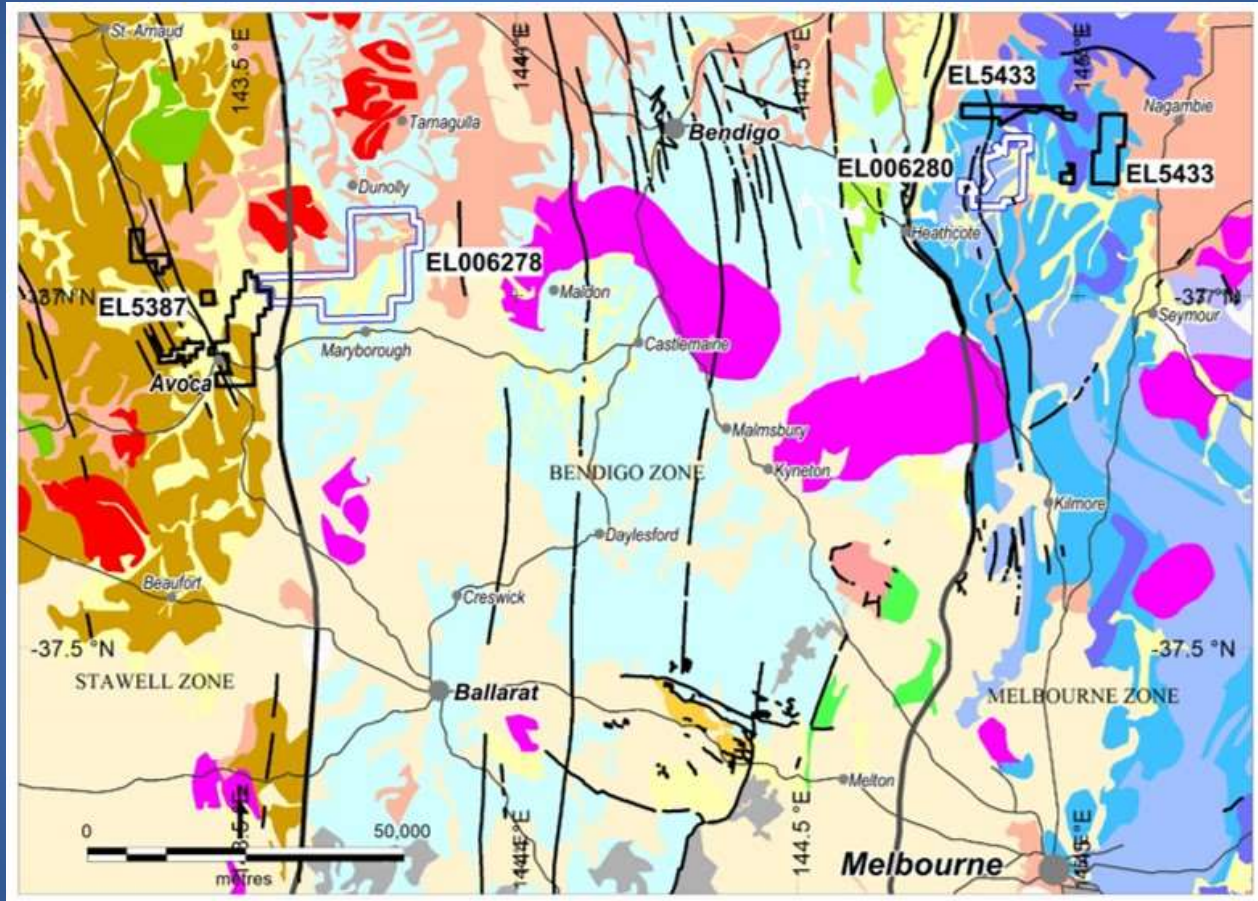


## ECR Minerals plc\*



**Victorian Gold: new Board, new direction, new opportunities**

## ECR Minerals plc\*

November 2016

### Stock Data

Share Price:	0.83p
Market Cap:	£1.0m
Shares Out:	129.2m

### Company Profile

Sector:	Mining
Ticker:	ECR
Exchange:	AIM
Website:	www.ecrminerals.com

### Activities

Mineral Exploration and development company focused on gold. New focus on gold exploration in the State of Victoria, Australia. ECR also has a 25% interest in the Danglay epithermal gold project in the Philippines, and a 100% interest in the SLM gold project in La Rioja Province, Argentina.

### Directors and Management

William Howell	Non-Executive Chairman
Craig Brown	Director and CEO
Ivor Jones	Executive Director
Christian Dennis	Non-Executive Director

\*Optiva Securities Limited acts as broker to ECR Minerals plc.

## Victorian Gold: a new direction Site visit demonstrates potential

ECR's Board has had an overhaul, and with fresh leadership comes a new direction and new opportunities to start rebuilding shareholder value. ECR is now firmly focused on gold exploration in the Victorian Goldfields of Australia, one of the world's premier gold producing districts. Victoria is a low-risk jurisdiction and despite its mineral endowment, has seen a dearth of modern exploration. ECR is focused on the Avoca and Bailiiston projects, where the potential for primary hard-rock deposits remains largely untested. We visited the tenements in November and were impressed by the potential.

**Rejuvenation time.** ECR has embarked on a three-pronged strategy which we believe will provide a solid foundation to get the company back on track and start building value for shareholders. The Board has been overhauled, with recent appointments bringing a wealth of industry and technical experience, previously lacking in our view. Secondly, a capital reorganisation has resulted in a 200:1 share consolidation. Thirdly, management time is now firmly focused on the Victorian Goldfield project of Avoca and Bailiiston.

**Why the Victorian Goldfields?** Victoria is a low-risk jurisdiction with a well-established framework legislation designed to encourage mining activities. Since the discovery of gold in Victoria in 1851 it is estimated that the state has produced some 80.4Moz – c.32% of all the gold mined in Australia. Despite lower levels of activity in recent years, the Victorian Goldfields still rank as one of the premier gold districts in the world in terms of production.

**The Prize.** Victoria is host to several highly successful mining operations such as Fosterville (140kozpa at cash cost \$461/oz) 30km west of ECR's Avoca tenement and Costerfield (50kozpa at \$630/oz), located 30km from ECR's Bailiiston tenement.

**Excellent Infrastructure.** ECR's tenements are in low population density areas, accessible from a major sealed highway, approximately 1.5hrs drive from Melbourne. Close enough to benefit from the services of a major city, but far enough away to minimise environmental-social issues.

**Underexplored.** Extremely high-grades were mined from historical alluvial workings and primary vein-hosted deposit on ECR's tenements, yet they have been subject to very little modern exploration. Technology and geological understanding has advanced considerably since the Goldrush days. Furthermore, historical exploration was focused on alluvials and near-surface deposits only. The potential for large buried primary deposits remains good, in our view.

**Bailiiston.** This area is prospective for high-grade gold quartz veins as well as larger scale bulk-mineable disseminated type targets. The tenement includes the historical Byron Mine which produced 4,416oz at a grade of 15.5g/t Au. Mining only ceased due to dewatering issues and the sulphidic nature of the deposit, not lack of ore. This reflects the technology of the time and would not be a relevant issue today. Extensions to the high-grade ore shoot remain untested.

**Avoca.** Over 30 hard-rock gold-quartz vein targets have been identified. The tenement includes the historical Pyrenees mine which produced 16,602oz at 32g/t Au, and the Excelsior mine which produced 9,260oz at 22g/t Au. In both cases, down-plunge extensions and the potential for ore-shoot repetitions remain untested.

**Walk-up drill targets.** Although ECR's projects are at an early stage of exploration, walk-up drill targets have already been identified, based on the wealth of historical data. ECR plans to undertake drilling at both Avoca (at Pyrenees) and Bailiiston (at Byron) in early 2017.

**We visited ECR's tenements in November. We like the geological setting and the fact that large areas remain untested by modern exploration techniques and drilling. We favour the "nearology" strategy of "exploration in the shadow of the headframe" and believe that the projects have good potential, given that high-grade mineralisation is already known to occur on the tenements, and the historical focus was on alluvials and shallow deposits.**

## **New Board, New Direction, New Opportunities**

We note that ECR's Board has had a complete overhaul over the last couple of months, and we welcome the changes, which we believe will add some much-needed leadership and direction to the company. Along with a change in strategic direction, ECR is emerging as a new company and with fresh corporate leadership and technical experience, the company has a solid footing to starting building back investor confidence.

Craig Brown came on board (Sep 2016) as CEO and brings experience gained from exploration, development and financing of Kryso's Pakrut gold project. Ivor Jones joined as an Executive Director (Nov 2016) adding wealth of geological and technical skills to the Board. We think Ivor is a top-class appointment, and having been familiar with his work as the QP for Pretium Resource Inc (TSX:PVG), we rate him highly. We believe Ivor will be instrumental in moving ECR forward and providing a high-level of technical oversight not previously available to the company. On the finance side, Christian Dennis (Oct 2016) joined as a Non-Exec and brings substantial experience and knowledge in navigating the financial markets and raising development finance.

### **William Howell - Non-Executive Chairman**

Geologist with 49 years' experience in mineral exploration and project evaluation. Fellow of the Australasian IMM and Fellow of the SEG. Listed as Senior Associate Geologist with ACA Howe International Ltd. Formerly Exploration Director of AIM-listed Triple Plate Junction plc 2004-2011, having co-founded that company. Also formerly Chairman of TSXV-listed Asian Mineral Resources. Previously held senior roles with BHP, Normandy Mining Ltd and Newmont Mining Corporation, including heading up BHP's overseas exploration 1975-1981, and Managing Director of South East Asia exploration for Normandy and Newmont 1995-2003.

### **Craig Brown - Director and Chief Executive Officer (joined September 2016)**

Founding shareholder of Kryso Resources plc, now known as China Nonferrous Gold Ltd. Acted as Finance Director and Company Secretary of Kryso before becoming Managing Director in 2010 and stepping down from the board in September 2013. During this period, Kryso/CNG delineated a 5Moz JORC Resource at the Pakrut gold project in Tajikistan, completed a BFS for the project, obtained debt and equity finance for mine development, and commenced construction of the mine and infrastructure. Prior to his roles with Kryso/CNG, Craig held positions with Gulf International Minerals Ltd and Nelson Gold Ltd, both of which also successfully put gold mines into production during his tenure.

### **Ivor Jones – Executive Director (joined November 2016)**

Ivor Jones is a geologist with 30 years' experience in the industry and is currently practising as an independent consultant based in Australia. Mr Jones holds a BSc (Hons) in Geology from Macquarie University and an MSc in Resource Evaluation from the University of Queensland. He is a Fellow and Chartered Professional (Geology) of the AusIMM and a Member of the Joint Ore Reserves Committee (JORC).

Mr Jones has extensive expertise in all aspects of geology, including project evaluation, resource estimation and the preparation of JORC and NI43-101 reports, across both precious and base metals. His previous roles have included numerous positions with leading consultancy Snowden Mining Industry Consultants including as Group General Manager of Geosciences from 2009 until 2014. Mr Jones has also held positions at operating mines, including as Manager of Mine Geology at the Leinster Nickel Operations of WMC Resources Ltd in Western Australia, and as Group Resource Geologist for Anvil Mining Ltd with operations in the Democratic Republic of Congo. He has experience of working in Australia, Africa, North and South America, Europe and the Philippines.

### **Christian Dennis - Non-Executive Director (joined October 2016)**

Christian Dennis is a highly-experienced stockbroker and is currently the CEO and a major shareholder of Optiva Securities Ltd, a member of the London Stock Exchange. Mr Dennis holds a BSc. (Hons) from the University of Birmingham, is an associate member of the Chartered Institute for Securities & Investment (CISI), and is an FCA approved person. During his career, Christian has worked for several major investment firms both in London and New York. He has been involved with advising and arranging funding for numerous mining companies across a wide range of commodities, and has assisted in bringing several of those companies through to production.

## The turnaround plan

ECR has embarked on a three-pronged strategy which we believe will provide a solid foundation to get the company back on track and start building towards generating some value for the shareholders. Broadly, we see the three main prongs of this strategy as:

1. Rejuvenation of the Board – new appointments, corporate oversight and in-house technical ability
2. Capital Reorganisation – a 200 for 1 share consolidation to reduce the number of ordinary shares in issue from 25.8bn to c.129m.
3. Re-focus on the Avoca and Bailieston projects in the Victorian Goldfields of Australia.

Whilst ECR retains a 25% interest in the Danglay Gold Project in the Philippines which has a 63,500oz Inferred Resource (1.27Mt at 1.55g/t Au) and 100% of the SLM gold project in Argentina, the company's focus is now firmly on gold exploration in the Victorian goldfields in south eastern Australia.

## Site visit confirms potential

In early November, we undertook a site visit to ECR's gold projects in Australia. We were impressed by the potential of the licences. Geologically, the licences are highly prospective and we see numerous opportunities for ECR to add value by undertaking a comprehensive and coherent modern exploration programme in the region. Although the licences have a rich history of exploitation in the latter half of the 19<sup>th</sup> Century, there has been a dearth of modern exploration. We view the licences as early stage exploration, with a mix of greenfield and brownfield targets. Whilst the projects are early stage, ECR has already identified some walk-up drill targets and we concur that some of the most advanced targets should be drill tested as soon as possible.

## Timeline

The next major catalyst for ECR will be the commencement of drilling at both Avoca and Bailieston in early 2017.

Figure 1 - Timeline and upcoming catalysts



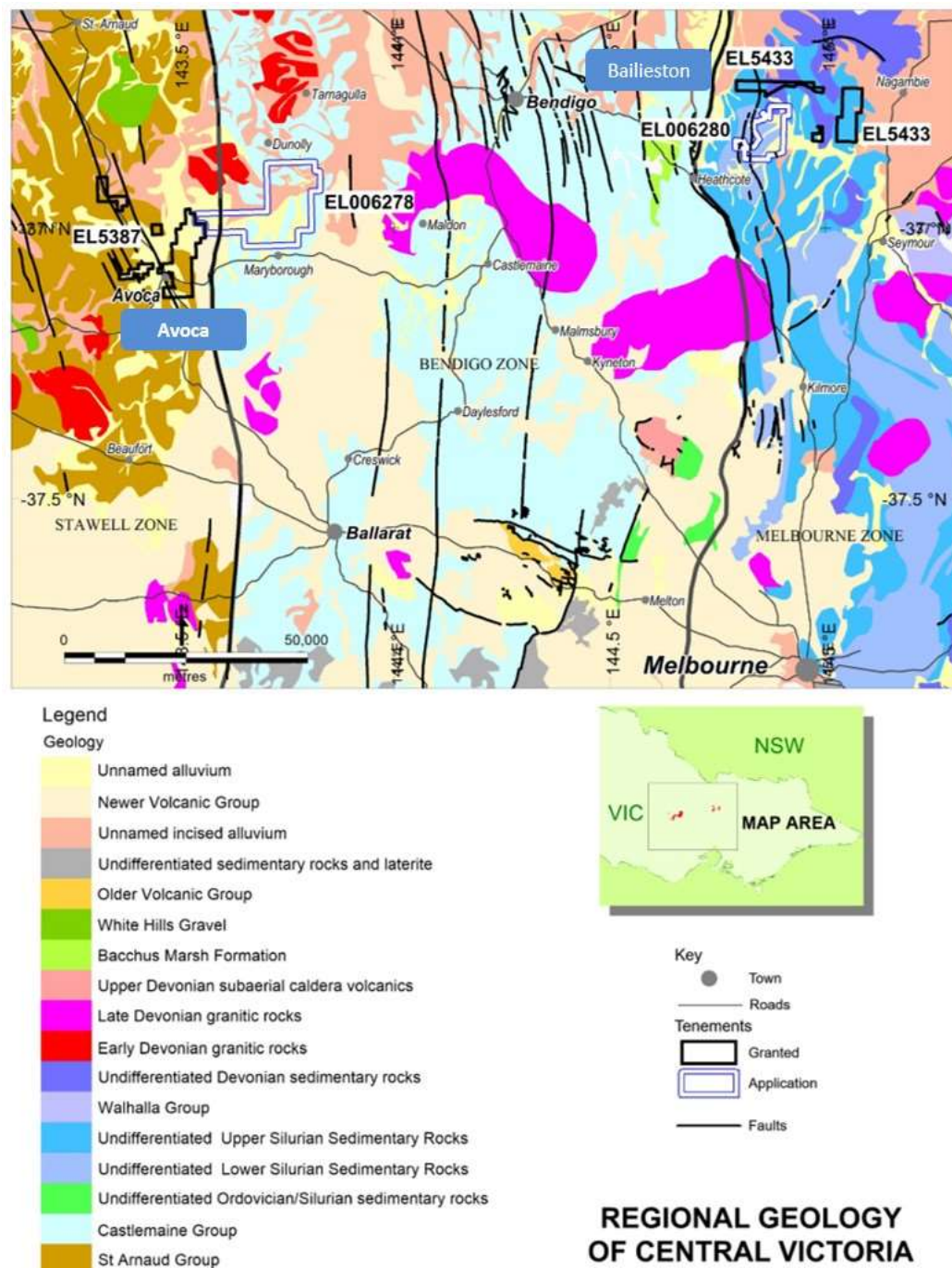
Source: Optiva estimates



## Victorian Gold Projects: Avoca and Bailiестon

ECR acquired 100% interest (through its wholly-owned subsidiary Mercator Gold Australia Pty Ltd) in the Avoca and Bailieston gold projects located in Victoria, Australia. Whilst the licences have been exploited historically for placer-style gold, there remains significant potential for “hardrock” quartz vein and disseminated gold. We view the acquisition as low cost with the consideration being only A\$250,000 in ECR shares and a 10% net profits royalty for hardrock deposits (royalty capped at A\$3.5m).

Figure 2 - Regional Geology and location map of Avoca and Bailieston



Source: ECR

## Why are the Victorian Gold projects worth pursuing?

Before we cover the detail of the projects, it is worth stepping back and considering the broad elements that make the Avoca and Bailieston projects compelling for a new exploration push.

- **Excellent infrastructure.** The projects benefit from being in an area of good infrastructure, with both tenements easily accessible from major, sealed State Highways. For instance, Avoca is located 1.5hrs drive from Melbourne, close enough to benefit from all the services of a major city, but far enough away as to minimise any environmental or social issues. Both Avoca and Bailieston are in low population-density areas, largely within farm land.
- **A low risk jurisdiction.** Australia, and the state of Victoria is a safe jurisdiction and an attractive investment destination with a well-established framework of mining legislation, low political risk, unencumbered land access, and a pool of skilled labour. In Victoria, mineral resources play an important role in the economic and social development of the State, and are encouraged where they contribute to the development of regional services and infrastructure.
- **Victoria is one of the world's major gold provinces...**since the discovery of gold in Victoria in 1851 it is estimated that the state has produced some 80.4Moz – c.32% of all the gold mined in Australia. Historical alluvial production alone is estimated to be 22.8Moz, making it perhaps the largest alluvial goldfield in the world. Thus, the province has already been proven to have highly prospective geology and host a significant gold endowment.
- **...yet there is lack of modern exploration.** The three focus terrains (Stawell, Bendigo, Melbourne) have a rich history of gold mining. However, most of the historical production was centred on the gold rush from the mid-1800s onwards and focused on the alluvial and deep-lead placer style deposits. Most of the terranes have not been subject to recent disciplined exploration for hardrock targets. In many cases, there has been no systematic geophysical or geochemical programmes, and even more limited drilling. As both geological understanding and technology has evolved, this effectively means that huge swaths of the area are untested, especially with regards to hard-rock targets under cover.
- **Drill-ready targets.** Although the licences will need systematic exploration, several walk-up drill targets have already been selected by ECR based on earlier exploration work and sites of historical gold production. These will form the first phase of exploration, with the remaining licences providing the pipeline.
- **The prize.** Victoria is home to some major producing mines such as Costerfield (Mandalay Resources) and Fosterfield (Newmarket Gold), the type of deposits that ECR will be targeting in its upcoming exploration programme. Costerfield has resources of 350koz (8.6g/t) and produces 42koz p.a. at a cash cost of US\$630/oz, mining a grade of 11.3g/t Au (H1 2016). Fosterfield has resources of 2.8Moz (4.4g.t Au) and produces c.140koz p.a. at a cash cost <US\$500/oz mining a grade of 7.24g/t Au (YTD 2016). Fosterfield is located 30km from ECR's Bailieston licence.
- **Aussie gold boost.** The devaluation of the Australian dollar has caused the Aussie gold price to soar away from the US gold price, and in combination with lower input, equipment and service sector costs due to spare industry capacity, Aussie gold miners are currently enjoying the perfect storm and sector-leading margins.

## What we would we like to see?

In the past, it is our view that ECR has not been particularly successful in translating exploration success into shareholder value. Both Danglay in the Philippines and SLM in Argentina having been challenging projects and we think the company has suffered from a lack of funds and clear strategic leadership. We think that both the pace of exploration and results generated have been disappointing.

ECR now has a chance to turn around the company's fortunes by undertaking a systematic and coherent exploration programme in Victoria, with the key, generating some early results and then following up quickly, pursuing the best targets and dropping areas with poor results. It sounds simple, but we think that a sustained and well thought out exploration programme with a clear timeline and milestones, will start to rebuild investor confidence.

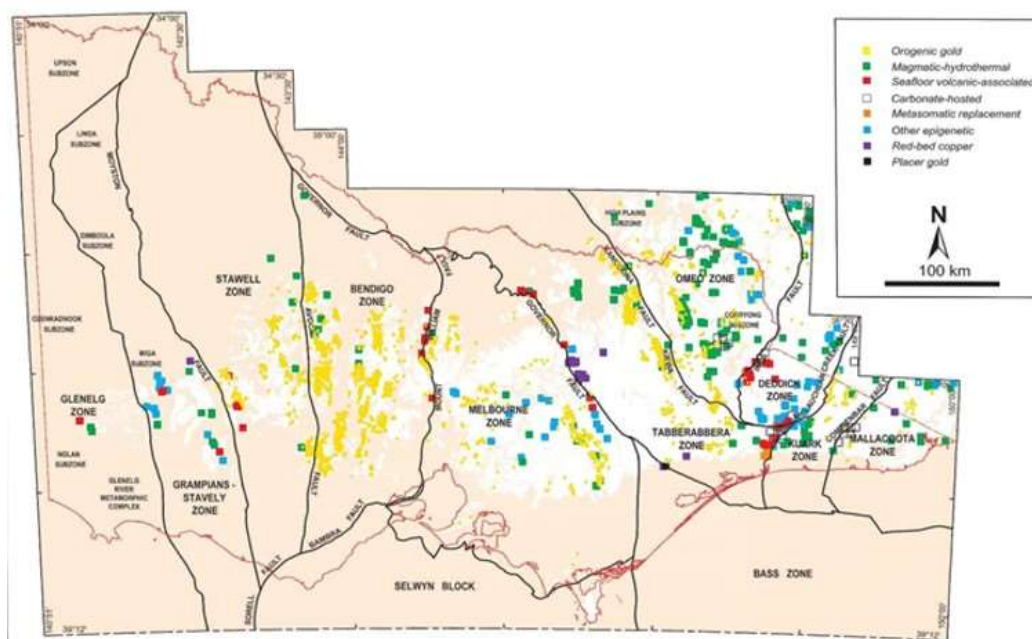
Although there exist some opportunities for near-term cash flow from reprocessing historical tailings dumps (from alluvial workings in the late 1800s and early 1900s), we see these targets as small and likely to distract management from the larger and potentially more lucrative primary targets.

## Victoria's mineral endowment

Note the wide distribution of orogenic gold occurrences throughout the province. ECR geologists believe that the Stawell and Melbourne zones are the most prospective for the discovery of a large-scale gold deposit. This is in part due the potential orebody morphology. Mesothermal veins are typical of Victoria but vary widely in style and metallogenesis. See Fig (4)

ECR is particularly interested in the Melbourne Zone (Bailieston targets) where gold mineralisation appears to be sulphide driven and provides the potential for fine-grained gold. This in turn means that the zone is attractive for open pit/bulk mining targets. Where deformation is predominantly brittle, a higher proportion of the gold mineralisation occurs in stockworks which is also positive for mining. In contrast, the Bendigo Zone has seen limited exploration success in recent years due to the nugget nature of the gold mineralisation.

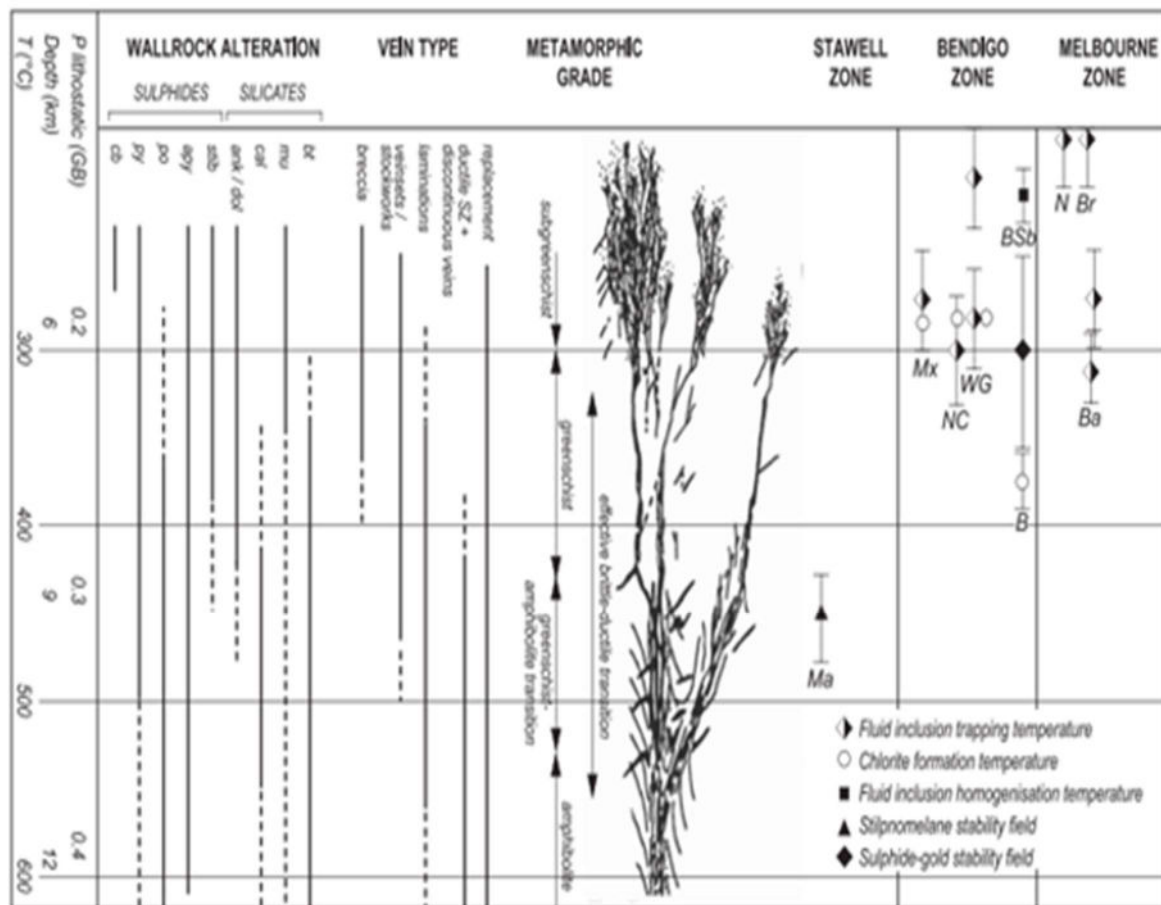
Figure 3 - Victoria's metallic mineralisation endowment



Source: ECR, VSG

The Lachlan Fold Belt, a major orogenic province is sub-divided into several zones, based on distinct geological and metallogenic characteristics.

Figure 4 - Orebody morphology, metamorphic grade – Victoria gold deposits



Source: ECR, VSG

## The scale of historical gold mining in Victoria was immense – 22 Moz in 10 year period

The scale of the 1850s goldrush in Victoria was, even in modern terms, immense. It attracted prospectors not only from Australia, but all over the globe. The State's future was put on a different path following the first registered gold discovery at Clunes in 1851.

It is estimated that between 1851 and 1860, about 40% of the world's gold production came from Australia, with the majority from Victoria which produced 22Moz over that period, followed by New South Wales. Almost all this production was sourced from alluvial workings and near-surface prospects.

A flurry of discoveries followed throughout the state of Victoria, and by the 1860s, mining evolved with more production being sourced from larger scale and underground operations, which provided the basis for the establishment of regional towns. After the Great Depression in the 1930s, gold mining lay largely dormant until a resurgence in the 1980s on the back of higher gold prices.

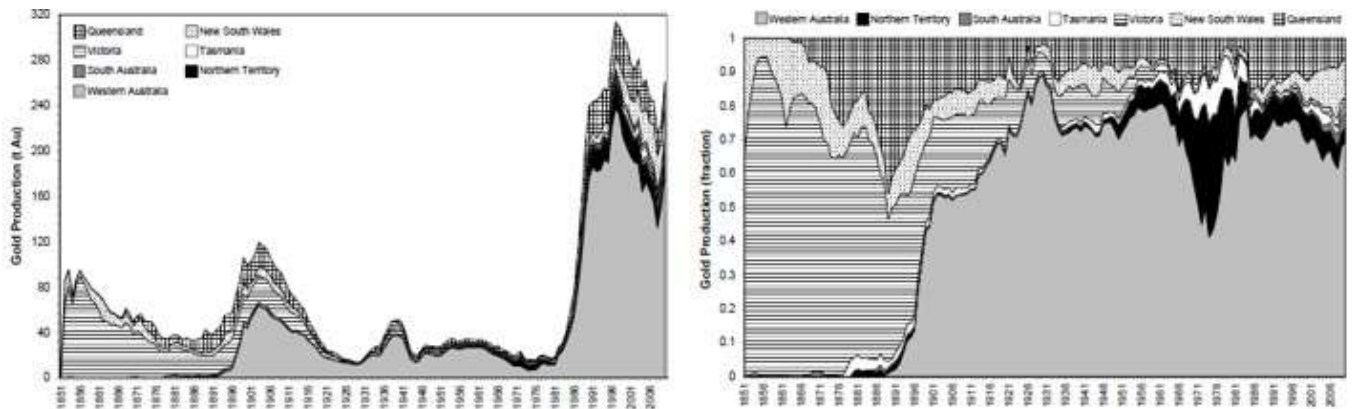
Increased interest in gold mining and exploration during the 1990s in areas such as Bendigo, Ballarat, Stawell, Fosterville, Maldon, Heathcote, Castlemaine and Tarngulla, resulted in **17 operating gold mine by the mid-1990s**.



## Victoria once dominated Australia's gold production

Gold production in Australia was dominated by the State of Victoria until the 1890s and the onset of the gold rush in Western Australia. Western Australia has dominated gold production in the country since, as well as other commodities.

Figure 5 - Victoria dominated gold production until the 1890s



Source: CSIRO

## Victoria still the 2<sup>nd</sup> largest producer overall

Data from a 2012 paper from the CSIRO Institute attempts to estimate the total gold production by State, from the start of the goldrush in 1851 to 2010. The data is a little dated now, but it illustrates the point that even considering the lower level of production from Victoria in recent decades, the cumulative production total over the 160-year period still places Victoria as the second largest producer.

Figure 6 - Cumulative Australian gold production by state, 1851-2010

State	Cumulative gold production 1851-2010 (Moz)
Western Australia	213.6
Victoria	77.3
Queensland	45.3
New South Wales	30.3
Northern Territory	18.2
Tasmania	6.9
South Australia	2.8
Australia	394.3

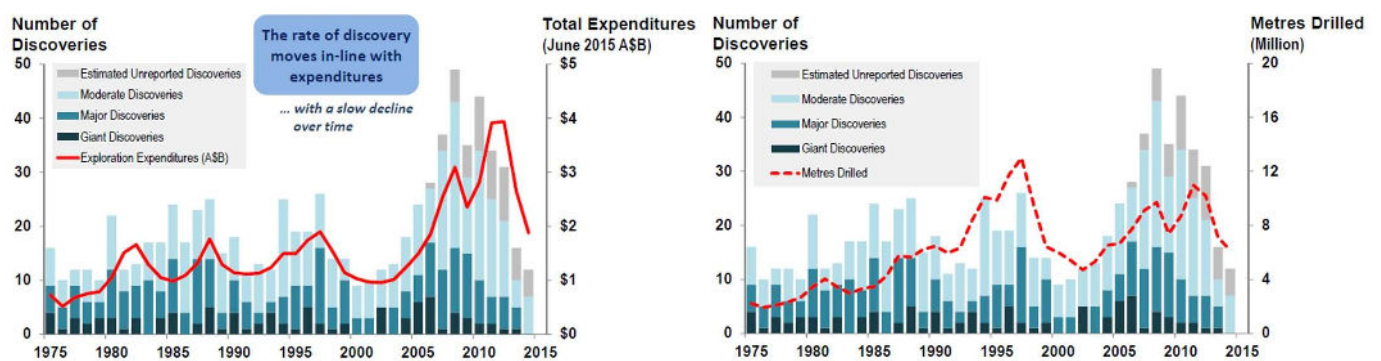
Source: CSIRO

## Discovery rates largely follow the trend of exploration spending and drilling

As would be expected, discovery success is intrinsically related to exploration expenditure and ultimately the rate of drilling. Australian discoveries have tailed off since 2010 in line with the fall in exploration spending and the commodity downturn, with gold and other commodity prices not being high enough to incentivise new exploration, especially on greenfield projects.

**Why is this relevant?** It is relevant, and an opportunity for ECR because although Victoria is a state which hosts one of the world's premier goldfields, it has not attracted its fair share of exploration dollars in recent years. These are of course, countrywide trends and it is not possible to discover a mineral deposit where one does not exist. However, the main point that attracts us to these projects is the major disconnect between exploration activity in Victoria and the fact that it is a proven and extensive gold province. Furthermore, most of the historical production in the state has been from shallow, mainly alluvial deposits. Victoria has not been subjected to systematic exploration using modern techniques.

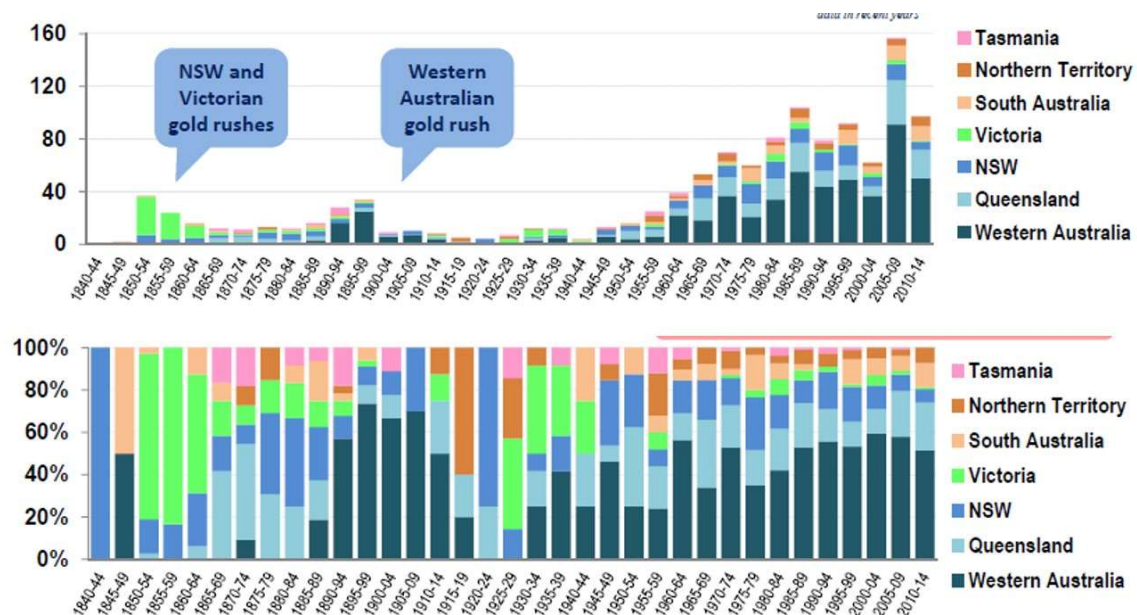
Figure 7 - Discoveries vs A\$ exploration spend (LHS) and metres drilled (RHS): Australia 1975-2014



Source: Schodde (Nov 2015), Exploration trends, finds and issues in Australia

Discoveries in Victoria peaked in the 1850s during the first gold rush and again during The Great Depression. There has been very little discovery activity in recent decades.

Figure 8 - Mineral deposit discoveries – Australia by State; 1840-2014



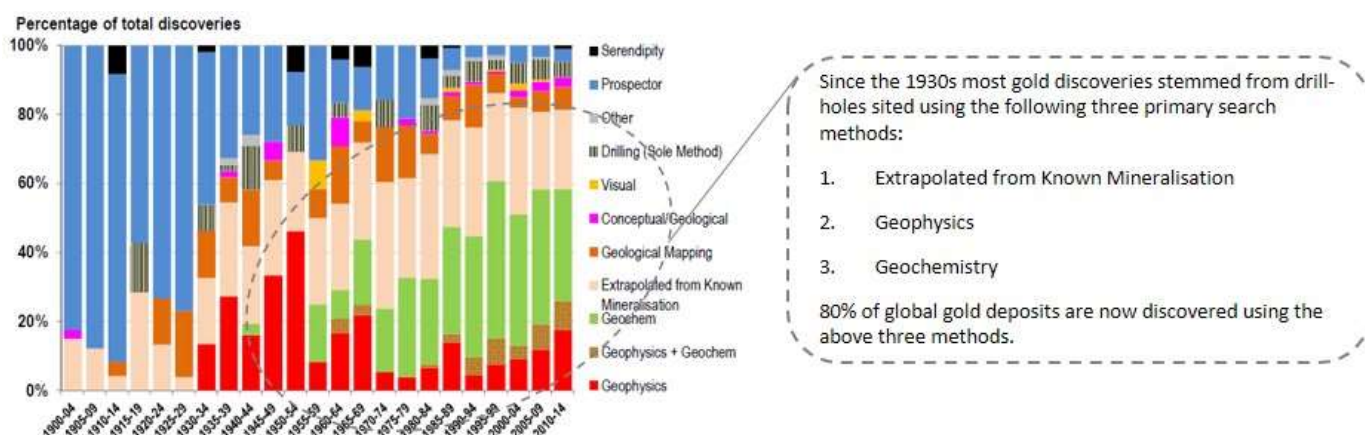
Source: Schodde (Nov 2015), Exploration trends, finds and issues in Australia

## Discovery methods have changed; Victoria is underexplored using modern techniques

The following chart is particularly relevant in terms of ECR's upcoming exploration programme and strategy. The chart illustrates that since the 1930s the main tool or targeting method (to identify prospective licences and site the first drill hole), has changed from "prospector" to the three methods we list below; Extrapolating from known mineralisation, geophysics and geochemistry. Geochemistry alone now accounts for 35% of all gold discoveries, according to analysis by Schodde (Nov 2015).

This is of interest because Victoria firmly ticks the "known mineralisation" box given the extensive history of gold production and the sheer number of historical mining sites, yet it has not been extensively explored using modern geophysical or geochemical techniques. It has certainly not seen the magnitude of exploration as Western Australia, for example. We think Victoria has potential to host further discoveries if modern techniques are applied.

Figure 9 - Discovery methods have changed

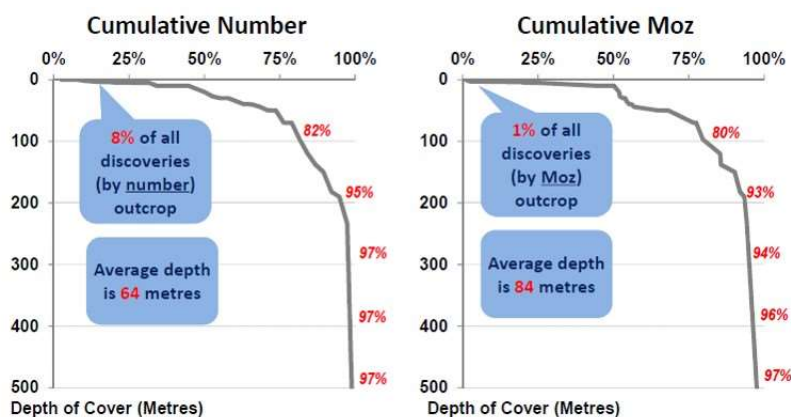


Source: Optiva, adapted from Schodde, Minex Consulting, Oct 2015

## Discoveries are getting deeper

The depth of gold discoveries is gradually getting deeper over time. Schodde (Oct 2015) estimates that only 1% of gold discoveries by contained gold, outcrop and surface, and the average depth is 84m. There is a global shift to exploring undercover, which although presents its own challenges, provides a whole raft of new exploration opportunities and targets for companies such as ECR to target in Victoria.

Figure 10 - Cumulative distribution of depth for primary gold deposits >100koz, World, 2005-2014



Source: Schodde (Oct 2015), Long term trends in gold exploration

## The Prize: Current producing mines in Victoria

There are three gold mines of significant scale currently in production in Victoria which illustrate type of potential deposits that ECR's exploration programme will be targeting. Note that in all three of the mines below, the original mineralisation was identified and mined in the 1850s-gold rush, yet recent exploration has been extremely successful in delineating further resources.

Figure 11 - Table of producing major gold mines in Victoria

Mine		Stawell	Fosterville	Costerfield
Company		Newmarket Gold	Newmarket Gold	Mandalay Resources
Ticker		TSX: NMI	TSX: NMI	TSX: MND
Initial Discovery		1853	1894	1860
Resources	Total	360 koz	2.8 Moz	358 koz
	M&I	250 koz	2.1 Moz	290 koz
	M&I Grade (g/t Au)	186 g/t	4.4 g/t	8.6 g/t
Reserves	P&P	166 koz	244 koz	145 koz
	Grade (g/t Au)	1.48 g/t	6.95 g/t	9.2 g/t
Annual Production	Koz	40 koz	144 koz	42 koz
Cash opex	\$/oz	917	461	630
AISC	\$/oz	1,063	743	1055
Mining	UG	OP>UG	Oxide HL> OP>UG	UG
Process	-	Flot, CIL	Flot, Biox, CIL	Flot, concentrate
Headgrade	g/t Au	2.58 g/t	7.24 g/t	11.69 g/t
Met recovery	%	80%	85-90%	90%
Capacity	Mtpa	1.00	0.83	0.165

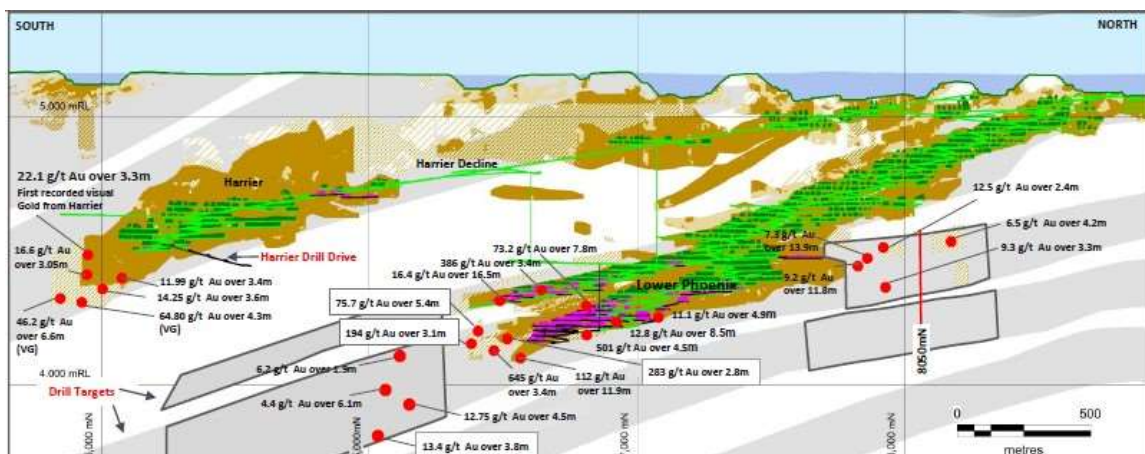
Source: Optiva, company reports

### Fosterville (NewMarket Gold) – 30km west of ECR's EL5433 Bailieston tenement

The largest producing gold mine in operation in Victoria, Fosterville has been in production for 25 years. Gold was first discovered in 1894, but after laying dormant, exploration restarted in 1988. In 1991-2001, the mine operated as a heap-leach, exploiting the near-surface oxide mineralisation and producing 25-35kozpa. In 2001, focus then switched to developing the refractory sulphide resource with combined open pit and underground operation feeding a 0.8Mtpa BIOX processing plant.

Fosterville currently produces c.140kozpa and since 2008 has been predominantly an underground mine. Despite being refractory, the BIOX circuit produces recoveries that consistently average 85-90%. Newmarket has also committed to install a gravity circuit to further optimise recoveries. Historically, the mine has a good record of resource to reserve conversion. Furthermore, based on recent exploration drilling, the company has embarked on several growth programmes, with high-grade mineralisation continuing to be intersected at depth.

Figure 12 - Newmarket's drilling success at Fosterville, 30km from ECR tenements



Source: Newmarket Gold



### **Fosterville has similar geology to ECR's Bailieston tenements**

Fosterville forms a cornerstone asset as part of the proposed business combination between Newmarket Gold and Kirkland Lake Gold (TSX: KLG). The transaction is significant because the rationale is to create a new mid-tier producer focused on tier 1, low-risk jurisdictions with sustainable growth from district-scale properties in established gold camps. Newmarket and Kirkland view the Fosterville district as having "exceptional potential". Newmarket gold presently has nine drill rigs turning both on surface and underground

The geology, alteration and style of mineralisation identified on ECR's Bailieston tenement has the potential to be analogous with Fosterville, with a strong Au-As-Sb signature, where gold is associated with disseminated sulphides, arsenopyrite and stibnite.

### **Stawell – NewMarket Gold – 60km west of ECR's EL5387 Avoca tenement**

Stawell is also a historic goldfield, with gold first mined in 1853. Post the Great Depression there was little mining activity, but the Stawell project was reopened in 1981 by WMC with the sinking of the Magdala decline. By 1984 an open pit (Wonga) was also in production. From 2007 to 2012 the mine underwent several ownership changes due to corporate mergers including; Perseverance, Northgate, AuRico and Crocodile Gold. Newmarket estimates that Stawell has produced more than 4.2Moz.

Stawell is now an underground operation with decline access and open stoping as the primary mining method. Stawell utilises as standard floatation and CIL process flowsheet. Current processing capacity is 1Mtpa, although only c.80% is presently utilised. Gold recoveries average 80%. The mine produces 35-40kozpa at a cash cost of \$917/oz and AISC of \$1,063/oz.

Newmarket has two rigs turning on site focused on the Aurora B discovery (35koz at 3.5g/t) on the East Flank which has returned intercepts of 13.7g/t over 5.4m in recent drilling. The company is also awaiting permitting for the Big Hill project, a shallow oxide open pit adjacent to Stawell.

### **Costerfield – Mandalay Resources – another analogue for Bailieston - 30km southwest of Bailieston**

Costerfield has a long history, and is in the same Costerfield domain of the Melbourne Zone as ECR's Bailieston tenement. After intermittent production during 1860-1883, 1904-1925 and 1934-1950, modern exploration commenced in 1975 and resulted in the discovery of the Augusta deposit in the same year. A processing plant was constructed in 1995 to re-treat tailings and oxides. Augusta was developed into an underground mine in 2006.

Historically, Costerfield mineralization has been mined over a length of about 8 km north to south, demonstrating the prospectivity of the district. The Augusta lodes comprise auriferous quartz-stibnite veins which strike north-northwest and dip steeply to the west or east. They occur either as discrete veins or in mineralized zones that range in thickness from a few millimetres up to a maximum of 4m. Despite their narrow width, the veins tend to be persistent along strike and down dip. Individual ore shoots have been traced over 80 m strike length and have been worked down to 300m depth at the historic Costerfield mine.

#### **Costerfield is a turn-around story**

The Costerfield case study is interesting because Mandalay, the current operator, bought the mine out of administration (it was a non-core asset for a coal company) in 2009 and turned the mine into a valuable cash-generative asset. A Brownfields exploration programme was initiated in 2010 and met with immediate success with a new deep discovery under the existing mine.

Mining is now undertaken by underground methods, using rock-fill blast stope techniques, recently changed from cut and fill to improve productivity. Ore is trucked to the surface and processed in the Brunswick plant, which is standard crush-grind-flotation circuit. The mine produces a gold-antimony concentrate which is trucked to Melbourne port for shipping.

Costerfield produces 40-50kozpa at a cash cost of \$630/oz AuEq and AISC of \$756/oz AuEq. Mandalay has grown the mine from zero reserves to four years, whilst constantly mining for six years.

# ECR's Tenements - Overview

ECR's two main licence areas within the Victorian Goldfields are:

- **Avoca**
- **Bailieston**

The Avoca tenement is located within the Stawell Zone and the Bailieston tenement is located within the Melbourne Zone. Mineralisation styles vary between zones, but in both, hardrock primary mineralisation is the target, with alluvial gold deposits only a minor consideration at this stage.

*Figure 13 - ECR's two main project areas: Avoca and Bailieston*

Licence area	Interest	Zone	Licences	Licence applications	Licence area*	Expiry	Mineralisation type and targets	Historical production notes for Zone
Avoca	100%	Stawell Zone	EL5387	EL6278	115km <sup>2</sup>	24/01/2017	Mesothermal Qtz-filled brittle/dutile fault structures, gold with base-meal sulphides. Deep lead (buried alluvial) gold deposits. 9 high priority hardrock and 1 Deep-lead targets have been identified	Historical production from Tertiary river bed alluvials and Deep-leads.
Bailieston	100%	Melbourne Zone	EL5433	EL6280	79km <sup>2</sup>	27/03/2018	Mineralisation hosted by vein and stockwork structures typically within anticlinal trap structures within sediments. Bulk mining targets	Historical production from alluvial and hardrock Quartz vein mines. Modern production from low-grade bulk mining stockworks (Bailieston pit) and high-grade underground e.g (Fosterville, Costerfield)

\*excludes licence applications

Source: Optiva, ECR

*Figure 14 - Typical Avoca landscape (LHS) and historical trench (RHS)*



Source: Optiva Securities

## Low cost exploration

Given the lack of systematic exploration using modern techniques, we believe that a great deal could be achieved with comprehensive exploration programme. Exploration in ECR's tenements can be simple and cost-effective, utilising geochemical grid-based soil sampling to establish prospects. This technique is especially useful due to the limited outcrop in the area. Trenching and sampling could also be employed to establish drill targets.

Previous exploration has largely been focused on shallow alluvial gold, and the potential for deeper primary hardrock mineralisation remains largely untested.

## Production Options - A regional processing hub is a possibility

Looking forward, If ECR's exploration programme is successful, there are several opportunities for the company to transition towards a production scenario.

1. **Toll-treatment** – any ore delineated could be mined and trucked to any of the nearby mills for processing under Tribute or Profit-share agreements. There are a few potential options here, for example, the Stawell mill is running under capacity, and the Fosterville plant can treat refractory gold, should ECR's exploration yield a refractory orebody. Clearly, there is no certainty that the relevant companies will be receptive to a toll-treatment arrangement, but it remains an option and illustrates the point that the State already has several operating mills.
2. **Acquiring a mill** – ECR could identify regional assets that are either under-utilised, or on care and maintenance and attempt to acquire the processing plants, mills etc. This would likely be a low-capex route to becoming a producer, even if only on a small scale.
3. **Build a mill** – If exploration successfully defines an orebody with sufficiently attractive economic returns, the company could consider constructing its own processing facility, or selling the project onto a larger mining company.

Given ECR's large holding of prospective ground, there exists potential to develop the regional processing hub model with ore from numerous orebodies trucked to a central plant for processing. This would provide incremental value add from even the smallest prospects, by leveraging off established infrastructure and processing capacity. Something to consider...

## Permits – a solid legal framework to encourage mining

Permits in the State of Victoria are based on legislation that seeks to encourage mineral exploration and an economically viable mining industry, which makes the best use of, and extracts the value from, mineral resources in a way that is compatible with the economic, social and environmental objectives of the State.

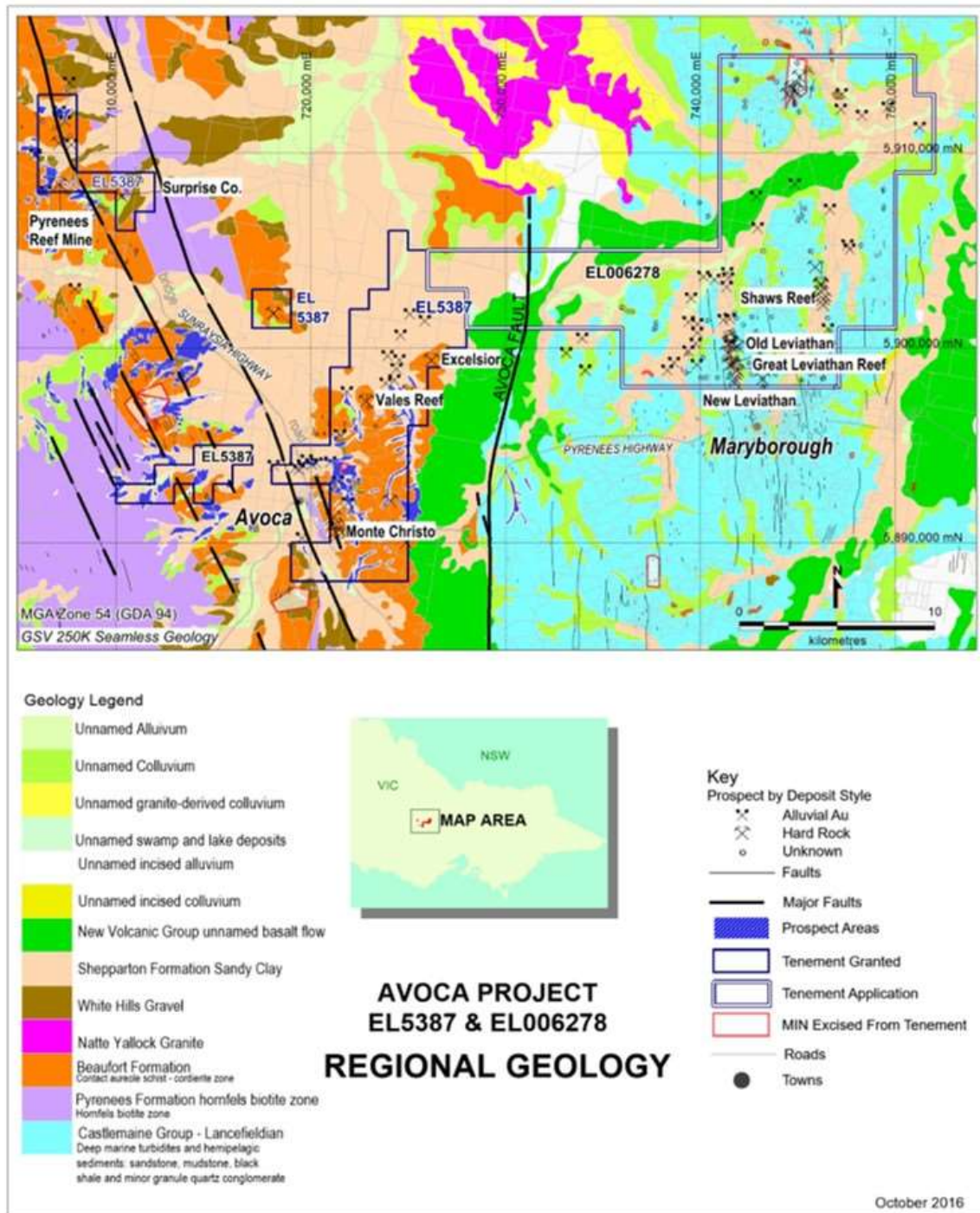
**Exploration Licences.** Both the Avoca and Bailieston tenements are Exploration Licences under the Victorian *Mineral Resources (Sustainable Development) Act 1990* (MR(SD)A). Exploration Licences are granted for a period of 5 years, and may be renewed twice, for a period of five years. On the 2<sup>nd</sup>, 4<sup>th</sup>, 7<sup>th</sup> and 10<sup>th</sup> anniversaries of the licence grant, holders are required to decrease the area of the licence by 25%, 35%, 20% and 10% respectively. Exploration licences have a minimum expenditure requirement of A\$15,000 per annum. Holders must submit a work plan before undertaking invasive exploration.

**Mining Licences** are valid for 20 years or longer with ministerial approval and may be extended. A Mining Licence transfers ownership of minerals from the Crown to the licensee. The licence provides the right to extract economic minerals upon the approval of a work programme and other requirements. Mining licences are subject to Native Title, and a licence is not granted until the holder has complied with the relevant land-use provisions under the *Traditional Owners Settlement Act 2010*.

# Avoca Overview – multiple high-grade prospects

The Avoca tenement is centred on the historic mining town of Avoca. ECR's exploration permit is EL5387 and an application is underway for EL6278, an area contiguous to the EL5387 permit. Avoca has an extremely rich gold mining history and ECR has identified at least 33 known historic alluvial workings, and 14 old shafts on the licence. We think the district has potential to host significant, open-pittable gold deposits.

Figure 15 - Avoca: Geology and location of ECR's primary prospects



Source: ECR



## ECR's exploration aims at Avoca

ECR has two main types of target at Avoca

1. **Hard-rock**, mesothermal quartz vein gold deposits as initially identified by the presence of 39 known historical hard-rock workings.
2. **Deep lead** (buried alluvial) gold deposits which were too deep to be reached by historical surface alluvial workings and which have not been mined by the larger underground operations targeting the deep leads.

### 10 high priority targets identified

Although the Avoca tenement is still at an early stage, ECR has a wealth of historical data and information on the area. Ten high-priority targets for further exploration have already been selected, nine hard rock targets along with one deep lead target. A work plan has been submitted and will need to be approved by the Victorian authorities before drilling can commence.

### Pyrenees Reef – first drill target. A high-grade system that has never been drill tested

The area surrounding the Old Pyrenees mine has been selected by ECR as the highest ranked target. We cover the various prospects and targets in detail later in this note, but Pyrenees illustrates the strategy perfectly, in our view. Pyrenees is a prospect where high-grade gold is known to occur, and in fact it is estimated that 16,199 tonnes were mined historically, yielding 16,602oz which equates to a mined grade of 31.9g/t. Stated in ounces this equates to one ounce per tonne mined, yet the Pyrenees Reef has never been drilled tested.

## Avoca's geological setting

The geology of central Victoria is dominated by the Lachlan Fold Belt, a granite/volcanic belt that extends along the eastern seaboard of Australia. Generally, the geology of the region consists of turbidites separated by granite intrusives and major crustal faults. In many places, flood basalts cover the bedrock sequences.

The major crustal-scale structure of interest in the area is the Avoca fault which strikes north-south and forms the boundary between the Cambrian Stawell zone and Ordovician Bendigo zone. The Avoca fault runs approximately 5km to the east of ECR's EL5387 tenement. Although the Avoca fault is likely a major component in controlling fluid flow and mineralisation, the age of gold mineralisation is the same on either side of the fault, suggesting a broader control on mineralisation.

## Mineralisation

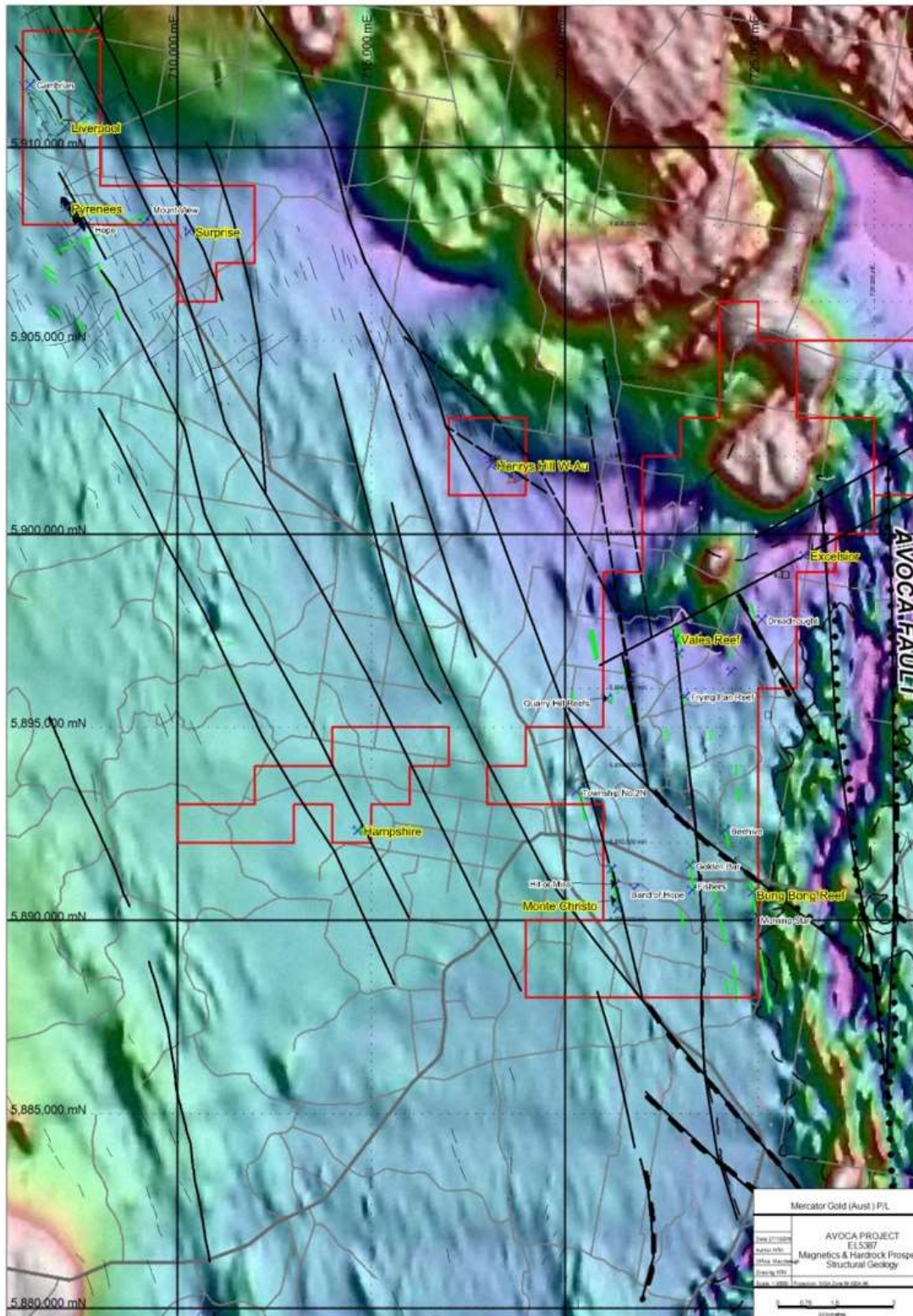
Typically, gold mineralisation is hosted in Cambrian regional faults that strike to the northwest within the tenement, on the east side of the Avoca fault (see fig 15).

**Primary Mineralisation:** The gold mineralisation is mesothermal, with formation temperatures in the 300-350°C, where deformation is in the brittle-ductile range. This leads to a structurally-controlled vein-hosted style of mineralisation, giving rise to relatively narrow but very high-grade vein although orebody width increases where multiple vein sets occur. Most deposits in Avoca are associated with quartz veins developed in brittle-ductile reverse faults. The project has over 30 hardrock gold-quartz vein targets and most of these prospects occur along fault structures that have strike lengths in kilometres.

**Secondary Mineralisation:** In terms of secondary alluvial mineralisation, the gold-quartz deposits have eroded into the surrounding drainage system creating a large network of alluvial fine to nuggetty gold deposits. The alluvial shallow portions of which were worked in the 1850s gold rushes and the Avoca district is said to have yielded 750,000 ounces from this source. These shallow deposits (<10m) then became deeper (10 to ~100m) and required more capital to work. The deeper buried valley deposits were only partially worked by larger companies in the 1890s using relatively primitive methods and these were known as "Deep Lead Mines".

# Avoca Prospects

Figure 16 - Avoca magnetics, structure and hardrock prospects



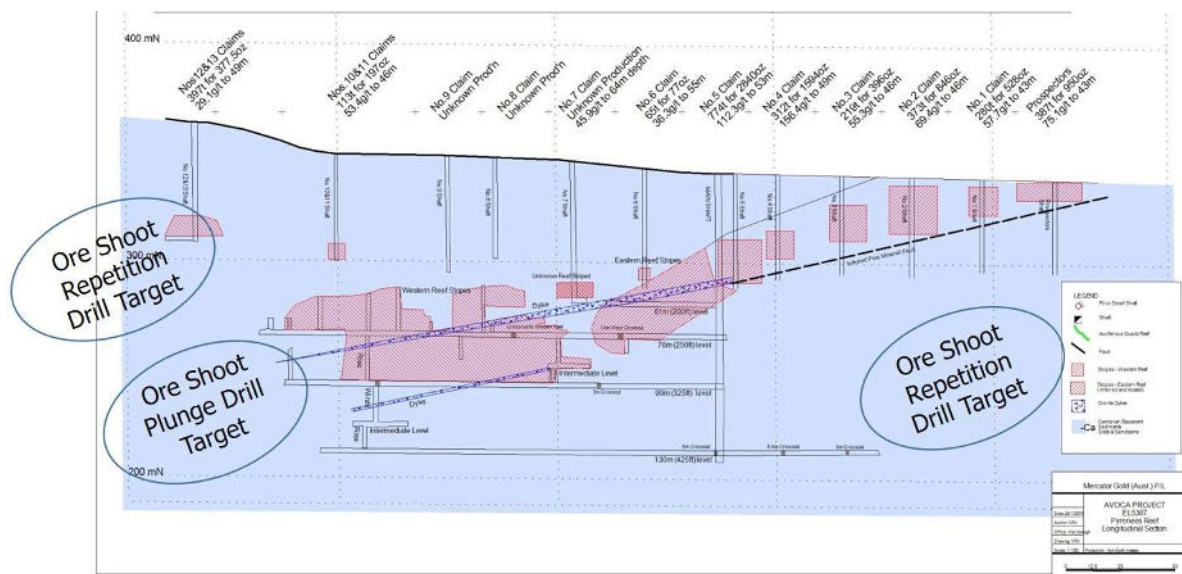
Source: ECR

## Pyrenees Reef – highest priority target at Avoca

Pyrenees was the largest producing deposit on the Avoca tenement, located in the northwest portion of the tenement. As discussed, historical records indicate that 16,199 tonnes were mined, yielding 16,602 oz which equates to a mined grade of 31.9 g/t. Pyrenees operated from 1860-1912 with miners working two parallel veins down to a maximum depth of 130 m.

Furthermore, ECR has compiled data which indicates that the shallow near-surface mineralisation carried bonanza grades. For example, the near surface workings at Pyrenees are known to have yielded 2,920 tonnes for 7,805 oz down to 48 m depth. This equates to an incredible 83 g/t Au. Furthermore, these figures represent only what was officially recorded and crushed in a battery, and exclude hand-crushed gold material.

Figure 17 - Pyrenees Reef production and potential drill targets



Source: ECR/Mercator

## Down-plunge mineralisation remains untested

As the figure above demonstrates, down-plunge and along strike from the known high-grade mineralisation remains untested. ECR plans to site holes around the old workings to test the potential for new mineralisation, repetitions, and other unmined mineralisation sections below the near-surface bonanza grade zones. Recent geological interpretation by ECR suggests en-echelon repetition to the north. Note some of the extremely high grades from the various claims and shallow shafts.

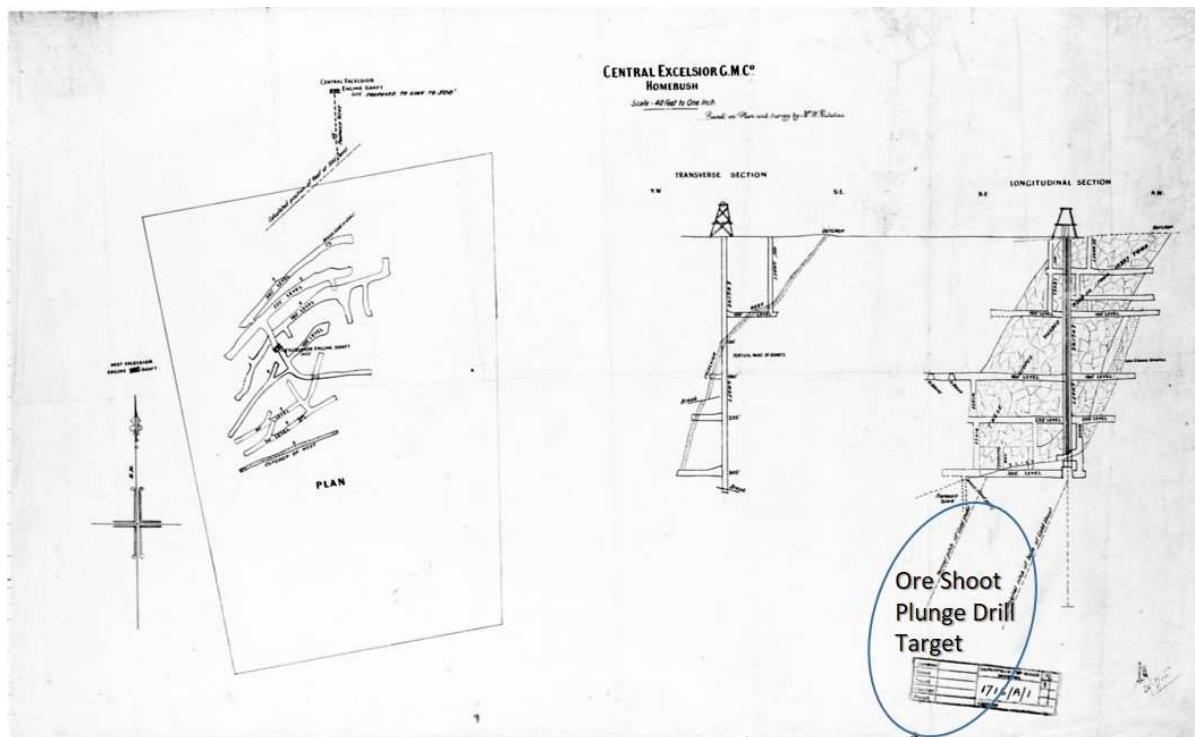
## Excelsior – open to depth

Excelsior was the second largest producer on the Avoca tenement, producing gold from 1909 to 1915. Historical records indicate that production from the deposit was 13,200 tonnes for 9,260 oz, equating to a grade of 22 g/t Au. Miners exploited a single ore shoot striking ENE-WSW. A north south lode was also worked in the latter stages carrying 12.2 g/t Au. Mining widths at the lower depths varied between 1.7 m and 2.3 m wide indicating that the reef developed widths of interest to modern mining.

Mining was stopped when the reef was lost through faulting or pinching, but largely because a second shaft to access the deeper part of the ore shoot was stopped short (93 m) of its target depth of 152 m. ECR believes the reef remains open at depth and is about 50 m in length.



Figure 18 - Excelsior Reef cross section and plan showing potential extensions to orebody



Source: ECR/Mercator

## Bung Bong – refurbished shaft

Bung Bong was mined in the 1890s, producing 219oz at 17g/t down to a depth of 55m. Bung Bong is of particular interest as the prospect has a refurbished shaft (Coughlan's) and access has been gained to the 40m level.

Surface sampling indicates a low-grade halo to the stope area, with various parallel quartz veins. Sampling on the 20m level has yielded similar results to the surface and has confirmed the prospect as an open pit target with multiple mineralised closely spaced vein sets.

The mine has three levels; 20m, 40m and 55m and appears to be another operation that was stopped prematurely. This is evidenced by the last recorded crushing which yielded ore grading 18.1g/t from the 55m level. Prior to which a similar crushing was taken from 12m north of Coughlan's shaft at the 40m level.

ECR has two exploration targets at Bung Bong, the deeper extension of the underground ore shoot, as well as a near-surface open pit target for the multiple vein sets.

## Other prospects

Numerous other prospects occur on the Avoca tenement, too numerous to describe in this note, but they illustrate the widespread nature of high-grade gold occurrences in the district. We list some of the more interesting ones below, but the full list contains over 15 separate hardrock prospects and historical mines.

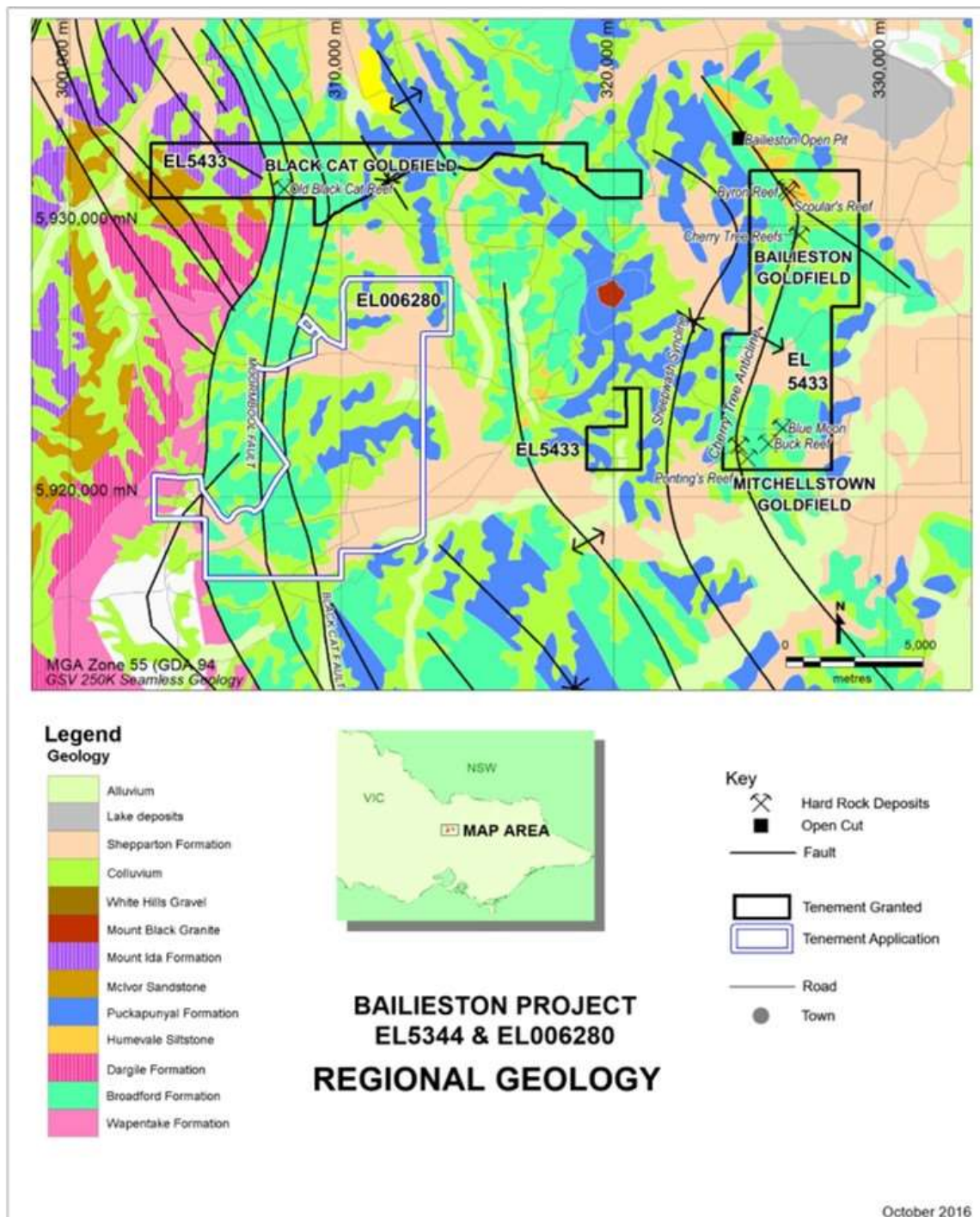
- **Monte Christo Reef** – 2,795t for 937oz at 10.3g/t to 30m from 1872 to 1877
- **Vale's Reef** – 1,444t for 1,388oz at 29g/t to 52m from 1865 to 1883.
- **Fishers (Fysch's) & Golden Bar Reef** – 1,400t for 274oz at 6.1g/t to 15m
- **Surprise Reefs** – 46t for 34oz at 23g/t from 1873 to 1874, more production of around 1000t ore produced from quartz veins.



## Bailieston overview – opportunities to build scale

ECR's Bailieston Tenement (EL5433) is located near the historic mining village of Graytown and 20km from Nagambie, the nearest town. The project area is 1.5hrs drive from Melbourne on sealed roads. The Bailieston exploration target is slightly different from Avoca as ECR believes the terrain is prospective for Carlin-style epithermal disseminated sediment-hosted gold deposits. This is supported by observations of other mines in the district such as Fosterville, Costerfield, Nagambie, and Bailieston.

Figure 19 - Bailieston: Geology and location of ECR's primary prospects



Source: ECR

## Baillieston's geological setting

EL5433 lies in the western portion of the Melbourne Zone Silurian-Devonian turbidite sequence. The dominant rock types are sandstones, siltstones and mudstones, which form the hosts for Devonian granite stocks. Several large scale crustal faults occur in the zone. The Melbourne Zone is considered to be part of the Costerfield Au-Sb metallogenic domain. Most of the gold deposits are associated with the Baillieston Anticline, a large scale regional anticlinal structure. This structure is considered to have focussed gold rich hydrothermal fluids into the area, and it links the Baillieston goldfield to the Mitchellstown goldfield, therefore the entire anticline zone is prospective for further mineralisation.

## Mineralisation

Primary mineralisation within the Baillieston area and related goldfield occurs in a variety of styles. For example, the Costerfield mine is typified by high-grade quartz veins, whereas the Fosterville mine is associated with quartz-poor fault breccias with disseminated auriferous sulphide type mineralisation. Another historic open pit; the Baillieston open pit is located 2km to the north of ECR's tenement area and was operated from 1996 to 1997 by Perseverance and produced 7,154oz. Ore from the deposit was processed using heap-leach methods.

*Figure 20 - Baillieston open pit (LHS) and typical landscape in the area, including old tailings mounds (RHS)*



Source: Optiva Securities

## ECR's exploration aims at Baillieston

ECR has identified areas proximal to the old Byron mine as a high priority target. ECR intends to complete a reverse circulation (RC) drilling programme of approximately 550m to test the most significant prospects within the Byron area. An approved Work Plan is in place for drilling of these prospects, and one further necessary permit has been applied for. ECR anticipates that drilling at Baillieston will begin by early 2017, subject to receipt of the permit.

ECR has identified three high priority hard-rock drill targets:

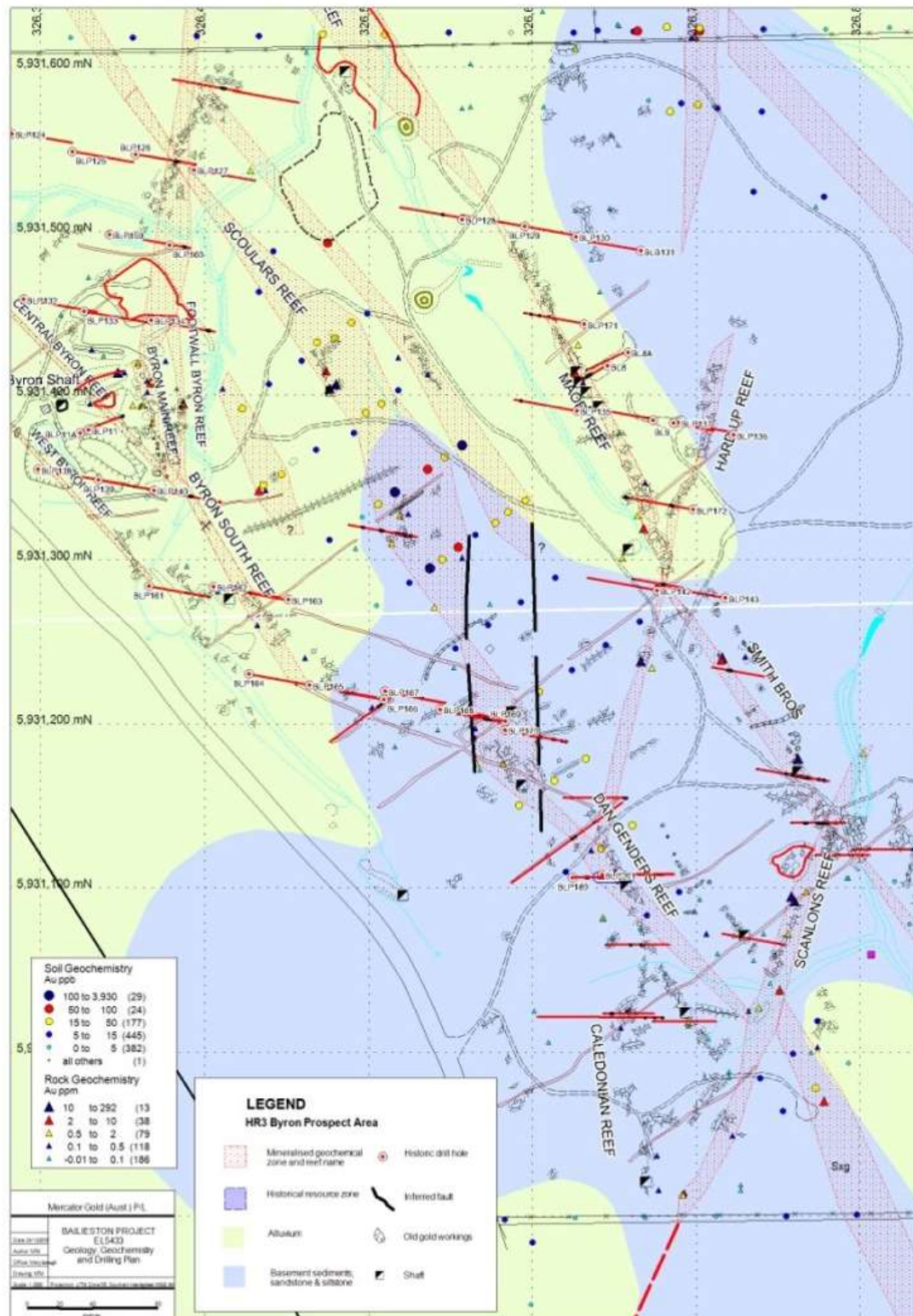
1. Below the old Byron shaft workings into a zone interpreted to be the extension of the previously mined high-grade reef.
2. West of the Byron shaft with a view to intersecting high-grade mineralisation that was identified during historical underground mining, but never exploited.
3. The high-grade Maori mineralisation encountered by historical drilling.



## Byron Prospect

The Byron area consists of several parallel trending sub-vertical gold mineralised structures, with additional potential for low-grade bulk mining type targets.

Figure 21 - Byron prospect area



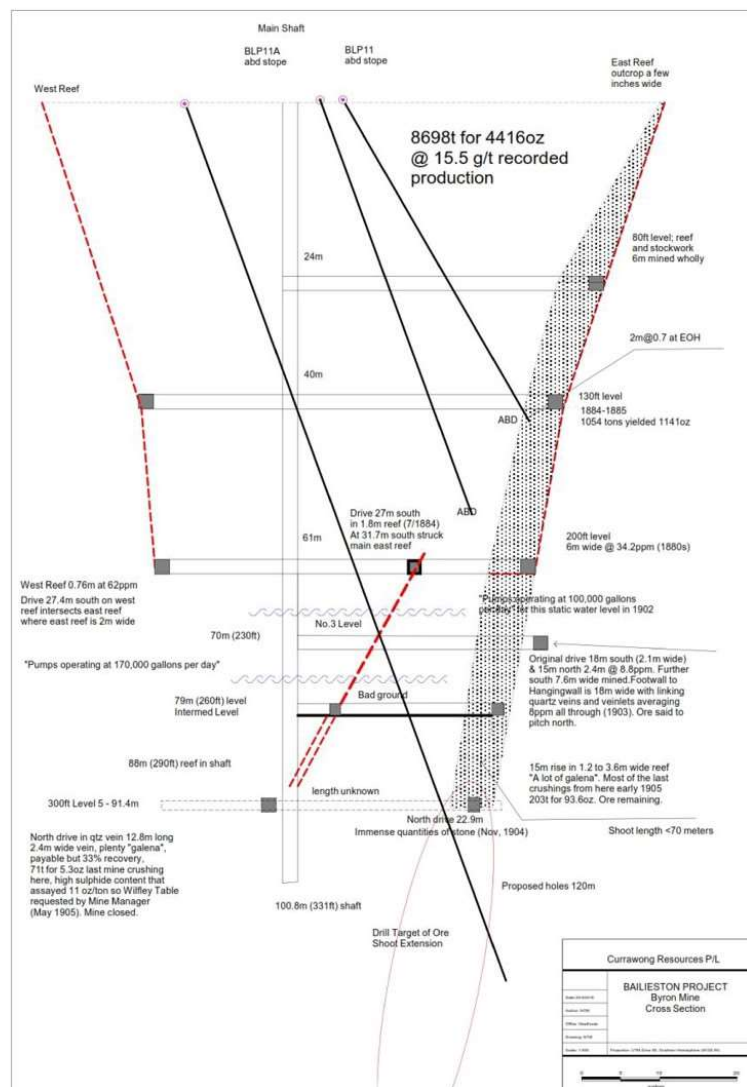
Source: ECR

There are only a few hard rock prospect areas based upon old workings within the tenement, with the largest being the Byron mine at Bailieston. Production records are scant but the Byron Mine produced 4,416oz from 8,698t mined implying a grade of 15.5g/t Au, excluding early production prior to 1873. The mine was worked to a depth of 91m.

The mine closed in mid-1905 following a shut down due to boiler maintenance. Once the boiler was repaired the mine required dewatering because of the pumps also being shut down. Dewatering allowed the miners to get back to the fifth level, but not back to the area where they mined 203 tons for 93.6 oz of gold. This was because the water had caused damage to the cross cut accessing the main ore shoot.

The cessation of mining was also brought about by low gold recoveries due to the high sulphide content of the main vein, and the lack of alternative processing methods. The last crushing from the central lode was 33% recovery due to high sulphide content, but estimated to assay 7g/t Au. The main ore shoot is reported from the various levels to be about 6m wide. Byron is another case where it appears the mine did not shut down for lack of ore. No work has been undertaken at the mine since 1905.

Figure 22 - Byron prospect area



Source: ECR



*Figure 23 - Significant historical (1980s) drill and trench intercepts from the Byron area*

Hole ID	From (m)	To (m)	Length (m)	Au (g/t)	Reef	Type
BLP126	40	43	3	13.8	Scoulers North	Drill RC
BLP136	44	46	2	17.16	Maori	Drill RC
BLP140	35	38	3	14.74	Byron	Drill RC
BLP181	24	54	30	0.75	Dan Genders	Drill RC
TR14	138	162	24	0.56	Scoulers South	Trench

Source: ECR

### Early Exploration has returned some promising results

- Rock chip sampling by Currawong (previous holder and vendor of the permit to ECR) in 2014 returned assay results of up to 18.2 ppm gold from brecciated limonitic siltstone.
- Scoulers/Dan Genders structure, a newly established zone, overlooked by GMK. Wide zone of low grade stock-working with high grade rock chips to 18g/t. Bulk sample of 50kg assayed 10.9 g/t Au,
- Maori reef. Maori South bulk sample of 25kg assayed 7.47g/t Au
- Scanlon's Reef. Bulk sample of 25kg assayed 23 g/t Au

### Other Prospects:

#### Cherry Tree South

Historical records indicate that reefs at the Cherry Tree prospect were only worked to a depth of 10m. Production from 1865 to 1889 was 2,815t producing 1,257oz, implying a grade of 13.9g/t Au.

Extensive mineralisation was encountered in previous trenching by GMK, whilst the drilling largely failed to repeat the mineralisation encountered at surface. Rock chip sampling of limonitic siltstone by Currawong averaged 1.24 g/t Au for 18 mineralised samples. Also, a soil sampling program established two anomalous diverging zones with one following the old workings to the south while another zone trends to the south west. Near where the two zones converge the better gold in soil anomalism occurs. These early-stage results are encouraging and ECR will undertake further exploration at the prospect.

#### Blue Moon

Rock chip sampling by Currawong of ferruginous siltstone average 3.45 g/t Au for 13 mineralised samples, within the area of an identified soil anomaly. Soil samples demonstrate an WNW-ESE structure corresponding to a zone of quartz veinlets in sandstone and ferruginous siltstone outcrop. The prospect has a strike length of 350m and remains open in both directions. The prospect is a very early stage grassroots type project but demonstrates the potential for disseminated pyrite and quartz stockworks as at Fosterville, and leaves scope to delineate a large low-grade bulk mineable deposit.

## Recap and final thoughts

The number of prospects, historical mining sites and showings of high-grade gold mineralisation are so extensive on both the Avoca and Bailieston tenements that we have only broadly covered the primary-focus prospects in this note. A CPR compiled by Snowden is available on ECR's website and covers some of the other prospects in detail.

We think the key takeaway is that whilst ECR's tenements are still relatively early stage, there are enough compelling reasons to press ahead with an initial exploration programme and selective drilling.

- Both tenements have a long history of mining, with numerous historical workings. Clearly, these are extensive mineralised systems, that warrant further investigation. Despite lower levels of activity in recent years, the Victorian Goldfields still rank as one of the premier gold districts in the world in terms of production.
- Extremely high-grades were mined from not only historical alluvial workings, but also primary vein-hosted deposits.
- In most cases, mining at individual prospects did not cease due to lack of ore, but rather the limit of mining technology at the time, or external factors.
- The tenements have seen very little modern exploration. Technology and geological understanding has advanced considerably. Furthermore, historical exploration was focused on alluvials and near-surface deposits only. The potential for large buried primary deposits remains good, in our view.
- The potential for large, lower-grade, bulk minable deposits which are the bread and butter of modern mining has not been tested. We see good potential for more "Fosterville" type discoveries.
- ECR continuing to progress applications for two new Exploration Licences in Victoria. One new licence area is in the vicinity of the Avoca project, and the other is near the Bailieston project.

On this basis ECR is planning to undertake a first-pass exploration programme on high-priority targets. This will include drilling on the following prospects

- |                   |                            |                              |
|-------------------|----------------------------|------------------------------|
| • <b>Pyrenees</b> | <b>Avoca</b> tenement      | 9 priority hard-rock targets |
| • <b>Byron</b>    | <b>Bailieston</b> tenement | 3 priority hard-rock targets |

In conclusion, we see merit in ECR undertaking a low-cost exploration programme to test extensions to known mineralisation and generate targets for a more comprehensive programme. We favour the "nearology" strategy of "exploration in the shadow of the headframe" and believe that the projects have good potential.

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