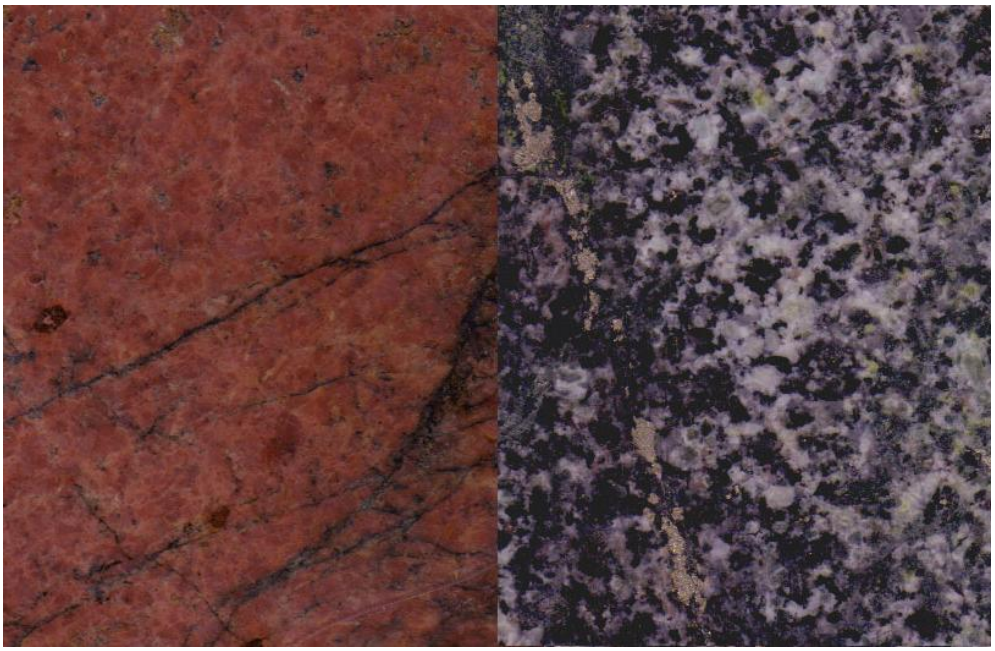
Pallawah Hill Annual Report 2008 – EL 45/2006



Altered and mineralised examples of Dove Granite.

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Summary

The Pallawah Hill exploration licence (EL45/2006) was granted on April 16th 2007. This report is the first annual report for (EL45/2006) and is submitted in a Mineral Resources Development Act (1995) compliant format by Pluton Resources Ltd. (Australian Stock Exchange Code: PLV, hereafter Pluton).

The Pallawah Hill exploration licence has a number of mineral occurrences, an unexplored gold prospect (Little Bell) and a number of sites with altered Cambrian rocks. The licence has not previously been systematically explored for copper and gold, only regional assessments have been made.

Pluton Resources has focussed on the region because it is believed that there are many characteristics of the copper-gold porphyry districts in New South Wales, which includes the Cadia and Goonumbla deposits. The similar characteristics identified include the setting and chemistry of the host rocks, as well as the styles of alteration.

Recent reconnaissance scale mapping and interpretation of modern geophysics (previous to the application) by Pluton shows the Pallawah Hill area contains areas of alteration within and adjacent to the Dove Granite ‘intrusive complex’. Rock chip sampling from the eastern part of the licence has identified better than expected alteration within the previously ‘less prospective’ parts of the Dove Granite. A more systematic hand sampling program is planned for the region. No reduction in the current licence area is planned before this assessment is complete.

Work performed by Pluton to date has identified four areas of interest within the licence: the Campbell River copper occurrence (a potential extension of the Devon Mine structural corridor); the strongly altered Mersey River ‘pluton’ and granite margins; the Olivia Creek base metal occurrence; and the strongly altered intrusives on Gads Hill. These areas will be the main focus of the ongoing work program.

Tenure

A tenement application (ELA 45/2006) was made for an area of 60km^2 immediately adjacent to the 100% Pluton owned Dove River exploration licence. The tenement was granted by the Minister for Resources on 16th April 2007. The exploration licence is located within the Mt Read Strategic Prospectivity Zone. This provides for security of exploration tenure by way of compensation of reasonable cost of work conducted (or resource defined) if a change in the tenement's land status results in the licence being revoked.

Location and land classification

The licence is located about 18km south-west of the township of Sheffield (pop approximately 1000) and about 60km from port facilities at Devonport (figure 1). The licence land classification consists of State Forest, MDC Informal Reserves, Forest Reserve, Private Land, Regional Reserve, lakeside HEC controlled land. The licence traverses Gads Hill and the Mersey and Forth Valleys either side. The western part of the licence is dissected by the Campbell and Dove Rivers.

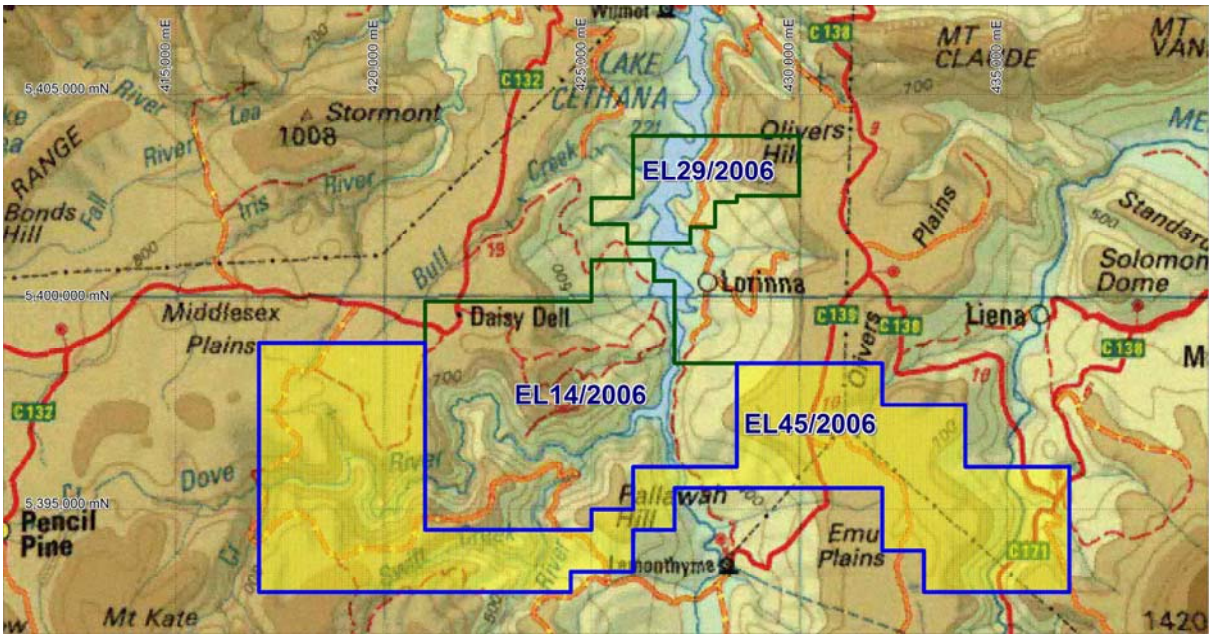

Figure 1: EL45/2006 location, licences with green boundaries represent Pluton's other licences.

Topography

The topography of the licence is variable with relatively flat areas on Gads Hill and adjacent to Middlesex Plains (defined by basalt plateaus) and deeply incised valleys below them. Contours vary from 230m at the edge of Lakes Cethana to >700m on Olivers Plains. The slopes above the Dove River and Mersey River are steep with areas west of Pallawah Hill particularly rugged. Despite the variable topography the access is quite good (see below).

Access

The level of access to the broad (east –west) licence is good with only the major rivers having incised valleys that are not easily traversed.

Access to the Western Part of the Pallawah Hill licence is via the Cradle Mountain Link Road (C132) by way of gravelled forestry track that runs southerly from the Middlesex Plains area. Access to the central part of the licence south of the Dove River is via Lemothyme Road (C139) then a bridge over the Forth River above the Lemonthyme Power Station. This forestry access has a locked gate and the tracks contour westward around Pallawah Hill. Access to Gads Hill is via the Lemonthyme Road and Gads Hill Road (an easterly turn off). The eastern most access is via the Mersey Forest Road, this is connected to Gads Hill by way of Olivers Road via Liena.

Vegetation and Soil

Vegetation comprises wet and dry eucalypt forest typically dominated by Eucalyptus Viminalis, Obliqua and Amygdalina spp. On wetter south facing slopes and near river banks there is dogwood scrub and Acacia Dealbata forest. Rainforest is occasionally present adjacent to creeks and on elevated basalt plateaus. Undergrowth is dependent on how dry the site is, but typically consists of spiky heath or ferns.

The soil profile is extremely variable with deep soils over both granite and basalt. In areas of deep incision the soil profile is almost non-existent with exposed weathered bedrock and significant talus slopes.

Geology

EL 45/2006 is contained within the northern portion of the arcuate Mt Read Volcanic belt which wraps around the Precambrian Tyennan basement. This belt comprises Cambrian c500Ma Mt Read Volcanics and associated intrusive rocks, unconformably overlain by Cambro-Ordovician siliciclastics and limestones. The Mt Read Volcanic belt is highly mineralised, containing numerous polymetallic VHMS-style deposits (e.g. Helleyer, Que River, Rosebery) and volcanogenic copper-gold deposits (eg. Mt Lyell, Henty). Parts of the Palaeozoic sequence are covered by Tertiary basalt.

Very little detailed work has been undertaken in the current licence area. A description of the known lithologies and observed variations within the licence are summarised below.

Precambrian Schist

The oldest rocks in the area are Proterozoic schists. The schists are strongly deformed and have a well developed foliation, they are typically light grey with a dark grey spotting or banding with mica rich and quartz rich alternating bands. Reid (1967) describes these rocks

as quartz-sericite schists and quartzites. The schists occupy the southern margin of the lease and are intruded by the Dove Granite and are probably unconformably overlain by the Cambrian Volcanics

Cambrian Volcanics
The Cambrian volcanics within the licence area have not been assigned a formal correlation with the Mt Read Volcanic stratigraphy, however the volcanics appear to be scarce within the licence. The Cambrian sequence is dominated by the intrusive Dove Granite.

Dove Granite
The Dove Granite is regionally mapped as three occurrences, one in each of the Mersey, Forth and Dove valleys with exposures known on Gads Hill and as dykes within the Precambrian Schist . The Dove Granite is of variable composition with many workers attributing the associated porphyritic units to marginal phases of the main 'stocks' (eg: Herrman in Fleming and Castro, 1989). The granitic rocks are tentatively subdivided into three phases: felsic biotite granite, felsic biotite-hornblende granite/granodiorite and intermediate hornblende granodiorite/quartz-diorite. These descriptions are from hand specimen and drill core in the adjacent Dove River licence and are not definitive petrogenetic terms.

The variability in granite samples collected from the Mersey Forest Road show a range of alteration styles, particularly evident is the strong sodic alteration which produces an apparently leucogranite by way of ferromagnesian mineral replacement. Similarly on Gads Hill specimens with strong potassic alteration are almost pure orthoclase. Further study of the geochemistry and should determine the true composition and classification of the phases of the Dove Granite.

Tertiary Basalt
The Tertiary Basalt is a fine-medium grained vesicular dark rock with occasional zeolites and calcite veins. It is commonly underlain by Tertiary sediments. Herrmann in Fleming and Castro (1989) estimated Tertiary Basalt flows south of the Post Office Tree are likely to be only a few tens of metres thick. No attempt has been made to assess the thickness of basalt as yet.

Quaternary Glacial and Fluvial Deposits
Although not prominent in the main part of the licence there are surficial deposits of known glacial origin on parts of the Mersey River valley.

Exploration History

James 'Philosopher' Smith discovered alluvial gold in the Forth River in 1859 near Golden Point approximately three kilometres north of Lorinna (Jennings 1963). The Campbell brothers opened the first hard rock mine in the early 1880's on the east side of the Forth River. In 1887 a gold discovery at Five Mile Rise was made by J Aylett at the "Great Caledonian" Mine (Reid, 1919). The proximity of these deposits to the Dove Granite has prompted minor interest and no significant hard rock workings have been reported in the tenement, however regionally workings have been confined to the adjacent tenement to the North. No systematic exploration has been recorded for disseminated copper- gold mineralisation within the tenenment area, however several regional stream sediment surveys have covered the area RGC (1989-1990), MT LYELL (1965-1971) and FREEPORT (1973).

For a summary of these activities see McDougall and Reed (2007).

Work to date

The licence was applied for cover extensions of mineralisation and alteration mapped on the adjacent Dove River Licence (EL14/2006) and to cover historical stream sediment anomalism mapped in the Olivia Creek area (west of the Dove River EL14/2006). Also the idea was cover eastern extensions of the Dove Granite. Exploration in the Mt Read Volcanics and younger rocks about 18km southwest of Sheffield will continue to focus on geological mapping and manual rock and soil sampling, utilising existing access tracks and roads. Activities to date are summarised below.

Geophysical and Geological assessment

A regional assessment of the Western Tasmanian Regional Minerals Program data was made and this identified areas of high radiometric response associated within and adjacent to known Dove Granite occurrences.

Particular prospects include the southern extension of the Devon structure in the Campbell River. There are also potentially parallel structures containing base metals in Olivia Creek, west of the Devon Mine.

Rock Chip Sampling

Rock samples were collected on a sub-regional basis during reconnaissance mapping traverses for geochemical analysis and lithological comparison. Rock chip sampling from the eastern part of the licence has identified better than expected alteration within the previously 'less prospective' parts of the Dove Granite. Initial results for gold and copper have not revealed strong anomalism, however an assessment of whole rock data is likely to identify alteration types that may be more prospective.

The rock chip traverse done on the Mersey Forest Road will be used to provide baseline data for anomalous element concentrations in relatively unmineralised granite. Prospective features identified identified during this traverse included indications of potassic, sodic and phyllic alteration. The copper and gold values from preliminary assay are not anomalous, however the altered volcanics adjacent to the intrusive body are very high in iron (>15%) suggesting a high fluid flow.

Rocks collected from Gads Hill are also strongly altered with orthoclase dominated potassic alteration, photographs af this strong type of alteration can be found in Appendix 2 and on the left hand side of the cover page of this report. The raw geochemical data is presented in Appendix 1.

Mapping

The area has been mapped at a reconnaissance scale only, with the focus being on Gads Hill where a reference to azurite and known outcrops of Dove Granite have been investigated. The area contains boulder size outcrops of diatreme breccia which contains quartz veining. The surrounding Granite is strongly potassically altered and preserved contacts with the diatreme breccia are sharp. Pluton believes this area which includes the Little Bell gold prospect will likely be the focus of a soil survey and more detailed mapping. Data from the multi-element analyses done on mineralised drill holes at both Devon and Cethana will be used to determine indicator elements to be included in the geochemical survey.

FUTURE WORK

Priority work includes a geochemical survey on Gads Hill which includes the Little Bell gold prospect which will likely be the focus of a soil survey. Pluton also intends to undertake mapping traverses on Forestry Roads, Campbell's River, Mersey River and Olivia Creek. Rock chip sampling will be ongoing with IP follow up and drilling likely in year 3 if a suitable target is found that matches patterns of known mineralised occurrences at the Cethana and Devon Prospects.

Pluton is looking for a bulk tonnage copper-gold-molybdenum-REE target on the licence and the focus of work will be to collect more baseline data, particularly multi-element geochemical data. More intense exploration will be planned where appropriate targets are defined.

References

Fleming, M.J. and Castro, C.H. 1989. EL8/88 - Lorinna and EL36/88 - Round Mountain - Annual Report 1989, RGC Exploration Pty. Ltd. (TCR 89_3038)

Jennings, I.B, 1963. Middlesex 1:63360 Series Explanatory Report, Geological Survey of Tasmania.

McDougall, J. and Reed, A., 2007 Dove River Annual Report, Tasmanian Company Report, Pluton Resources

Reid, A.M, 1919. The Mining Fields of Moina, Mt Claude and Lorinna, Geological Survey Bulletin 29, Geological Survey of Tasmania.

Twelvetrees, W.H, 1907 Report on the Bell Mount and Middlesex Tinfields, Secretary of Mines Report, Geological Survey of Tasmania

Waller, G.A, 1901, Report on the mineral Districts of Bell Mount, Dove River, Five Mile Rise, Mount Pelion and Barn Bluff. Secretary for Mines Report 1900-01, Geological Survey of Tasmania

Appendices