NORTHERN STAR
RESOURCES LIMITED

CAVE HILL PROJECT

GR160-10 GROUP ANNUAL AND FINAL REPORT

FOR THE PERIOD 4 JUNE 2001 TO 15 JANUARY 2024

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Date March 2024

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CAVE HILL PROJECT – GR160-10, 2024 ANNUAL AND FINAL REPORT

Project Name	Cave Hill
GR Number	GR160-10
Licence Operator	Northern Star (Tanami) Pty Ltd
Licence Holder	Northern Star (Tanami) Pty Ltd (50 %) and Tanami (NT) Pty Ltd (50 %)
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Target Commodity	Gold
Prospects Drilled	Cave Hill
MMP Number and Version	0916-01
Assays	Ag, Al, As, Au, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pd, Pt, Pr, Rb, Re, S, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn and Zr
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ABSTRACT

This report describes exploration activities primarily for gold undertaken by over the Cave Hill Project, (EL10411 and EL22378), between 4 June 2001 and 15 January 2024. The Cave Hill Project forms part of a larger joint venture agreement (Central Tanami Project Joint Venture), between Tanami Gold (NT) Pty Ltd and joint venture partner and manager Northern Star (Tanami) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Limited. The licences are located approximately 650 km northwest of Alice Springs, Northern Territory, along the Tanami Road. The target commodity is gold and mineralisation can be found at the top of the Dead Bullock Formation, similar to the gold deposits of The Granites and some of the Dead Bullock Soak deposits, located approximately 90 km southwest of the project area. Most of the project area is covered by alluvial and aeolian sand, with sparse Gardiner Sandstone outcrops. Under the cover sequence, Dead Bullock Formation and Killi Killi Formation of the Tanami Group are interpreted over most of the project. Work completed during the reporting period included regional studies, database compilation, target review, mapping, an aeromagnetic/radiometric survey, a ground gravity survey, 228 surface samples, 87 Aircore holes, 27 Mantis holes, four postholes, one RAB hole, heritage clearance and rehabilitation. Following 18 years of exploration geologists were unsuccessful in defining target areas that coincided with joint venture's requirements for a Tier 1 gold deposit (>2 million oz) within 100 km of the current Central Tanami Mill. While Tanami Group rocks were confirmed on the tenure, exploration failed to define structural traps crucial for gold mineralisation. Therefore, Northern Star on behalf of the CTPJV surrendered EL10411 and EL22378 on 15 January 2024.

1 INTRODUCTION

This report describes exploration activities primarily for gold undertaken by Otter Gold NL/Anglogold Australia Pty Ltd, Northern Star (Tanami) Pty Ltd ('Northern Star') on the Cave Hill Project (EL10411 and EL22378), GR160/10, between 4 June 2001 and 15 January 2024.

The Cave Hill Project is part of Northern Star's larger regional Central Tanami Project. In 2010, Tanami Gold (NT) Pty Ltd ('Tanami Gold') acquired the Central Tanami Project as part of a divestment package from Newmont Mining Corporation ('Newmont'). In early 2015, Northern Star entered a Joint Venture with Tanami Gold (NT) Pty Ltd to explore for and mine gold at the Central Tanami Project. On 15 September 2021, Northern Star acquired an additional 10 % joint venture interest from Tanami Gold, resulting in both parties now holding a 50 % joint venture interest.

Open pit gold mining and ore treatment operations commenced at the Central Tanami Project in 1987. Mining operations ceased in September 2001 when the plant was leased by Newmont to treat ore from the Groundrush pit between October 2001 to October 2005. The gold processing plant was placed on care and maintenance in 2005 and rehabilitation works on all mineral leases were completed in March 2010.

2 LOCATION, PHYSIOGRAPHY AND ACCESS

The project is located approximately 650 km northwest of Alice Springs along the Tanami Road (Figure 1). The main access route is via the Tanami Road and the Tanami Downs Station Road. The licences are difficult to access with significant cross country bush driving required. Areas of dense vegetation and sand dunes form natural barriers impeding access to vehicles. Helicopter assisted access and exploration needs to be employed to reach certain areas.

The climate is semi-arid with rainfall averaging approximately 400 mm per annum. Most rainfall occurs as summer storms associated with the monsoon season between November and March. Daily temperatures range from winter minima of near zero to summer maxima of about 48 ^{0} C. The mean maximum temperature ranges from 26 ^{0} C in June/July to 39 ^{0} C in November/January. The area is devoid of surface water except in small soaks after heavy rain.

The licences are in the Tanami Desert which is typically dominated by smooth plain lands widely covered in aeolian sand with a vegetation cover described as tall open acacia scrubland with a hummocky grass (spinifex) understory.

Through the Aboriginal Land Rights Act (1976), the Central Tanami Project and surrounding tenure sits on land owned by the Warlpiri People for which the Central Land Council ('CLC') acts as a representative body corporate. All personnel and vehicles entering Aboriginal Land are recorded through the CLC, with council also forming a major part of the approvals process for exploration and mining activities/proposals.

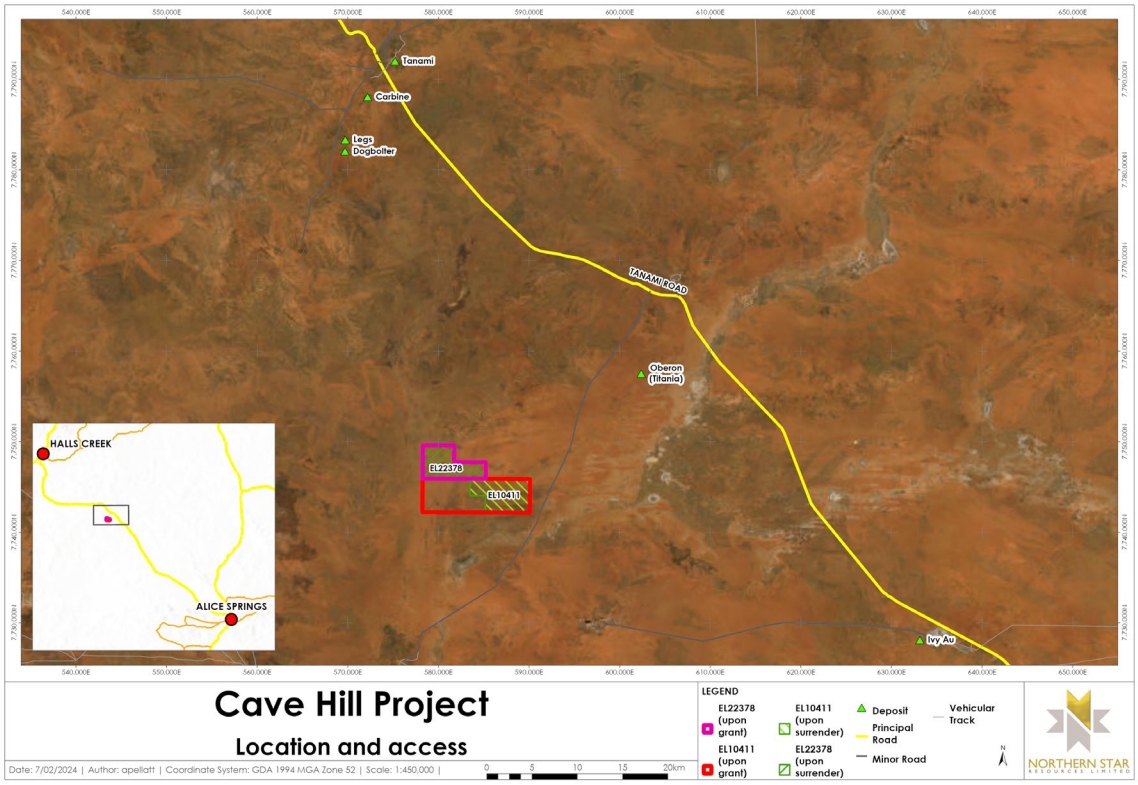

Figure 1. Cave Hill Project, location and access.

3 TITLE HISTORY

The Cave Hill Project comprises EL10411 and EL22378 (Table1). Northern Star Pty Ltd ('Northern Star') manages the project under an agreement between its subsidiary company Northern Star (Tanami) Pty Ltd and Tanami (NT) Pty Ltd ('Tanami (NT)').

Application of EL10411 was completed in 1999 by the Central Desert Joint Venture ('CDJV') partners Otter Exploration NL 60 % ('Otter') and Acacia Resources 40 % ('Acacia'). Otter Gold is a wholly owned subsidiary of Newmont Asia Pacific ('Newmont').

EL10411 originally comprised 14 blocks and was granted on 4 June 2001, with 50 % relinquished in the fourth year. EL22378 comprising six blocks was applied for in 2000 and granted on 8 June 2001.

Between December 2001 and January 2003, Normandy NFM gained a controlling interest in Otter Gold NL. In May 2003, Newmont Australia took over Normandy and had a controlling interest in Normandy NFM (then Newmont Tanami) and this Otter Gold NL.

On 30 March 2010, the licences were acquired by Tanami (NT) Pty Ltd, ('Tanami (NT)'), a wholly owned subsidiary of Tanami Gold NL.

In February 2015, a Heads of Agreement was executed between Tanami (NT) and Northern Star, whereby Northern Star agreed to progressively acquire a 60 % joint venture interest in the licences, of which the Cave Hill Group is a part, by sole funding all expenditure required to bring the Tanami Project back into commercial production. This shall be achieved once the Central Tanami Project ('CTP') processing plant has been refurbished and is operated for a 30 day period or has produced 5,000 oz of gold. The CTP processing plant is located approximately 30 km to the north of the Cave Hill Project.

The Cave Hill Project comprised EL9763, EL10355, EL22229, EL23342, EL10411 and EL22378. EL9763, EL10355, EL22229 and EL23342 were surrendered on 22 July 2020.

As part of the consideration of the Heads of Agreement, Northern Star acquired a registerable interest in the licences of 25 %. In 2018, Northern Star acquired a further 15 % interest in the project increasing its holding to 40 %.

On 15 September 2021, Northern Star acquired an additional 10 % interest taking it's holding to 50 %, taking both parties to an equal 50 % holding. Following this transaction, Northern Star and Tanami (NT) agreed to terminate the Heads of Agreement and have formed a new 50/50 joint venture, the Central Tanami Project Joint Venture ('CTPJV').

Table 1. Cave Hill Project, licence details.

Licence	Blocks	Grant date	End date
EL10411	7	04/06/2001	15/01/2024
EL22378	6	08/06/2001	15/01/2024

4 GEOLOGICAL SETTING AND EXPLORATION RATIONALE

In the Tanami region, one of the most important tectonic units is the North Australian Craton, the stratigraphic succession shows similarities with the Pine Creek and Halls Creek orogens and other Palaeoproterozoic successions in northern Australia.

Within the region, Archaean rocks of the Browns Range Metamorphics and Billabong Complex are theorised to underlie the later Proterozoic sequences. Browns Range Metamorphics comprise granitic gneiss and muscovite schist intruded by fine-grained granite, thin granitic sills, aplite and pegmatite. The Billabong Complex comprises banded granitic gneiss, which are generally elongated, and fault bound.

The overlying Palaeoproterozoic Tanami Group is dominated by volcanic and volcaniclastic rocks, along with clastic and calc-silicate sedimentary rocks. These are overlain by siltstone, carbonaceous shale, calcsilicates and banded iron formation of the Dead Bullock Formation. This in turn is overlain by a thick sequence of turbidite, the Killi Killi Formation. Interbedded siltstone, greywacke and chert west of Tanami are included in the Twigg Formation.

The Pargee Sandstone and Mount Charles Formation have historically been described as having formed in short-lived, small extensional basins. A period of wider extension followed; this was accompanied by felsic volcanism in the Mount Winnecke Formation and Nanny Goat Volcanics.

Five main granitic suites are recognised in the Tanami region, but the most important are the Coomarie Suite and Frederick Suite, which are the youngest granites in the area.

Deposition in the Birrindudu Basin began with sandstone transgressing over the metamorphic and crystalline basement around 1.7 Ga. This was accompanied by regionally extensive north-striking growth faults and volcanism, indicating rifting. The Birrindudu and Tolmer Groups represent the exposed basal section of this basin and is as much as 6,000 m thick. Apart from minor felsic volcanic rocks (tentatively assigned to undifferentiated Birrindudu Group) and carbonate rocks and shale in the upper Tolmer Group, these units are dominated by coarse clastic sedimentary rocks. Neoproterozoic and younger sequences include the Redcliff Pound Group, Antrim Plateau Volcanics, Lucas Formation, Pedestal beds and Larranganni Formation.

The extensive flows of Neoproterozoic-Cambrian Antrim Plateau Volcanics consist primarily of tholeiitic basalt lava flows with minor sedimentary rocks. Flat lying sedimentary rocks of the Devonian Lucas

Formation and Pedestal beds and Cretaceous Larranganni Formation overlie Antrim Plateau Volcanics and older rocks.

Large areas of the Tanami region are covered by Cainozoic deposits of laterite and calcrete, and more recent, unconsolidated fluvial and aeolian sand and gravel.

Proximal to the project, the geology is dominated by the Dead Bullock Formation and Killi Killi Formation. The licences are flanked in the north by the east-southeast striking Trans-Tanami Fault, and in the south by similarly major, southeast striking structures. The Trans-Tanami Fault is an approximately 100 km long curvilinear structure with approximately 6 km right lateral displacement. Tanami Group stratigraphy is partially overlain by Cambrian basalt of the Antrim Plateau Volcanics. Extensive transported cover in this area makes surface mapping difficult, steeply incised palaeochannels up to 80 m in depth are also present.

Figure 2 showed regional interpreted bedrock geology.

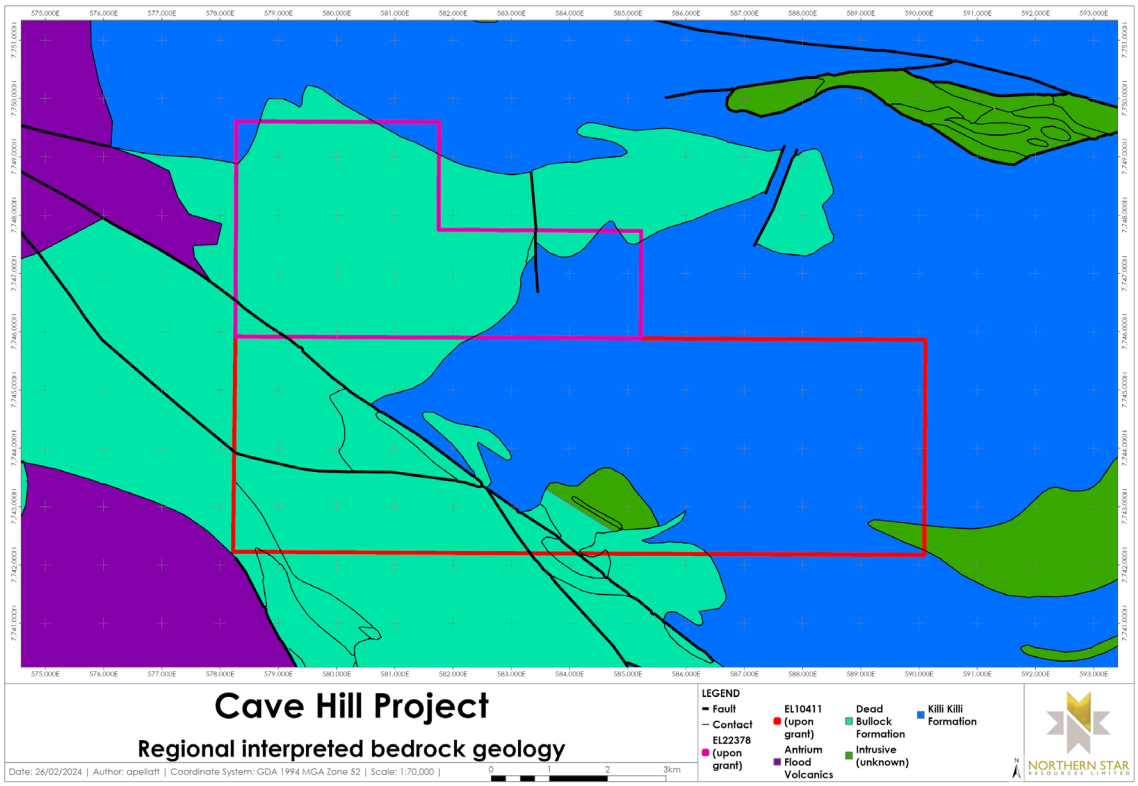

Figure 2. Regional interpreted bedrock geology.

5 EXPLORATION/MINING HISTORY

From 1989-1992, Newmont Australia conducted shallow vacuum drilling on EL22378, as detailed in Table 2.

Table 2. Summary of previous exploration on EL10411 and EL22378.

Year	Company	Work completed	Comments
1989	Newmont Australia	1 vacuum hole on EL22378	No significant results
1992	Newmont Australia	1 RAB hole on EL22378	No significant results

6 CURRENT EXPLORATION

Exploration during the tenure period is shown in Figure 3, summarised in Table 2 and comprised:

- targeting
- regional geological reviews
- database compilation
- regional soil geochemical analysis and targeting
- review of legacy drilling and surface sampling
- review of legacy aeromagnetic/radiometric data
- depth of cover study
- regional environmental study
- regional Tanami stratigraphy and geochemistry project
- spectral orientation survey
- arsenic geochemical vectoring
- landholdings rationalisation review
- regional geophysical merge and reprocessing
- aeromagnetic/radiometric surveys
- ground gravity survey
- soil and rock chip sampling
- mapping, lag and legacy drill chip sampling
- posthole drilling
- Mantis drilling
- Aircore ('AC') and RAB drilling
- heritage clearance
- rehabilitation

Table 3. Summary of work completed 04/06/2001 and 15/01/2024.

Year	Company	Work completed	Comments	CR Number
2001-2002	Otter Gold NL	4 postholes for 246 m on EL10411	No significant results	CR2002-0150
2002-2003	Otter Gold Pty/Anglogold Australia Pty Ltd	Targeting on EL10411		CR2003-0286
2003	Newmont Tanami Pty Ltd	7 AC holes on EL10411	No significant results	
2003-2004	Otter Gold Pty/Anglogold Australia Pty Ltd	17 AC/RAB holes on EL10411	Best result of 3 m @ 0.065 ppm Au, 36 ppm As in calcrete	
2004-2005	Otter Gold Pty/Anglogold Australia Pty Ltd	Nil		CR2005-0199
2005-2006	Otter Gold Pty/Anglogold Australia Pty Ltd	Nil		
2006-2007	Otter Gold Pty/Anglogold Australia Pty Ltd	Nil		
2008	Newmont Tanami Pty Ltd	Prospectivity review		Cr2008-1038
2009	Newmont Tanami Pty Ltd	Prospectivity review		CR2009-1057
2010	Otter Gold Tanami (NT), Tanami (NT) Pty Ltd	Nil		CR2010-0458
2010-2011	Tanami (NT) Pty Ltd	49 soil, 49 anthill, 1 rock chip	No significant results	CR2011-0624
2011-2012	Tanami (NT) Pty Ltd	Nil		CR2012-0542
2012-2013	Tanami (NT) Pty Ltd	113 soils, 5 rock chips	No significant results	CR2013-0680
2013-2014	Tanami (NT) Pty Ltd	Review of 2012-2013 surface sampling	Low level pathfinder anomalism	CR2014-0662
2014-2015	Tanami (NT) Pty Ltd	Prospectivity study	No significant results	CR2015-0575
2015-2016	Northern Star Resources Ltd	Data compilation, validation and assessment, regional soil geochemical analysis	Two targets identified on EL10411	CR2016-0416
2016-2017	Northern Star Resources Ltd	Data review, geochemical drilling program planning, legacy geochemical sampling, Mantis drilling, aeromagnetic/radiometric data review and survey	A tungsten anomaly in soils on both licences.	
2017-2018	Northern Star Resources Ltd	27 AC holes on EL22378, ground gravity survey planning	No significant results	

2018-2019	Northern Star Resources Ltd	Ground gravity survey, targeting, heritage clearance, AC drill design, SSSC	Highest ranked targeting	
2019-2020	Northern Star Resources Ltd	Ground gravity survey	No additional targets identified	
		73 AC holes on EL22378	No significant results	
2020-2021	Northern Star Resources Ltd	13 lag and drill spoils, earthworks, heritage survey, rehabilitation	No significant results	
2021-2022	Northern Star Resources Ltd	15 AC holes on EL10411	No significant results	
2022-2023	Northern Star Resources Ltd	Geochemical review, landholdings rationalisation review	No targets of economic evaluation	

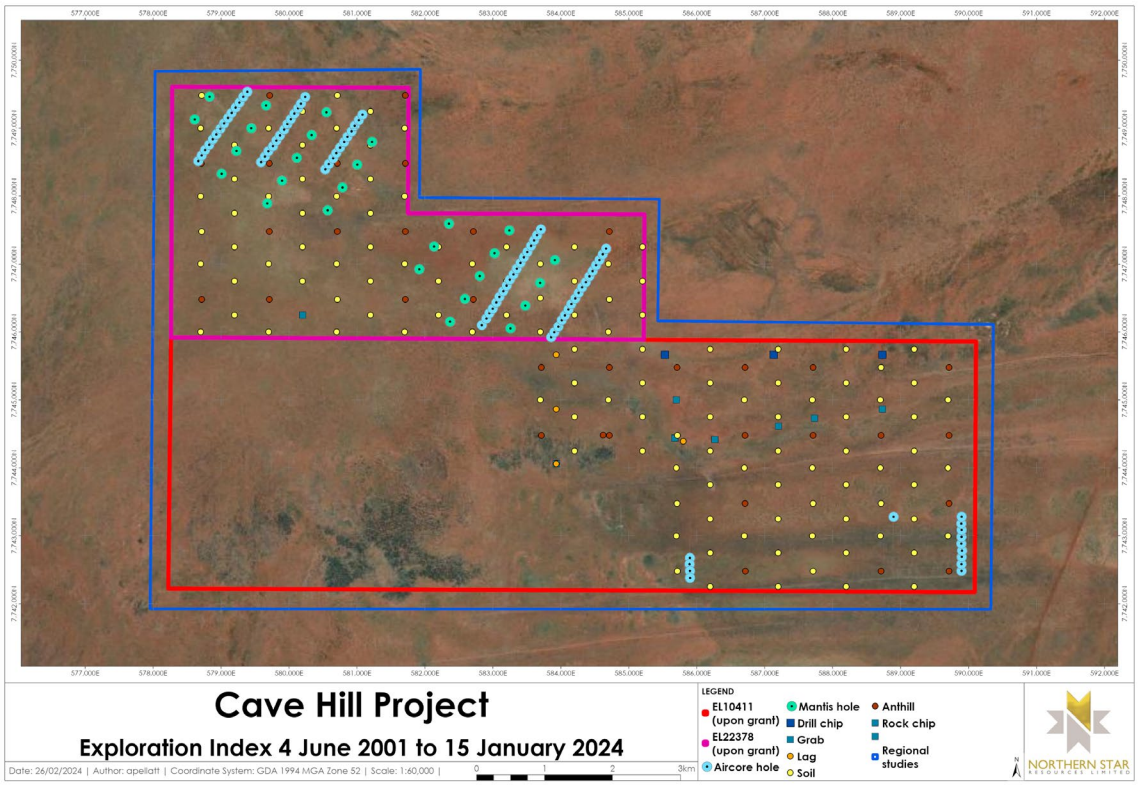

Figure 3. Cave Hill Project, Exploration Index, 4/06/2001 to 15/01/2024.

6.1 Geological activities and office studies

6.1.1 Targeting

From 2002-2003, Otter Gold completed a targeting exercise using available magnetics and geological interpretation.

A regional targeting assessment was conducted during 2018-2019 across Northern Star Tanami tenure including the Cave Hill Project. Targets were identified and ranked according to multiple criteria including existing deposits, proximity to major structures, historical gold anomalism and a lack of effective exploration. The Cave Hill Project ranked the highest priority (≤18), due to interpreted favorable stratigraphy, structural architecture and proximity to the Callie and Titania-Oberon deposits. Proximity to the northwest striking Trans-Tanami fault zone has also been deemed as a favorable attribute, especially

in areas with stratigraphic offset or bedding discordance. Lastly, proximity to granitic bodies may be important in mineralisation.

6.1.2 Regional geological reviews

During 2006, Newmont Tanami completed a prospectivity review of tenure, which failed to identify any targets on the project area.

From 2010-2011, Tanami Gold completed regional geological reviews.

Upon entering the joint venture in 2015, work by Northern Star focused on reviewing results from the entire tenure package and conducting a geological reconnaissance trip with Tanami Gold geologists.

During 2023, a preliminary desktop geochemical review was undertaken to inform Northern Star's Tanami landholdings rationalisation review. Historical reports were accessed and reviewed for relevant technical data.

6.1.3 Database compilation

Upon commencement of Northern's Star's involvement in 2015, database collation was completed. This was followed in 2017 by data validation and compilation of Tanami Gold's original database into a new acQuire database. Collation of historic GIS geochemical and geophysical datasets was completed to facilitate regional targeting exercises and to support field reconnaissance geological and structural mapping.

6.1.4 Regional soil geochemical analysis and targeting

During 2015-2016, a regional soil geochemical analysis and targeting process was employed by Northern Star, using statistical and investigative techniques to extract as much from the Tanami Gold database as possible. These included:

- exploratory data analysis to investigate the various statistical populations and how they relate to real sample controls
- a thorough review of element associations with respect to gold
- Principal Component Analysis ('PCA') to investigate the associations gold has with various element assemblages
- cluster analysis to identify any correlation between statistical associations and spatial distribution
- gridding to delineate areas of anomalism in individual elements
- a lithological review to explore the suitability of the data for constraining lithological or stratigraphic correlations

Targeting identified 144 zones of interest in the Tanami region, with two ranking methodologies applied to the results, resulting in two targets being identified on the southern part of EL10411. A review and assessment of the status and reliability of the regional drilling dataset was conducted for producing regolith and depth of cover map products. Two areas of interest were identified with tungsten anomalism in soils.

6.1.5 Review of legacy drilling and surface sampling

During 2016-2017, Northern Star completed a review of legacy drilling and surface geochemical datasets. This highlighted inconsistencies in geological logging and regolith data. Further analysis of legacy geochemical sampling was undertaken due to several unexplained anomalous samples identified in an earlier review. The review highlighted a requirement not to rely on historical data and for Northern Star to begin generating additional quality data for interpretations. Select exploration programs including geophysics and drilling were approved for completion.

6.1.6 Review of legacy aeromagnetic/radiometric data

A review of legacy aeromagnetic/radiometric data was executed in 2016-2017 by Northern Star to assess the quality and useability. A lack of detailed, high-resolution geophysics led to the decision to survey the Cave Hill Project as part of a larger regional survey (see Section 6.2.2).

6.1.7 Depth of cover study

In 2016, geological consultants Mira Geoscience, Perth, were commissioned to complete a depth of cover map and to categorise the regolith across the entire Northern Star tenure. Aims were:

- import and perform QAQC of existing drilling and geophysical data
- define the base of cover interface based on drilling and extend this away from drill hole constraints using geophysical inversion of magnetic and airborne electromagnetic data
- ASTER and LANDSAT 7 interpretation
- radiometric interpretation

It was noted that in particular the depth of cover increased in the southeastern part of EL10411 due to the presence of paleochannels. This was confirmed in the AC drilling that was completed in 2021; paleochannel cover was noted to be greater than 100m in the easternmost drilling.

6.1.8 Regional environmental study

As part of a MMP approvals process, a regional environmental study to better understand the potential impacts of further exploration was commissioned by Northern Star in 2017. Biota Environmental Consultants, Perth were contracted to complete the study. Cave Hill tenure is dominantly

6.1.9 Regional Tanami stratigraphy and geochemistry project

In early 2019, Northern Star entered into an agreement with CSIRO to undertake a regional project evaluating the application of geochemical data to identify and map stratigraphy in the Tanami region. This scope included the review of potential alteration or mineralisation system indicators and how the knowledge could be applied to early stage reconnaissance exploration.

The aim was to develop an exploration tool for identification of prospective host units for gold mineralisation, based on their geochemistry, mineralogy, and sedimentology. The project focused on geochemical and mineralogical classification of Tanami Group sedimentary and volcanic rocks and their alteration. It also considered the interpretation of depositional environment. Due to the subject of confidentiality and intellectual property, CSIRO have requested that data not be released.

6.1.10 Spectral orientation survey

A spectral orientation survey was completed in 2020 by Northern Star, focusing on testing the application and efficacy of using spectral data analysis for regional scale exploration in the Tanami Region. The results of the orientation survey were:

- proximal alteration signatures were identified through spectral analysis, typically dominated by paragonite mineral species
- no major distal alteration signatures observed, or at least discriminated from regional metamorphic mineral assemblages
- kaolinite crystallinity is a useful tool in mapping transport versus residual boundaries

6.1.11 Arsenic geochemical vectoring

In 2019, compilation of available reliable geochemical sampling data from RAB, AC and vacuum drilling was used by Northern Star to create a Tanami region raster image of arsenic distribution. Derived data was used in the regional targeting assessment (see 6.1.9).

6.1.12 Landholdings rationalisation review

During 2023, a strategic review of all Northern Star's Tanami landholdings commenced. This review utilised the CTPJV's revised criteria of discovering a sizable gold deposit in an area close to the current CTP processing plant, to feed this mill during the planned ramp up and production at the Groundrush deposit, anticipated to commence in the next few years. Licences located distal from this mill that displayed poor prospectivity were recommended for relinquishment, while those meeting the criteria will be retained and advanced.

The Cave Hill licences are situated distal from the CTP processing plant and showed lower prospectivity, since they are predominately covered by channel sands or Antrim Plateau Volcanics, with basement often more than 100 m deep. Geological, geochemical and geophysical desktop reviews recommended the relinquishment of the Cave Hill Project.

6.2 Geophysical activities

6.2.1 Regional geophysical merge and reprocessing

In 2012, Southern Geoscience Consultants, Perth, were contracted by Northern Star to conduct a regional geophysical merge and reprocessing of open file, government, and propriety geophysical data.

6.2.2 Aeromagnetic/radiometric survey

Magspec Pty Ltd, Perth, were commissioned by Northern Star to complete a regional aeromagnetic/radiometric survey in 2017, which included the Cave Hill Project. The project area was named Cave Hill South, with 50 m traverse line spacing, on 090-270 ^{0} line direction, at 30 m sensor height, for a total of 1,462 line kilometres.

Data processing was undertaken to combine the new dataset and numerous other legacy magnetic grids regionally. This created a succinct, comprehensive magnetic dataset which has contributed to a regional tectonostratigraphic analysis of the greater Tanami Region. Figure 4 shows an aeromagnetic data image (TMI, 1VD).

6.2.3 Ground gravity survey

A regional ground gravity survey was conducted in 2018 by Atlas Geophysics, Perth, for Northern Star to target interpreted structural corridors associated with the Trans-Tanami Fault. The aim was to identify stratigraphic offsets, bedding discordance, and assist with determining the thickness of the overlying Cambrian Antrim Plateau Volcanics.

The survey comprised 510 stations on a 100 m x 200 m grid spacing over EL22378. A total of 1,049 stations were collected in the two areas, both targeting interpreted structural corridors associated with the Trans-Tanami Fault. Tanami Group sedimentary units and the Trans-Tanami Fault is interpreted, but for a clearer picture, an extended gravity survey would be beneficial.

As a follow up to the 2018 ground gravity survey, an extension ground gravity survey was completed over the Cave Hill Project during August 2019. The survey was contracted to Atlas Geophysics, Perth and comprised a total of 2,185 stations on a 100 m x100 m grid spacing.

A polyphase granitic intrusion was interpreted from gravity imagery in the southeast of the project area. Structural detail in the northern part of the grid coupled with AC drilling assisted in stratigraphic mapping and interpretation. Figure 5 shows a ground gravity image (Bouguer 1VD, N shade, normalised).

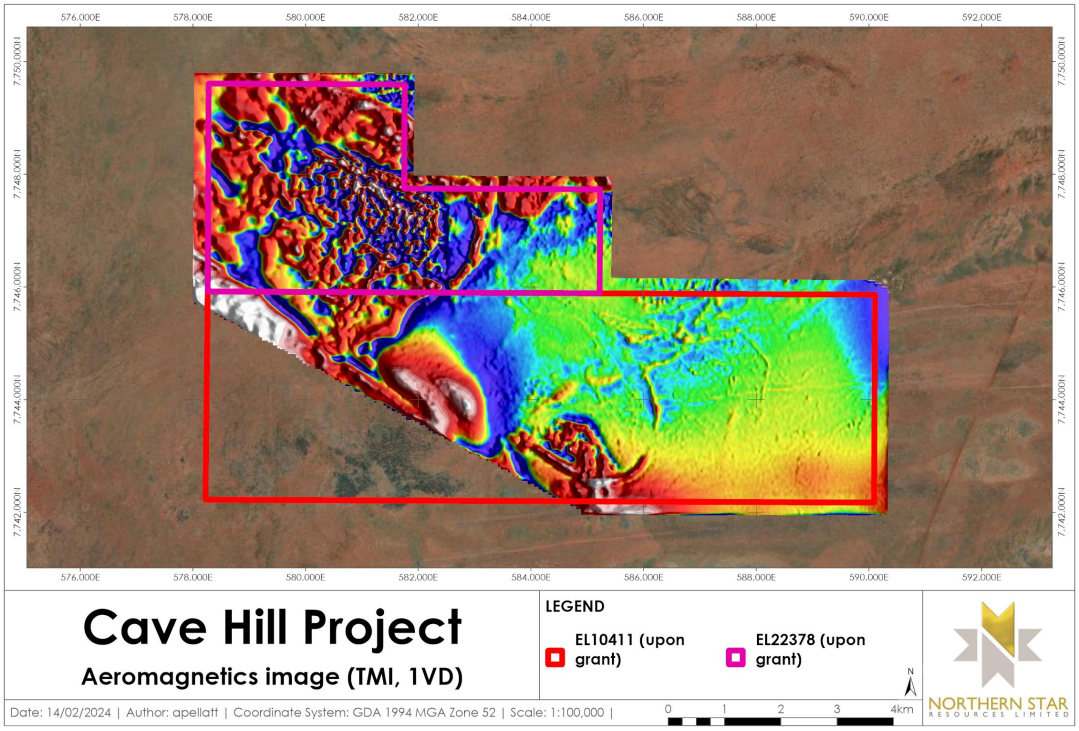

Figure 4. Aeromagnetic image (TMI, 1VD) from 2017 survey.

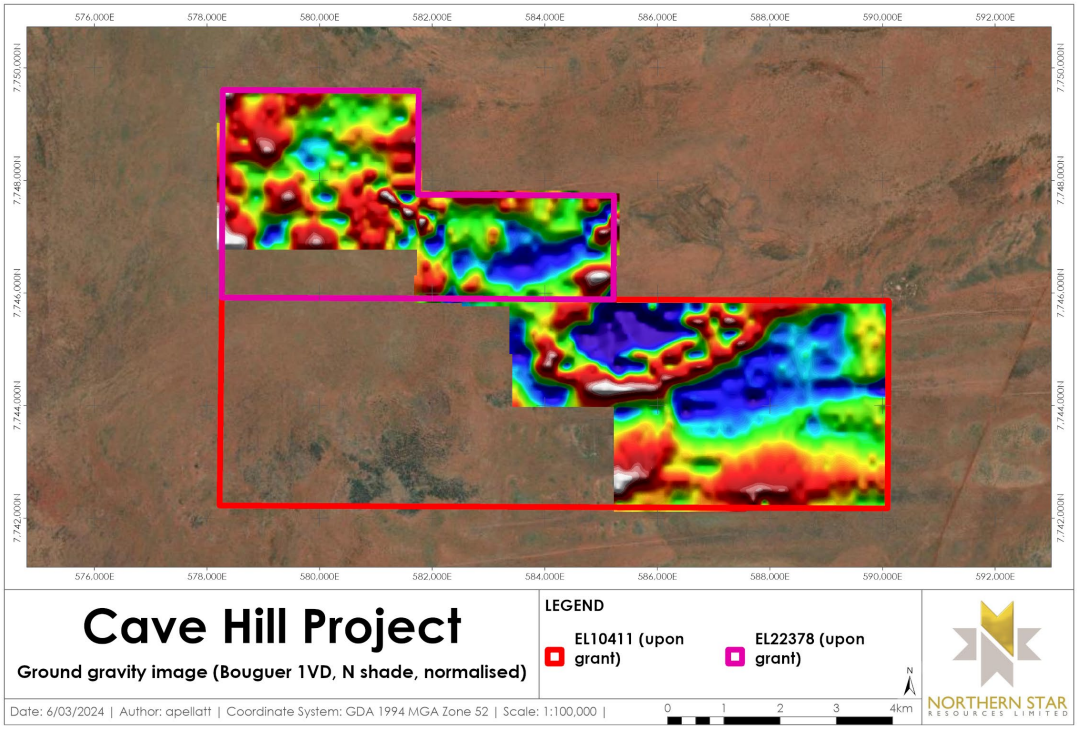

Figure 5. Ground gravity image (Bouguer 1VD, N shade, normalised).

6.3 Surface geochemistry

6.3.1 Soil and rock chip sampling

In 2011, Tanami Gold completed a regional systematic 1000 m x 1000 m soil sampling program on east-west traverses. Samples were taken from a depth of 150 mm and sieved to 200 µm. Termite samples were also taken proximal to the soil sampling locations. A total of 45 soil and 46 termite samples were submitted to Genalysis, Perth for gold and multielements. No significant results were returned.

During 2013, Tanami Gold conducted a surface sampling program over the project to infill the existing 1000 m spaced soil sampling undertaken in 2011 to a closer spacing of 500 m. It has been determined that maximum sample spacing of 400 m to 500 m is necessary to detect typical economic sized gold deposits of the Tanami region. Sampling was undertaken at 500 m by 500 m spacing on north-south lines. The 2011 sampling sites were not repeated. A total of 113 soil and 5 rock chip samples were collected at a nominal 15 cm depth and sieved to -200 µm. Geochemical analysis was undertaken by Genalysis, Perth, by partial leach digest with ICP determination for gold and multielement suite. No significant results were received. TGNL assay data is unable to be provided as job numbers and methods were not provided in original digital data submitted in the annual report.

6.3.2 Mapping, lag and legacy drill chip sampling

Regional mapping was conducted over the project area during August 2019 by Northern Star. There is little outcrop and work predominantly consisted of logging and sampling of legacy RAB hole chips. A total of four drill chips and one rock chip were logged for stratigraphy on EL10411. Assay results were disappointing and this work confirmed historic drilling on EL22378 may have reasonably tested the potential to host an economic gold deposit.

During 2020, a field reconnaissance survey was completed by Northern Star to facilitate prospect scale geological understanding, focusing on drill spoils from AC drilling conducted in 2003. A total of nine drill spoils and five lag samples were collected. Samples were sent to ALS Perth, where they were crushed to 2 mm, pulverised to 75 µm and multielements analysed using fire assay, with an ICP-AES finish. The assay results were far too sparse for valuable analysis. Results were not favorable for mineralisation, alteration, or for defining vectoring mineralogy. The data was analysed in ioGAS to aid in lithogeochemical rock identification. Many samples indicated elevated magnesium levels which could be indicative of mafic derived cover sequences. The historical drilling was within the transported cover and clay (fresh rock was not intersected), which is consistent with assay results. The geological observations and multielement data derived from these samples were used to inform the companies regional geological interpretation and assist with prioritising exploration programs and licence rationalisation in the Cave Hill project area. Figure 2 shows interpreted bedrock geology.

6.4 Drilling

6.4.1 Posthole drilling

Otter Gold completed four holes for 246 m (TDPH065-068) on EL10411 from 2001-2002, two of which ended in Antrim Plateau Volcanics. Results were disappointing. Digital data was unable to be located.

6.4.2 Mantis drilling

In 2017, Northern Star executed a Mantis geochemical drilling program in lieu of auger sampling, as it was determined to have a greater likelihood of penetrating the several metres of sand and gravel overburden. A total of 27 holes (CHMA0033-0047, 0049-0060), for 1016 m were completed on EL22378 by Wallis Drilling Pty Ltd, Perth.

An unexpected volume of water was intercepted on EL22378 resulting in many of the holes being terminated early, whilst still being able to penetrate cover sequences. Most holes drilled through palaeochannel sands extending down to 60 m depth and comprised sands, clay, cobbles/pebbles and silcrete. Basement lithologies typically comprised siltstone/sandstone, with strong a biotite overprint.

Samples were sent to ALS, Perth, for multielement analysis, with a ICP finish. No significant results were returned; however a Pb-Bi-Sn area of interest was identified for follow up AC drilling.

6.4.3 Aircore ('AC') and RAB drilling

During 2003-2004, Otter Gold conducted first pass drilling on EL10411 to investigate the nature of the regolith and intersect bedrock where possible. The program comprised 17 holes (16 AC and one RAB) for 1187 m. The best result returned was 36 m @ 0.065 ppm Au and 36 ppm As within calcrete. Digital data was unable to be located.

Northern Star conducted a 73 hole AC drilling program on EL22378 in 2019. The program focused on reconnaissance drilling of structural targets in an area of interpreted Tanami Group stratigraphy. Extensive late Antrim Plateau Volcanics was intercepted in the west of the licence, delineating the eastern margin of the unit. Drilling also intersected extensive Dead Bullock Formation concealed by up to 70 m of transported alluvial cover. Drilling was completed by Bullion Drilling Co Pty Ltd, Port Augusta.

Samples were analysed for No significant results were received. Drilling intersected a granite to granodiorite in the northeast and a sedimentary package in the southwest. To the east, there is a large granitoid intruding an interpreted northwest trending anticline. The contact between the granite and the sediments follows roughly the trace of the regional anticline. There are noticeable shear zones coming off the axial plane and evidence of sinistral strike-slip movement.

The highest gold values were associated with granite, with a best result of 4 m @ 0.034 ppm Au recorded. There was a wide range of assay results (0.004- 0.019 ppm Au), reported in what is interpreted as a paleochannel, though it is likely to be upper and lower saprolite. It's probable these anomalous assays are the result of remobilised gold from granite emplacement. A lack of supporting pathfinder anomalism was clear from the results, in both the granite and adjacent sedimentary units. No further follow up work was recommended.

In 2021, Northern Star completed an AC drilling program comprising 15 holes for 675 m on the southern part of EL10411. The aim was to test a northwest trending belt of Dead Bullock Formation, immediately north of the Trans-Tanami Fault, targeting the top of fresh rock for gold mineralisation or pathfinder minerals. The original drill design was for 50 m spaced vertical holes, on five, 1000 m spaced lines for a total of 4000 m. Drilling commenced on 9 September 2021, but was cancelled on 20 September due to poor production. A total of 53 pads were cleared along access tracks, and seven holes were cancelled due to access issues, due to dunes.

Only 15 of the holes were drilled before the program was prematurely terminated, and only one hole penetrated the 40-50 m thick sequence of transported material to reach bedrock. The program was deemed insufficient to advance exploration. Plans to obtain another drill contractor to complete the program failed due to COVID-19 pandemic associated issues such as border closures, lockdowns and outbreaks and reluctance to mobilise to the Tanami region for such a small program.

Four metre composite samples and one metre rig split samples (at geologists' discretion) were taken by spear or scoop and dispatched to ALS, Perth, for gold, with a fire assay digest, ICP-AES finish. Additionally, a one metre sample was taken at the end of hole (for holes that hit target depth) and fire assayed for gold, with an ICP-AES finish), with a 48 analyte multielement suite using multi acid digest and ICP-AES-MS finish. A total of 167 assays were collected and sent for analysis, with 163 samples assayed for gold only 10 samples were assayed for a multielement suite. No significant gold assay results were returned, and the multielement samples was too small of a dataset to make any conclusive remarks.

6.5 Heritage clearance

A Sacred Site Clearance Certificate ('SSCC') application was submitted to the CLC during January 2019 by Northern Star for an area of proposed drilling on EL22378. The proposal included 150 AC drill holes and 14 km of track. The certificate was only granted in July 2019, delaying ground disturbing work until after this reporting period.

During July 2019, a Sacred Site Clearance Application variation was submitted to extend AC drilling at Cave Hill. This proposed variation included 150 AC drill holes and 22 km of track over EL10411 and a further 5 km of track over EL22378.

In 2021, a heritage survey was completed by Northern Star over EL10411 for the planned AC drilling.

6.6 Rehabilitation

In 2021, rehabilitation checks were completed by Northern Star on Phase 1 AC drilling completed in 2019 on EL22378. A total of 83 AC drill holes were checked. The drilling did not require sumps or plastic bags, with sampling performed from spearing drill spoils. All collars were plugged with a plastic hole plug and covered with dirt or soil. Additionally, 51 AC drill holes and ~ 20 km of access track and drill lines from drilling and clearing completed in 2021 on EL10411 were successfully rehabilitated in 2023. All drill holes and access tracks were deemed rehabilitated.

7 CONCLUSIONS AND RECOMMENDATIONS

Since grant in 2011, Northern Star, Tanami Gold, Anglogold, Newmont, and Otter Gold have explored EL10411 and EL22378, with other Cave Hill Project licences surrendered by the CTPJV in 2020. Exploration activities have ranged from desktop studies, surface sampling, mapping to drilling programs and geophysical surveys. Through 18 years of exploration, geologists investigated various variables to identify targets, with few identified, however those that were, were followed up.

A new CTPJV agreement was signed in late 2021, and with it, new exploration criteria were defined by the CTPJV committee. The criteria included the requirement for a Tier 1 gold deposit (>2 million oz) and to be very close to a current mill (< 100 km).

While the Cave Hill Project have Tanami Group rocks and evidence of faults has been noted in various geophysical interpretations, exploration failed to define areas with structural traps, crucial for mineralisation to form and enrich. Additionally, EL10411 is covered by paleochannels up to 100 m thick, making exploration difficult. Therefore, Northern Star on behalf of the CTPJV decided to surrender the EL10411 and EL22378, with registration effective 15 January 2024.

8 REFERENCES

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