

**ASX & Media Release**

24 July 2019

**ASX Symbol**

ARL

**Ardea Resources Limited**

Suite 2 / 45 Ord St  
West Perth WA 6005

PO Box 1433  
West Perth WA 6872

**Telephone**

+61 8 6244 5136

**Email**

ardea@ardearesources.com.au

**Website**

www.ardearesources.com.au

**Directors**

Katina Law  
*Executive Chair*

Ian Buchhorn  
*Technical Executive Director*

Wayne Bramwell  
*Non-Executive Director*

**Issued Capital**

*Fully Paid Ordinary Shares*  
106,145,424

*Unlisted options  
exercisable at \$0.25*  
11,155,011

*Directors/Employee  
Performance Rights*  
5,161,000

**ABN 30 614 289 342**

## Nickel-copper sulphide exploration to commence at Ardea's Perrinvale Project

- Ardea's recently granted Perrinvale tenement (E 29/1006), in the Cathedrals Belt, is to be explored for nickel-copper-platinum group element sulphide deposits.
- The Cathedrals Belt is Australia's newest recognised nickel sulphide belt and is host to numerous nickel-copper sulphide occurrences discovered since 2016. Ardea will test its interpretation that the belt extends approximately 20km east-northeast from Mt Alexander across to the Ardea Perrinvale tenement.
- Initial field investigations are to commence in August with geophysical programs, designed to detect conductors beneath cover, to follow.

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The Cathedrals Belt on the western margin of the highly prolific Eastern Goldfields Province is Australia's newest recognised nickel sulphide belt. Exploration by others since 2016 has discovered extensive, shallow, nickel-copper-platinum group element (Ni-Cu-PGE) sulphide mineralisation extending along an east-north-easterly trend, unusual for nickel in the Eastern Goldfields.

Ardea's recently granted Perrinvale tenement (E 29/1006) appears from magnetics to contain the eastern strike extension of the Cathedrals Belt and this concept will be tested, commencing in August.

Ardea CEO Andrew Penkethman noted:

*"Ardea's Perrinvale Project offers an exceptional nickel sulphide opportunity within the newly discovered Cathedrals Nickel Belt. There is significant potential for the discovery of nickel-copper-platinum group element sulphide deposits under shallow cover in this overlooked belt of the Eastern Goldfields.*

*A staged, low cost exploration programme has been designed to follow-up on this exciting opportunity with field work to commence in August."*

## Ardea's nickel-copper sulphide opportunity at Perrinvale

Detailed interpretation of State and National (DMIRS and Geoscience Australia) geophysical datasets suggests continuity of the Cathedrals Ni-Cu-PGE sulphide mineralisation host structure eastwards onto Ardea's recently granted Perrinvale project tenement, E29/1006 (see Figure 1 and 3).

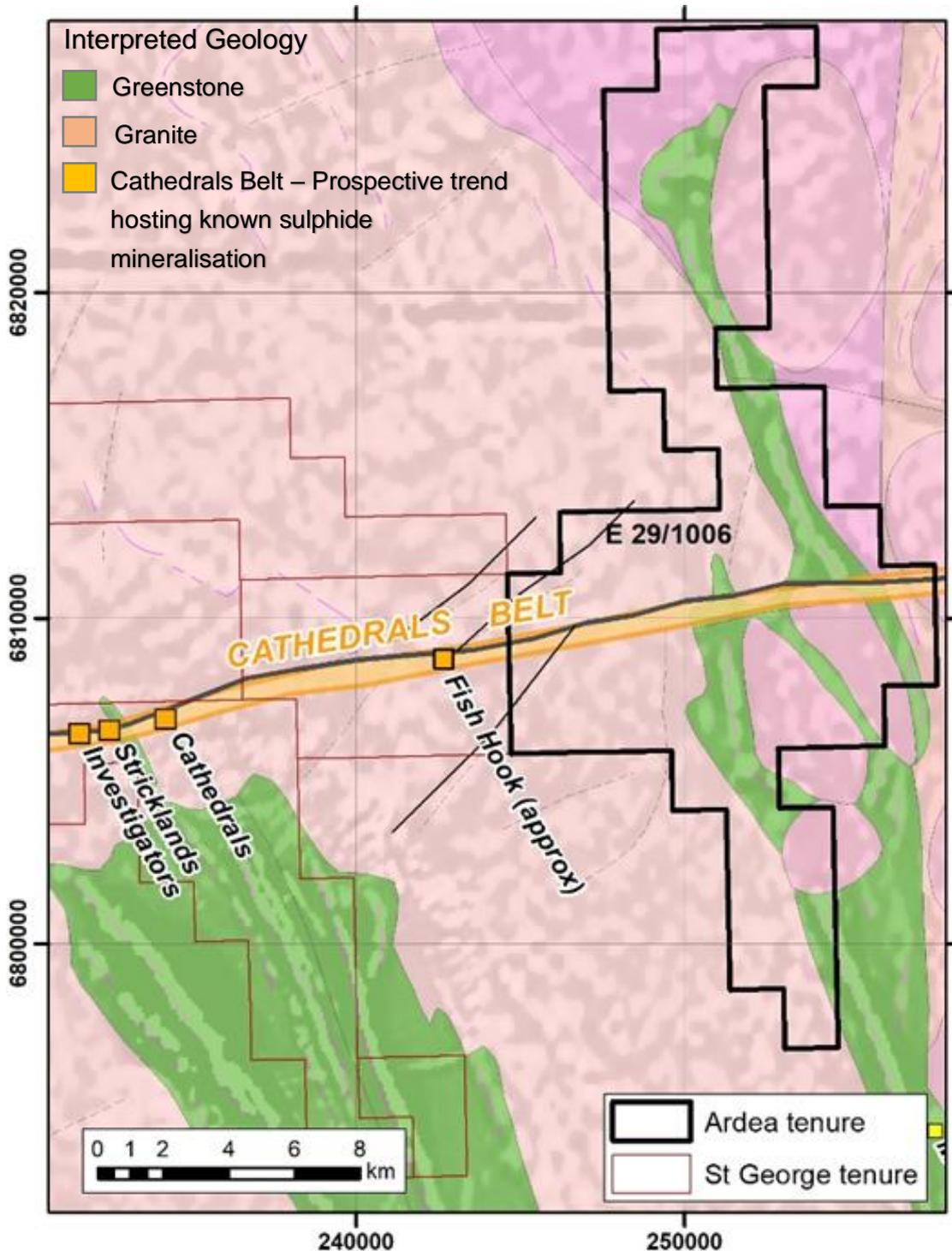


Figure 1 – Ardea's Perrinvale tenement (E 29/1006), containing the interpreted eastern extent of the Cathedrals Belt. Near-surface Ni-Cu-PGE sulphides have been intersected at Investigators, Stricklands, Cathedrals, and Fish Hook amongst others. Through interpretation of regional state datasets, Ardea asserts that the Cathedrals Belt extends into Ardea's tenure. This will be tested shortly. Interpreted geology overlain on regional magnetic data RTP 2VD. Projection: GDA 94 Zone 51.

Owner of the tenements covering the recent Ni-Cu-PGE sulphide discoveries, St George Mining, recently announced<sup>1</sup> that they have defined 42 electromagnetic (EM) anomalies throughout the Cathedrals Belt. They also noted<sup>2</sup> that every one of these EM anomalies that has been drilled has intercepted Ni-Cu-PGE sulphides. St George's current exploration efforts are extending eastwards to their Fish Hook prospect, for a total 8 km strike length presently under investigation (see Figure 1).

Ardea intends to test its interpretation that the Cathedrals Belt magnetic feature extends eastwards through its tenure, for a total ~20 km strike length. The extension of this trend is apparent in regional magnetic data and the interpreted geology (see Figure 1). Magnetics on Perrinvale E29/1006 show subtle magnetic highs within the "Cathedrals Belt East Extension". These magnetic highs are interpreted to be mafic to ultramafic intrusive dykes and are the focus for proposed Ardea EM surveys. In particular, the intersection of the Cathedrals Belt East Extension with the north trending Ida Fault/Zuleika Shear on Perrinvale is a very high priority nickel sulphide target.

Ardea's initial assessment of the Perrinvale tenement is that, unlike the main part of the Cathedrals Belt to the west, transported cover may render soil sampling ineffective. However, several areas will be investigated in detail during August to determine their suitability for surface exploration. If suitable, soil samples will be collected. Ardea will then conduct a moving loop electromagnetic (MLEM) survey over selected portions of the Cathedrals Belt East Extension. The proposed methodology of the geophysical survey will be similar to the methodology utilised successfully throughout the Cathedrals Belt to the west to define mineralised EM conductors. Definition of any such conductors will require drill testing.

As well as the Ni-Cu-PGE potential of the Cathedrals Belt, the greenstone belts of the Perrinvale area have historically been mined for orogenic gold related to the Ida Fault and Zuleika Shear, and explored for VMS (volcanogenic massive sulphide) zinc, lead, and copper. Whilst not the main focus, these will be duly assessed over the Perrinvale tenement as part of Ardea's comprehensive regional exploration methodology.

### The brief exploration history of the Cathedrals Belt

The Cathedrals nickel-copper discovery was made by Western Areas in 2008 with intersections including 4m at 4.9% Ni, 1.7% Cu and 3.9g/t total PGEs from 91.4m and 3m at 3.8%Ni, 1.6%Cu and 2.7g/t total PGEs from 56.3m<sup>3</sup>. The mineralisation is hosted by highly mafic to ultramafic rocks within the Cathedrals Fault.

St George Mining Ltd focused on the area in 2016, and through soil sampling and modern geophysical surveys, intercepted massive Ni-Cu-PGE sulphide mineralisation, including intercepts detailed in an extract from their most recent presentation (see Figure 2). Through numerous discoveries, St George recognised the controlling ENE-trending structure and host unit and has utilised EM techniques to successfully identify many conductors that are in the process of being drill tested.

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<sup>1</sup> St George ASX announcement, 19 July 2019, "St George expands nickel-copper sulphide exploration programmes at Mt Alexander". St George Mining Limited has not consented to the use of this report reference nor its contents.

<sup>2</sup> St George publicity document, 9 July 2019, "42 EM conductors ready to drill at Mt Alexander nickel-copper sulphide project". St George Mining Limited has not consented to the use of this report reference nor its contents.

<sup>3</sup> Western Areas Ltd ASX announcement, 2 April 2008.

<sup>4</sup> Heron Resources ASX announcement, 23 November 2013

Prospect	Hole	From m	Width m	Ni %	Cu %	Co %	PGE g/t
Stricklands	MAD71 including and	37.5	17.45	3.0	1.3	0.13	1.68
		39.3	5.30	4.4	1.5	0.21	2.09
		50.6	2.02	5.1	2.0	0.21	3.31
Cathedrals	MAD56 including	57.8	7.50	3.9	1.7	0.12	3.32
		61.8	3.15	6.4	2.9	0.20	5.03
Investigators	MAD126 including	184.0	7.86	5.7	2.1	0.18	2.65
		185.0	5.25	7.0	2.7	0.23	3.10
Investigators	MAD127 including	183.9	8.49	5.8	2.6	0.18	3.61
		184.4	6.39	6.5	2.8	0.21	3.68
Investigators	MAD108 including	199.0	8.40	2.0	1.0	0.06	2.59
		206.0	1.37	6.8	2.9	0.21	5.58



Figure 2 – Reproduction of a part of slide 15 from St George Mining's 7 May 2019 presentation to the Sydney RIU conference, detailing the high-grade nature of many intercepts, and showing massive sulphide mineralisation from the Investigators prospect (MAD126). St George Mining Limited has not consented to the use of this presentation reference nor its contents.

## Ardea nickel sulphide endowment

Reflecting on the beneficial role of nickel sulphide as autoclave feed, in addition to Perrinvale, Ardea has been systematically assessing its WA tenement portfolio for nickel sulphide endowment. The aim is to define nickel sulphide endowed ultramafic flows for EM surveying to define drill targets. The following projects include nickel sulphide targets (see Figure 3 for location):

- **Emu Lake** at Kalpini within the Kalgoorlie Nickel Project (KNP), historic exploration includes **2m at 6.2% Ni, 1.78% Cu and 2.17g/t PGEs** in hole ELD015<sup>4</sup>.
- **Highway** within the KNP, historic documented disseminated nickel sulphide within the ultramafic unit hosting the nickel laterite.
- **Ghost Rocks** within the KNP, historic copper occurrences with anomalous nickel in rock chip samples, up to 0.6% Ni with 14.3% Cu (Ardea March 2019 Quarterly Report).
- **Jones A** at Mt Zephyr, Ardea aircore drilling confirmed targets, AMZA0015 up to 0.23% Ni, 0.04% Cu, 0.06% Co, 25ppb Pd, 25ppb Pt, 28.6% Fe (gossan) and 1.0% Cr in weathered ultramafic, and AMZA0022 up to 0.83% Ni, 0.02% Cu, 0.03% Co, 20.6% Fe, 0.4% Cr in ultramafic (Ardea March 2019 Quarterly Report).

These targets warrant the application of modern EM surveying that was not available in historic Eastern Goldfields nickel sulphide exploration. Modern techniques provide far more accurate location of conductors to significantly greater depth compared to those of 20 years ago.

Additionally, the geochemical assessment of ancient volcanic ultramafic lava flow fertility for nickel sulphide mineralisation has, in recent years, undergone and continues to undergo somewhat of a revolution, with CSIRO in Perth leading the field. Ardea, as part of its ongoing Research and Development programs, will reassess the ultramafic flow units present at the KNP (including GNCP) using historical bulk-rock geochemical assessment methods. This will be greatly assisted by planned gold and sterilisation drilling throughout the GNCP tenure that will penetrate into the fresh rock beneath the lateritic nickel-cobalt deposits, thereby providing high-quality samples for analysis. Other komatiite flows at Kalpini, Ghost Rocks, Highway and Bulong will also be reassessed.

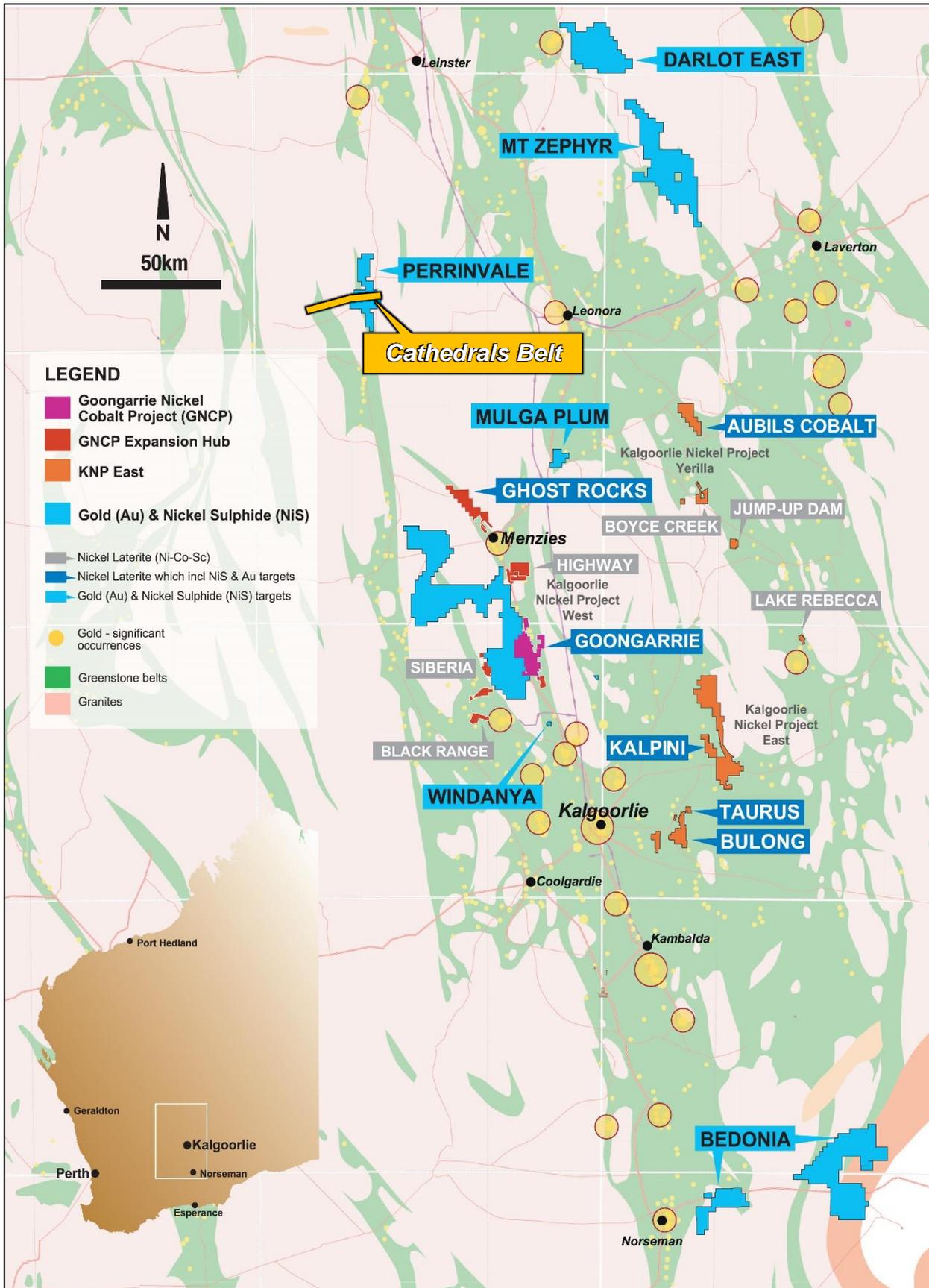
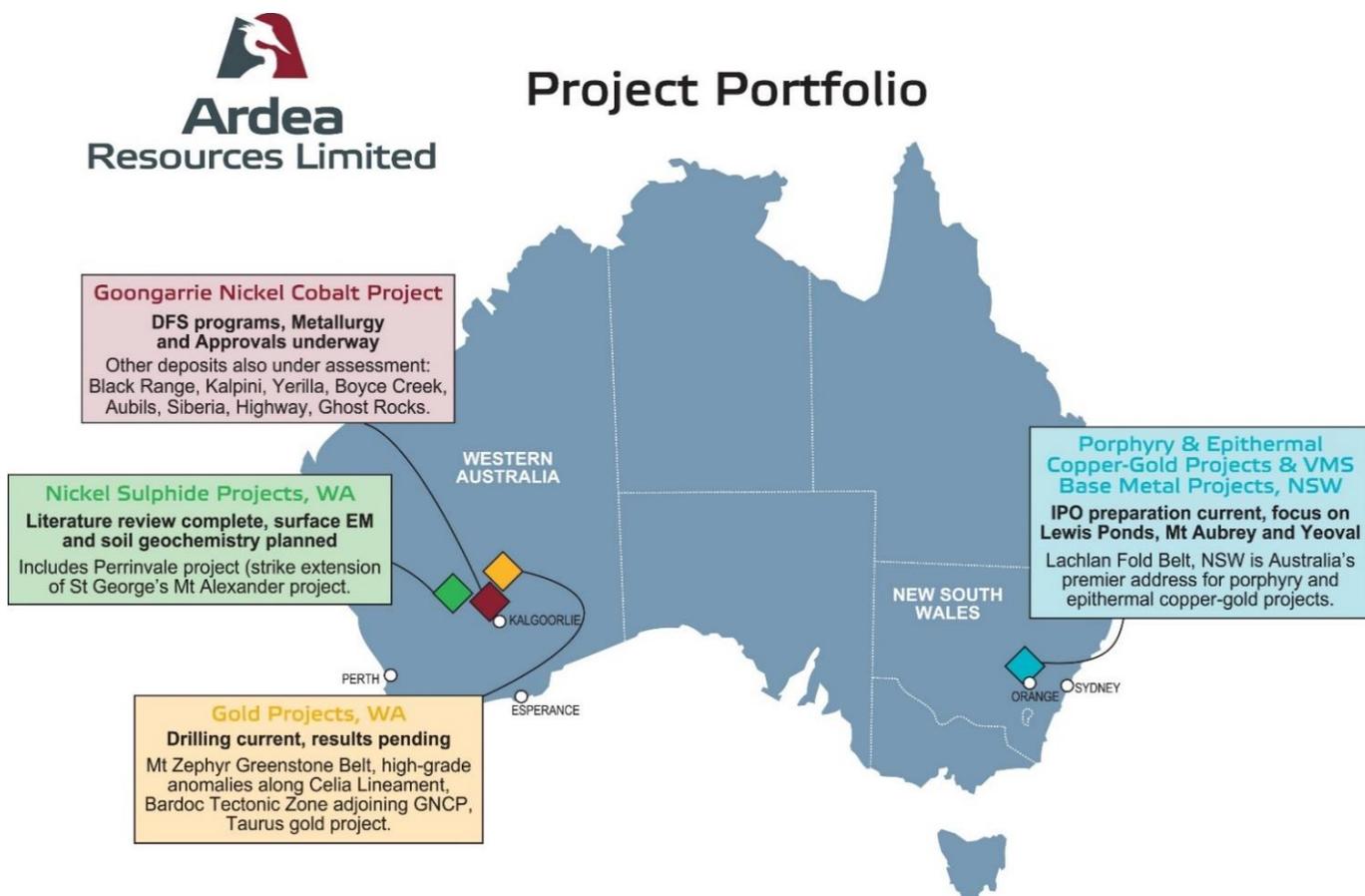


Figure 3 - Location of the Perrinvale project (E 29/1006) on the projected eastward extension of the Cathedrals Belt.

## About Ardea Resources

Ardea Resources (“Ardea” – ASX:ARL) is an ASX listed resources company, with 100% controlled Australian-based projects, prioritising a three-pronged value creation strategy which is:

- development of the Goongarrie Nickel Cobalt Project, which is part of the Kalgoorlie Nickel Project, a globally significant series of nickel-cobalt-scandium deposits which host the largest nickel-cobalt resource in the developed world, coincidentally located as a cover sequence overlying fertile orogenic gold targets;
- advanced-stage exploration at WA gold and nickel sulphide targets within the Eastern Goldfields world-class nickel-gold province; and
- the Godolphin Resources Limited demerger of the NSW gold and base metal assets with planned in-specie share distribution, with all projects located within the Lachlan Fold Belt world-class gold-copper province, specifically within the Lachlan Transverse Zone (hosts McPhillamy’s Gold and Cadia and Northparkes copper-gold) and splay fault of the Gilmore Suture (hosts Cowal gold).



**For further information regarding Ardea, please visit [www.ardearesources.com.au](http://www.ardearesources.com.au) or contact:**

### Ardea Resources:

Andrew Penkethman

Chief Executive Officer, Ardea Resources Limited

Tel +61 8 6244 5136

## **CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION**

*This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this news release.*

*This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and ability to complete the Ardea spin-out, the timing and amount of funding required to execute the Company's exploration, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information. Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time. Forward-looking information involves significant risks, uncertainties, assumptions and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, the ability to complete the Ardea spin-out on the basis of the proposed terms and timing or at all, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.*

*Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.*

**No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.**

### **Competent Person Statement**

*The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Dr Matthew Painter, a Competent Person who is a Member of the Australian Institute of Geoscientists. Dr Painter is a full-time employee of Ardea Resources Limited and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Painter consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*