

Matt Bohlsen of Trend Investing Talks With Ardea Resources Managing Director, Andrew Penkethman & General Manager Exploration, Matt Painter

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About: [Ardea Resources Limited \(ARRRF\)](#)

Summary

The interview focus is on Ardea Resources gold potential.

Ardea has >5,100 km² of 100% controlled tenure in one of Australia's premier gold and nickel sulphide provinces.

Ardea has a maiden gold resource at Big Four, recent higher grade Au drill results at Aphrodite North, and 100 exploration targets have been defined. Also nickel sulphide exploration potential.

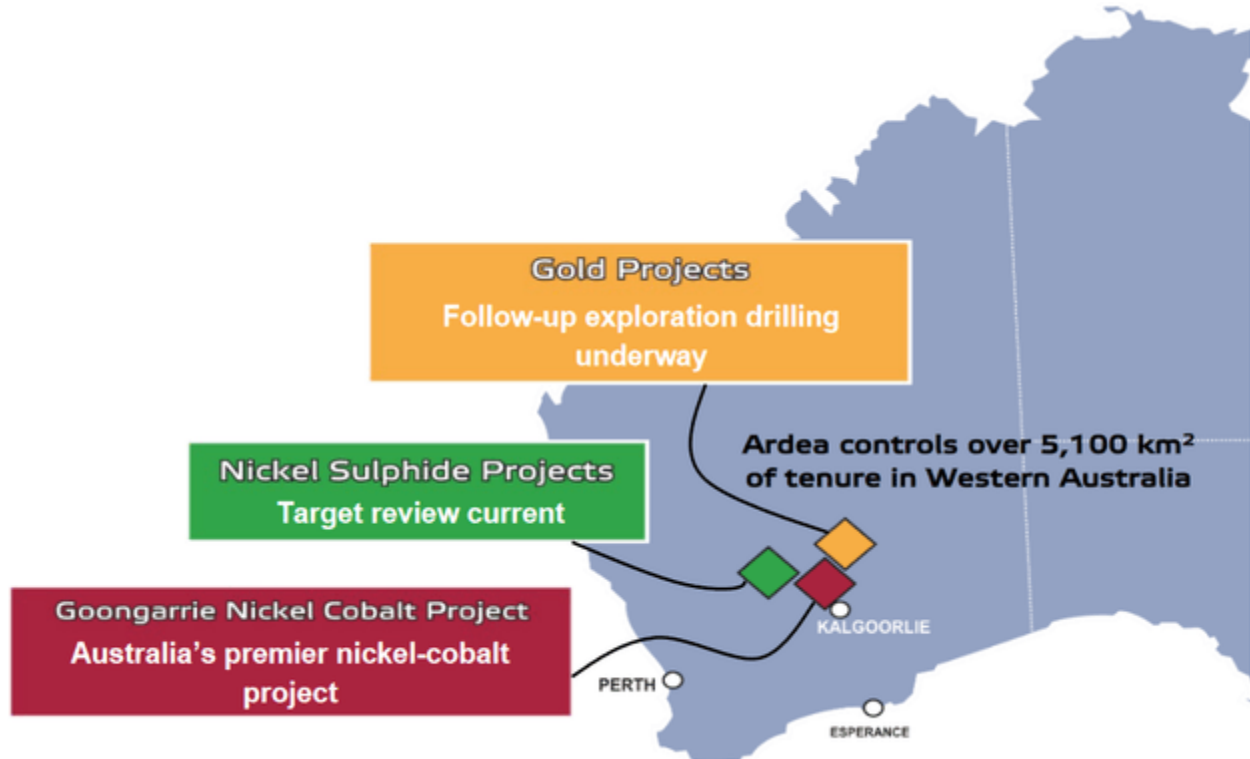
Ardea Resources Ltd [ASX:ARL] ([ARRRF](#))

Ardea Resources ("Ardea") is already well known for their flagship massive Goongarrie Nickel Cobalt (Scandium) Project [GNCP] in Western Australia (WA); but they also have exploration potential for vanadium, chromium, aluminium, manganese, nickel and gold. The Goongarrie Nickel Cobalt Project is part of the broader Kalgoorlie Nickel Project [KNP].

This interview is focused on Ardea's gold exploration (and nickel sulphide) potential on their 100% owned tenements located in the Eastern Goldfields region of Western Australia. In total, Ardea has >5,100 km² of 100% controlled tenure in one of Australia's premier gold and nickel sulphide provinces. The gold exploration is currently focused within and adjacent to the KNP.

Ardea's current strategy has 2 components: 1. Develop the Goongarrie Nickel Cobalt Project. 2. Explore their WA gold and nickel sulphide assets.

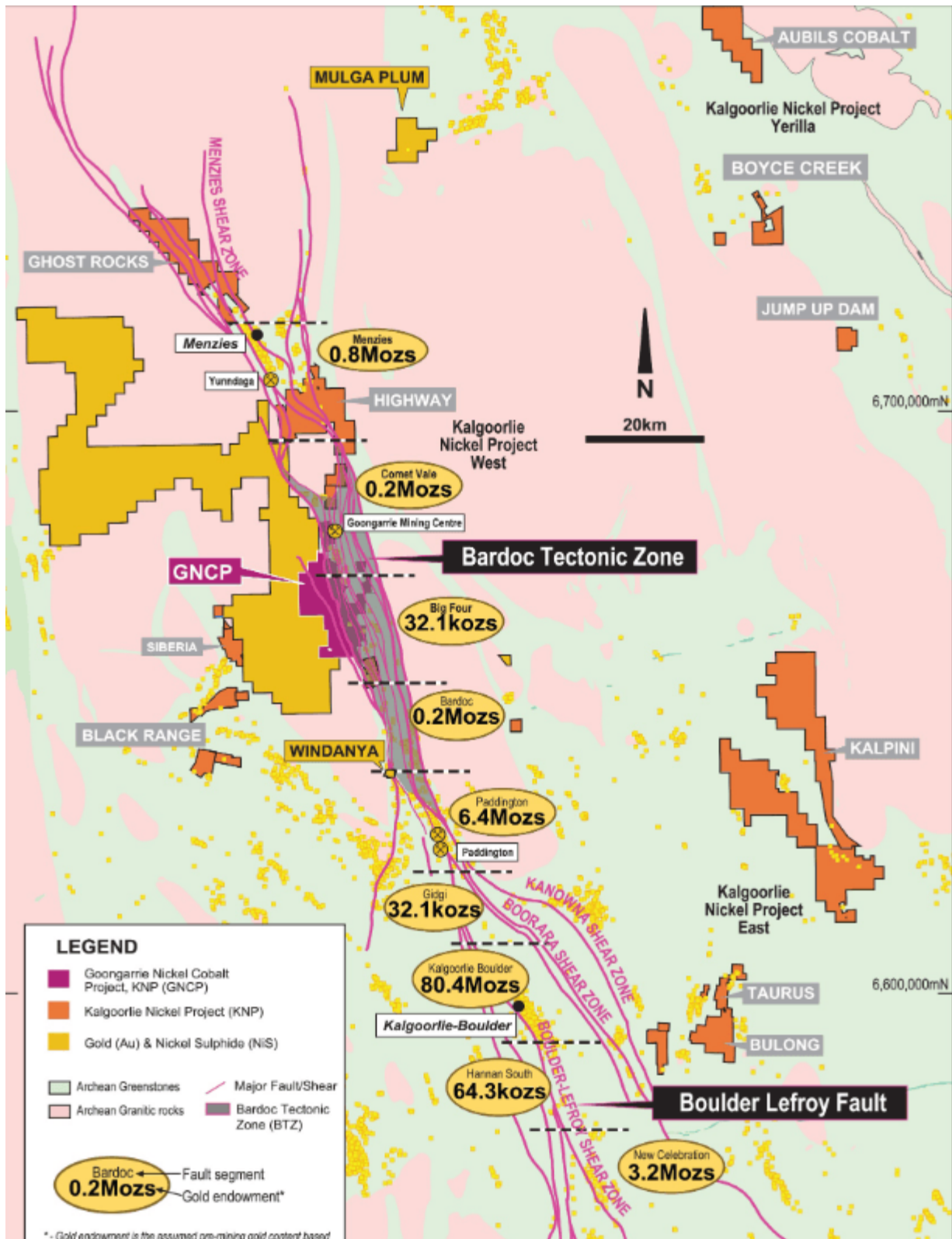
A summary & location map of Ardea Resources projects in Western Australia



Source: [July 2020 Company presentation](#)

Ardea is exploring for gold in the world renowned Eastern Goldfields region (and near the famous city of Kalgoorlie)

The Eastern Goldfields of WA and Kalgoorlie region are world famous for gold. The Bardoc Tectonic Zone [BTZ] is the northern strike continuation of the Boulder Lefroy TZ, which hosts Kalgoorlie-Boulder (>80Moz gold), New Celebration (3.2Moz) and St Ives (6.5Moz) gold camps.



Source: [July 2020 Company presentation](#)

Interview with Ardea Resources Managing Director, Andrew Penkethman & General Manager Exploration, Matt Painter

As gold hits US\$2,000/oz what are your thoughts on where gold prices are headed next and the sector in general?

The ongoing adverse impact of the COVID-19 pandemic on the global economy and simmering political tensions are expected to continue to see gold play its traditional safe haven role. This trend is expected to continue over at least the short to medium term.

We expect the gold sector to perform well particularly in developed economies with an existing industry, skilled work force and infrastructure to leverage off and help fast track exploration, discovery and development potential. Western Australia's Eastern Goldfields is a prime example of an area with a long history of successful gold exploration and production, that still has abundant upside potential. In Australian dollars, the gold price is also setting records and resulting in a mini gold boom in the City of Kalgoorlie-Boulder. In the periods of history most analogous to the current World uncertainty, being the 1890s and then 1930s, the City of Kalgoorlie-Boulder was founded and then absolutely boomed.

Operating in a quality jurisdiction such as Western Australia is especially relevant in a COVID affected world, as the State has seen minimal adverse impact and Ardea has been able to continue working on all projects with no disruption. With Western Australia's borders to the rest of Australia likely to remain closed for the foreseeable future, the State Government has to date kept COVID-19 out, with no documented community transmission. Within this vast, safe bubble, Ardea can operate as normal and work to make the most of the high gold price. With the bubble in place, investors can be sure that they will see results flowing over the coming months.

Can you give investors an idea of Ardea's gold potential, as well as the history of the region.

Gold was first discovered in Kalgoorlie in 1893 and the Eastern Goldfields of Western Australia has continuously been one of the top gold-producing centers in the world. The majority of Ardea's projects are located within a 100km (~60 mile) radius of the City of Kalgoorlie-Boulder. The City is the heart of the Western Australian gold sector and the largest city in Australia's Outback with a population of over 30,000. Ardea maintains a local presence with an operations office in West Kalgoorlie and can leverage off a supportive community, infrastructure and skilled local work force.

The majority of Ardea's projects have seen limited gold exploration for at least 20 years due to the strong focus within the tenure on nickel-cobalt laterite mineralisation. Critically, nickel laterite in Western Australia is dominantly localized upon crustal-scale Tectonic Zones, which controlled ancient mineralizing fluid flow for orogenic gold deposition. The Tectonic Zones (TZ) are exceptional greenfields gold targets. By way of example, the Bardoc Tectonic Zone [BTZ] is

the northern strike continuation of the Boulder Lefroy TZ, which hosts Kalgoorlie-Boulder (>80Moz gold), New Celebration (3.2Moz) and St Ives (6.5Moz) gold camps.

With Ardea's acquisition of the Goongarrie Nickel Cobalt Project and other Kalgoorlie Nickel Project tenements in 2017, for the first time in two decades, systematic gold evaluation commenced, through Ardea's gold and multi-element pathfinder assay suite and detailed geophysical data interpretation to help "see" through the cover lake sediments and blanket laterite.

In terms of developing a gold exploration model, Ardea's approach has highlighted the presence of intense deformation, iron-rich dolerite and late stage diorite intrusives within the GNCP, all the key elements for significant gold mineralisation within Kalgoorlie-Boulder's Eastern Goldfields gold province. Through extensive regional modelling of public and proprietary data, Ardea is of the opinion that a substantial gold camp could lie beneath cover on its GNCP tenure. This clearly needs testing, and the recent intersection of high-grade gold in the first deep RC hole at the Aphrodite North area is the first test of this. (Recent announcement with drill results [here](#).)

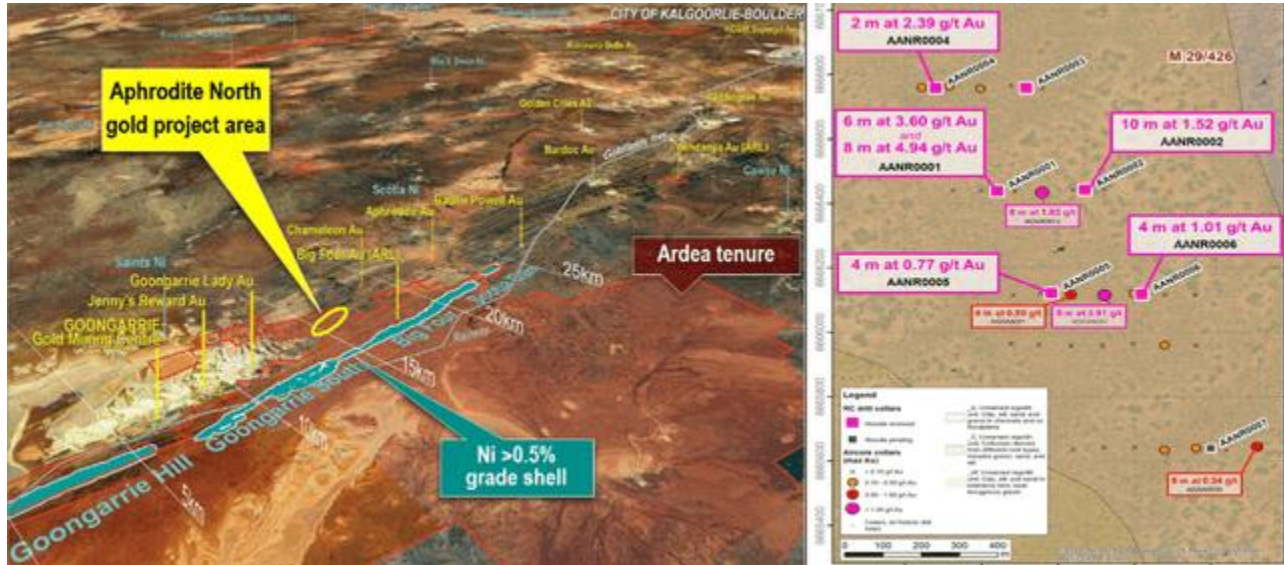
Ardea will continue to advance its gold strategy and has already defined well in excess of 100 targets, which have been ranked and are being systematically explored. The immediate priority is on the top ranked gold targets at the GNCP, where all drilling information helps provide critical information to assist with siting future project development infrastructure for the envisaged nickel and cobalt plant.

Ardea has a strategic, highly prospective (>5,100km²) landholding in the Eastern Goldfields of WA with active exploration programs for gold and nickel sulphide deposits. Can you please list your top few gold projects or targets?

Ardea have defined well over 100 gold exploration targets, with the majority of these located concealed by surface cover within the Goongarrie Nickel Cobalt Project [GNCP] Bardoc Tectonic Zone [BTZ] tenements.

The discovery of primary gold mineralisation at a conceptual target in the **Aphrodite North area** will be our immediate focus with forthcoming drilling. Drilling in the first pass program was very widely spaced on a nominal 320m x 80m pattern, so step-out RC drill holes from the highest-grade hits are expected to help us delimit mineralisation distributions, orientations and grades. Success in the second round of RC drilling will prompt diamond drilling that will provide us vital orientation data for gold mineralised structures and the host rocks. Hopefully, completion of these programs will bring us a long way toward a maiden resource for the area.

Location map and initial drill results from Aphrodite North



[Source](#): Significant gold in first RC drilling, at Aphrodite North

The **Grafter and Goongarrarie South** areas also fall into the regional gold camp target area. Small programs will be used to test some of the most accessible areas which, as well as providing valuable information for these specific targets, will help delimit controls on gold mineralisation and the prospectivity of the many nearby analogous targets. Potentially, even small resources could be used to feed into future production at the Big Four Gold deposit, upon which we recently defined a 15koz resource.

Table 1: JORC 2012 Inferred Mineral Resource estimate for the Big Four Gold deposit (0.5 g/t Au cut-off). All figures rounded to appropriate significant figures reflecting certainty of data.

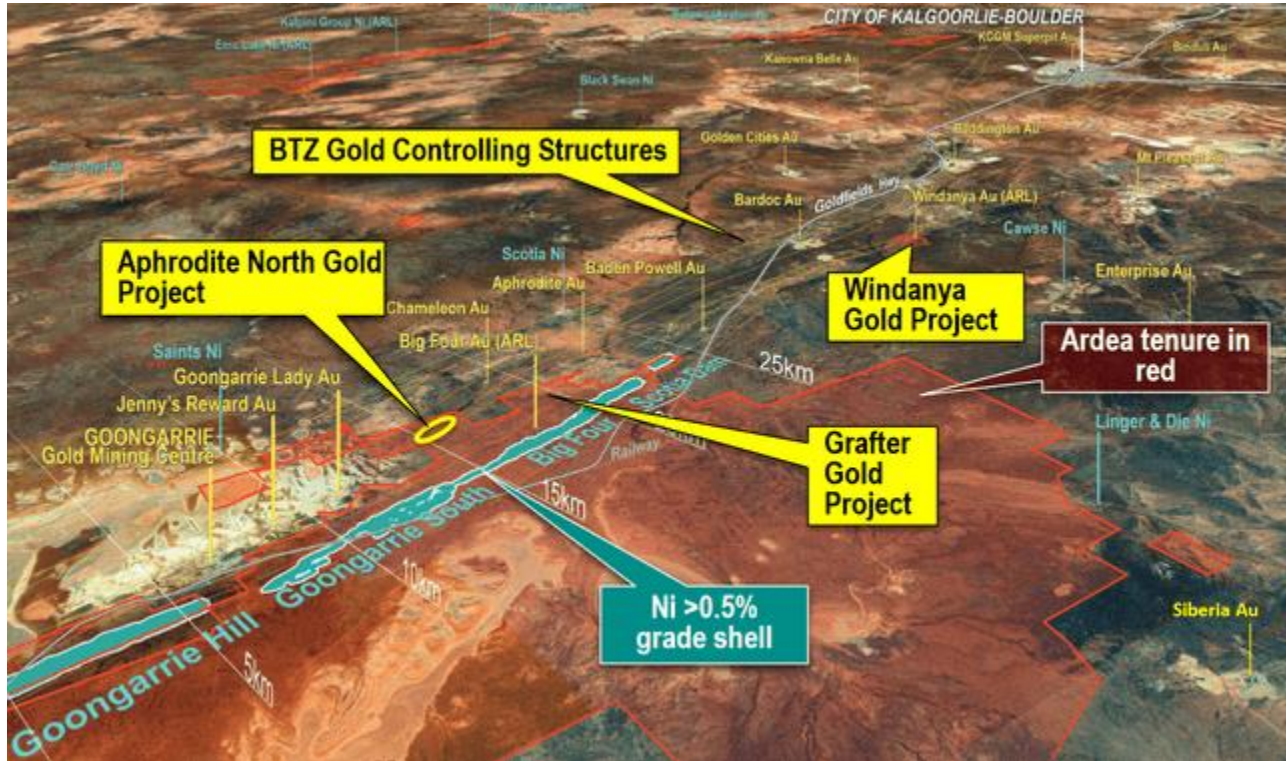
Resource category	Cut-off Au g/t	Tonnes (kt)	Gold (g/t)	Contained gold (oz)
Inferred	≥ 0.5	178	2.7	15,300

[Source](#): Maiden Resource for Big Four Gold Project, WA

Further south in the BTZ towards Kalgoorlie, the **Windanya** project is home to the 1890s-1910s **Half Mile Reef** gold mine. The defunct mine was one of the area’s deepest, extending to over 200 m (~650 ft). Given that higher grade cut-offs applied over a century ago, the potential for remnant gold, as well as shallow and down-plunge mineralisation must be investigated as a potential “Bellevue-style” opportunity.

Within its ranks, Ardea has extensive, global gold expertise. This is being recognised as discussions with prospectors and landholders around our nickel-cobalt resources continue.

A summary map showing Ardea's tenements and first priority gold targets



[Source](#)

Please discuss each of Ardea's current main gold projects one by one outlining their name, location, any positive gold indicators, drill results or other history and potential upside and why?

Its early days in our gold push. On the GNCP, we have one modest development project whose importance outweighs its size. The Big Four Gold project is positive proof of the potential for the area to host mineable gold. Based on its geophysical signature, it is also a type example for numerous buried targets in this host rock unit that are yet to be tested.

The Big Four gold project is located 70km north northwest of the City of Kalgoorlie Boulder, within the footprint of the GNCP. Infill and extensional drilling completed by Ardea in January 2020 ([ASX release 26 February 2020](#)) and historic data collated by the Company has enabled estimation of an Inferred Mineral Resource ([ASX release 14 May 2020](#)): 178kt at 2.7g/t gold, (0.5g/t Au cut off) for 15,300 oz gold. Significant drilling results defined by Ardea include: 18m at 3.38g/t gold from 18m; 14m at 2.40g/t gold from 6m; and 20m at 2.91g/t gold from 76m.

Our portfolio is heavily skewed towards exploration targets entirely as a result of the Company's ongoing prolific target generation program. Like the GNCP, much of Ardea's tenure is over areas containing other nickel-cobalt laterite deposits hosted by similar rock sequences with varying amounts of transported cover. Many of these are also within or adjacent to established or historic gold mining areas, and all are associated with major, crustal-scale tectonic zones. Our priority exploration targets are:

1. **Bardoc Tectonic Zone [BTZ]**

1. **Aphrodite North**- An emerging gold discovery located on the eastern side of the GNCP, under lake sediments, only 6km north of the 1.7Moz Aphrodite gold deposit. Prior to Ardea's regional aircore drilling program in May 2020, the target had never been drilled before. Early exploration success is compelling with gold located below within a layered mafic complex, which was the target host rock.
2. **Windanya** – A historical gold mining centre that was operational in the early 1900s located, 20km south of the GNCP Scotia Dam nickel-cobalt deposit and only 50km northwest of the City of Kalgoorlie-Boulder. Significant historic gold workings are evident on the tenement and extend as a corridor to other workings to the north and south of Ardea's Windanya tenement (P24/5169). The strike trend of the mineralised zone appears to be approximately 330°. Sourcing of historic information and data interpretation continues, with a focus on the Half Mile Reef gold mine located near the centre of the tenement. Half Mile Reef was a major underground gold mine at its peak in the early 1900s, and was the location of the regional State gold production battery. Historic records sourced for the Half Mile Reef indicate that between 1897 and 1906, 23,480 tonnes of ore were mined from an underground operation, producing 12,993 ounces of gold. This indicates a recovered gold grade of 17.2 g/t, with head grade likely to be considerably higher.

Significant historical data has been sourced such as old mine plans and a long section which confirm that a 600 foot or 183m deep shaft was developed, with stoping to a depth of at least 170m. Level development and discontinuous stoping was completed over a distance of at least 700 foot or 213m. This information is currently being modelled in 3D to help refine the controls on high grade gold mineralisation historically mined and will be projected down plunge as a check on the effectiveness of historical drilling. Early indications suggest that the majority of historic drilling around the old mine workings was either too shallow or missed the down plunge projection. Ardea will be the first Company to compile and assess all legacy data in such detail to help guide future exploration.

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1. **Grafter** –An underexplored area covering 3.7 x 1.5km, located at the south-eastern end of the GNCP, containing a deformed mafic hanging wall sequence prone to gold mineralisation with Ardea the first Company to apply a modern exploration approach. Numerous rock chip and drill anomalies have been identified with minor historic workings only (likely due to ~80% transported and laterite cover hiding the prospective basement rocks). Several laterally extensive trends, including the Brighton-Grafters Trend that hosts numerous gold mines,

including Brighton, New Boddington mines (to the north) and Rob Roy, Eureka, Windanya mines (to the south)

A first-pass exploration program is required to fully define gold distributions in laterite and fresh rock with three initial areas to be RC drill tested with a staged program to explore several target styles over different parts of the stratigraphy.

1.
 1. **Goongarrie South** – Multiple targets defined from detailed aeromagnetic data interpretation and the limited historic drilling that penetrated the cover sequence and assayed for gold.
 2. **Menzies/Moriaty** – 25km strike length of the BTZ from Moriaty in the south to Ghost Rocks in the north, located in the Menzies/Yunndaga Gold Field. Multiple targets defined from historic drilling and geophysical interpretation.
2. **Monger – Goddard Fault**
 1. **Bulong** - Ardea's tenements are located approximately 30km east of the City of Kalgoorlie Boulder. The regionally significant crustal scale gold-controlling structure, the Goddard Fault, trends north-south and passes through Ardea's Bulong tenure. This structure represents a northern splay of the regionally significant Mount Monger Fault, which hosts gold mineralisation to the south, with the best-known operating mine in the area at Daisy Milano with the gold field having produced well over one million ounces and having over a million ounces in resources. Historically, the focus on the Bulong tenements has been on laterite hosted nickel-cobalt mineralisation, with limited historical gold exploration completed by Ardea. A detailed mapping and sampling program around the historic Taurus underlay shaft and multiple workings in the area has helped further the refine the controls on gold mineralisation in this region.

Historic drilling at Taurus includes **3m at 66.6g/t Au** from 16m (Department of Mines, Industry Regulation and Safety WAMEX Open File data). The workings have been mapped and sampled by Ardea and confirm high grade mineralisation potential of an echelon vein arrays.

Thirty six exploration targets have been defined. These are predominantly gold targets, but also include PGMs and base metals (nickel, copper, lead and zinc).

1. **Keith Kilkenny Lineament**
 1. **Lake Rebecca** – Historic drilling has defined a zone of gold mineralisation open along strike and down dip with the majority of the tenement area still under explored for gold mineralisation. Historic drill hole LRC5 returned 2m at 4.23g/t Au from 26m, in a wider zone from surface to 29m at 50-150ppm As, LRC9 returned 1m at 2.02g/t Au from 20m, in a wider zone from surface to 80m (EOH) at 50-741ppm As, and LRC32 returned 2m at 6.34g/t Au from 26m, in a wider zone from surface to 76m at 50-560ppm As (Department of Mines, Industry Regulation and Safety WAMEX Open File data).

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1. **Yerilla** –The Yerilla tectonic setting is an intra-crustal rift or aulacogen (Yilgarn Conglomerate, epiclastic rift fill, excellent indicator of gold prospectivity). There is a clear komatiite/basalt contact that shows shearing in association with the Keith Kilkenny Shear Zone. On the basis of the Saturn Minerals Apollo Hill gold project, the eastern KKTZ contact is expected to show gold endowment. No prior focus on gold mineralisation by Ardea with further follow-up required.
2. **Emu Fault**
 1. **Kalpini** - Gold mining centres west of laterite contact at Kalpini, and southeast at Kurnalpi. The main gold controlling structure is the Emu Fault which trends just west of Ardea's tenure and hosts significant gold mineralisation further north at the historic gold mining centre of Kookynie.
3. **Zuleika Shear**
 1. **Perrinvale** - The eastern part of the tenure overlies poorly exposed greenstones along the northern extension of the Zuleika Shear system, which is a known gold bearing structure at Kundana, south of Ardea's tenure. The fact that there are no gazetted gold occurrences over the greenstone belt within Ardea's tenure, is believed to be a function of the surface cover hiding the prospective basement rocks. An internal review of geophysical datasets, focussed predominantly on the interpretation of aeromagnetic data, has defined a number of targets. These have been ranked and added to Ardea's ranking system and represent regional targets that would be best explored with wide spaced RAB or Aircore drilling to drill through the surface cover and collect samples for geological logging and geochemical sampling. This data would then be used to help vector in on any bedrock gold anomalism defined, which could lead to a greenfields discovery. Higher priority gold targets along the BTZ are currently taking precedence.

Does Ardea Resources have any gold resource 'goals/targets' for the years ahead, and if yes what are they?

Our goals are to continue making new gold discoveries on under explored areas of the Eastern Goldfields of Western Australia which have been overlooked due to a past focus on nickel-cobalt laterite exploration and surface cover hiding the prospective gold bearing basement rocks. The Ardea Team believe that with our ground position and industry contacts, Ardea can be positioned as a rapidly emerging player in the Eastern Goldfields of Western Australia.

The main aim for Ardea is to make the most of what we have. This means defining gold resources that overlap with the footprint of the GNCP to clarify and facilitate projected nickel-cobalt mining schedules. Seeing as gold exploration has not happened over the GNCP for decades, many of our targets in the area are early stage, so we cannot yet provide numbers around targets for this area. We can, however, progress these projects very quickly towards mining as they fall on the mining tenements granted for the nickel-cobalt deposits.

It also means looking at ground adjacent to our widespread nickel-cobalt resources where Ardea can apply its gold expertise to maximise discovery. This philosophy has resulted in a generation of numerous early stage buried targets over the GNCP in particular and drilling here is already yielding high-grade gold results.

The quantum of ounces discovered will determine the most appropriate option to monetize the gold assets within Ardea. Being located in the heartland of Australia's vibrant gold mining industry provides many options including standalone development, toll treatment or corporate transaction. Multiple options are available providing great flexibility to ensure the best outcome for Ardea's shareholders.

Please give an outline of 2020 and 2021 catalysts for the gold projects including when investors can expect drill results, resource statements etc.

2020

1. Big Four Gold Metallurgical Testwork Results.
2. Aphrodite North Exploration Drilling Results.
3. Windanya Exploration Drilling Results.
4. Other BTZ Exploration Drilling Results.
5. Bulong Exploration Drilling Results.
6. Corporate Deals.
7. New Project acquisition exploration results.

2021

1. Aphrodite North Exploration Drilling Results.
2. Windanya Exploration Drilling Results.
3. Other BTZ Exploration Drilling Results.
4. Bulong Exploration Drilling Results.
5. Corporate Deals.
6. New Project acquisition exploration results.
7. Resource Updates as appropriate.
8. Concept Studies as appropriate.

Please briefly outline the major nickel sulphide projects and their potential. Are they combined or separate to the gold projects?

Ardea has a number of nickel sulphide [NiS] exploration opportunities within its extensive WA Tenement portfolio. The priority project is Kalpini, where both disseminated NiS (bulk tonnage lower grade) and massive NiS (lower tonnage high grade) targets have been defined. These targets tend to be located to the east of the Emu Fault and the main gold trend.

Emu Lake is part of the Kalpini group of tenements and has multiple known nickel sulphide drill hole intersections exceeding 1% nickel. Previous explorers include Jubilee Mines, Emu Nickel, Xstrata and Pioneer Nickel. The komatiite belt is known to be fertile for nickel sulphide, with previous explorers recording significant drilling results, such as 2m @ 6.2% nickel in historic core drilling (Heron Resources Limited ASX release 26 November 2013. ELD015, 2m at 6.2% Ni, 1.78% Cu, and 2.17g/t PGMs). Results of this tenor help confirm nickel sulphide endowment and prospectivity. A limited RC drilling program by Ardea in 2019 also identified VMS base metal associations.

Interpretation of the historic data is continuing but suggests that the NiS intersections are open along strike.

Advances in geophysical surveys such as Electro Magnetics are expected to assist Ardea in following up on these targets.

Ardea is continuing the assessment of the historic data from the region with the assistance of leading nickel sulphide and EM consultants Newexco, to define and rank a pipeline of nickel sulphide exploration targets throughout the area.

Other targets have been defined and include Perrinvale. The Ardea exploration model is based on recent nickel sulphide discoveries immediately west of Perrinvale made by St George Mining. Regional magnetic data highlights that the feature which hosts the St George Mining nickel sulphide discoveries within the Cathedrals Belt, has an east-northeast strike and extends into Perrinvale. At Perrinvale, this prospective trend is overlain by transported cover, requiring geophysical methods such as moving loop Electro Magnetic surveys for exploration targeting.

Gold is currently trading at [USD 1,952/oz](#)



Conclusion

It is very exciting and busy times at Ardea Resources. We already know Ardea has the truly massive Goongarrie Nickel Cobalt (Scandium) Project which has 5.6 million tonnes contained Nickel (@0.7%) and 405,000 tonnes contained Cobalt (@0.05%), with a higher grade zone within. But now Ardea is actively exploring their 5,100 square kilometres of tenements in the world renowned Eastern Goldfields region and near Kalgoorlie.

While it is still early days for Ardea's gold exploration, at Big Four Ardea has a maiden resource of 15,300 gold ozs @2.7g/t, and at Aphrodite North Ardea has recently had some exciting higher grade drill results including 8m at 4.94g/t Au from 172m to 180m, with more drilling to follow soon.

I would sincerely like to thank Andrew Penkethman and Matt Painter for giving freely of their time and insight into Ardea Resources. Exciting times ahead for Ardea and their shareholders.

Disclosure: I am/we are long Ardea Resources [ASX:ARL].

I wrote this article myself, and it expresses my own opinions. I am not receiving compensation for it. I have no business relationship with any company whose stock is mentioned in this article.

Additional disclosure: The information in this article is general in nature and should not be relied upon as personal financial advice.