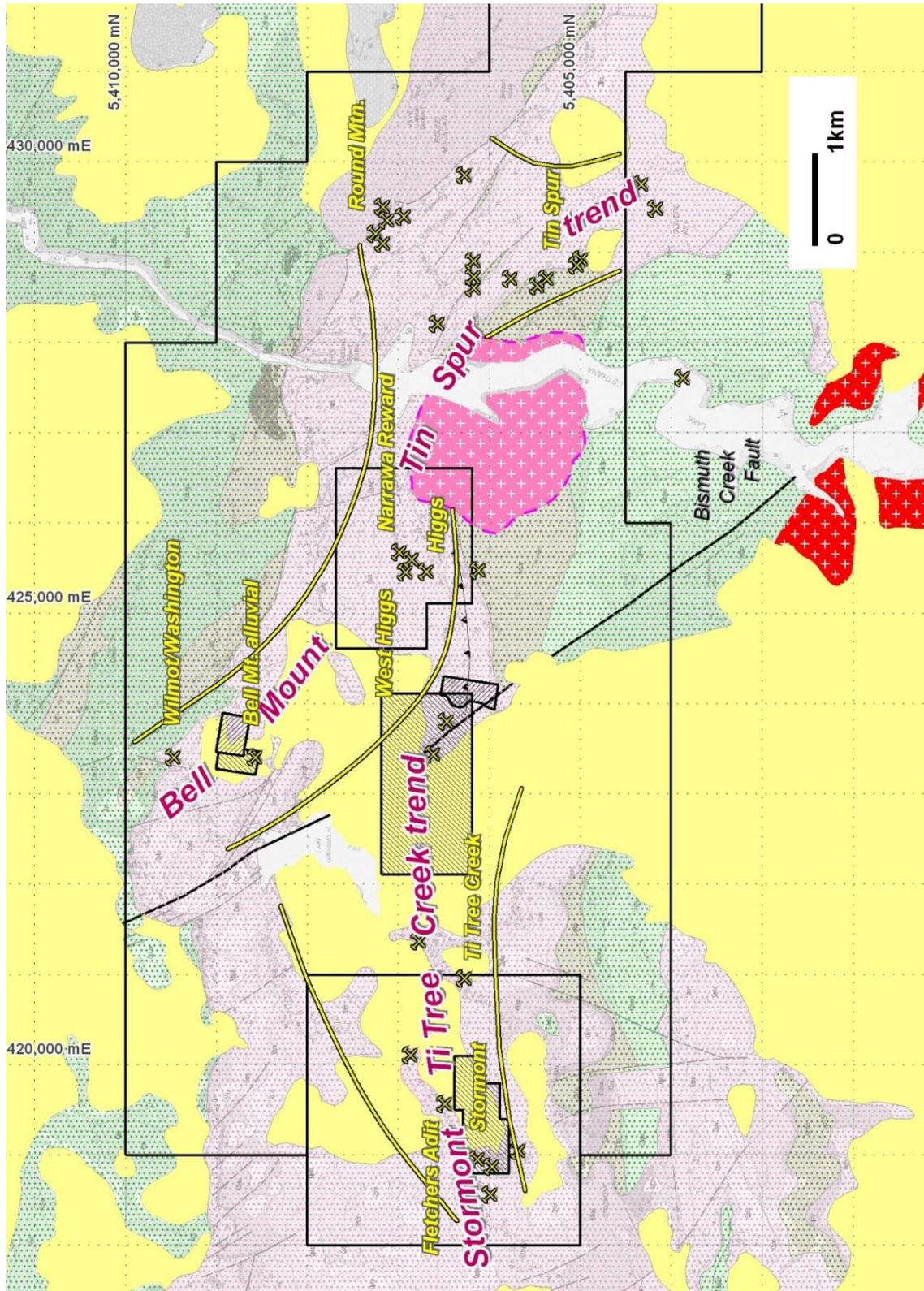


Figure 1.1: Moina Project showing tenements, simplified geology, gold workings and mineralised trends.

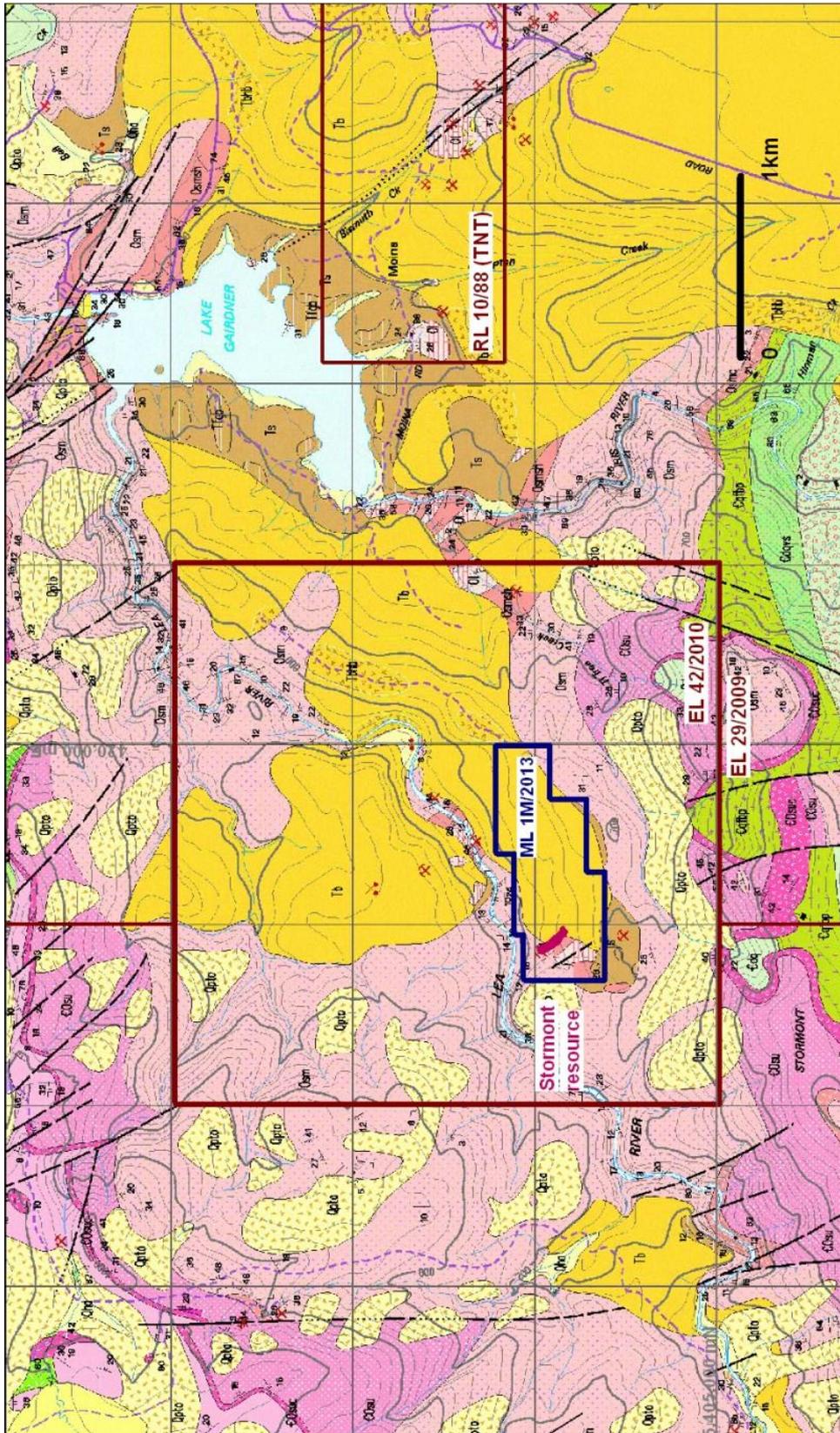


Figure 1.2: Tenement geology after Mineral Resources Tasmania's mapping – Lea and Cethana 1:25,000 sheets. Green rocks are Cambrian volcanics, porphyry and volcanoclastics unconformably overlain by pink rocks which are Ordovician sediments. These Palaeozoic rocks are unconformably overlain by brown and orange rocks are Tertiary sediments and basalt respectively. Light yellow rocks are largely Quaternary talus and alluvium.

### 1.3 Location and Access

EL 42/1010 "River Lea" lies immediately west of Lake Gairdner on the margin between Tasmania's central north and west coast. It is one of three contiguous tenements which constitute Torque Mining Ltd.'s Moina Project, centred on the Dolcoath Granite.

The licence is accessed by bitumen road to the Moina township turn-off on the Cradle Mountain Link Road, about 3 km's from the licence's eastern boundary, thence by a gravel road. The last section beyond the boom gate near the Iris River bridge is a logging road owned by Forestry Tasmania. This road provides the only practicable access within the licence though over grown logging roads north of the River Lea may be accessible when the River Lea is crossable (dry times, temporary bridge).



Figure 1.3: EL 42/2010 River Lea and Moina Project location, northern Tasmania.

### 1.4 Land Status, Usage, Topography and Vegetation

95% of the licence area is classified as State Forest or Crown Land. The remaining 5% is private land on the eastern margin of the licence around Ti Tree Creek where it is maintained as bush. The only use the area has been put to is forestry.

Topographically the licence lies amongst the foothills of the Black Bluff Range and Stormont at elevations between 500m and 900m above sea level.

The licence is diagonally bisected by the northeast flowing River Lea with the southern part of the licence being the northern slopes of Mt. Stormont, the northern side of the river a plateau in the foothills to the Black Bluff Range to the west.

The Stormont deposit lies at the westernmost edge of a Forestry Tasmania (+/- Gunns Ltd JV) plantation which extends along the ridge between the River Lea and Ti Tree Creek to the south. The area north of the river has seen logging in the past but is now just regrowth.

Apart from the plantation areas most of the vegetation type is either wet Sclerophyll, "low dense vegetation" i.e. bauera/ti tree, or heath.

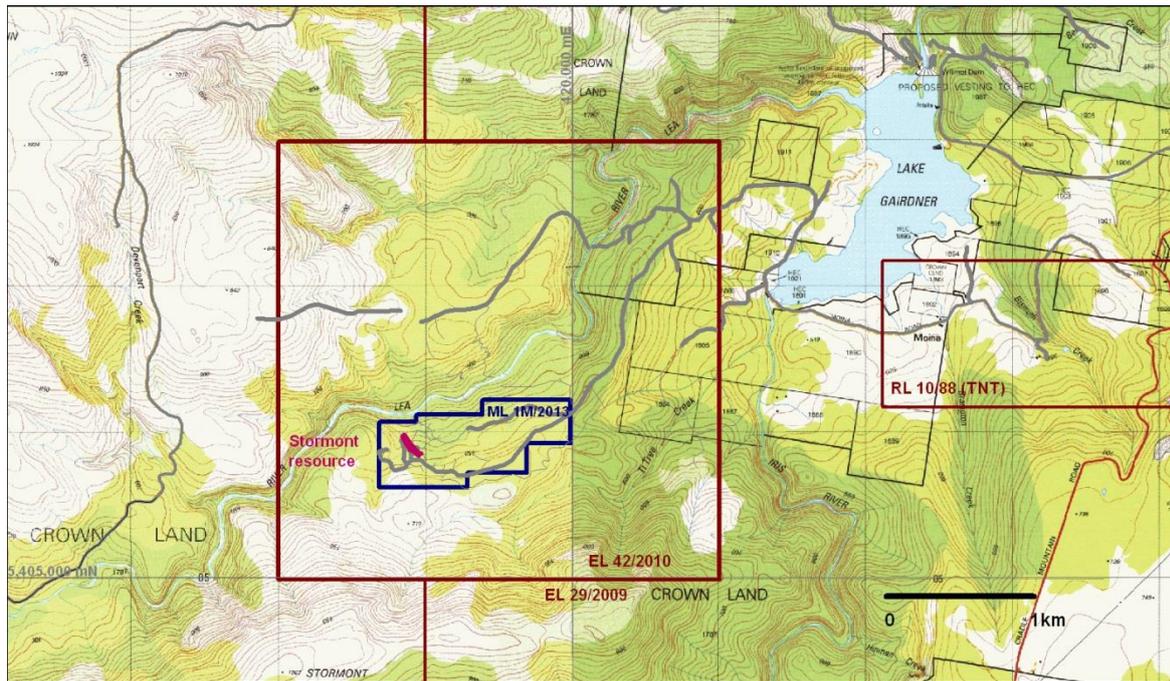


Figure 1.4: EL 42/2010 "River Lea" and ML 1/2013 showing topography, tracks and prospects – base is 1:25,000 Tasmap (Lea and Cethana sheets).

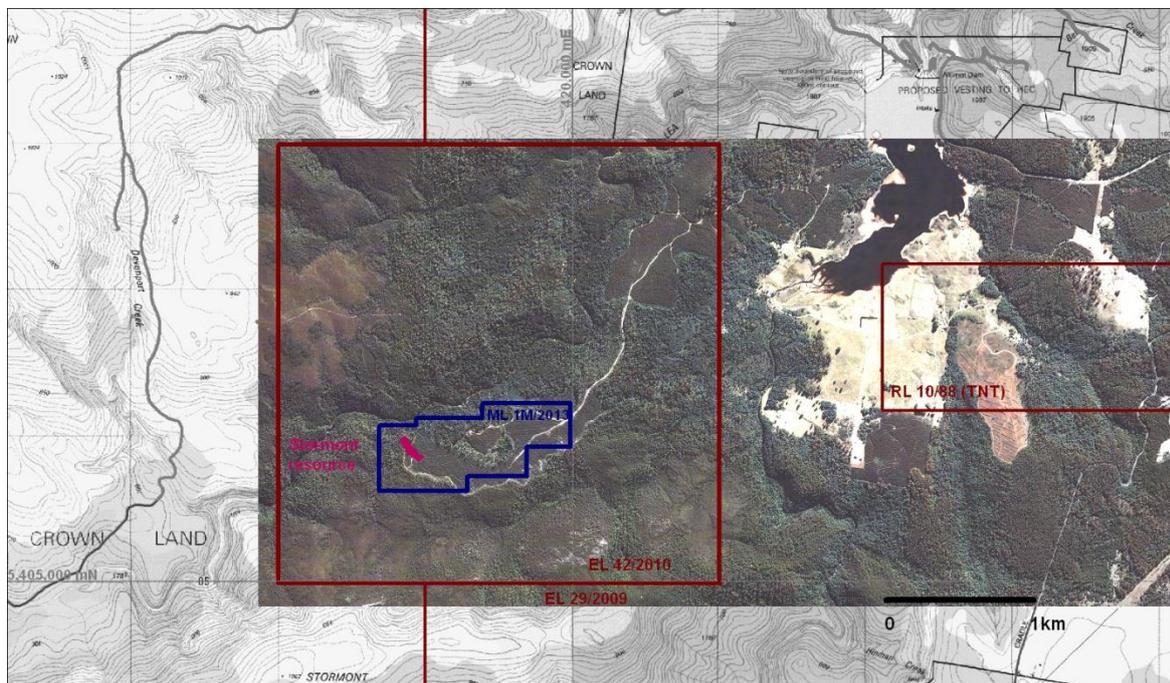


Figure 1.5: EL 42/2010 "River Lea" and ML 1/2013 showing topography, tracks and prospects – base is orthorectified airphoto

## 1.5 Tenure

The licence was granted to Frontier Resources Ltd. on 3<sup>rd</sup> April 2011 as a result of a successful tender under the ETA system (after the inadvertent relinquishment of Frontier's previous licence RL 4/2005).

On 4<sup>th</sup> May 2012 the licence was transferred to Torque Mining Ltd, a private company owned in part by Frontier Resources Ltd, in part by people connected with Frontier Resources Ltd.

In 2013 part of EL 42/2010 was excised from the licence and granted as Mining Lease ML 1/2013 to the Stormont JV between Torque Mining Ltd (45%), BCD Resources NL (50%) and Frontier Resources N.L. (5%).

In early 2016 the licence was transferred to Moina Gold Pty Ltd who are the current holders of the licence.

## 2.0 Review of previous work

Historical exploration over the tenement area would have commenced in the latter part of the 19<sup>th</sup> century, however, successful discoveries only commenced in the early part of the 20<sup>th</sup> century with the Stormont Au+Bi deposit discovered in 1928.

Other old workings which date back to the early phase of prospecting are the Fletchers Adit workings, Stormont gold mine, Lea River alluvials and the western portion of the Ti Tree Creek workings.

The following summary draws largely from Purvis (2000) with post-2000 exploration added.

"Largest was the Stormont Mine, where a 40m long and 8m deep opencut with 40m long adit were excavated in a body of mineralized skarn between 1928-34. The mine produced 6.3t of bismuth concentrate containing 63% bismuth and 91 oz of gold (Roberts, 1986).

A similar but more weakly mineralized Au-Bi skarn was prospected at Fletchers Adit on the south bank of the Lea River 1km NE of Stormont Mine. There is no record of production from Fletchers.

Alluvial gold was worked in the Lea River downstream of the Stormont Mine and Fletchers Adit occurrences.

Hard rock gold, hosted by thin quartz veins in a fault in Ordovician sandstone with conglomerate bands, was prospected by shafts 15m deep at the Stormont Gold Mine on the northern slopes of Mt Stormont (Twelvetrees, 1913). Again, there is no record of production.

There is no record or visible sign of historic prospecting in the Ti-Tree Creek skarn.

Modern large-scale systematic exploration of the (licence) area was initiated by Mt Lyell Co. in 1965. After an aeromagnetic survey they cut a grid extending from the Lea River to the Cradle Mountain Road. They followed up with detailed grids over the skarns at Ti-Tree Creek and the Stormont Mine - Fletchers Adit area.

(Just east of EL 42/2010's eastern boundary) magnetic and bismuth-in-soil anomalies delineated over the Ti-Tree skarn were investigated by 700m of costeaning and two test lines of pole-dipole IP. IP anomalies and costean rock chip intersections up to 10m @ 0.48% Bi were obtained. Drilling was recommended but not done.

In the Stormont Mine - Fletchers Adit area Mt Lyell undertook soil sampling and gradient array IP. They delineated a large skarn with modest bismuth-in-soil and IP anomalies north of the Lea River opposite Fletchers Adit, but did no drilling. No further work was done at Stormont Mine because their estimate for the mineralized skarn body (250,000 tons) was regarded as too small (McKibben, 1972). Mt Lyell withdrew in 1972.

In 1972-73 the Department of Mines drilled two holes into the Ti-Tree Creek. DOM2 (101m – within EL42/2010) intersected 15m of skarn at surface with a best interval of 3.2m @ 0.19% Bi & "trace" Au. DOM3 (95m – just outside EL 42/2010) intersected 13m of skarn and calc-silicate under 10m of Tertiary basalt, for a best result of 1m @ 0.11% Sn. From 1974-79 the licence area was part of a major exploration effort by Comalco, who discovered and drilled out the Moina Deposit (26 million tonnes @ 18% CaF<sub>2</sub>) (further east of EL 42/1010).

They searched the surroundings for similar mineralization, gridding almost the entire area at 50m spacing and carrying out mapping, soil sampling, magnetics, some IP and drilling.

At Ti-Tree Creek Comalco determined the DOM2 skarn contained up to 5.6% F. Chip sampling of outcropping magnetite-pyrite skarn returned values up to 0.65g/t Au over 4m. They drilled hole SMD31 (41m – inside EL 42.2010) to test a magnetic peak, intersecting 7m of magnetite skarn with low values: 0.15g/t Au & 1% F. They did a gradient array IP survey over Stormont Mine and Fletchers Adit which indicated skarn extensions SW of Stormont, and east and west of Fletchers. However, they did no drilling at either prospect."

"Comalco was followed on the Moina project by two JV partners: Shell and CRA. CRA reassayed most of the Comalco holes for gold, concentrating on those in and around the Moina Deposit. In 1981 Shell drilled LGD1 (254m) at 5407500N / 420650E within (EL 42/1010), to test a coincident magnetic / gravity anomaly on the Moina Sandstone ridge west of Lake Gairdner. Below 101m the hole was in magnetite-veined Mt Read Volcanics. It was devoid of mineralization.

In 1983 Gold Fields Exploration took up the Stormont area after it was dropped by the Comalco JV. GFEL's target was gold and they determined all streams draining north from Mt Stormont were anomalous in gold. Channel sampling of the old workings at Stormont Mine returned values up to 42m @ 9.56 g/t Au & 0.5% Bi. Sampling of the final face in the adit showed the old miners stopped in ore grading 36.5 g/t Au and 1.1% Bi.

From 1988-90 GFEL drilled 21 holes at Stormont Mine and 9 near Fletchers Adit. The most significant intersections were in the Stormont skarn: 13m @ 4.1g/t Au, 0.46% Bi (SD1); 2.1m @ 12.8g/t Au, 0.35% Bi (SD3); and 5.4m @ 2.5g/t Au, 0.1% Bi (SD10).

At Fletchers the holes were all north of the Lea River and outlined a large area of weakly auriferous skarn mostly beneath thin Tertiary basalt. Best intersection was 2m @ 1.5 g/t Au in FD7. One hundred metres away the northern-most hole (FD8) had a 35m gold-anomalous section with 21m assaying 0.3 g/t Au. Despite the encouraging drill results GFEL withdrew in 1991.

In the 5 years Goldstream-Titan had (old EL) EL20/92 the exclusive focus of groundwork on the licence was drilling at (the) Stormont (Au+Bi) Mine. They put down a further 32 short holes, mostly in peripheral areas for generally poor results. Better intersections were all in the main mineralized zone: 10.5m @ 1.4 g/t Au (SD33); 9.5m @ 2.7g/t Au (S036); 196m @ 2.9g/t Au (S039) and 8m @ 1.8g/t Au (S044). They estimated the deposit contained 100,000 - 150,000t @ 2-4g/t Au (Newnham, 1996).

The only work done by Goldstream-Titan on the EL outside Stormont was a high resolution helicopter-borne aeromagnetic survey of the whole 25 sq km tenement (EL 20/92) in 1996." (Purvis, 2000)

In August 1999 EL 20/92 was transferred to Jervois Mining N.L. (Jervois). In early 2000 Jervois drilled 4 holes (NTW size = 64mm) in the Stormont prospect (Purvis, 2000). Holes ST01, ST02 and ST03 were drilled at the southeastern end of the central zone with ST04 drilled into the western zone. All holes were drilled vertically. Both ST01 and ST02 intersected unmineralised skarn. ST03 was drilled apparently east of the Stormont fault. The results of the three holes in the central zone were poor but appear to have closed off the main mineralised zone between SD44 and ST01. ST04 in the western zone intersected 2.0m at 3.5g/t Au.

Jervois also drilled five holes (TC01 to TC05) totalling 188m (of which TC01, 04 and 05 lie within EL 42/2010) at the Ti Tree Creek skarn magnetic anomalies, anomalous Bi in soils and IP anomalies from the Mt Lyell survey. Four of the five holes intersected skarn though best result was 1m @ 1.32g/t Au and 0.18% Bi in TC04.

Frontier commenced work on the Stormont prospect in early 2008, completing diamond drillholes SFD001 to SFD016 (for 543.9m). All holes were drilled HQ/NQ. Frontier also carried out further channel sampling in the open cut with 16 samples for 21.8m.

In 2009 Frontier estimated a JORC compliant Inferred Resource for the deposit (at 1.5g/t Au cut-off) of 91,400t @ 4.57g/t Au, 0.30% Bi and 3.52g/t Au for 13,430 oz Au, 277t Bi and 10,340 oz Ag.

In 2011 Frontier drilled a further 31 holes for 872.1m's to upgrade the resource from Inferred to Indicated status. 38.7m's of channel samples were also taken along the northeastern wall of the open cut to aid in this estimate.

This work resulted in the estimation of an Indicated Resource of 84,536t @ 4.38g/t Au and 0.23% Bi for 11,906 ounces of gold and 197 tonnes of bismuth at a 1.5g/t Au cut-off or 157,144t @ 2.78g/t Au and 0.17% Bi for 14,047 ounces of gold and 264 tonnes of bismuth at a 0g/t Au cut-off.

The Stormont resource was mined in later 2014/early 2015 by a BCD Resources/Torque Mining Ltd JV.

In addition to the resource work a further 8 holes were drilled to the southeast of the resource with better intersections SFD53 1m @ 5.86g/t Au, SFD50 2.8m @ 4.7g/t Au and SFD49 1m @ 2.8g/t Au.

The licence was also included in an ambitious 24skm regional 3D IP survey which covered the Stormont deposit and extended 500m's further west to cover the Western Syncline and Far West helimagnetic anomalies.

The Far West area was also soil sampled and a ground magnetic survey conducted, with anomalous Au and Bi coincident with a linear magnetic high.

Between 2013 and early 2015 11 holes for 237.3m were drilled into the Far West prospect at a coincidentally anomalous 3D IP conductivity, heli- and ground magnetics and Au and Bi in soils. Actinolite and magneite rich skarn was intersected with better intersections

### **3.0 Exploration during the reporting period**

No fieldwork was carried out during the reporting year. Further 3D modelling of the 3D IP data, inverted helimagnetics and geology was carried out to optimise drill targeting. That work is incomplete and ongoing and will be reported in the coming years report.

#### **4.0 Discussion of results**

There are no results to report.

## 5.0 Conclusions

The River Lea licence is highly prospective for further Au +/- Bi skarn deposits. Existing 3D IP and helimagnetics has highlighted numerous Stormont look-a-likes beneath shallow Tertiary basalt cover or associated with anomalous Bi in soils, in windows in the basalt, as illustrated in figures 5.1 and 5.2.

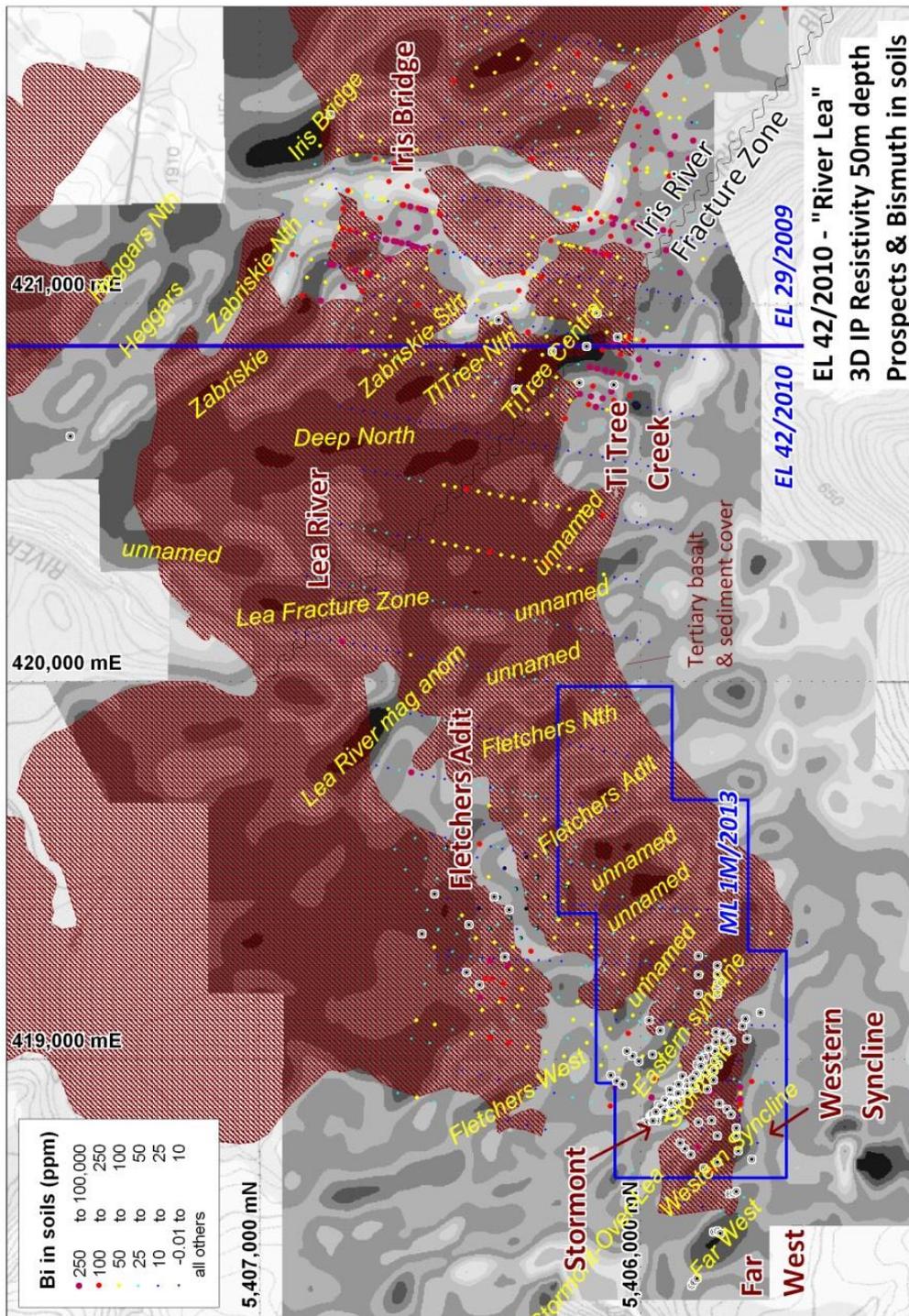


Figure 5.1: River Lea showing 3D IP resistivity at 50m depth with conductivity anomalies as darker greys and black, also prospects (maroon text), drillhole collars and, bismuth in soils. Shaded area is thin Tertiary cover.

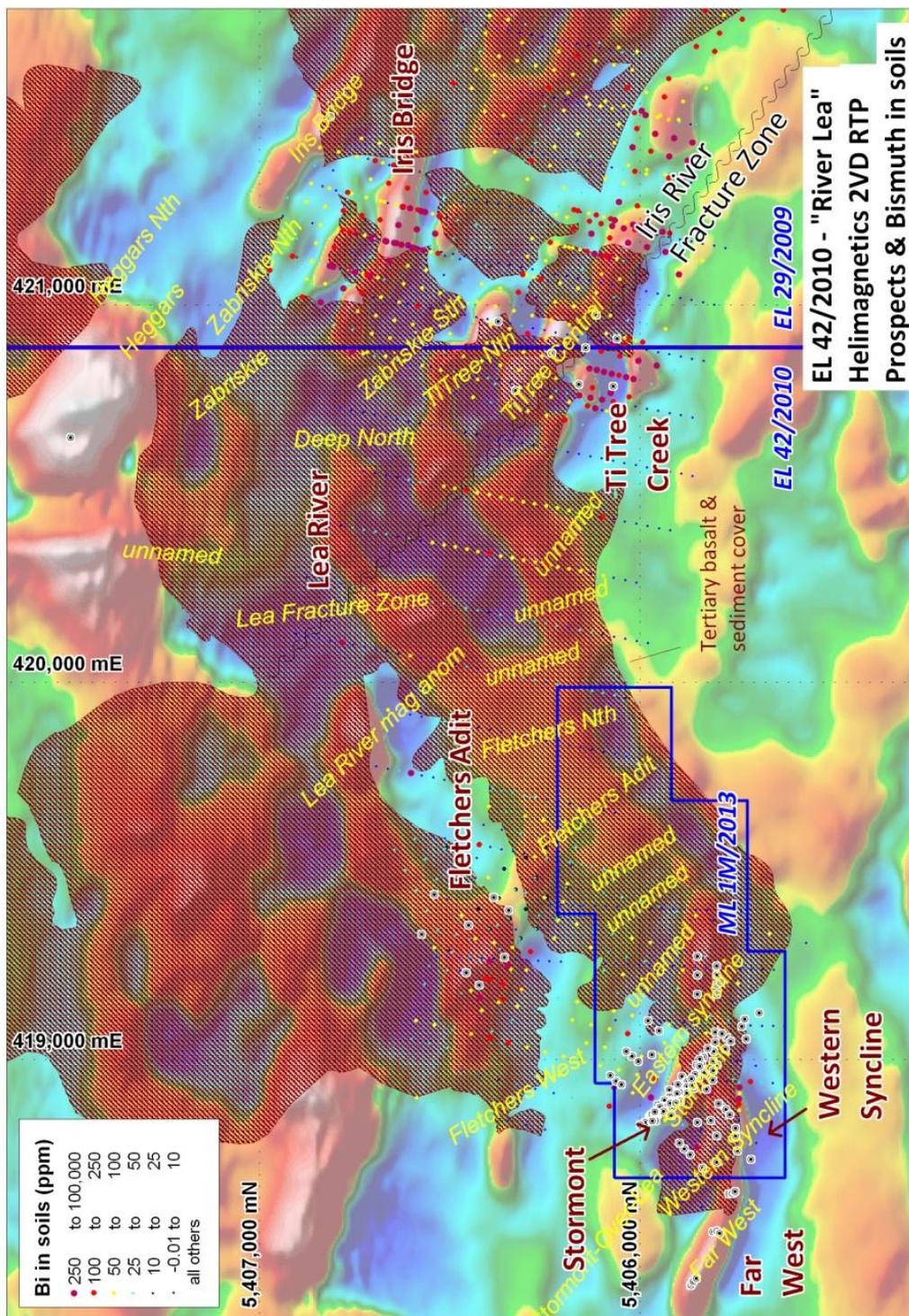


Figure 5.2: River Lea same area as figure 5.1 showing conductivity anomalies and tertiary basalt over 2<sup>nd</sup> vertical derivative helimagnetics.

## **6.0 Environmental**

All drill sites and collars were rehabbed and reported in the 2013/14 annual report (MacDonald, 2014).

## 7.0 References

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