



## North Arunta JV Gold Project – Pipeline Study

### ASX RELEASE

18 June 2018

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**ASX: GLA**

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### Highlights

- Initial phase of Pipeline Study completed, including (i) reprocessing of geophysical data, (ii) metallogenic review of the of the project area, and (iii) assessment of the eastern JV tenement package.
- Significant exploration target being developed in the Kroda-3 to Kroda-4 corridor (Kroda Target).
- IP Survey over the Kroda Target to commence shortly.
- Wider Arunta Orogen becoming “hot property” as reflected by a significant increase in tenement applications.

Gladiator Resources Limited (**ASX: GLA**) (“**Gladiator**” or “**Company**”) is pleased to announce further progress on the Company’s North Arunta JV with Prodigy Gold NL (ASX:PRX) (Fig. 1).

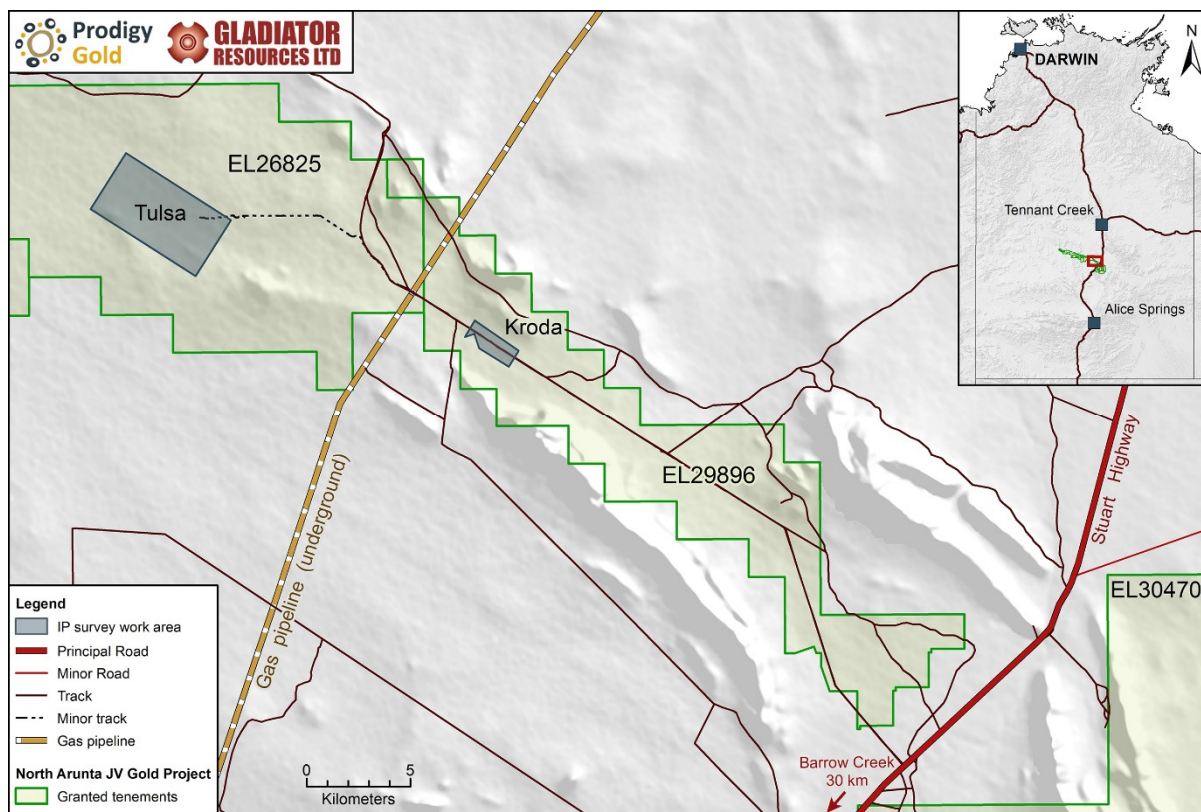
Gladiator recently began a Pipeline Study, the initial phase of which has now been completed. Work to date included:

- (i) The reprocessing and interpretation of geophysical and remote sensing data,
- (ii) A metallogenic review of the project area, and
- (iii) An assessment of the eastern JV tenement package, east of the Stuart Highway.

As part of the Pipeline Study and in preparation for an upcoming induced polarisation (IP) survey<sup>1</sup>, the targeted Kroda-3 to Kroda-4 shear zone corridor (hereafter referred to as the Kroda Target) has been reviewed in detail and confirmed as a prime exploration target defined by a greater 1.7km-long trend of anomalous multi-element surface geochemistry, geophysical anomalism, and shallow, highly anomalous gold intercepts reported in historic drilling<sup>2</sup>.

<sup>1</sup> Refer to GLA ASX Announcement dated 22 May 2018

<sup>2</sup> Refer to GLA ASX Announcement dated 07 March 2018



**Figure 1.** Map of the Kroda and Tulsa priority targets that are the current focus of the Company's exploration activities. The Kroda Target includes in Kroda-3 and Kroda-4 historic prospects located along the Kroda shear zone corridor. Also shown is the local infrastructure, including access tracks. Inset: Map of the Northern Territory, illustrating the location of the Company's North Arunta JV Gold Project.

Final planning has now been completed for an IP survey over the Kroda Target. The survey will be conducted by renowned geophysical services provider Fender Geophysics and is expected to commence in about 1-2 weeks pending availability of the IP survey crew.

Findings of the initial phase of the Company's Pipeline Study are described in more detail below.

### **Pipeline Study – Geophysical Processing & Interpretation**

Reprocessing of geophysical and remote sensing data and the subsequent review and interpretation of these data delivered an improved understanding of the structural architecture of the North Arunta project area ("Project Area" or "Project") and wider Arunta Orogen, and possible structural controls on the location of gold mineralisation in this region, which has a complex stratigraphic, structural, and metamorphic history extending from the Paleoproterozoic to the Palaeozoic.

The geophysical work entailed the compilation and merging of various geophysical and remote sensing datasets to produce single seamless compilations of magnetic, gravity, radiometric, electromagnetic (EM) and Shuttle Radar Topography Mission (SRTM) data (Table 1).

Algorithm-derived structure and intrusion detection routines applied to these data unearthed structural information that was critical in the interpretation of the geophysical and remote sensing data.

**Table 1.** Summary of the geophysical processing undertaken as part of the Pipeline Study.

Data	Area	
	North Arunta Project	Arunta Orogen
Magnetic	40m merged grid [compiled from public domain data]	200m merged grid [compiled from public domain data]
	Enhancement filtering	
	Structure detection [total and restricted orientation ranges, 2 scales]	Structure detection [total and restricted orientation ranges, 4 scales]
	Radial symmetry [intrusion] detection	N/A
Radiometric	100m GA Australia-wide grids	
	Elements (K, Th, U) and ratios, colour composites	
Gravity	200m NTGS Barrow Creek Bouguer anomaly grid + 400m merged isostatic residual grid	800m GA Australia-wide Isostatic residual gravity grid
	Original gravity	Enhancement filtering
	Structure detection using 'edge' mode at a single scale	Structure detection using 'edge' and 'ridge' modes [total and restricted orientation ranges, 4 scales]
Electromagnetic	200m dB/dt Z component EM data [Tempest]	N/A
	Structure detection	
Topography	30m SRTM data	235m GMTED2010 grid [USGS Global Multi-Resolution Terrain Elevation Data]
	Original and high frequency residual	Original and high frequency residual
	'Ridge' and 'valley' detection	N/A

**Key to abbreviations:** EM = electromagnetic; GA = Geoscience Australia; K = potassium; N/A: not applicable; Th = thorium; SRTM = Shuttle Radar Topography Mission; U = uranium; USGS = United States Geological Survey.

## Summary of key results

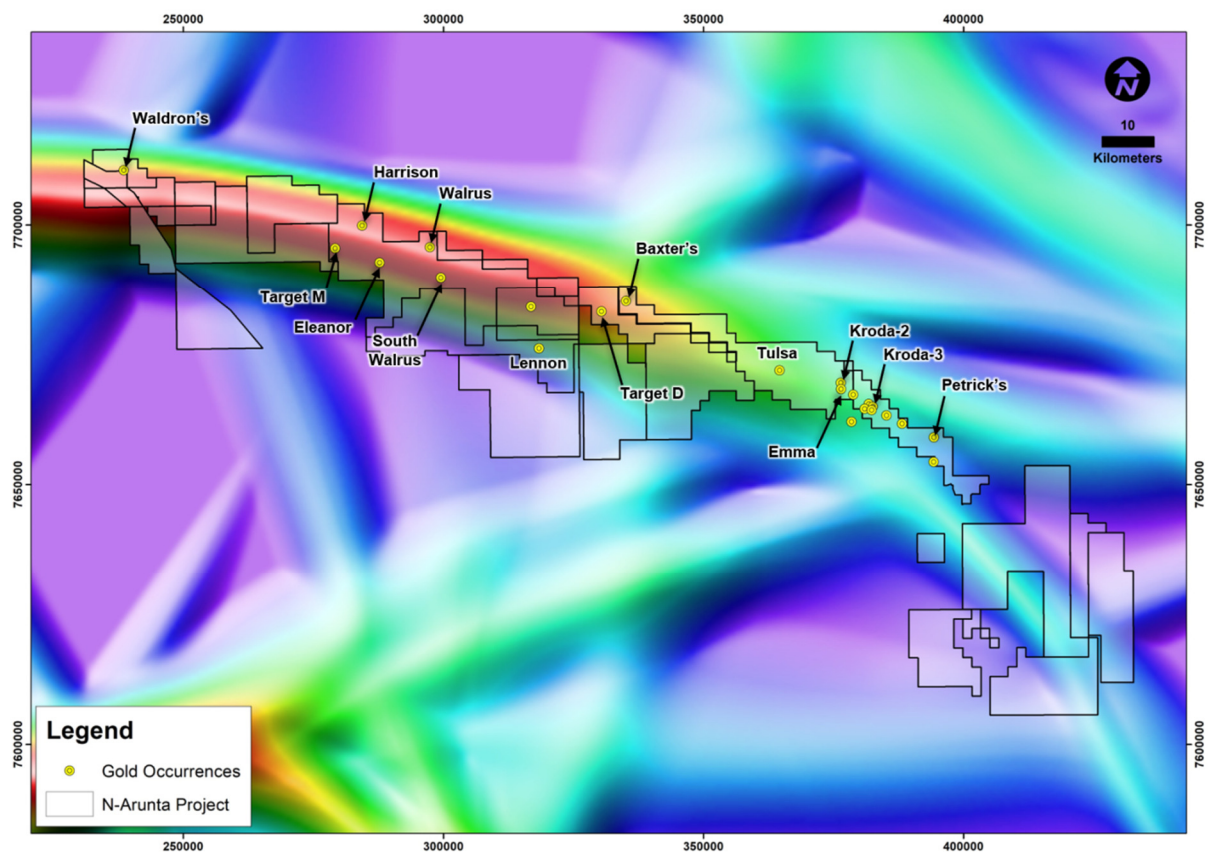
### Radiometric data:

- The Project is characterised by a relatively subdued potassium (K) radiometric signature, similar to that of the area hosting the Tanami gold systems ca. 200km to the west. The observed radiometric signature is most likely a direct response from the local bedrock and exposed mineral alteration systems, and is also interpreted in terms of much of the Project Area comprising only thin or no soil cover.
- At the Lennon prospect (Fig. 2), a large 7km by 3km Au-(Cu-Mo) surface geochemical anomaly spatially associated with a NW-SE-trending magnetic feature has a coincident NW-SE-trending K radiometric anomaly. Lennon is now recognised as a key exploration target.
- Potassium-thorium (K/Th) ratio radiometric data provide a useful tool for discriminating domains of hydrothermal alteration in areas of no, or very thin (<40-50cm), soil cover. Discrete K/Th highs at the Lennon and Waldrons prospects and in the greater Harrisons and Eleanor prospects areas coincide with areas of out- and subcrop and large multi-element surface

geochemistry anomalies and, thus, are most likely linked to domains of hydrothermal alteration exposed in outcropping rocks. The discrete K/Th highs at these localities are also broadly consistent with first-order magnetic and gravity structures.

Gravity data:

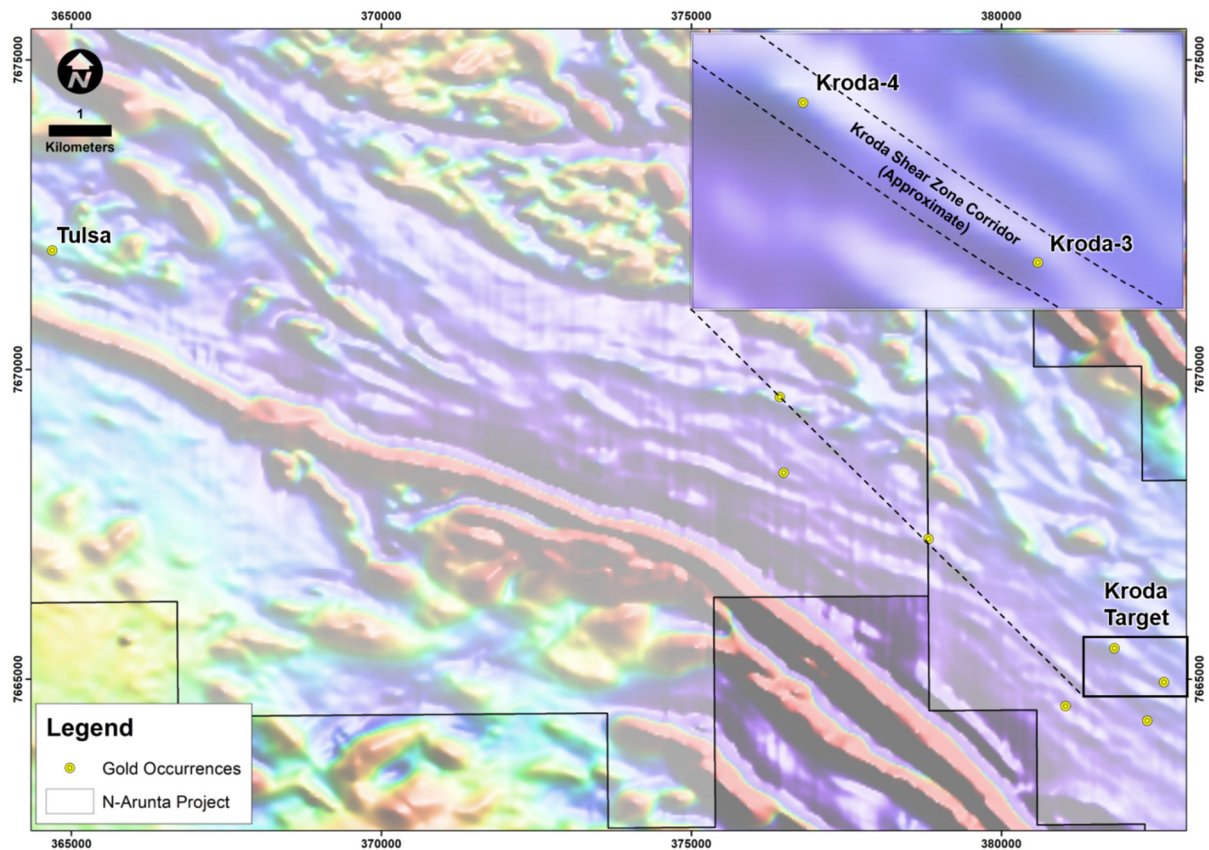
- At the regional scale, a clear association was recognised between second-order gravity ridges (represented by SD1600 scale gravity structures generated in this study) and most of the large Tanami gold systems.
- No such relationship is evident at the North Arunta Project. However, the Project illustrates a very strong spatial relationship between gold systems and major gravity edges evident at multiple scales (Fig. 2). The latter are interpreted as expressions of long-lived, deep-seated basement structures that are thought to have played a critical role in controlling the location of gold mineralisation in the Project Area.
- The contrasting gravity signatures may also be taken as evidence for different genetic processes having operated in the Tanami and North Arunta areas despite these areas sharing certain geological similarities (see metallogeny section below for further discussion).



**Figure 2.** Map of the Project Area showing the regional (SD12800-scale) gravity 'edges' and how the known gold mineralisation is closely associated with and 'lined up along' the main gravity linear; an interpreted basement structure.

## Magnetic data:

- The magnetic data illustrate a clear spatial association between residual magnetic highs and the Tanami gold systems. Similar features are evident in the Project Area but the known gold systems at the North Arunta Project are more closely associated with residual magnetic lows. An exception to this rule is the Lennon prospect, which may represent a concealed porphyry system (see metallogeny section below for further discussion). Again, the contrasting magnetic signatures may be taken as evidence for different genetic processes having operated in the Tanami and North Arunta areas.
- A pronounced spatial association was recognised between the main gold mineralised trend at the North Arunta Project and a first-order, ESE-WNW-striking magnetic structure evident in the SD12800 scale structure detection data. This structure is interpreted as a regional fault or shear zone, likely having tapped deeper-seated magmatic systems that would have added heat into the crust and promoted the migration of gold-bearing hydrothermal fluids.
- Large scale magnetic structures cutting across the Project Area are interpreted here as major demagnetised shear zones spatially associated with domains of hydrothermal alteration and intrusive bodies evidenced by shallow to deep residual magnetic lows.
- Second-order (SD1600-scale) ESE-WNW-striking magnetic structures show a strong spatial association with gold mineralisation in the western portion of the North Arunta Project.
- Third-order (SD1600-scale) NNW-SSE-striking magnetic structures appear to have played a role in the localising gold mineralising processes at the Lennon and Waldrons prospects.
- Some of the prospects at the North Arunta Project also illustrate spatial associations with third- or higher-order (SD40- to SD100-scale) ESE-WNW-striking magnetic structures, probably indicating that minor structures had an important role to play in localising gold mineralisation.
- Whilst the Kroda Target is situated upon a broad, shallow residual magnetic low (Fig. 3), other prospects (e.g., Lennon, Tulsa, Walrus, South Walrus, Target M, Harrison and Eleanor) are marked by discrete shallow residual magnetic highs. Similar responses can be recognised in the moderate residual magnetics. More variation is evident in the deep residual magnetics, probably reflecting subtle differences in host rocks and mineralising processes across the various prospects.
- At the broader scale, a strong spatial relationship is evident between prospects such as the Kroda Target and Tulsa and shallow residual magnetic lows, marking a significant structural corridor (the previously interpreted Kroda shear zone corridor) spatially associated with intense hydrothermal alteration, magnetite destruction and gold mineralisation.
- Both the Lennon and Walrus prospects are marked by large magnetic highs whilst other prospects are commonly represented by magnetic lows interpreted as magnetite destructive alteration zones.
- Additional large magnetic highs outside the known prospect areas may represent mafic or magnetite-bearing intermediate to felsic intrusive rocks. However, some of these anomalies could represent yet unrecognised domains of hydrothermal alteration associated with gold mineralisation.



**Figure 3.** Magnetic map (TMI RTP) of the broader Kroda to Tulsa area illustrating the spatial relationship between the known gold occurrences and a broad shallow residual magnetic low (blue colours), interpreted as an extensive structural corridor. Inset: Zoomed image of the Kroda Target.

### Pipeline Study – Metallogeny of the Project Area & New Targeting Models

- Ore mineral associations recorded by previous explorers suggest that the genesis of at least some of the gold occurrences at the North Arunta Project does not readily fit an orogenic gold deposit model as is commonly postulated to explain the genesis of the Tanami gold systems.
- For example, the association of Cu ± Sb minerals such as enargite and Cu minerals such as covellite, chalcopryrite, chalcocite and bornite with Au and Ag as reported from Waldrons is typically a strong indicator of high-sulphidation epithermal gold systems. Hence, some prospects at the North Arunta Project could have formed in a shallow crustal epithermal environment above deeper porphyry systems associated with Cu, Au and/or Mo. Whilst further evidence will be required to prove (or disprove) this hypothesis, it would serve to explain the occasional Cu-Mo geochemical element associations and Au-Ag (± As, Sb) anomalism, in particular at the Tulsa and Lennon prospects. Given the occurrence of a possible intrusion-related gold system in the nearby Granites-Tanami Orogen (i.e., Buccaneer<sup>3</sup>) the above is a likely scenario for the North Arunta region also.
- Significant As-Sb anomalism has also been reported from the western Project Area whilst As is the typical sulphide mineral at Kroda-3. The latter has been described as a breccia-pipe hosted gold system, which again is uncharacteristic for orogenic gold systems but common in intrusion-related gold systems.

<sup>3</sup> Li, B., 2014: Tectonic evolution and gold mineralisation of the Granites-Tanami Orogen, North Australian craton. Unpublished PhD Thesis, The University of Western Australia, 204p.

- Given the above, there may be potential at the North Arunta Project not only for orogenic gold systems similar to those found in the nearby Granites-Tanami Orogen but also for discovery of previously unrecognised deposit types, including:
  - Mesozonal to high-level epizonal intrusion-related gold systems, in particular at the Kroda Target.
  - Porphyry Cu ( $\pm$  Au, Mo), in particular at Lennon and in the wider Tulsa area.
  - High sulphidation epithermal Au-Ag-Cu, in particular at Waldrons.
- Historic exploration undertaken at the North Arunta Project appears to have paid little, if any, attention to either the metallogeny of the Project Area or the exploration implications of alternative mineral deposit and targeting models.
- Moreover, much, if not most, of the historic exploration may be considered ineffective with respect to testing for intrusion-related, porphyry and high-sulphidation epithermal mineralisation styles. This probable lack of effective prior exploration provides a significant opportunity for Gladiator in that the Company can now rebuild the Project from the ground up with future exploration activities informed by updated targeting models warranting the application of new technologies (e.g., high-resolution IP) and testing of new search spaces (e.g., deeper drilling below known mineral occurrences and multi-element surface geochemical anomalies).
- Given the new geophysical and metallogenic evidence and interpretations, the Company believes that the mechanisms of ore formation at and underlying genetic models applicable to the North Arunta Project may differ fundamentally from those applicable to the Tanami, Tennent Creek and other goldfields nearby.
- Both magnetic and gravity data provide evidence for a regional-scale, first-order shear zone or fault corridor cutting across the Project Area. Most of the known gold occurrences and large multi-element surface geochemical anomalies line up along and cluster immediately north or south of this corridor (Fig. 2), interpreted as the main ore-controlling structure in the Project Area. In the available geophysical data, this corridor is characterised by the spatial coincidence of a major gravity edge that is evident at multiple scales (Fig. 2), a substantial magnetic lineament, also evident at multiple scales, and domains of residual magnetic lows (Fig. 3).

In summary, the cursory review of the Project metallogeny in conjunction with the delineation and interpretation of cutting edge geophysical structure and intrusion detection data unveiled an untapped opportunity for targeting previously unrecognised styles of gold (and possibly base metals) deposits.

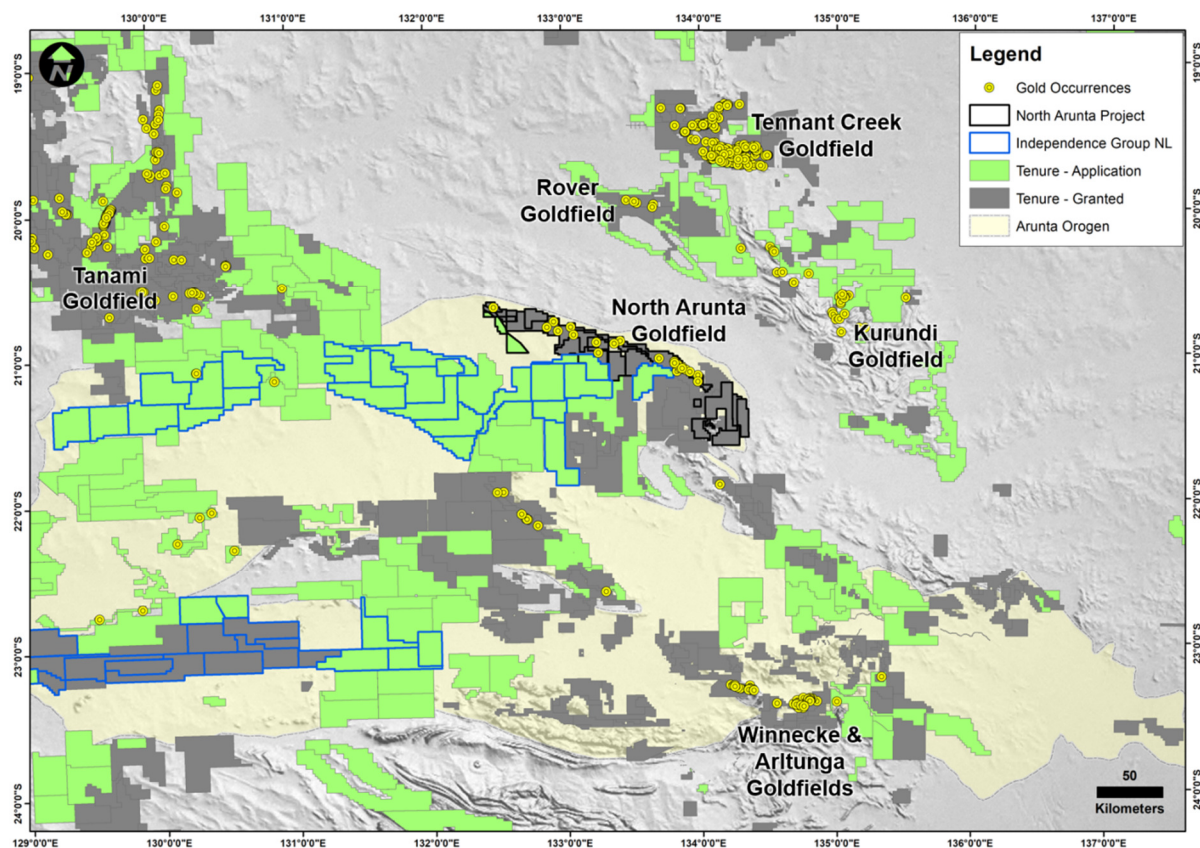
The new understanding of the mineral potential of the Project Area along with new geophysical information will underpin a new era of discovery-oriented exploration at the North Arunta Project.

## Pipeline Study – Assessment of Eastern Tenement Package

- The Eastern Tenement Package (i.e., the JV tenements to the east of the Stuart Highway; Fig. 1) is poorly known and underexplored.
- The limited geophysical, geochemical, drilling and geological information available for the Eastern Tenement Package provide little evidence to indicate that the area may be prospective for Kroda-style gold mineralisation. Whilst the main gravity structure that controls the location of gold mineralisation in the western Project Area continues into the Eastern Tenement Package (Fig. 2), the area to the east of the Stuart Highway appears to be devoid of gold occurrences. This lack could be due to a lack of exploration activity, more widespread cover or a different geological and metallogenic makeup.
- Based on Gladiator’s cursory review, the Eastern Tenement Package may be prospective for:
  - Sn, Ta, Ni and W mineralisation associated with the margins of the Barrow Creek Granite Complex.
  - Home of Bullion-style, polymetallic (Cu-Zn-Pb-Ag-Au) volcanogenic massive sulphide (VMS) mineralisation.
  - Prospect D-style Cu and Ni-Cu mineralisation.
- Further prospectivity assessments and tenure rationalisation work will be completed for the Eastern Tenement Package during the next quarter.

## Pipeline Study – Rise in Tenement Applications across the Arunta Orogen

- As illustrated in Figure 4, large portions of the Arunta Orogen are now under tenure. In fact, the underexplored yet highly prospective region has become a ‘hotspot’ for base metals, gold and battery metals explorers as expressed in the substantial increase in tenement applications since 2017.



**Figure 4.** Map of the Arunta Orogen illustrating the current tenure in this region. A significant increase in tenement applications has occurred in the Arunta Orogen since about mid-2017.

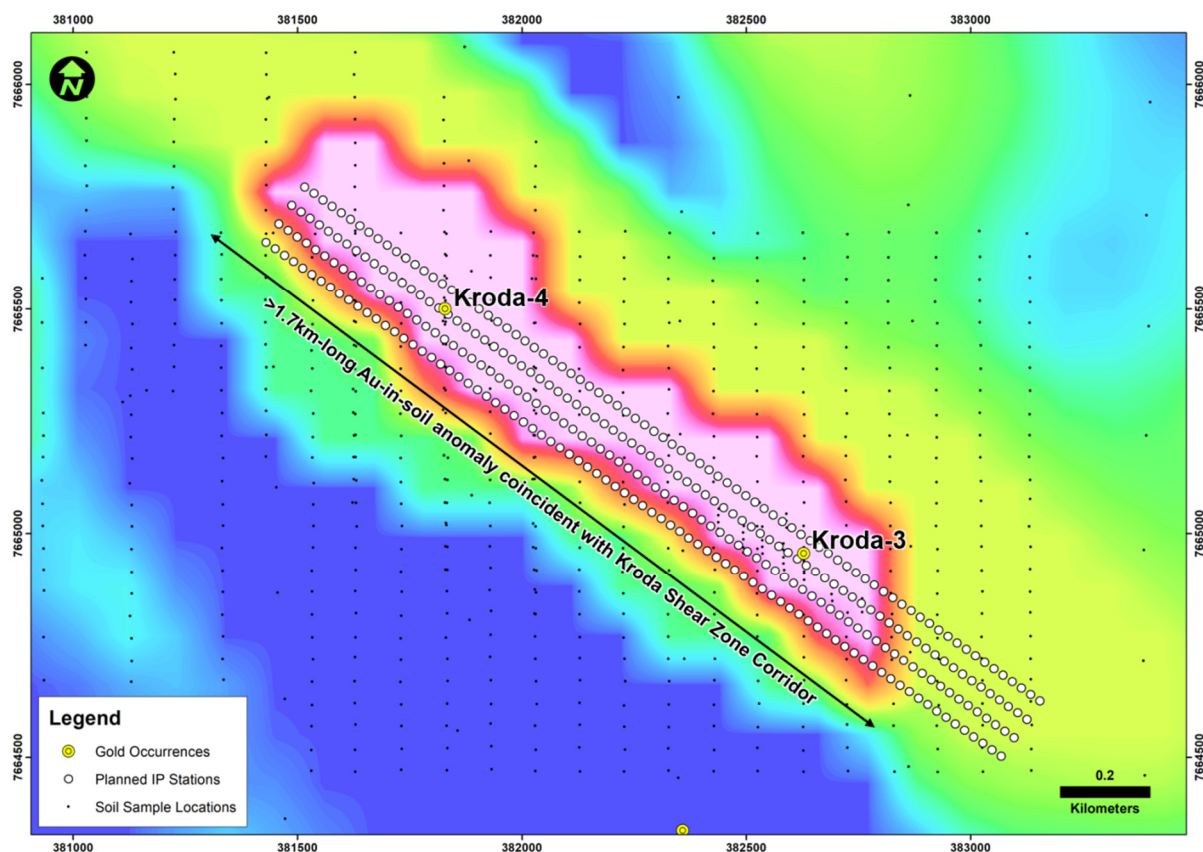


- Between mid-2017 and mid-2018 mining exploration companies pegged ca. 30,000km<sup>2</sup> of new ground in the Arunta Orogen, amounting to ca. 15% of the entire surface area of the Arunta Orogen. Of these 30,000km<sup>2</sup>, ca. 11,000km<sup>2</sup> (or 5.5% of the surface area of the Arunta Orogen) were pegged in 2017 and ca. 19,000km<sup>2</sup> (9.5%) were pegged in the six months since the beginning of 2018.
- Much of the recent rise in tenement applications is courtesy of mid-tier mining company Independence Group NL that staked huge swathes of land, including ground immediately south of Gladiator's North Arunta JV Gold Project.

### Induced Polarisation (IP) Survey – Kroda Target

Detailed reviews of the available geophysical, geochemical and drilling data further strengthened the Company's view of the Kroda Target presenting a potentially significant gold mineralised system.

The Kroda Target, defined by highly anomalous gold intercepts in previous drilling (including broad, shallow, high-grade intervals at the Kroda-3 prospect<sup>4</sup>) and a significant 1.7km-long gold- and arsenic-in-soil anomaly that is open to the NW (Fig. 5), is underexplored with historic drilling highly clustered and generally shallow (<50m downhole depth).



**Figure 5.** Gridded geochemical anomaly map showing the 1.7km gold-in-soil anomaly at the Kroda Target, which coincides with the Kroda shear zone corridor and is also defined by geophysical anomalism and highly anomalous historic drill intercepts. Also shown are planned IP electrode stations for an upcoming IP survey expected to generate new information and drill targets both along strike from and down dip of the known gold mineralisation.

<sup>2</sup> Refer to GLA ASX Announcement dated 07 March 2018

Given its large size and underexplored nature, Gladiator believes that the Kroda Target offers significant potential for the discovery of potentially economic gold mineralisation.

The Kroda Target will be tested by the upcoming IP survey designed to cover 2km of the strike length of this mineralised structural corridor.

The survey is expected to commence shortly.

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**Competent Person Statement**

The information in this document that relates to Exploration Results is based on information compiled by Dr Kris Butera, a Competent Person who is a Member of The Australian Institute of Geoscientists (AIG) and The Australasian Institute of Mining and Metallurgy (AusIMM). Dr Butera acts as a consultant to Gladiator and holds shares and options in the Company.

Dr Butera has sufficient experience that is relevant to the styles of mineralisation and types of deposits under consideration and to the activity that he is undertaking 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 (JORC Code).

Dr Butera consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

Information on historical results for the North Arunta Joint Venture Project, including Table 1 information, is contained in a previous Gladiator ASX announcement dated 07 March 2018. The Company confirms that it is not aware of any new information or data that materially affects the information in the original market announcements, and that the form and context in which the Competent Persons findings are presented have not been materially modified from the original market announcements.