
FLORA & VEGETATION ASSESSMENT

FOR AUSGOLD EXPLORATION PTY LTD, KATANNING
GOLD PROJECT, KATANNING

Prepared By



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Prepared For

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LIST OF ABBREVIATIONS

| | |
|------------------|---|
| ANOSIM: | Analysis of similarity |
| BAM Act: | <i>Biosecurity and Agriculture Management Act 2007</i> (WA) |
| BC Act: | <i>Biodiversity Conservation Act 2016</i> (WA) |
| BOM: | Bureau of Meteorology |
| CLUSTER: | Hierarchical clustering |
| DotEE: | Department of the Environment and Energy |
| DBCA: | Department of Biodiversity, Conservation and Attractions |
| DPaW: | Department of Parks and Wildlife |
| DPIRD: | Department of Primary Industries and Regional Development |
| EP Act: | <i>Environmental Protection Act 1986</i> (WA) |
| EPA: | Environmental Protection Authority |
| EPBC Act: | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth) |
| IBRA: | Interim Biogeographical Regionalisation for Australia |
| PEC: | Priority ecological community |
| PRIMER: | Plymouth Routines in Multivariate Ecological Research |
| SIMPER: | Similarity percentages |
| SIMPROF: | Similarity profile |
| TEC: | Threatened ecological community |
| TSSC: | Threatened Species Scientific Committee |
| WAH: | Western Australian Herbarium (PERTH) |
| WAOL: | Western Australian Organism List |
| WC Act: | <i>Wildlife Conservation Act 1950</i> (WA) |

EXECUTIVE SUMMARY

Mattiske Consulting Pty Ltd was commissioned initially in September 2017 by Ausgold Exploration Limited (Ausgold) to undertake a detailed flora and vegetation assessment of the Katanning gold survey area. Since this earlier commission a series of flora and vegetation studies have been undertaken on the Ausgold exploration leases and nearby land holdings by Mattiske Consulting (October 2018, March 2019, November 2020, October 2024) and by Botanica (March and September 2023). The botanical values within the Development Envelope have been surveyed in multiple seasons and years and the survey effort exceeds expectations of the EPA guidance statements (2016a and 2016b).

The Ausgold survey area comprised the Development Envelope associated with the Jinkas Hill mine, R24072 and several other satellite ore bodies and the surrounding patches of native vegetation.

A total of 292 vascular plant taxa which are representative of 149 genera and 57 families were recorded within the Katanning Gold survey area. Data was collected from foot traverses and detailed plots. The majority of taxa recorded were representative of the Myrtaceae (65 taxa), Asteraceae (27 taxa), Fabaceae (26 taxa), Poaceae (25 taxa) and Proteaceae (21 taxa) families. The majority of the taxa recorded were widespread both locally and more broadly within the associated biogeographical subregion; although some occurred as representative of the southern Wheatbelt and nearby southern coastal and mallee communities.

On the basis of a desktop assessment (within a 20km radius of the survey area) of State and Federal databases there is the potential for 10 threatened and 17 priority flora taxa pursuant to Schedule 1 of the Biodiversity Conservation Act 2016 and 10 threatened flora taxa pursuant to Section 179 of the Environment Protection and Biodiversity Conservation Act 1999. Despite searching, no threatened or priority flora taxa were recorded in the Katanning Gold survey area.

A total of 12 Eucalypt woodland communities and 4 mixed Proteaceous – Myrtaceae heath communities were recorded on the Katanning Gold survey area. The vegetation communities were separated on the range of overstorey and understorey species utilizing the Primer 7 software and clustering techniques, field observations and aerial photograph interpretations.

The listing of the “Eucalypt woodlands of the Western Australian Wheatbelt” in December 2015 at the national level under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (*EPBC Act 1999*) raises the conservation significance of the woodlands on the Katanning Gold survey area.

At this juncture it should be noted that large areas of the survey area have been used historical agricultural activities and most remnants are either narrow and liner (less than 5m wide) and also lacking an understorey species.

The principal issues at this juncture with respect to the flora and vegetation surveyed is in relation to the presence of the Heath communities that support a variety of flora and the Eucalypt woodland communities that fall within the definition of the “Eucalypt woodlands of the Western Australian Wheatbelt” (DotEE 2015). It should be noted that the maps of the listed Eucalypt woodlands are very broad and do not account for the nature of the agriculture or remnant areas as defined by the Department of Primary Industries and Regional Development (2025a). In the local context there remain other stands of some of the woodlands and heaths in nearby reserves, proposed town sites that were not developed and some private land. The extent of some of these communities on other nearby remnant areas was not part of this initial scope of work for Ausgold Exploration Limited.

1. INTRODUCTION

The Ausgold survey area comprised the Development Envelope associated with the Jinkas Hill mine, R24072 and several other satellite ore bodies and the surrounding patches of native vegetation.

The Katanning Gold survey area lies within the Avon Botanical District of the South-West Botanical Province (Beard 1990).

1.1 Location and Scope of Project

The Ausgold Katanning Gold project (formerly known as Badgebup Gold Mine) is located approximately 250 km south east of Perth and is approximately 37 km east/north-east of Katanning in Western Australia.

The Katanning Gold survey area encompasses fragmented remnant native vegetation patches including Woorgabup Nature Reserve, the Rifle Range Reserve and Jinkas Hill, see Figure 1.

The Tenements associated with this project are summarized on Figure 2.

1.2 Relevant Environmental Legislation and Guidelines

The following key Commonwealth (federal) legislation relevant to this survey is the:

- *Environment Protection and Biodiversity Conservation Act 1999.*

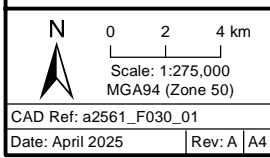
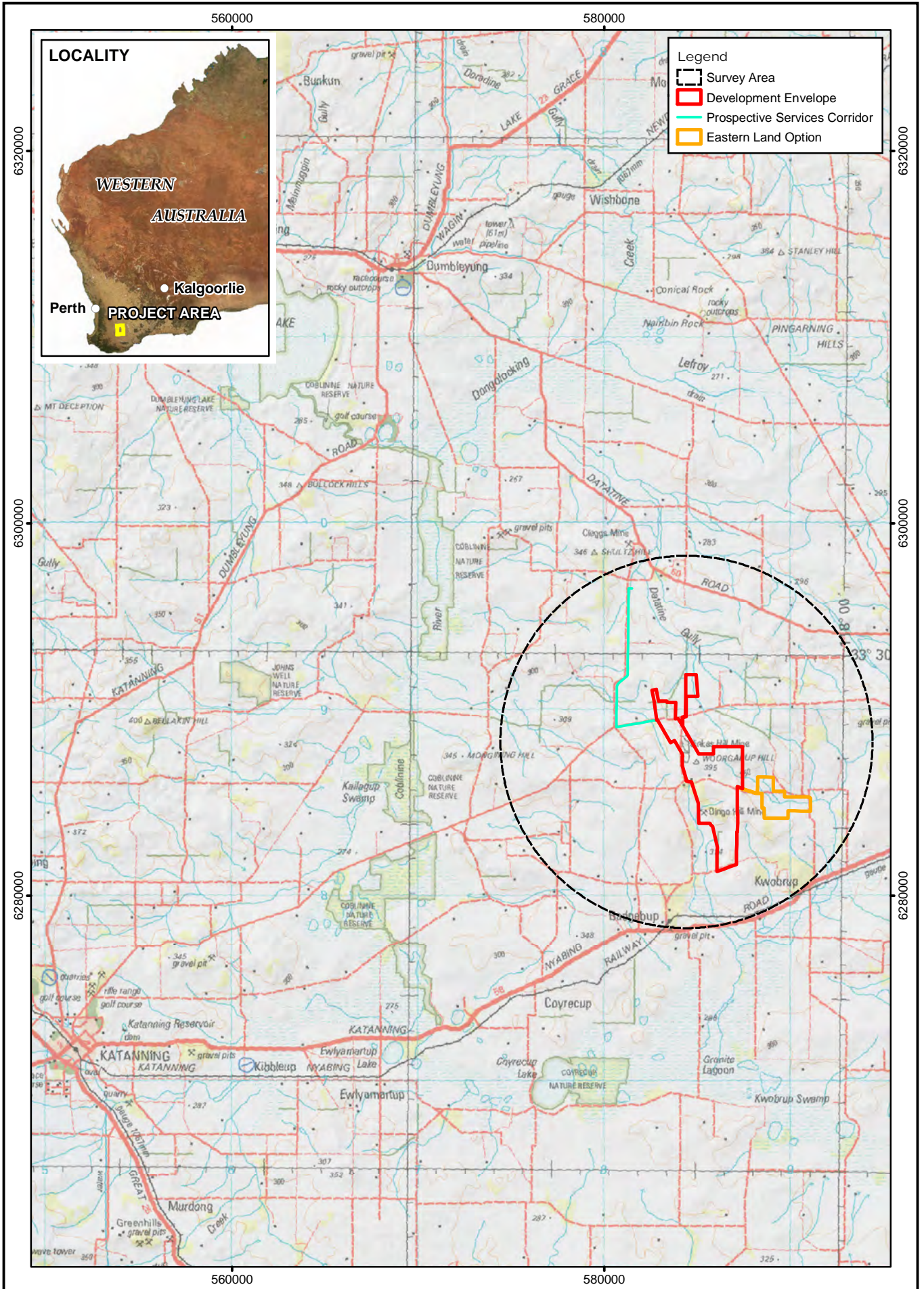
The following key Western Australian (state) legislation relevant to this survey include the:

- *Biodiversity Conservation Act 2016 (BC Act);*
- *Biosecurity and Agriculture Management Act 2007 (BAM Act);*
- *Environmental Protection Act 1986 (EP Act);* and
- *Wildlife Conservation Act 1999 (WC Act).*

Furthermore, key Western Australian guidelines relevant to this survey are the:

- *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority [EPA] 2016a); and
- *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016b).

Definitions of flora and vegetation terminology commonly used throughout this report are provided in Appendix A.

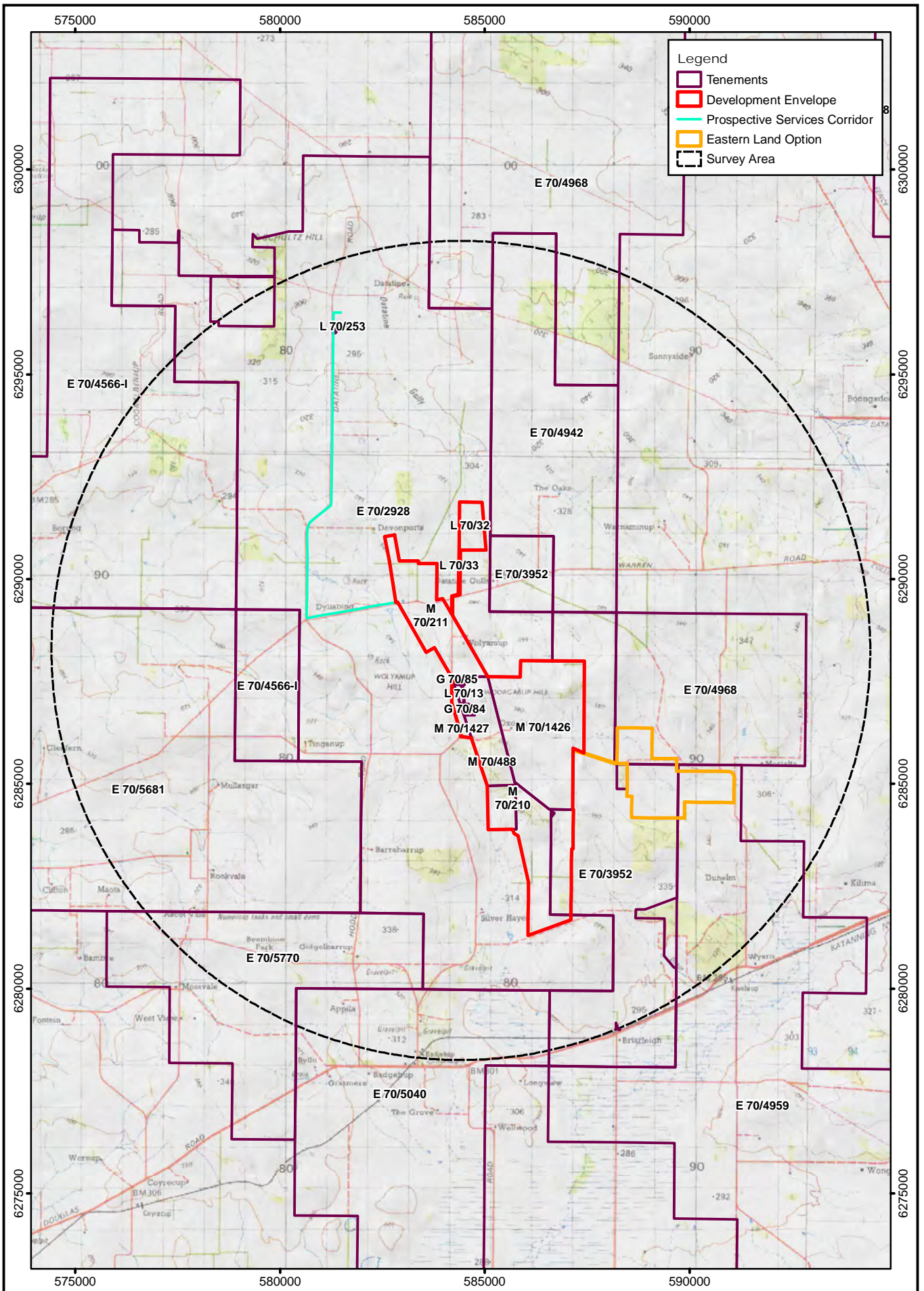


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Katanning Gold Project Locality



N
 0 0.8 1.6 km
 Scale: 1:125,000
 MGA94 (Zone 50)
 CAD Ref: a2561_F030_02
 Date: April 2025
 Rev: A | A4

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Katanning Gold Project
Tenements
 Figure:

2

2. OBJECTIVES

The objective of this survey was to undertake a detailed flora and vegetation assessment of the Katanning Gold survey area, including:

- Undertake a desktop study of the flora and vegetation of the Katanning Gold survey area, with an emphasis on threatened and priority flora, and threatened and priority ecological communities;
- Review the historical literature of the survey area and the nearby areas;
- Undertake a detailed survey of the proposed survey area, and collect and identify the vascular plant species present;
- Review the conservation status of the vascular plant species recorded by reference to current literature and listings by the Department of Biodiversity, Conservation and Attractions (DBCA 2025a, 2025b and 2025c) and plant collections held at the Western Australian State Herbarium (WAH), and listed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW 2025a) under the EPBC Act 1999;
- Define and map the vegetation communities in the survey area;
- Define and map the location of any threatened and priority flora located within the survey area;
- Define any management issues related to flora and vegetation values;
- Provide recommendations on the local and regional significance of the vegetation communities; and
- Prepare a report summarising the findings.

3. BACKGROUND

3.1 Regional Context

The Katanning Gold survey area occurs in part of the southern section of the Western Australian Wheatbelt which has been almost entirely cleared for agricultural activities. The first settlers according to Beard (1990) arrived in 1829 and gradually clearing activities associated with pastoral activities under lease from the crown started the agricultural developments in the area. The freehold blocks spread from localized homesteads to wider areas in the late 1880's. The larger townships were proclaimed in 1890. The mallee country was developed to the east of the Katanning area after World War II. As a result large stretches of the land near the Katanning Gold survey area were cleared in the early part of settlement of the Wheatbelt. Early botanical studies commenced in the mid-1800s to early 1900's with specimen collections and then continued in the mid 1970's with more detailed flora and vegetation studies in some of the larger reserves and remnants (Beard 1980; Muir 1978, 1979).

The proposed Katanning Gold survey area lies within the Avon Botanical District in the South-West Province (Beard 1990). More recently, the vegetation of Western Australia has been assigned to bioregions and subregions under the Interim Biogeographical Regionalisation for Australia (IBRA), with the survey area being within the Avon Wheatbelt 2 (AW2 – Rejuvenated Drainage) subregion of the Avon Wheatbelt region (Department of Climate Change, Energy, the Environment and Water 2025d).

3.2 Climate

Beard (1990) and Beecham (2001a, 2001b) describe the climate of the Avon Botanical District as having a warm dry Mediterranean climate, with winter precipitation of 300-650 mm and 7-8 dry months per year. The Katanning recording station is the closest active Bureau of Meteorology (BOM 2025) weather station to the survey area. Rainfall and temperature data from Katanning recording station (BOM 2025) is illustrated in Figures 3.1 to 3.3. The mean annual rainfall is 429mm for Katanning peaks in the winter months. The survey efforts in the spring months after the winter rains are relatively consistent over the years. The temperatures fluctuate between mean monthly maximum temperatures of 13.8 to 33.1°C and mean monthly minimum temperatures of 5.0 to 15.1°C.

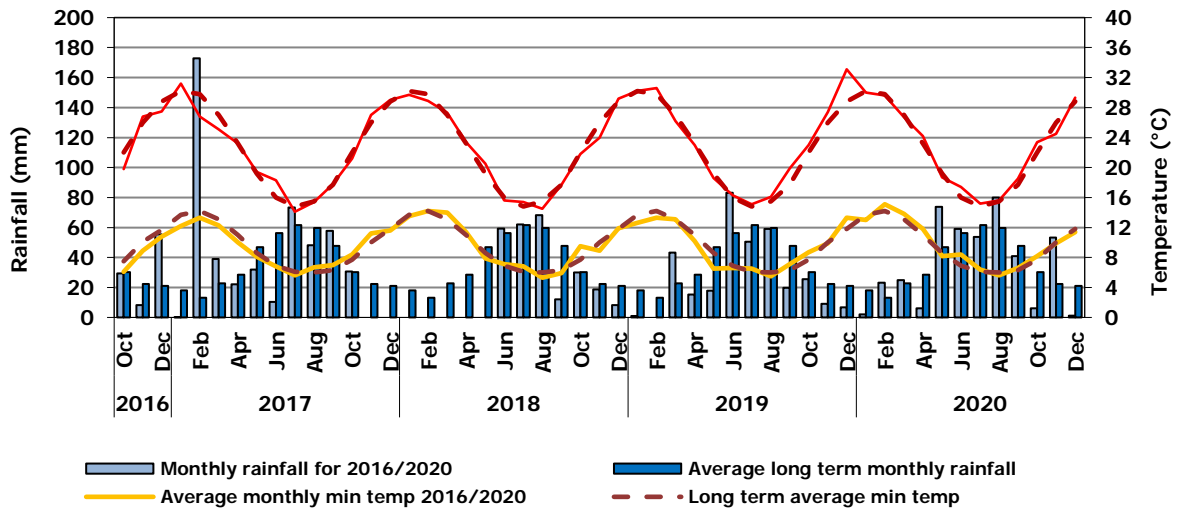


Figure 3.1: Rainfall and temperature data for Katanning recording station (2016 to 2020)

Note: Long-term average monthly rainfall (1999-2017) and maximum and minimum temperatures (1999-2024) data, together with monthly rainfall and temperature data for the period of 2017 to 2024 (BOM 2025).

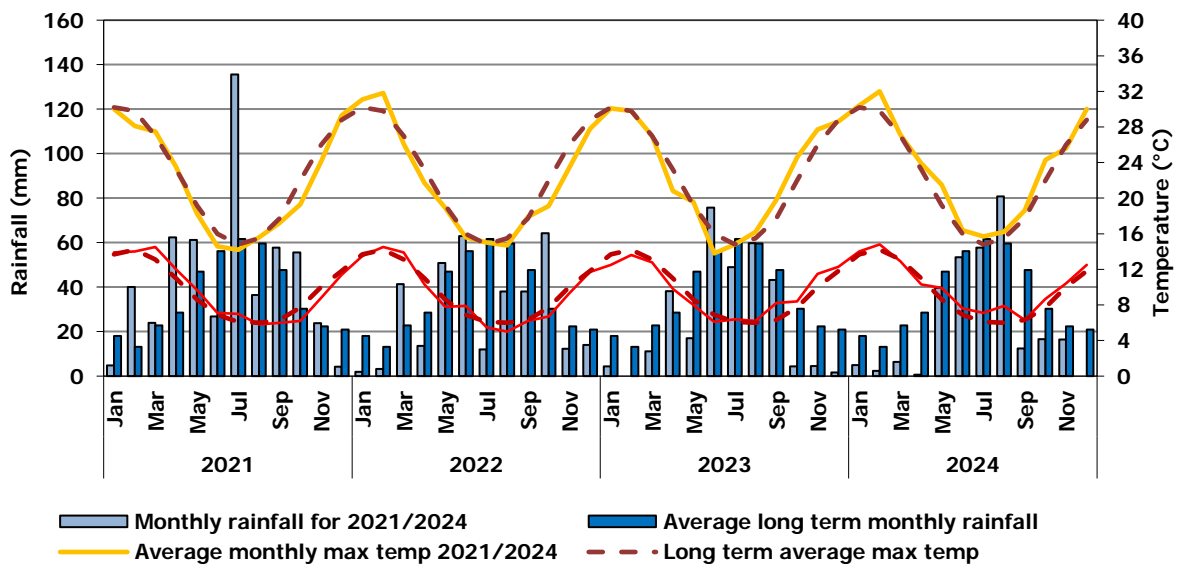


Figure 3.2: Rainfall and temperature data for Katanning recording station (2021 to 2024)

Note: Long-term average monthly rainfall (1999-2017) and maximum and minimum temperatures (1999-2024) data, together with monthly rainfall and temperature data for the period of 2017 to 2024 (BOM 2025).

The longer-term trend in rainfall (despite annual fluctuations is a slight decline between 1999 and 2024; although the annual rainfall in 2022, 2023 and 2024 reflect a lower annual rainfall than the long-term average of 429mm/year.

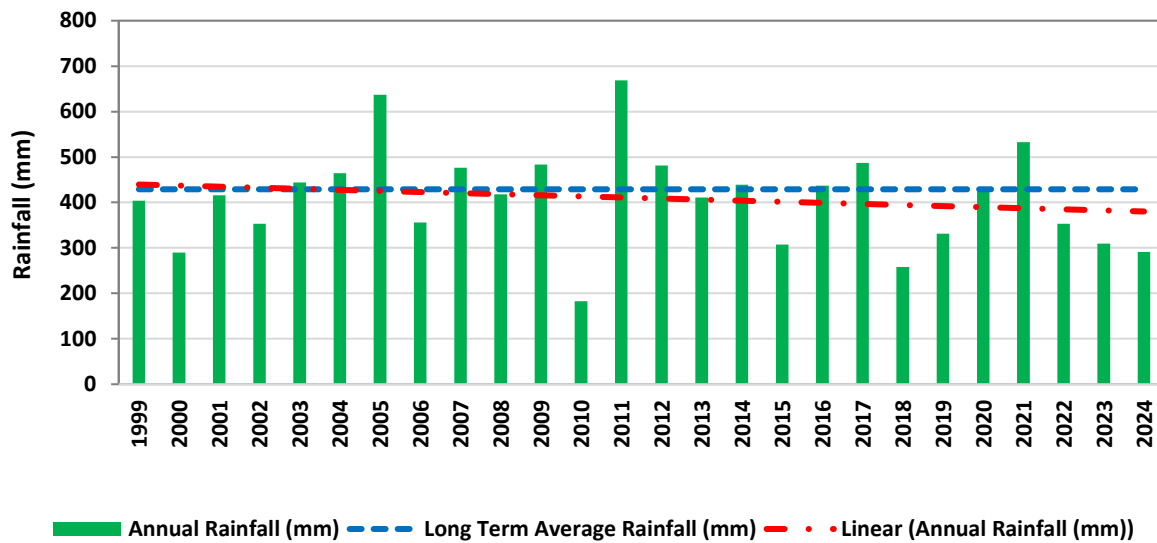


Figure 3.3: Longer Term Trends (showing Linear Trendline) for Rainfall from Katanning recording station (1999 to 2024)

3.3 Geology, Soils and Topography

The Avon Botanical District is characterised by undulating plateaus, typically yellow soils on sandplain with peripheral ironstone gravels, hard-setting loam soils in low lying areas and slopes, saline soils in depressions (Beard 1990).

The Katanning Gold survey area lies in a rejuvenated drainage area dissecting a Tertiary plateau in the Yilgarn Carton (Beecham 2001b). The hills are gently undulating with broad valleys and flowlines. The landforms and soils vary from granites to laterite gravels interacting with varying sands and loams. Colluvial processes are active and soil is formed in colluvium or in-situ weathered rock.

3.4 Land Systems

The survey area lies within three main land systems from the Department of Primary Industries and Regional Development 2025b (Western Australia), (see Figure 4 and Table 1). The overlap of the Development Envelope and the land systems remains below 1% of these regional land systems (Table 1).

Table 1: Summary of Land Systems as defined by Department of Primary Industries and Regional Development 2025b (Western Australia)

| Land System Code | Land System | Description | Area within Survey Area (ha) | Total Mapped (ha) | % Representation in Survey Area |
|------------------|-----------------------|--|------------------------------|-------------------|---------------------------------|
| 259Cb | Colicine System | Broad valley floors, with few lakes, in the South western Zone of Ancient Drainage. Saline wet soils, alkaline grey shallow duplex soils and grey deep sandy duplex soils. Salmon Gum-Wandoo woodland, Mallee scrub and samphire flats. | 13.04 | 215098.99 | 0.01% |
| 259Dt | Datatine System | Rises and low hills on gneiss and adamellite in the South-western Zone of Ancient Drainage. Red calcareous loamy earths, alkaline red shallow loamy duplex soils and alkaline grey shallow duplex soils. York gum-jam-salmon gum woodland. | 555.61 | 117,942.38 | 0.47% |
| 259Ek | East Katanning System | Gently undulating to undulating rises, in the South-western Zone of Ancient Drainage. Sandy gravels, grey sandy duplex soils and alkaline grey sandy duplex, often with hardsetting surfaces. Wandoo-sheoak woodland and mallee. | 1018.44 | 108,370.90 | 0.94% |

3.5 Regional Vegetation

The survey area lies within the Avon Botanical District in the South-West Province. Typical vegetation of the Avon Botanical District includes *Eucalyptus* woodlands comprising *E. loxophleba*, *E. salmonophloia* and *E. wandoo* on loams, scrub-health on sandplains, *Acacia-Casuarina* thickets on ironstone and halophytes on saline soils (Beard 1990). The vegetation of the Avon Wheatbelt region includes mixed eucalypt, *Allocasuarina huegeliana*, and Jam-York Gum woodlands on alluvial soils and Proteaceous shrubland with many endemic species occurring on lateritic uplands and sandplains (Beecham 2001a, 2001b). Beecham (2001b) describes the Avon Wheatbelt 2 (AW2 – Re-juvenated Drainage) subregion vegetation as woodlands of Wandoo (*Eucalyptus wandoo*), York gum (*E. loxophleba*) and Salmon gum (*E. salmonophloia*) with Jam (*Acacia acuminata*) and Casuarina (*Allocasuarina* spp.).

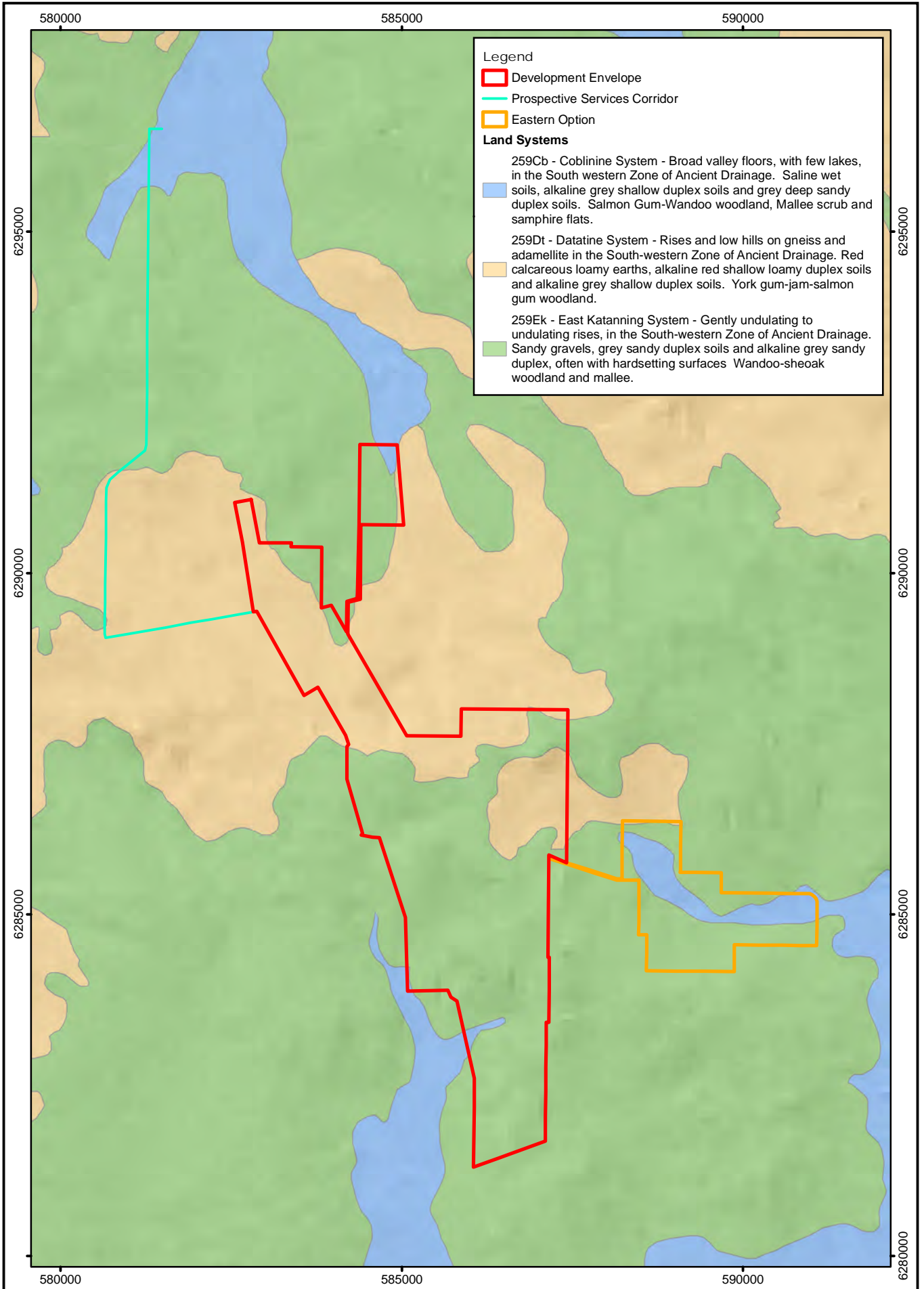
Beard (1980) described the general vegetation type occurring in the area as *Eucalyptus* Woodlands of various species, specifically York gum (*E. loxophleba*), Salmon gum (*E. salmonophloia*), and Wandoo (*E. wandoo*), with small patches of Mallee. More detailed vegetation types that would likely occur in the survey area include:

- Beard (1980) code: e_{5,6,9}Mi – Woodland: Woodland of *Eucalyptus wandoo*, *E. loxophleba* and *E. longicornis*.
- Beard (1980) code: e_{15,27}Si – Mallee: Shrubland of *Eucalyptus eremophila* and *E. redunca*

In recent Pre-European vegetation mapping undertaken by Beard *et al.* (2013) the regional mapping indicated that the survey area falls within the Dumblebung system (Code 1092.1), Figure 5 and Table 2.

Table 2: Summary of Pre-European Systems as defined by Beard *et al.* (2013) through the Department of Primary Industries and Regional Development 2025b (Western Australia)

| Vegetation System Code | Pre-European System | Description | Area within Survey Area (ha) | Total Mapped (ha) | % Representation in Survey Area |
|------------------------|---------------------|---|------------------------------|-------------------|---------------------------------|
| 1092.1 | Dumblebung | Wheatbelt; York gum, salmon gum etc. <i>Eucalyptus loxophleba</i> , <i>E. salmonophloia</i> . | 1587.10 | 77902.96 | 2.04% |



Legend

- Development Envelope
- Prospective Services Corridor
- Eastern Option

Land Systems

259Cb - Coblinine System - Broad valley floors, with few lakes, in the South western Zone of Ancient Drainage. Saline wet soils, alkaline grey shallow duplex soils and grey deep sandy duplex soils. Salmon Gum-Wandoo woodland, Mallee scrub and samphire flats.

259Dt - Datatine System - Rises and low hills on gneiss and adamellite in the South-western Zone of Ancient Drainage. Red calcareous loamy earths, alkaline red shallow loamy duplex soils and alkaline grey shallow duplex soils. York gum-jam-salmon gum woodland.

259Ek - East Katanning System - Gently undulating to undulating rises, in the South-western Zone of Ancient Drainage. Sandy gravels, grey sandy duplex soils and alkaline grey sandy duplex, often with hardsetting surfaces Wandoo-sheoak woodland and mallee.

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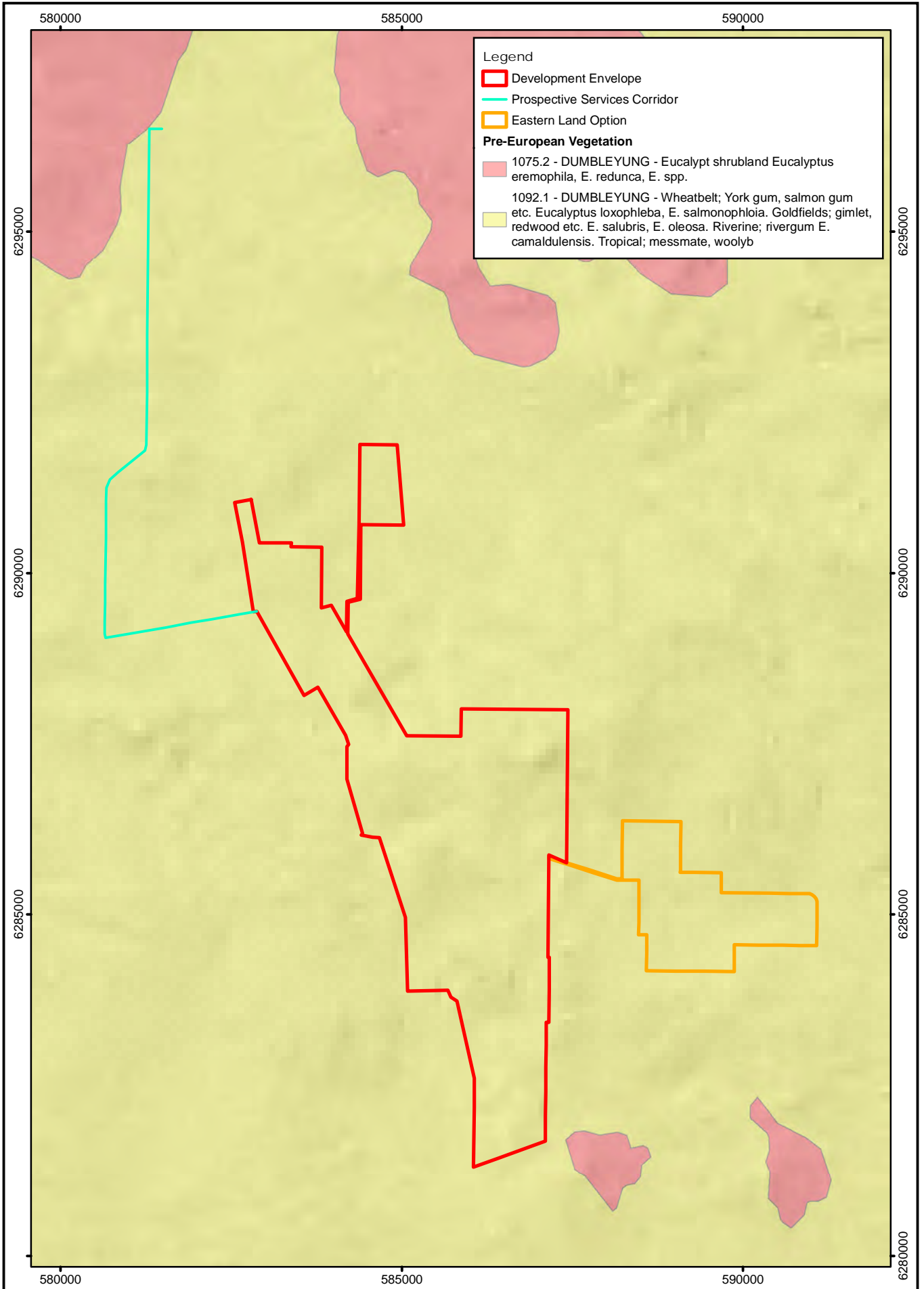
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Katanning Gold Project Land Systems

Figure:
4



Legend

- Development Envelope
- Prospective Services Corridor
- Eastern Land Option

Pre-European Vegetation

- 1075.2 - DUMBLEYUNG - Eucalypt shrubland Eucalyptus eremophila, E. redunca, E. spp.
- 1092.1 - DUMBLEYUNG - Wheatbelt; York gum, salmon gum etc. Eucalyptus loxophleba, E. salmonophloia. Goldfields; gimlet, redwood etc. E. salubris, E. oleosa. Riverine; rivergum E. camaldulensis. Tropical; messmate, woolyb

N

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Scale: 1:75,000
MGA94 (Zone 50)

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**Katanning Gold Project
Pre-European Vegetation**

Figure:

5

4 METHODS

4.1 Desktop Assessment

Prior to the field assessment a literature review was undertaken of previous flora and vegetation assessments conducted within the local region. Documents reviewed included:

- Mattiske Consulting (2018). *Flora and Vegetation Assessment for Ausgold Exploration Ltd, Katanning Gold Project, Katanning*. Prepared for Ausgold Exploration Ltd, January 2018.
- Mattiske Consulting (2019). *Draft Evaluation of the Flora and Vegetation Values of Remnant Vegetation Patches that have the Potential to be the Threatened Ecological Community (TEC) – “Eucalypt Woodlands of the Western Australian Wheatbelt*. Draft Memorandum for Ausgold Ltd, March 2019.
- Mattiske Consulting (2020). *Assessment of Flora and Vegetation Values. Jinkas-Datatine Survey Area, Badgebup, WA*. Prepared for Ausgold Ltd., February 2020
- Botanica Consulting (2023). *Jinkas Project: Detailed Flora and Basic Fauna Assessment*. Draft prepared for Ausgold Ltd., March 2023
- Botanica Consulting (2024). *Katanning Gold Project. Detailed Flora survey and Basic Fauna Assessment*. Draft prepared for Ausgold Ltd., Draft January 2024

In addition to the literature review, searches of the following databases were undertaken to aid in the compilation of a list of significant flora within the survey area:

- DBCA Threatened/ Priority Flora spatial data (DBCA, 2025a);
- DBCA Threatened/ Priority Ecological Communities spatial data (DBCA, 2025b);
- EPBC Protected Matters search tool (DCCEEW, 2025c).

A desktop assessment was conducted using FloraBase (Western Australian Herbarium 1998-), NatureMap (Department of Biodiversity, Conservation and Attractions, 2025a), and *EPBC Act: Protected matters search tool* (Department of Climate Change, Energy, the Environment and Water 2025c) to identify the possible occurrence of threatened and priority flora, and threatened and priority ecological communities within the Katanning Gold survey area.

The NatureMap search parameters used were a 20 km radius ‘by circle’ at 33° 31’ 46.0” S, 117° 54’ 12” E. The aforementioned co-ordinates were also used in the *EPBC Act Protected Matters Search Tool* (Department of Climate Change, Energy, the Environment and Water 2025c).

4.2 Field Survey

A targeted and detailed field assessment of the flora and vegetation of the Katanning Gold survey areas has been undertaken over multiple seasons and years, namely:

- Mattiske Consulting (2018) – October 2018 (80 plots (20m x 20m) - 3 days – 2 personnel)
- Mattiske Consulting (2019) – March 2019 (94 sites for TEC assessments- 3 days - 2 personnel)
- Mattiske Consulting (2020) – November 2020 – Drill Sites (2 days – 2 personnel)
- Botanica Consulting (2023) – October 2022 (21 plots (20m x 20m) - 2 days – 2 personnel)
- Botanica Consulting (2024) – September 2023 (54 plots (20m x 20m) - 4 days - 2 personnel)
- Mattiske Consulting (2025) – October 2024 (54 plots (20m x 20m; although some plot sizes adjusted due to linear corridor areas - 3 days – 2 personnel)

Surveys were undertaken in accordance with methods outlined in *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016b). Dr Mattiske and team members hold valid collection licences to collect flora for scientific purposes, issued under the BC Act 1950.

Aerial photographic maps of the Katanning Gold survey area were prepared and supplied by CAD Resources. Survey sites for the survey area were selected using aerial photographic maps, suggested exploration sites (supplied by Ausgold) and field observations.

Flora and vegetation were described and sampled systematically at each survey site, and additional opportunistic collections were undertaken wherever previously unrecorded plants were observed. At each quadrat the following floristic and environmental parameters were recorded:

- GPS location (GDA94 datum, zone 50H);
- Local site topography;
- Soil type and colour;
- Outcropping rocks and their type;
- Percentage litter cover and percentage bare ground;
- Approximate time since fire;
- Vegetation condition (based on Keighery 1994); and
- For each vascular plant species, the average height and the percentage cover (of both alive and dead material) over the survey site.

All plant specimens collected during the field surveys were dried and processed in accordance with the requirements of the WAH. The plant species were identified based on taxonomic literature and through comparison with pressed specimens housed at the WAH. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the Western Australian Herbarium (1998-).

The survey methodology consisted of assessing the presence and extent of the Eucalypt Woodlands TEC. Key TEC Factors were checked initially, and if a site failed to meet these criteria, no further checks were done and the site was ranked as "Not Likely a TEC". However, if the site did meet these criteria, then the Contra-indicators and Condition Thresholds were checked.

Key TEC Factors:

- Crown cover of the tree canopy (>10 %, <10 %)
- Key species of the tree canopy are listed Key Eucalypt Species
- Cover of introduced and native understorey species
- Growth forms of native understorey species

Contra-indicators:

- Dominant mallee growth form of Eucalyptus species in tree canopy
- Dominant presence of non-Eucalyptus species in the tree canopy
- Presence of shrublands or herblands where the tree canopy is very sparse
- Dominance of Eucalyptus species that are restricted to granite outcrops

Condition Thresholds:

- Keighery (1994) Condition
- Introduced species understorey cover (<10 %, 10-30 %, 31-50 %, 51-70 %, >70 %)
- Mature tree (DBH >30 cm) presence
- Mature tree density (<5 trees per 0.5 ha, 5+ trees per 0.5 ha)
- Roadside patch width (native understorey) (<5 m, 5+ m)

4.3 Survey Timing

The survey of the Katanning Gold area was undertaken in multiple seasons and the main detailed work has been undertaken in the spring months (see Section 4.2. summary). The main botanical survey efforts align with the spring months and as such meets the standards defined by the EPA (2016b).

4.4 Analysis of Site Data

Plymouth Routines in Multivariate Ecological Research v6 (PRIMER) statistical analysis software was used to analyse species-by-site data and discriminate survey sites on the basis of their species composition (Clarke and Gorley 2006). To down-weight the relative contributions of quantitatively dominant species, a fourth root transformation was applied to the data set. Introduced species, annual species, specimens not identified to species level and singletons (species recorded at a single quadrat and not forming a dominant structural component) were excluded from the data set prior to analysis. Computation of similarity matrices was based on the Bray-Curtis similarity measure. Data were analysed using a series of multivariate analysis routines including Similarity Profile (SIMPROF), Hierarchical Clustering (CLUSTER), Analysis of Similarity (ANOSIM) and Similarity Percentages (SIMPER). Results were used to inform and support interpretation of aerial photography and delineation of individual plant communities.

4.5 Vegetation Descriptions

Vegetation descriptions were based on Aplin's (1979) modification of the vegetation classification system of Specht (1970), to align with the National Vegetation Information System (NVIS). Vegetation communities were described at the association level of the NVIS classification framework, as defined by the Executive Steering Committee for Australian Vegetation Information (ESCAVI 2003).

4.6 Survey Limitations

A general assessment was made of the current survey against a range of factors that may have limited the outcomes and conclusions of this report (Table 3).

Table 3: Potential flora and vegetation survey limitations for the Katanning Gold Survey

| POTENTIAL SURVEY LIMITATION | IMPACT ON SURVEY |
|---|---|
| Sources of information and availability of contextual information (i.e. pre-existing background versus new material). | Not a constraint. Reference resources such as Beard's mapping, together with online flora and vegetation information, has provided an appropriate level of information for the current survey. |
| Scope (i.e. what life forms, etc., were sampled). | Not a constraint. Vascular flora, both annuals and perennials which was the focus of the present survey was thoroughly sampled. |
| Proportion of flora collected and identified (based on sampling, timing and intensity). | Not a constraint. The survey of the Katanning Gold survey area was undertaken over multiple seasons and years. |
| Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed). | Not a constraint. The survey of the Katanning Gold survey enabled coverage of sampling of multiple sites and also opportunistic collections on foot traverses between the sites. |
| Mapping reliability. | Not a constraint. The spatial coverage of the survey area is considered to be good. The quality of the aerial photographic maps available for the survey was considered to be excellent. |
| Timing, weather, season, cycle. | Not a constraint. The EPA (2016a) recommends that flora and vegetation surveys in the Wheatbelt area should be undertaken after the main rainfall period in the winter months. Rainfall in the months preceding the spring surveys was relatively consistent prior to the survey field work. From a seasonal perspective, the majority of all flora present were either in flower or were towards the end of their flowering period. Consequently, it was possible to collect excellent specimens (fertile and many with fruit) of the majority of flora for identification purposes. This was especially important given the diversity of flora and the high potential for conservation significant species to be present. |
| Disturbances (fire, flood, accidental human intervention, etc.). | Not a constraint. The Katanning Gold survey area varied substantially in the degree of past disturbances as a result of the presence of the rifle range, previous agricultural activities and established infrastructural areas (roads etc.). |

| POTENTIAL SURVEY LIMITATION | IMPACT ON SURVEY |
|---|--|
| Intensity (in retrospect, was the intensity adequate). | Not a constraint. The intensity of the survey effort of the Katanning Gold survey was considered to be good. |
| Resources (i.e. were there adequate resources to complete the survey to the required standard). | Not a constraint. Resources, in terms of equipment, support and personnel were good. |
| Access problems (i.e. ability to access survey area). | Not a constraint. Vehicle access to the area was in adjacent paddocks and established gravel tracks. These provided excellent access for foot traverses to the entirety of the survey area. |
| Experience levels (e.g. degree of expertise in plant identification to taxon level). | Not a constraint. Dr Mattiske and her experienced botanists have had extensive experience working in a range of botanical districts across the state. |
| Data and statistical analysis | Not a constraint. The data was collated and analysed by standard techniques. The number of sampling sites and extent of foot traverses over the survey area ensured more than adequate sampling for this survey. |

5 DESKTOP ASSESSMENT RESULTS

5.1 Potential Flora

A total of 257 vascular plant taxa, representative of 120 genera and 48 families, have the potential to occur within the Katanning Gold survey area and 20 km buffer (based on NatureMap search (DBCA 2025a) and the *EPBC Act 1999* Protected Matters Search Tool results DCCEEW 2025c).

Botanica (2024) highlighted the potential for 1502 vascular flora taxa within a 40km radius of the survey area. In view of the degree of agricultural activities in the Wheatbelt and the resulting lack of native vegetation this estimate is likely an over estimate of the potential.

5.2 Potential Threatened and Priority Flora

Ten threatened flora species, pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950* and as listed by the Western Australian Herbarium (1998-) have the possibility of occurring in the Katanning Gold survey area, Appendix C. All of these species are also pursuant to section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and listed by the Department of Climate Change, Energy, the Environment and Water (2025a). All potential threatened flora species are either unlikely or highly unlikely to occur in the Katanning Gold survey area, Appendix C.

Botanica (2024) highlighted the potential for 20 threatened flora within a 40km radius of the survey area. In view of the degree of agricultural activities in the Wheatbelt and the resulting lack of native vegetation this estimate was likely an over estimate of the potential as many occur of these are restricted to the eastern areas near Lake Grace.

A total of 17 priority flora species, as listed by the Western Australian Herbarium (1998-) have the potential to occur in the Katanning Gold survey area, Appendix C. Botanica (2024) highlighted the potential for 66 priority flora within a 40km radius of the survey area. In view of the degree of agricultural activities in the Wheatbelt and the resulting lack of native vegetation this estimate was likely an over estimate of the potential as many occur of these are restricted to the eastern areas near Lake Grace.

Of these 17 potential flora species the following 14 Priority species were highlighted due to their proximity to the Katanning Gold survey area (Appendix C) and, of these 14 Priority species, 9 have been recorded near but outside of the Development Envelope (Figure 6), namely:

- ***Acacia trinalls* (P1)** – this species is a dense, rounded, bushy shrub or tree, flowers in September and occurs on salt lakes, flats and swamps. It is currently known from the northern section of the Avon Wheatbelt and Mallee IBRA Regions (Western Australian Herbarium 1998-

Florabase). Currently this species is known from 20 records at the State Herbarium. This species is the most likely as it has been recorded (based on DBCA records) near the road verges in the northern section of the Development Envelope; although not relocated in 2024.

***Banksia acanthopoda* (P2)** - this species is a spreading, non-lignotuberous shrub, flowers in June to October and occurs on gravelly clay loams over laterite. It is currently known from the Avon Wheatbelt and Jarrah Forest IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 25 records at the State Herbarium.

***Conostylis seosiflora* subsp. *Nyabing* (A. Coates s.n. 2/10/1988) (P2)** - this species is a rhizomatous perennial grass-like or herb with yellow flowers in October to November and occurs on lateritic soils. It is currently known from the Avon Wheatbelt and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 7 records at the State Herbarium.

***Banksia meganotia* (P3)** - this species is a straggly or erect, prickly, lignotuberous shrub, which flowers in October and occurs on a range of soils from sands, sandy loams or clay loams over laterite. It is currently known from the southern section of the Avon Wheatbelt, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 38 records at the State Herbarium.

***Calectasia obtusa* (P3)** - this species is an erect low herb, with aerial roots, which flowers in August to September and occurs on a variety of soils including sand, clay loam, gravel and laterite on flats. It is currently known from the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 23 records at the State Herbarium.

***Verticordia brevifolia* subsp. *brevifolia* (P3)** - this species is a shrub which flowers in October to November and occurs on gravelly loams and clay soils. It is currently known from the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 24 records at the State Herbarium.

***Verticordia coronata* (P3)** - this species is a shrub which flowers in September to December and occurs on clay loams, clay and sandy loams and sometimes gravels. It is currently known from the Avon Wheatbelt, Esperance Plains and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 37 records at the State Herbarium.

***Verticordia huegelli* var/ *tridens* (P3)** - this species is a shrub which flowers in September to November and occurs in sandy or gravelly loams in winter wet areas and on low hills. It is currently known from the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Swan Coastal Plain IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 32 records at the State Herbarium.

***Acacia grisea* (P4)** – this species is a compact and spreading shrub, flowers in June to August and occurs on undulating plains and slopes with gravelly loamy soils. It is currently known from the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 36 records at the State Herbarium.

***Banksia acuminata* (P4)** - this species is a prostrate shrub which flowers in October and occurs on gravelly soils. It is currently known from the Avon Wheatbelt and the Jarrah Forest IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 44 records at the State Herbarium.

- . ***Banksia parva* (formerly *Banksia densa* var. *parva*) (P4)** - this species is a shrub, flowers in June to August and occurs on a range of soils from gravelly clay loams, sandy loams to white sands. It is currently known from the southern section of the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 25 records at the State Herbarium.
- . ***Banksia porrecta* (P4)** - this species is a prostrate lignotuberous shrub, flowers in July to August and occurs on a range of soils from sands to sandy loams. It is currently known from the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 52 records at the State Herbarium.
- . ***Bossiaea divaricata* (P4)** - this species is a shrub which occurs on sandy lateritic soils. It is currently known from the southern section of the Avon Wheatbelt, Fitzgerald Plains and Mallee IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 25 records at the State Herbarium.
- . ***Eucalyptus loxophleba* x *wandoo* (P4)** - this species is a mallee or tree up to 20 metres that occurs on sandy clay or loam. It is currently known from the Avon Wheatbelt, Geraldton Sandplains, Jarrah Forest IBRA Regions (Western Australian Herbarium 1998-Florabase). Currently this species is known from 14 records at the State Herbarium.

5.3 Potential Introduced (Weed) Species and Declared Pest (Plant) Organisms

Sixteen introduced species have been recorded previously within 20km of the Katanning Gold survey area (based on NatureMap and EPBC protected matters search results, Appendix B). None of these species are declared pest organisms pursuant to section 22 of the *Biosecurity and Agriculture Management Act 2007* (WA), (Department of Primary Industries and Regional Development 2025c). None of these species are declared as Weeds of National Significance (WONS) (Department of Environment and Energy 2025f).

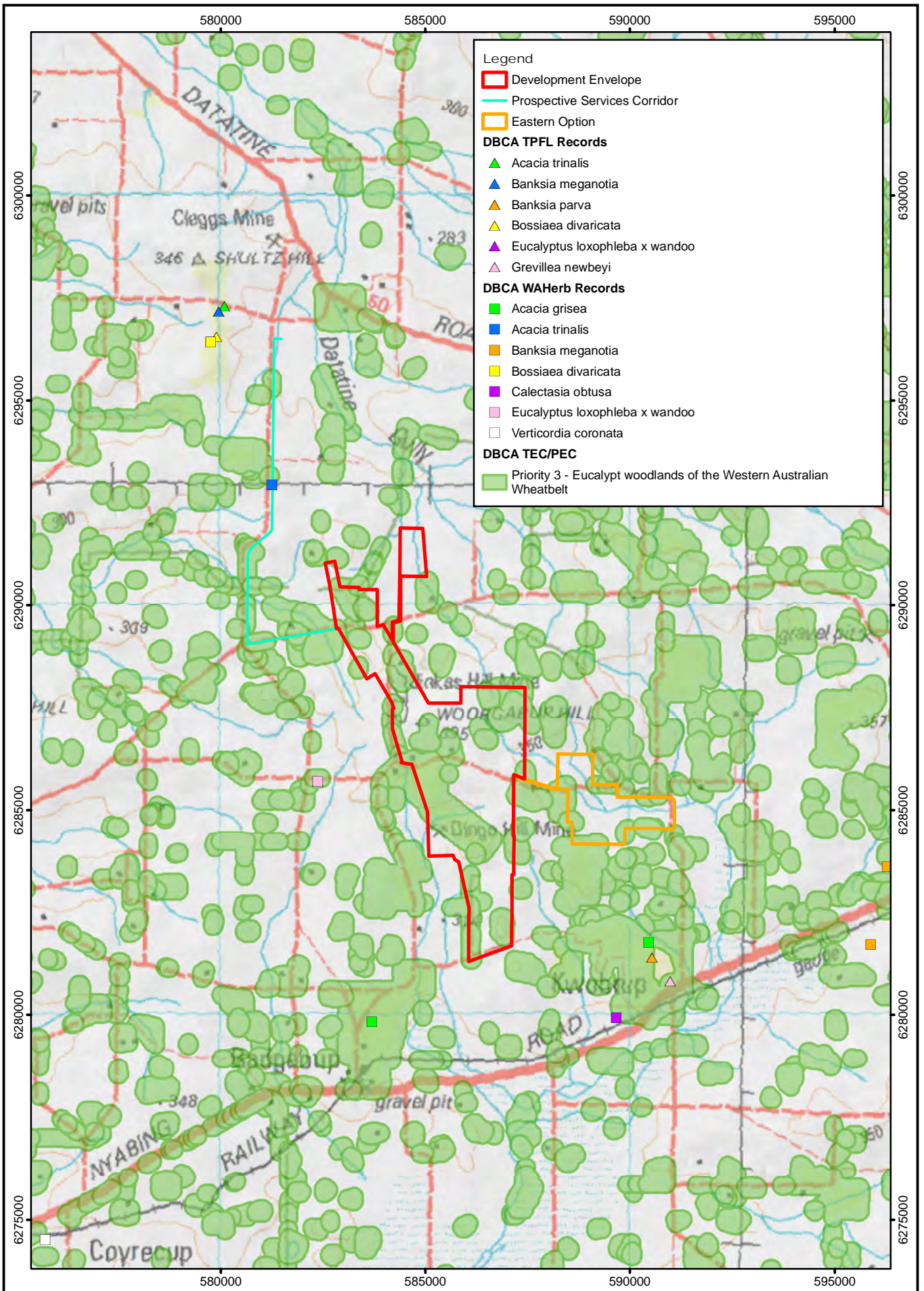
5.4 Potential Threatened and Priority Ecological Communities


One Threatened Ecological Community (TEC) is known to occur within a 20 km buffer of the Katanning Gold survey area (Figure 6). The “Eucalypt Woodlands of the Western Australian Wheatbelt” TEC occurs within 20km of Katanning Gold survey area. As indicated on Figure 6, the level of definition from the federal database does not exclude cleared or highly modified areas. This TEC is listed under the Federal *Environment Protection and Biodiversity Conservation Act 1999* as critically endangered.

The “Plant Assemblages of the Broomehill System” Threatened Ecological Community could potentially occur in or near the Katanning Gold survey area and is listed as Presumed Totally Destroyed (PD) under the WA *Wildlife Conservation Act 1950* (Department of Biodiversity, Conservation and Attractions 2025d).

There are four Priority Ecological Communities (PECs) listed by the Department of Biodiversity, Conservation and Attractions (2025e) that occur in the Avon Wheatbelt IBRA region and could potentially occur in/within the 20 km buffer of the survey area. These four Priority Ecological Communities are:

- . the “Red Morrel Woodland of the Wheatbelt” PEC (P1),
- . the “Brown mallet *Eucalyptus astringens* communities in the western Wheatbelt on alluvial flats (previously ‘Beaufort River Flats’)” PEC (P1),
- . the “Yate (*Eucalyptus occidentalis*) dominated alluvial claypans of the Jingalup Soil System” PEC (P2).
- . “The Eucalypt Woodlands of the Western Australian Wheatbelt” (PEC (P3), DBCA 2025e) includes the three Priority Ecological Communities listed above and all of these are all components of the *EPBC Act 1999* listed critically endangered “Eucalypt Woodlands of the Western Australian Wheatbelt” Threatened Ecological Community (Department of Biodiversity, Conservation and Attractions 2025e, Department of Environment and Energy 2025b).





 0 0.8 1.6 km

 Scale: 1:125,000

 MGA94 (Zone 50)



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Katanning Gold Project

DBCAs Threatend and Priority

Flora & TEC/PEC Records

Figure: **6**

6. FIELD SURVEY RESULTS

6.1 Survey Effort

A targeted and detailed field assessment of the flora and vegetation of the Katanning Gold survey area and nearby areas has been undertaken over multiple seasons and years, namely:

Mattiske Consulting (2018) – October 2018 (80 plots (20m x 20m) - 3 days – 2 personnel)

Mattiske Consulting (2019) – March 2019 (94 sites for TEC assessments- 3 days - 2 personnel)

Mattiske Consulting (2020) – November 2020 – Drill Sites (2 days – 2 personnel)

Botanica Consulting (2023) – October 2022 (21 plots (20m x 20m) - 2 days – 2 personnel)

Botanica Consulting (2024) – September 2023 (54 plots (20m x 20m) - 4 days - 2 personnel)

Mattiske Consulting (2025) – October 2024 (54 plots (20m x 20m; although some plot sizes adjusted due to linear corridor areas - 3 days – 2 personnel)

The key data for the Development Envelope were extracted and summarized in Appendices D and E. Some of these plots in previous assessments were associated with areas outside the Development Envelope; however this data has provided local and regional context for assessments in the Development Envelope. The key sites relevant for the assessment are summarized on Figure 7.

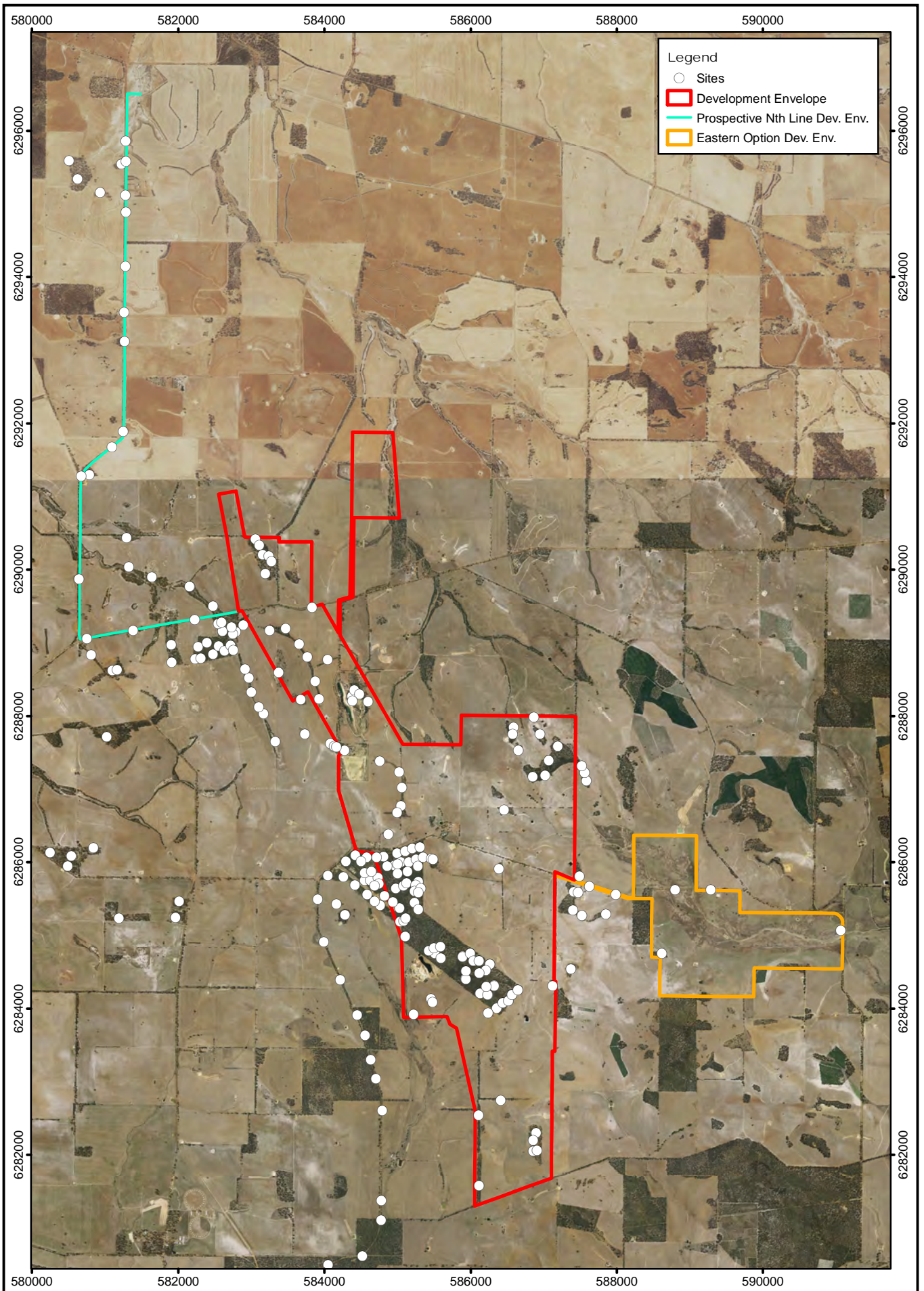
The data collection was undertaken in accordance with methods outlined in *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016b). Dr Mattiske and team members hold valid collection licences to collect flora for scientific purposes, issued under the BC Act 1950.

Aerial photographic maps of the Katanning Gold survey area were prepared and supplied by CAD Resources. Survey sites for the survey area were selected using aerial photographic maps, suggested exploration sites (supplied by Ausgold) and field observations.

6.2 Flora

A total of 302 vascular plant taxa which are representative of 151 genera and 58 families were recorded within the Katanning Gold survey area. Data was collected from foot traverses and detailed plots. The majority of taxa recorded were representative of the Myrtaceae (65 taxa), Asteraceae (27 taxa), Fabaceae (26 taxa), Poaceae (25 taxa) and Proteaceae (22 taxa) families. The majority of the taxa recorded were widespread both locally and more broadly within the associated biogeographical subregion; although some occurred as representative of the southern Wheatbelt and nearby southern coastal and mallee communities.

The species accumulation curve (Figure 8), based on the species accumulation analysis of Colwell (2013) was used to evaluate the adequacy of sampling in the main survey area utilising the “AG” mapping sites (see Appendix D). The asymptotic value was determined using Michaelis-Menten modelling. Using this analysis, the incidence based coverage estimator of species richness (ICE, Chao 2004) was calculated to be 254.65. Based on this value and the total of 185 species recorded (in vegetation “AG” mapping sites, see Appendix D), approximately 72.6% of the flora species potentially present within the Katanning Gold development area were recorded. If one included the additional opportunistic collections in the Development Envelope and the wider survey area the total number of 302 exceeds that in the key mapping sites.



Legend

- Sites
- ▭ Development Envelope
- ▭ Prospective Nth Line Dev. Env.
- ▭ Eastern Option Dev. Env.

N

0 0.5 1 km

Scale: 1:70,000
MGA94 (Zone 50)

CAD Ref: a2561_F029_05
Date: April 2025

Rev: A | A4



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Katanning Gold Project

Location of Sampling Sites

Figure:

7

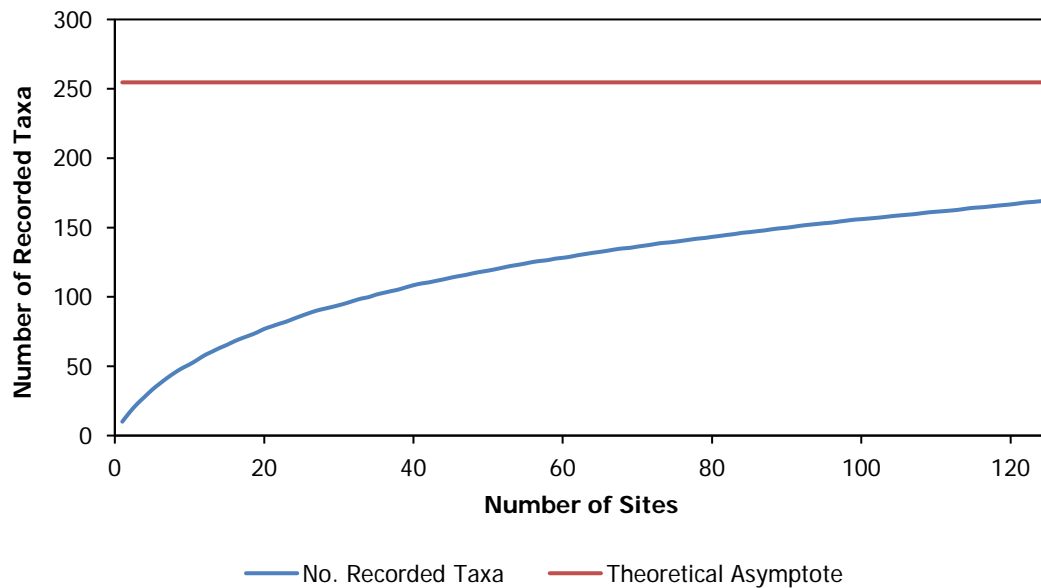


Figure 8: Katanning Gold - Species Accumulation Curve within Development survey area

6.2.1 Threatened and Priority Flora

No threatened flora species pursuant to subsection (2) of section 23F of the Biodiversity Conservation Act 2016 and as listed by the DBCA (2025b), or pursuant to section 179 of the EPBC Act 1999 or listed by the DCCEE (2025a), were recorded within the Katanning Gold survey area, Appendices D and E.

One Priority species, *Acacia trinialis* (P1) has been previously recorded on the northern infrastructure area on the road verges; although not recorded in the recent assessments on these road verges (Figure 6 after Section 5.2). As a bushy shrub or tree this species is known from 20 records at the State Herbarium (WAH 1998-). This species mainly occurs north-east of Perth in the Wheatbelt with several outliers near Datatine and Dumbleyung to the north of the Development Envelope. This species also occurs mainly in salt lakes and on flats or swampy areas which are locally restricted in extent to small waterways and the northern tip of the infrastructure area.

6.2.2 Introduced (Weed) Species and Declared Pest (Plant) Organisms

A total of 41 introduced (weed) species have been recorded within the Katanning Gold survey area (see Appendix E), Table 4. Four of these were planted tree species (**Pinus* sp., **Schinus molle*, *Eucalyptus camaldulensis* and *Eucalyptus cladocalyx*) which are not native to this area.

One of these introduced species (**Asparagus asparagoides* – Bridle Creeper) is a declared pest organisms pursuant to section 22 of the BAM Act 2007 (WAOL List, DPIRD 2025) and also a Weed of National Significance (WONS) (DotEE 2025c). This species will require removal and monitoring in case it spreads into additional areas.

A range of weeds are listed as having a High or Medium impact rating and Rapid invasiveness by the Department of Parks and Wildlife 2014. The latter range of weed species in part reflects the degree of disturbances near infrastructure and agricultural areas within the survey area.

Table 4: Summary of Introduced (Weed) Species recorded with the Katanning Gold survey area

Note: The planted trees which are not native to the area are excluded from this list.

| <i>Species</i> | WONS (DCCEEW 2025c) | Declared Weeds WAOL (DPIRD 2025) | Ecological Impact (DPAW 2014) | Invasiveness (DPAW 2014) |
|--------------------------------------|---------------------------|--|-------------------------------------|--------------------------------|
| * <i>Aira caryophyllea</i> | | Permitted – S11 | H | R |
| * <i>Arctotheca calendula</i> | | Permitted – S11 | H | R |
| * <i>Asparagus asparagoides</i> | WONS | Declared – S22(2) | H | M |
| * <i>Avellinia festuroides</i> | | Permitted – S11 | U | U |
| * <i>Avena barbata</i> | | Permitted – S11 | H | R |
| * <i>Avena</i> sp. | | Permitted – S11 | H | R |
| * <i>Briza maxima</i> | | Permitted – S11 | H | R |
| * <i>Bromus diandrus</i> | | Permitted – S11 | H | R |
| * <i>Carduus pycnocephalus</i> | | Permitted – S11 | M | R |
| * <i>Disa bracteata</i> | | Permitted – S11 | M | R |
| * <i>Ehrharta longiflora</i> | | Permitted – S11 | U | M |
| * <i>Erodium botrys</i> | | Permitted – S11 | L | M |
| * <i>Frankenia pulverulenta</i> | | - | U | U |
| * <i>Hordeum hystrix</i> | | Permitted – S11 | U | R |
| * <i>Hordeum marinum</i> | | Permitted – S11 | U | R |
| * <i>Hypochaeris glabra</i> | | Permitted – S11 | U | R |
| * <i>Hypochaeris radicata</i> | | Permitted – S11 | U | R |
| * <i>Lepidium africanum</i> | | Permitted – S11 | U | U |
| * <i>Lolium perenne</i> | | Permitted – S11 | U | M |
| * <i>Lolium</i> sp. | | Permitted – S11 | U | M |
| * <i>Lysimachia arvensis</i> | | Permitted – S11 | U | R |
| * <i>Medicago polymorpha</i> | | Permitted – S11 | U | U |
| * <i>Medicago</i> sp. | | Permitted – S11 | U | U |
| * <i>Mesembryanthemum nodiflorum</i> | | Permitted – S11 | H | R |
| * <i>Oenothera stricta</i> | | Permitted – S11 | L | R |
| * <i>Orobanche minor</i> | | Permitted – S11 | M | R |
| * <i>Oxalis corniculata</i> | | Permitted – S11 | U | U |
| * <i>Petrorhagia dubia</i> | | Permitted – S11 | U | R |
| * <i>Puccinellia ciliata</i> | | Permitted – S11 | H | U |
| * <i>Raphanus raphanistrum</i> | | Permitted – S11 | U | R |
| * <i>Romulea rosea</i> | | Permitted – S11 | H | R |
| * <i>Sonchus oleraceus</i> | | Permitted – S11 | U | R |
| * <i>Trifolium angustifolium</i> | | Permitted – S11 | U | U |
| * <i>Triticum aestivum</i> | | Permitted – S11 | U | U |
| * <i>Ursinia anthemoides</i> | | Permitted – S11 | U | R |
| * <i>Vulpia muralis</i> | | Permitted – S11 | U | R |
| * <i>Vulpia myuros</i> | | Permitted – S11 | U | R |

6.3 Vegetation

6.3.1 Statistical Analysis

Cluster analyses derived from a species-by-site resemblance matrix (Bray-Curtis similarity) grouped survey sites into discrete clusters based on species composition (dissimilarity/distance increased) (Clarke and Gorley 2006). The key species by sites and vegetation codes is summarized in Appendix D. Only taxa which could be identified to species level were included in the analysis. Classification and ordination analyses were conducted on a data matrix of perennial taxa, with singularly occurring species and annual taxa omitted prior to analysis. This was justified on the basis that singleton taxa add little additional information, and annuals (desert ephemerals) exhibit high inter-annual variation in distribution and abundance (Mott 1972, 1973). In addition, the omission of annual species from the statistical analysis allows for comparison of data from surveys undertaken in different seasons or survey years. Hierarchical Clustering was used in conjunction with Similarity Profile (SIMPROF), Similarity Percentages (SIMPER), site descriptions, site photos and aerial photographs; combining these methods increased the understanding of site inter-relations and thus the ability to accurately delineate those sites based on species composition.

To down weight the relative contributions of quantitatively dominant species a presence-absence transformation of the data was used for statistical analysis. Introduced species, singletons (species recorded at only one quadrat), annuals and specimens that were not identified down to the species level were excluded from the analysis. Taxa which were identified to the subspecies and variety levels were revised to the specific level to reduce the tendency for this to create further statistical variation in analysis which was considered unwarranted. Computation of similarity matrices was based on the Bray Curtis similarity measure.

Where appropriate, outliers and small groupings were assigned to broader comparative vegetation units based on factors including species composition and site descriptions; this is particularly relevant where survey quadrats were established on ecotones. For the purposes of vegetation mapping, i.e. extrapolating quadrat data to generalised vegetation communities over broad areas, an inclusive rather than exclusive approach was adopted for outliers. Following *a priori* analysis of significant groups, vegetation communities were delineated using a combination of the SIMPROF results together with landform, soil data, and associated records of the survey quadrats. Where appropriate outliers and small groupings were merged into broader vegetation units based on species composition and site descriptions.

6.3.2 Vegetation Communities

The vegetation communities were separated on the range of overstorey and understorey species utilizing the Primer 7 software and clustering techniques, field observations and aerial photograph interpretations.

A total of 13 Eucalypt woodland communities (W1 to W13). 4 mixed Proteaceous – Myrtaceae heath communities/lithic complexes and low woodlands on impeded soils and outcrops (S1 to S4) and one Chenopod shrubland (C1) were recorded on the Katanning Gold survey area, Table 5, Figures 9.1 to 9.8. In addition, most areas were cleared for agricultural activities (CL) and a few were planted (PL). Several communities were only recorded in restricted areas and as a result the number of sites as summarized in Table 5 reflect their local occurrences.

There is some overlap in the Eucalypt woodlands with *Eucalyptus wandoo*, *Eucalyptus longicornis* and *Eucalyptus loxophleba* overlapping in some localised areas as well as a range of mallee species associated with the *Eucalyptus wandoo*, the *Melaleuca* shrubs and the Banksia heaths. The C1 - Chenopod shrublands and W13 – Woodlands occur on the infrastructure areas and as such are very limited in area and outside the main Development Envelope. As indicated in Table 7, the vast majority of the Development Envelope (>88%) supports cleared lands.

Table 5: Vegetation Communities and Representation in Development Envelope (DE) Area

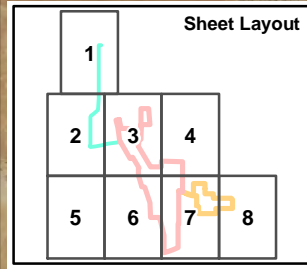
| Groupings | Veg Map Code | No Sites | Description | DE Area (ha) | % DE Area |
|---|--------------|----------|---|--------------|-----------|
| Chenopod Shrublands on saline flats | C1 | - | Chenopod Shrubland of <i>Tecticornia halocnemoides</i> and <i>Tecticornia pergranulata</i> over mixed annual grasses on clay loams. | - | - |
| Lithic Complex, Heaths and Low Woodlands on impeded soil and outcrops | S1 | 15 | Open to Closed Heath of <i>Banksia sphaerocarpa</i> var. <i>caesia</i> , <i>Banksia armata</i> var. <i>ignicida</i> , <i>Babingtonia camphorosmae</i> mid shrubland over <i>Petrophile seminuda</i> , <i>Hibbertia gracilipes</i> low shrubland with occasional <i>Eucalyptus phaenophylla</i> mallee over <i>Lepidosperma</i> sp. Bandalup Scabrid isolated sedges on clay loams with some outcropping on slopes and ridges. | 15.01 | 0.95 |
| | S2 | 5 | Low Woodland of <i>Eucalyptus phaenophylla</i> , <i>Eucalyptus kondininensis</i> , <i>Eucalyptus wandoo</i> and <i>Allocasuarina huegeliana</i> over open heath of <i>Gastrolobium spinosum</i> , <i>Gastrolobium trilobum</i> , <i>Melaleuca atroviridis</i> , <i>Xanthorrhoea drummondii</i> , <i>Banksia armata</i> var. <i>ignicida</i> mid open shrubland over <i>Neurachne alopecuroidea</i> low isolated tussock grasses on clay loams with some outcropping on slopes and ridges. | 4.72 | 0.30 |
| | S3 | 13 | Open Low Woodland of <i>Eucalyptus loxophleba</i> , <i>Acacia acuminata</i> with isolated trees over <i>Neurachne alopecuroidea</i> , <i>Austrostipa elegantissima</i> , <i>Austrostipa variabilis</i> and mixed low herbs with sandy loam with localized granite boulders. | 6.45 | 0.41 |
| | S4 | 1 | Lithic Complex on outcrops of granite with only localized herbs, grasses and occasional shrubs on slightly deeper sandy soils. | 0.11 | 0.01 |
| Woodlands on clays and sandy loams on slopes and ridges | W1 | 4 | Open Woodland of <i>Eucalyptus longicornis</i> , <i>Eucalyptus wandoo</i> , <i>Eucalyptus salmonophloia</i> over <i>Acacia acuminata</i> over mixed grasses and herbs including <i>Rytidosperma setaceum</i> , <i>Neurachne alopecuroidea</i> and <i>Austrostipa</i> species on clay loams on slopes. | 7.69 | 0.48 |
| | W2 | 10 | Open Woodland of <i>Eucalyptus loxophleba</i> , <i>Allocasuarina huegeliana</i> over <i>Acacia acuminata</i> tall sparse shrubland over mixed grasses and herbs and mixed paddock species on slopes. | 3.52 | 0.22 |
| | W3 | 13 | Open Woodland of <i>Eucalyptus wandoo</i> , <i>Allocasuarina huegeliana</i> , <i>Acacia acuminata</i> over <i>Hakea lissocarpha</i> , <i>Xanthorrhoea drummondii</i> over <i>Lepidosperma preissianus</i> subsp. <i>volubilis</i> , <i>Neurachne alopecuroidea</i> on sandy loams on slopes. | 32.92 | 2.07 |
| | W4 | 6 | Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus longicornis</i> , <i>Allocasuarina huegeliana</i> , <i>Acacia acuminata</i> over <i>Dodonaea humifusa</i> , <i>Hakea lissocarpha</i> , <i>Gastrolobium trilobum</i> over mixed herbs and grasses on clay loams on slopes. | 6.32 | 0.40 |
| | W5 | 7 | Open Woodland of <i>Eucalyptus wandoo</i> , <i>Allocasuarina huegeliana</i> over <i>Acacia acuminata</i> , <i>Banksia sessilis</i> , <i>Dodonaea humifusa</i> with occasional <i>Eucalyptus loxophleba</i> over <i>Gastrolobium trilobum</i> , <i>Rhagodia preissii</i> subsp. <i>preissii</i> over mixed herbs and grasses on clay loams on slopes. | 13.35 | 0.84 |
| | W6 | 7 | Woodland of <i>Eucalyptus longicornis</i> , <i>Eucalyptus astringens</i> , <i>Eucalyptus loxophleba</i> , <i>Allocasuarina huegeliana</i> over <i>Acacia acuminata</i> over mixed herbs and grasses on clay loams on ridges and slopes. | 2.95 | 0.19 |

Table 5: Vegetation Communities and Representation in Development Envelope (DE) area
(continued)

| Groupings | Veg Map Code | | Description | DE Area (ha) | % DE Area |
|---|--------------|----|--|--------------|-----------|
| Woodlands on clays and sandy loams on slopes and ridges | W7 | 23 | Open Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus longicornis</i> and occasional <i>Eucalyptus hebetifolia</i> and <i>Eucalyptus phaenophylla</i> over <i>Acacia acuminata</i> over <i>Gastrolobium trilobum</i> , <i>Acacia erinacea</i> , <i>Acacia lasiocarpa</i> var. <i>sedifolia</i> , <i>Melaleuca atroviridis</i> , <i>Xanthorrhoea drummondii</i> over mixed herbs and grasses on slopes. | 39.56 | 2.49 |
| | W8 | 17 | Mixed Open Woodland of <i>Eucalyptus longicornis</i> , <i>Eucalyptus kondininensis</i> , <i>Eucalyptus astringens</i> , <i>Eucalyptus phaenophylla</i> , <i>Eucalyptus wandoo</i> over <i>Gastrolobium trilobum</i> , <i>Melaleuca atroviridis</i> , <i>Melaleuca scalena</i> over mixed shrubs, herbs and grasses on clay loams on slopes. | 24.60 | 1.55 |
| | W9 | 14 | Open Woodland of <i>Eucalyptus salmonophloia</i> , <i>Eucalyptus longicornis</i> <i>Eucalyptus wandoo</i> over low mixed <i>Eucalyptus</i> mallee species over <i>Daviesia articulata</i> over mixed low herbs and grasses on clay loams on slopes. | 1.26 | 0.08 |
| | W10 | 10 | Open Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus salmonophloia</i> , <i>Eucalyptus kondininensis</i> and other low mallees over <i>Acacia acuminata</i> , <i>Acacia erinacea</i> , <i>Acacia saligna</i> , <i>Maireana brevifolia</i> over low mixed herbs and grasses on clay loams on slopes. | 17.04 | 1.07 |
| | W11 | 9 | Woodland of <i>Eucalyptus sargentii</i> subsp. <i>sargentii</i> , <i>Eucalyptus spathulata</i> , <i>Casuarina obesa</i> , <i>Callitris roei</i> over <i>Melaleuca scalena</i> , <i>Atriplex</i> species and <i>Tecticornia</i> spp. on lower slopes. | 7.16 | 0.45 |
| | W12 | 9 | Open Woodland of <i>Eucalyptus loxophleba</i> , <i>Allocasuarina huegeliana</i> with occasional <i>Eucalyptus wandoo</i> over <i>Acacia acuminata</i> over <i>Maireana brevifolia</i> over mixed herbs and grasses on sandy loams on slopes. | 3.39 | 0.21 |
| | W13 | 2 | Open Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus longicornis</i> over low herbs and grasses on lower slopes on clay loams of flow-lines. | - | - |
| Cleared | CL | | | 1398.92 | 88.14 |
| Planted | PL | | | 2.12 | 0.13 |
| | | | Total | 1587.10 | 100.00 |

580000

582000



Legend

| | | | |
|------------------------------|-----|-----|----|
| Development Envelope | PL | W11 | W6 |
| Prospective Service Corridor | S1 | W12 | W7 |
| Eastern Land Option | S2 | W13 | W8 |
| TEC | S3 | W2 | W9 |
| Vegetation | S4 | W3 | |
| C1 | W1 | W4 | |
| CL | W10 | W5 | |

6298000

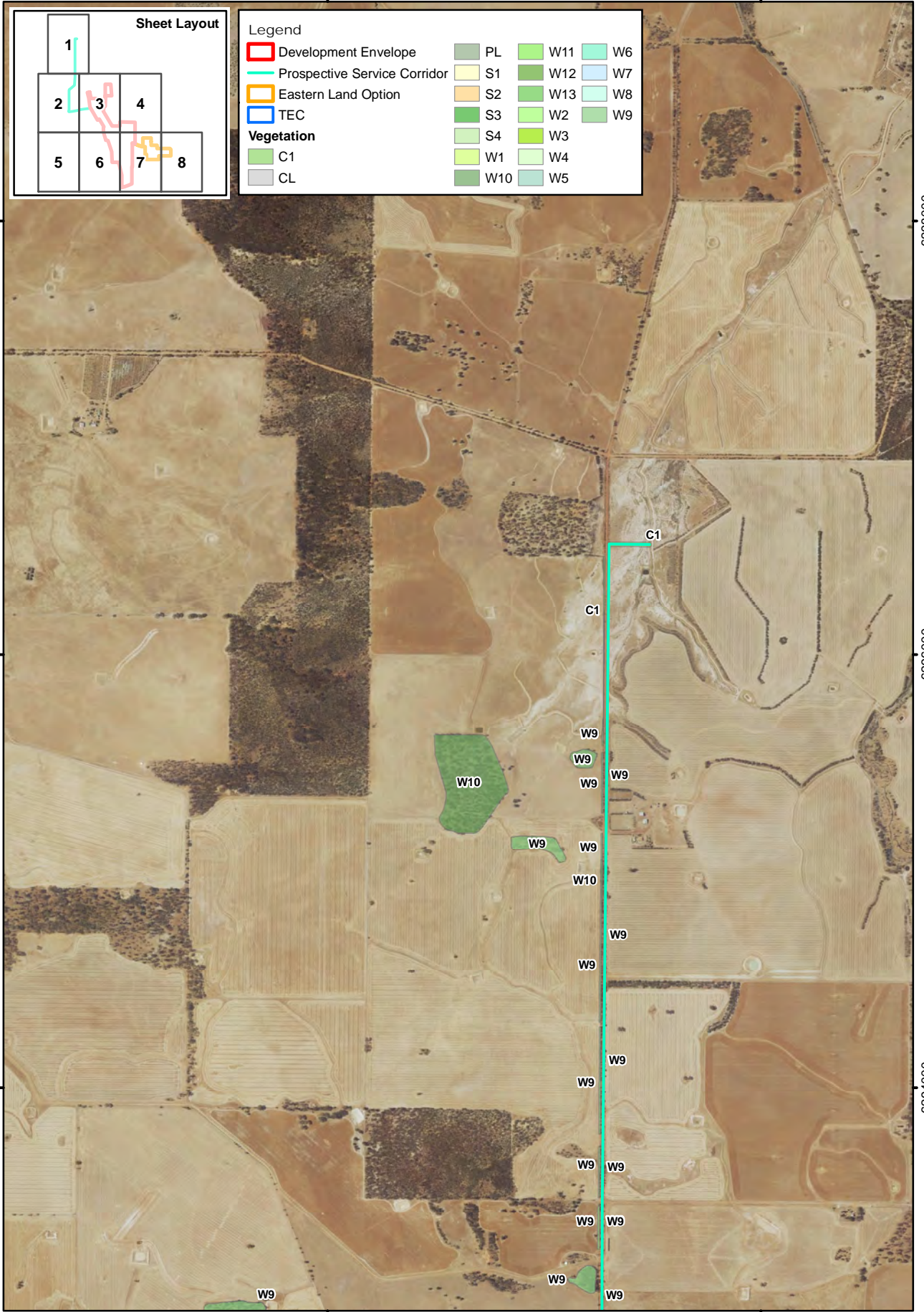
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 MGA94 (Zone 50)



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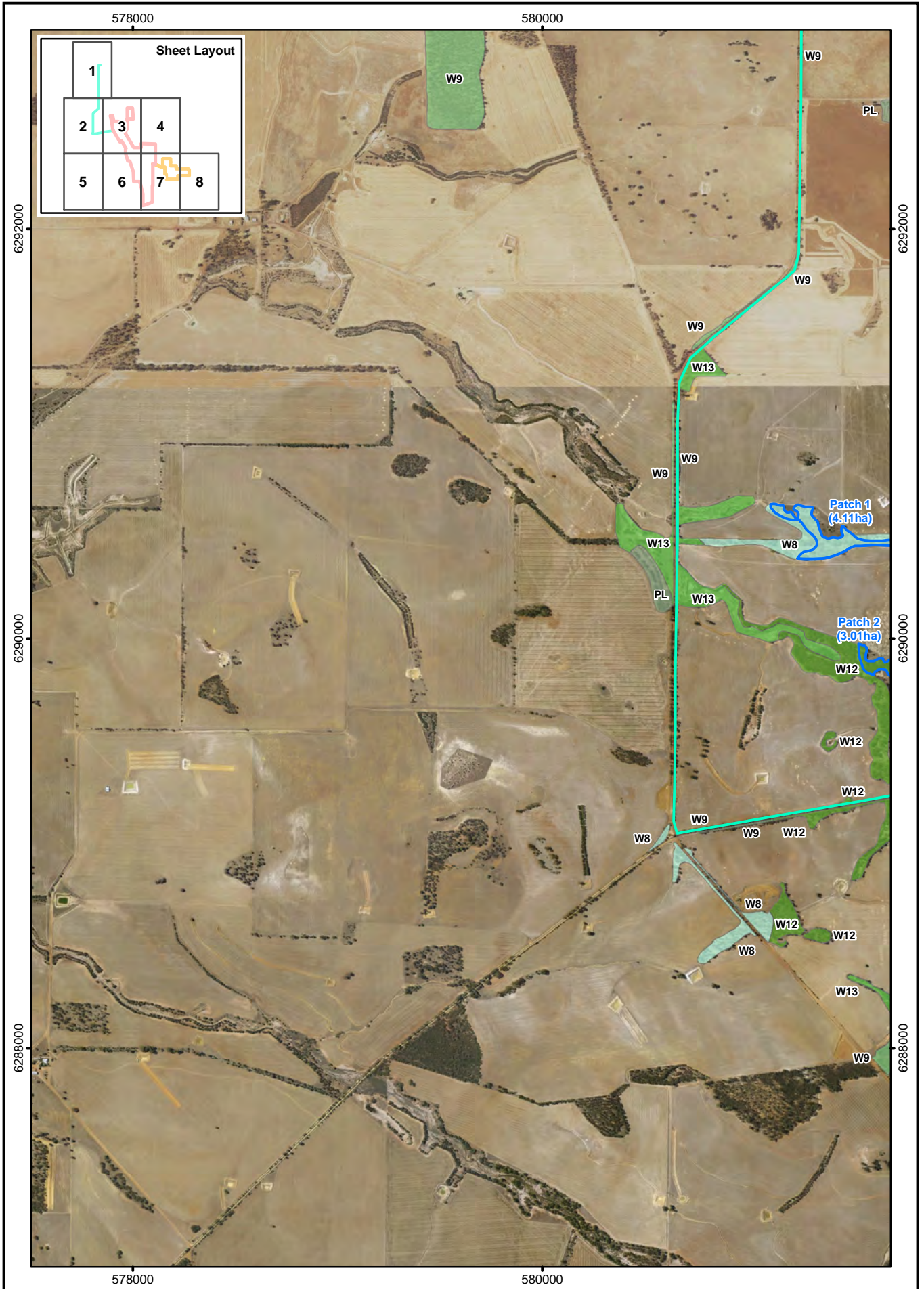
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Katanning Gold Project
Vegetation
Sheet 1 of 8

Figure:

9.1

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 Date: April 2025 Rev: A | A4




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 MGA94 (Zone 50)

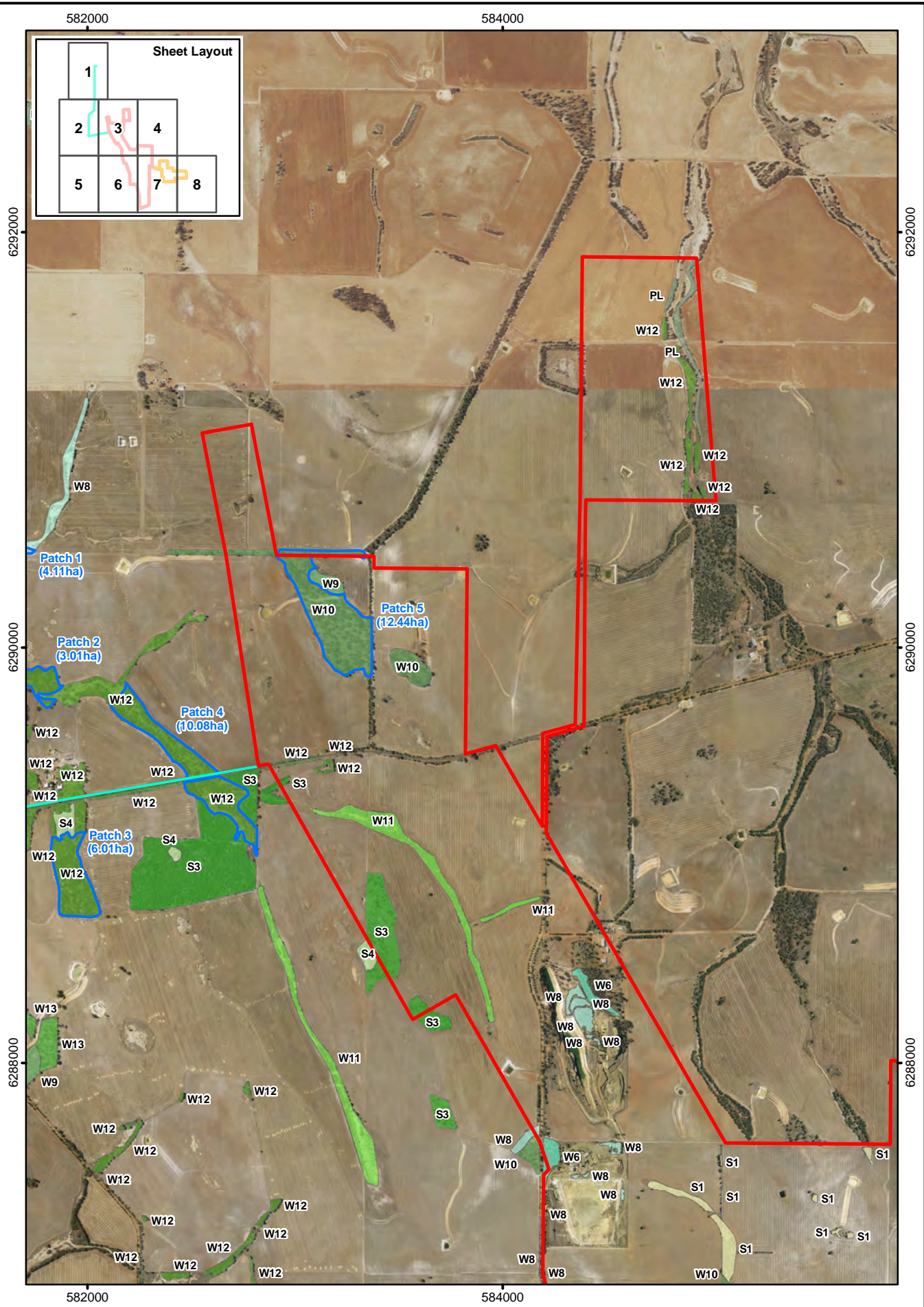
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Katanning Gold Project
Vegetation
Sheet 2 of 8

Figure:
9.2



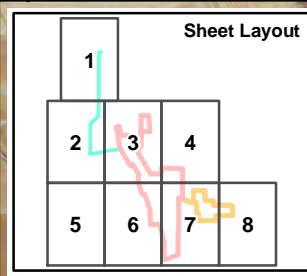
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Katanning Gold Project
Vegetation
Sheet 3 of 8

Figure:
9.3

586000 588000 590000



6292000

6292000

6290000

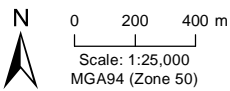
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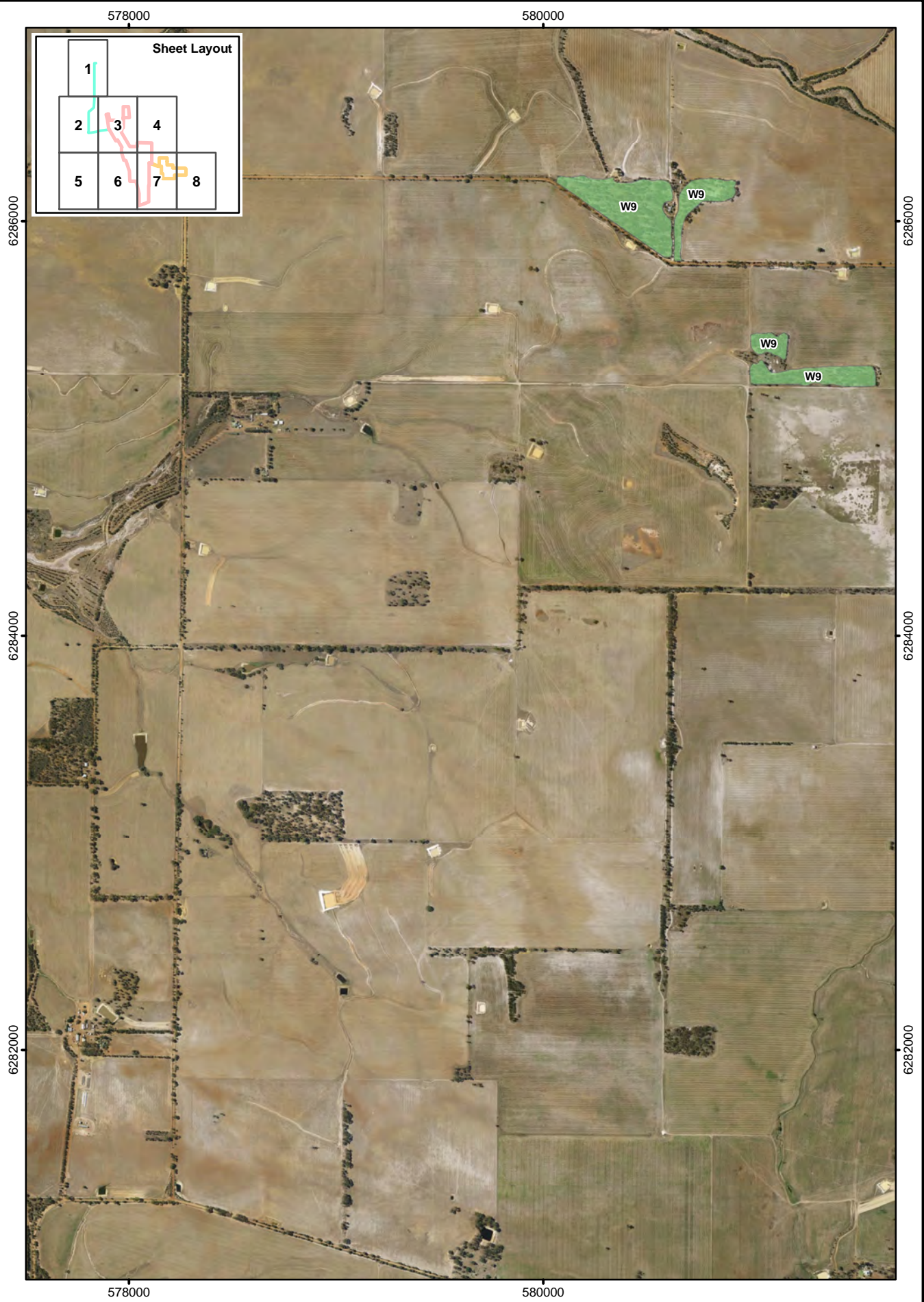
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Katanning Gold Project
Vegetation
Sheet 4 of 8

Figure:

9.4



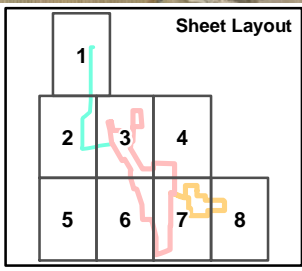
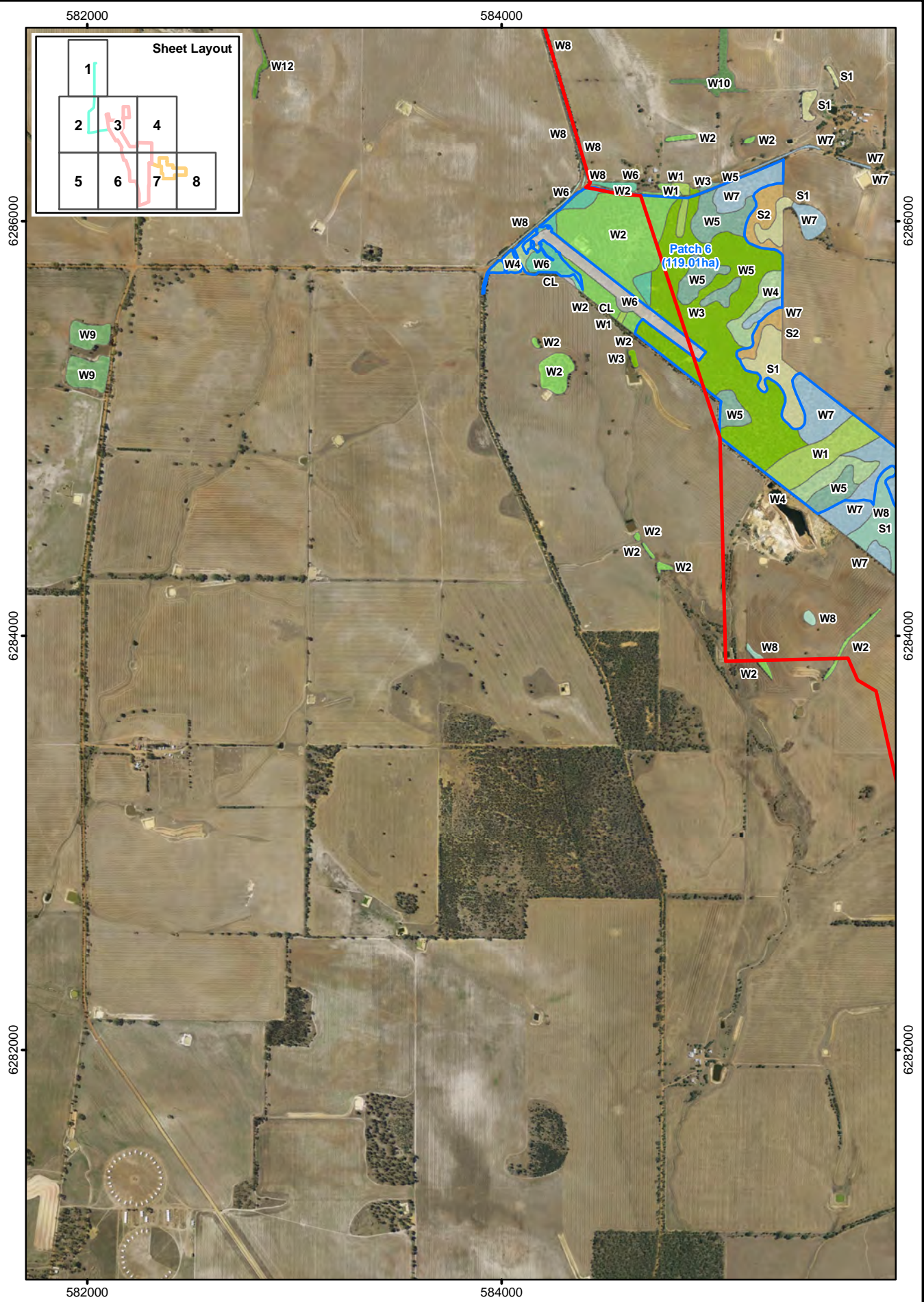

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Sheet 5 of 8

Figure:
9.5

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Katanning Gold Project

Vegetation

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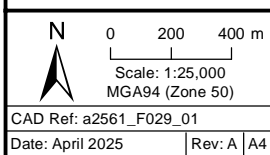
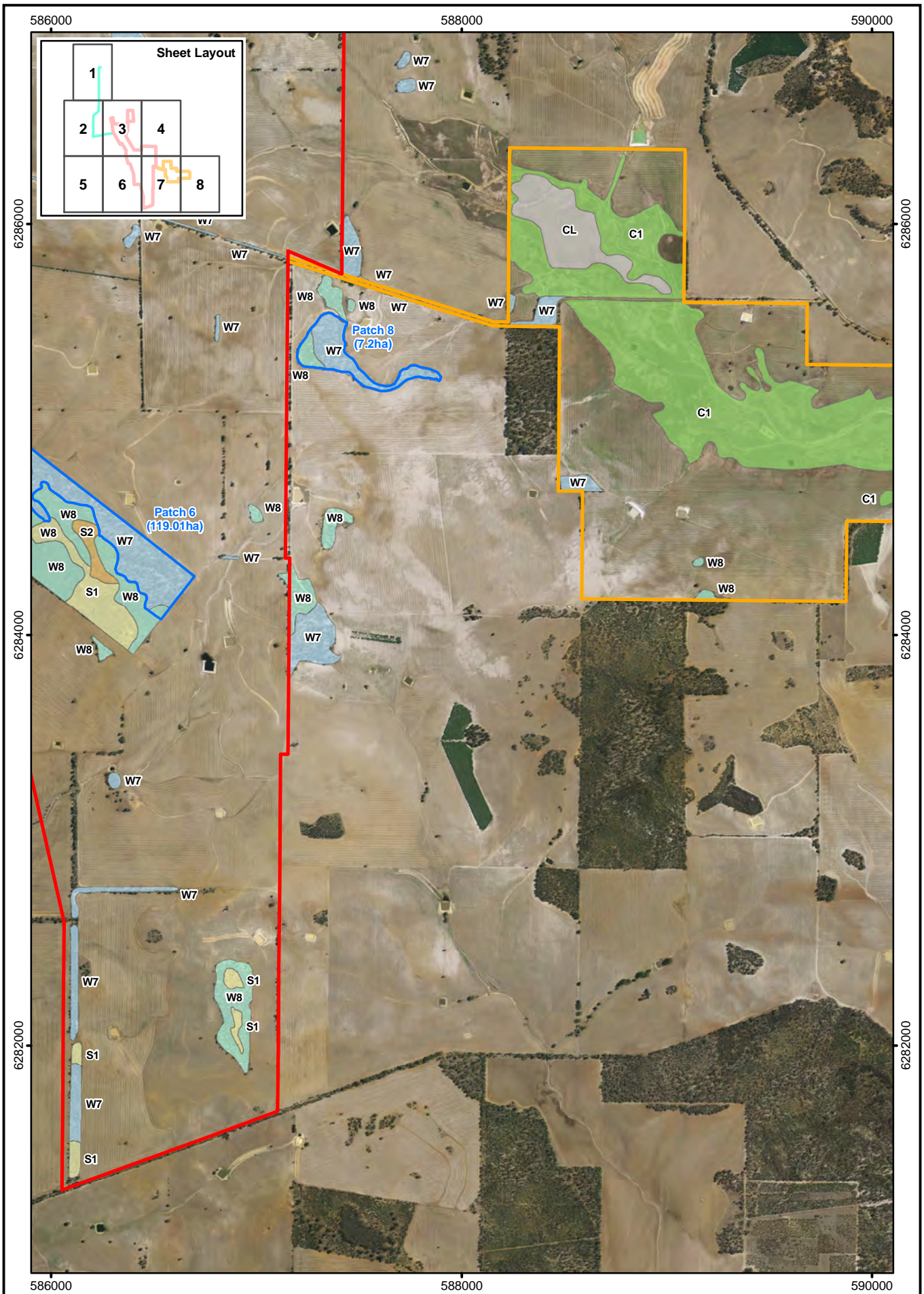
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9.6

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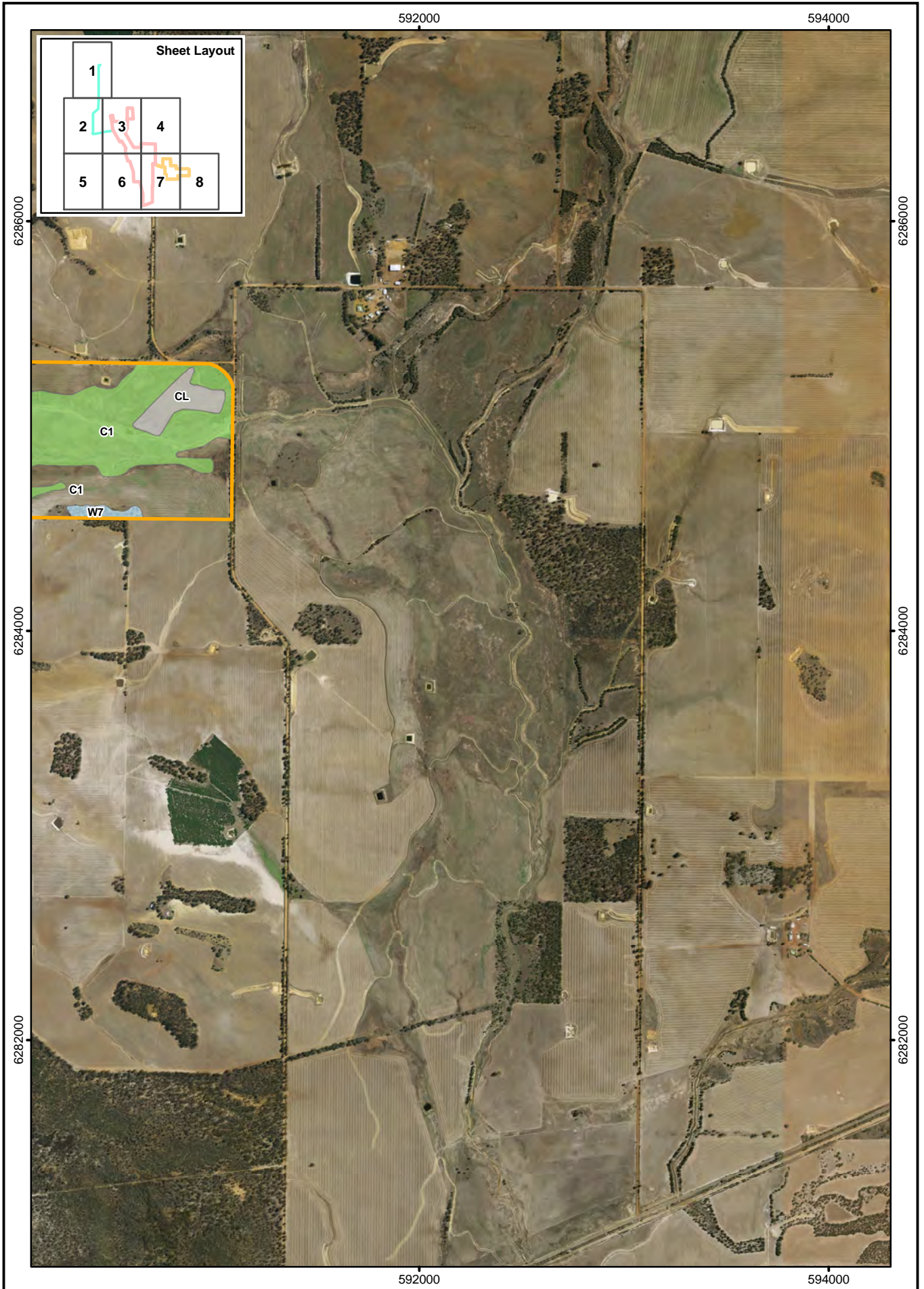




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Vegetation
Sheet 7 of 8

Figure:
9.7

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 0 200 400 m
 Scale: 1:25,000
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Figure:
9.8

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6.3.3 Threatened and Priority Ecological Communities (TECs & PECs)

As the survey effort in the area has been restricted in the past by agricultural clearing and lack of resources to investigate values on remnant areas the interpretation of the values as recorded rely on regional and national databases. The recent listing of the “Eucalypt woodlands of the Western Australian Wheatbelt” in December 2015 (DotEE 2015) at the national level under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (*EPBC Act 1999*) raises the conservation significance of the woodlands on the Katanning Gold survey area. The data summarized from the national database in Figure xxx do not exclude cleared agricultural areas and as such overstate the potential extent of the woodlands in the local context.

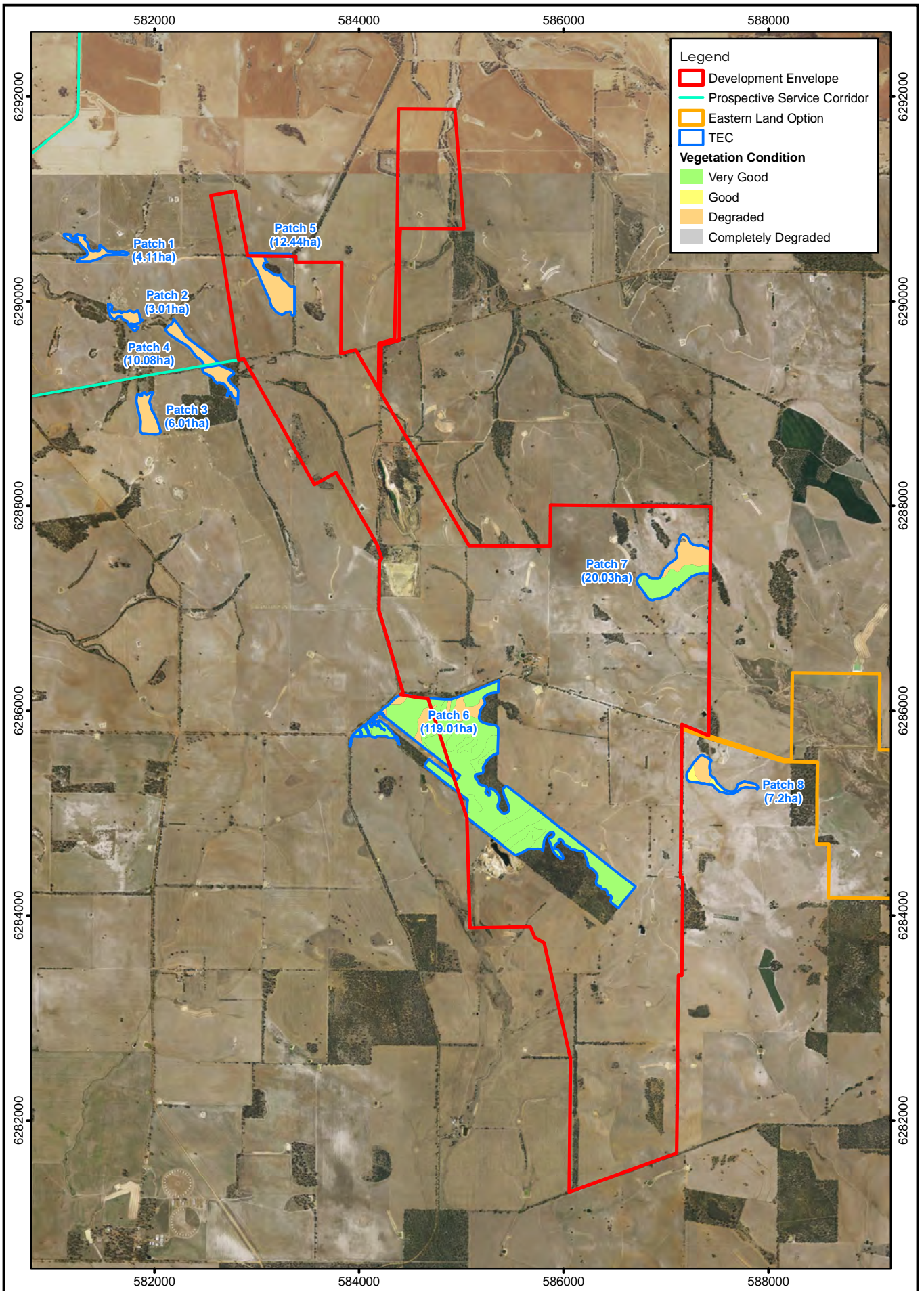
In view of the diversity of Eucalypts associated with the “Eucalypt woodlands of the Western Australian Wheatbelt” Threatened Ecological Community (see Conservation Advice for this TEC, DotEE 2015) highlights the range of Eucalypt species in this community. As the State Priority Ecological Communities as summarized in Section 5.2 are a subset of the nationally listed Threatened Ecological Community it is apparent that the Eucalypt woodlands on the Katanning Gold survey area may meet the listing criteria. The woodlands were then considered on the basis of their condition (DotEE 2015) which delineates the extent of exotic species in the understorey. As indicated by the assessment of the vegetation condition, some of the survey area was either degraded or completely degraded (see Section 6.3.4) and the values in these areas are less for the Eucalypt woodlands. The majority of the degraded areas (where the understorey tends to be dominated by introduced species such as grasses and patches of Cape Weed) occur mainly in the woodlands of York Gum and Jam (*Eucalyptus loxophleba* – *Acacia acuminata*).

Estimates of areas protected in the respective IBRA regions is summarized in Table 6 (DotEE 2015). Estimate of Eucalypt woodlands in the Western Australian Wheatbelt protected is 4.96% and for the Avon Wheatbelt (AW2) IBRA region is 1.67%.

In addition there is a need to recognize the link between the heath and shrubland communities and the utilization of these areas by the threatened and listed Black Cockatoo. Further, some of the heath communities in the Katanning Gold survey area have the potential to support some of the Priority flora species that occur on shallow lateritic and sandy ridges. Whilst no Threatened or Priority flora species were recorded in these heath communities further targeted searching may be justified in different seasons to check for other species that may be present.

Only three patches of potential TECs were recorded within the main Development Envelope (namely Patches 5, 6 and 7), Figure 10. The allocation of these areas was based on the vegetation types, size and condition. One could argue that the degraded areas should possibly be excluded as generally in these areas the understorey has been impacted by previous grazing activities. In terms of biodiversity values these Eucalypt woodlands have been highlighted when in fact the range of species is markedly higher in the heath and shrubland communities (S1 and S2 in particular).

Many of the areas highlighted from government databases (see Figure 6 and Section 5.4) reflect many more areas that occur in historical grazing and agricultural properties and others that overlap planted areas. In many instances the areas are very restricted and in completely degraded condition. This reflects the lack of ground truthing of many of the areas. This was also summarized in Mattiske Consulting (2019) when a comprehensive review of potential TEC areas was undertaken to assist in the initial assessment of the remnant areas.



Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- TEC

Vegetation Condition

- Very Good
- Good
- Degraded
- Completely Degraded

N

0 350 700 m

Scale: 1:50,000
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Katanning Gold Project
TEC
Showing Vegetation Condition

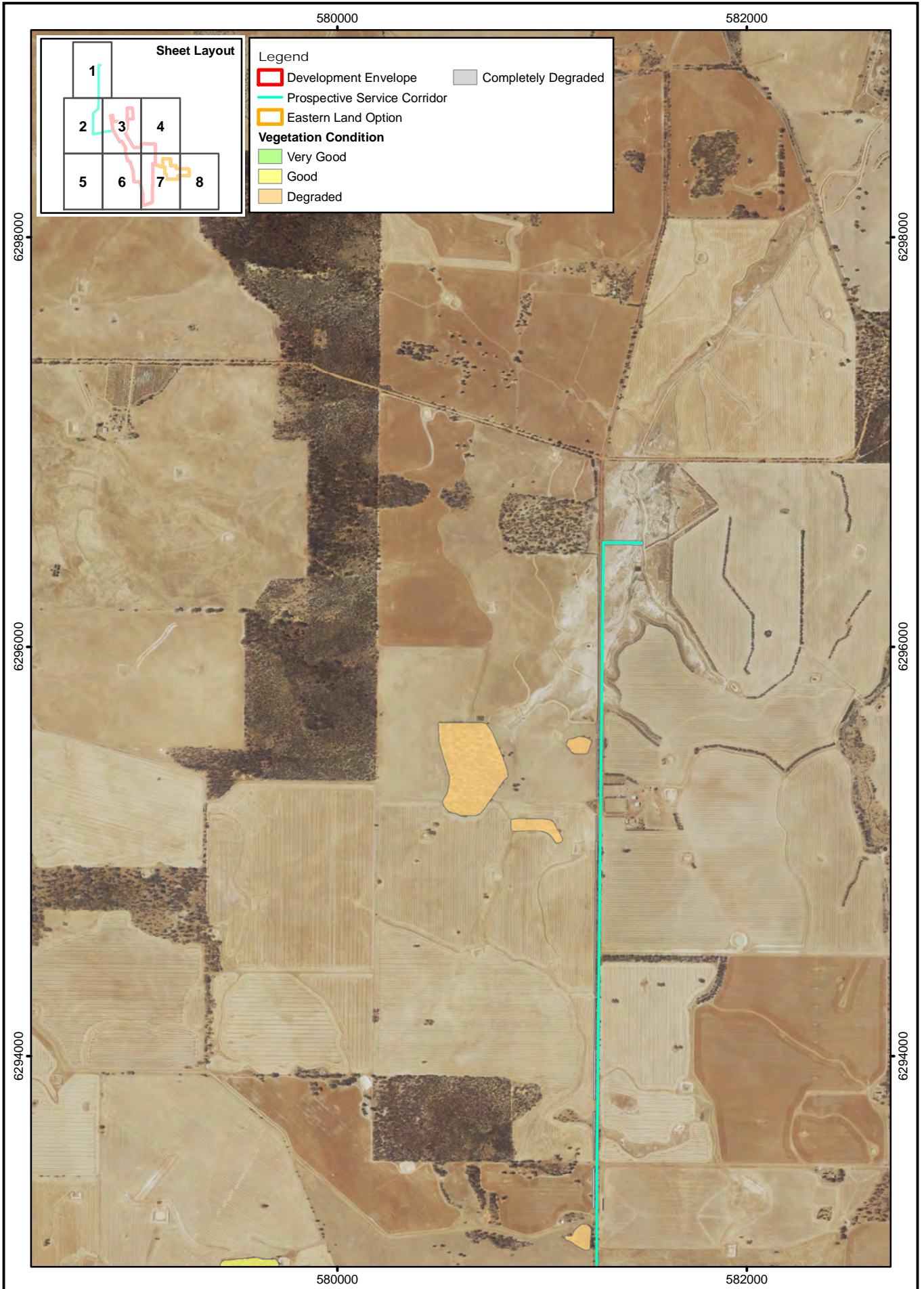
Figure:
10


6.3.4 Vegetation Condition

At this juncture it should be noted that a section of the survey area has been used extensively for recreational activities associated with a rifle range (including a pistol range), previous mining activities at Jinkas Hill and historical farming activities. The vegetation condition ratings based on Keighery (1994) vary from Completely Degraded (mainly near the rifle range and associated tracks and several borrow pits) through Degraded to Good, Very Good and Excellent, see Figures 11.1 to 11.8. Despite the proximity of agricultural operations some localized areas of heath, shrublands and Eucalypt woodlands on the slopes and ridges remain relatively undisturbed and in very good condition.

Table 6: Summary of Vegetation Condition Ratings in Development Envelope (DE) area

| Vegetation Condition Rating | Area within Development Envelope (ha) | % Total Development Envelope Area |
|-----------------------------|---------------------------------------|-----------------------------------|
| Cleared Land | 1398.53 | 88.12 |
| Completely Degraded | 12.92 | 0.81 |
| Degraded | 60.42 | 3.81 |
| Good | 9.16 | 0.58 |
| Very Good | 106.06 | 6.68 |
| Total | 1587.10 | |




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 Scale: 1:25,000
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Vegetation Condition
Sheet 1 of 8

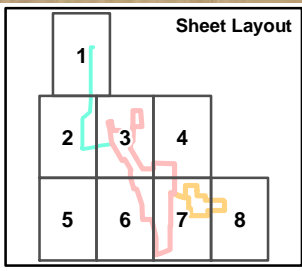
Figure:
11.1



578000 580000

6292000 6290000 6288000

578000 580000



Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option

Vegetation Condition

- Very Good
- Good
- Completely Degraded
- Degraded

N

0 200 400 m

Scale: 1:25,000
MGA94 (Zone 50)

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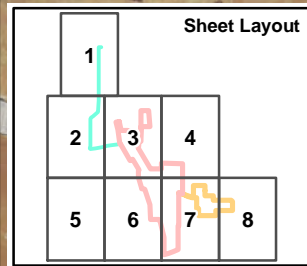
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**Katanning Gold Project
Vegetation Condition
Sheet 2 of 8**

Figure:
11.2

582000

584000



Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- Completely Degraded

Vegetation Condition

- Very Good
- Good
- Degraded

6292000

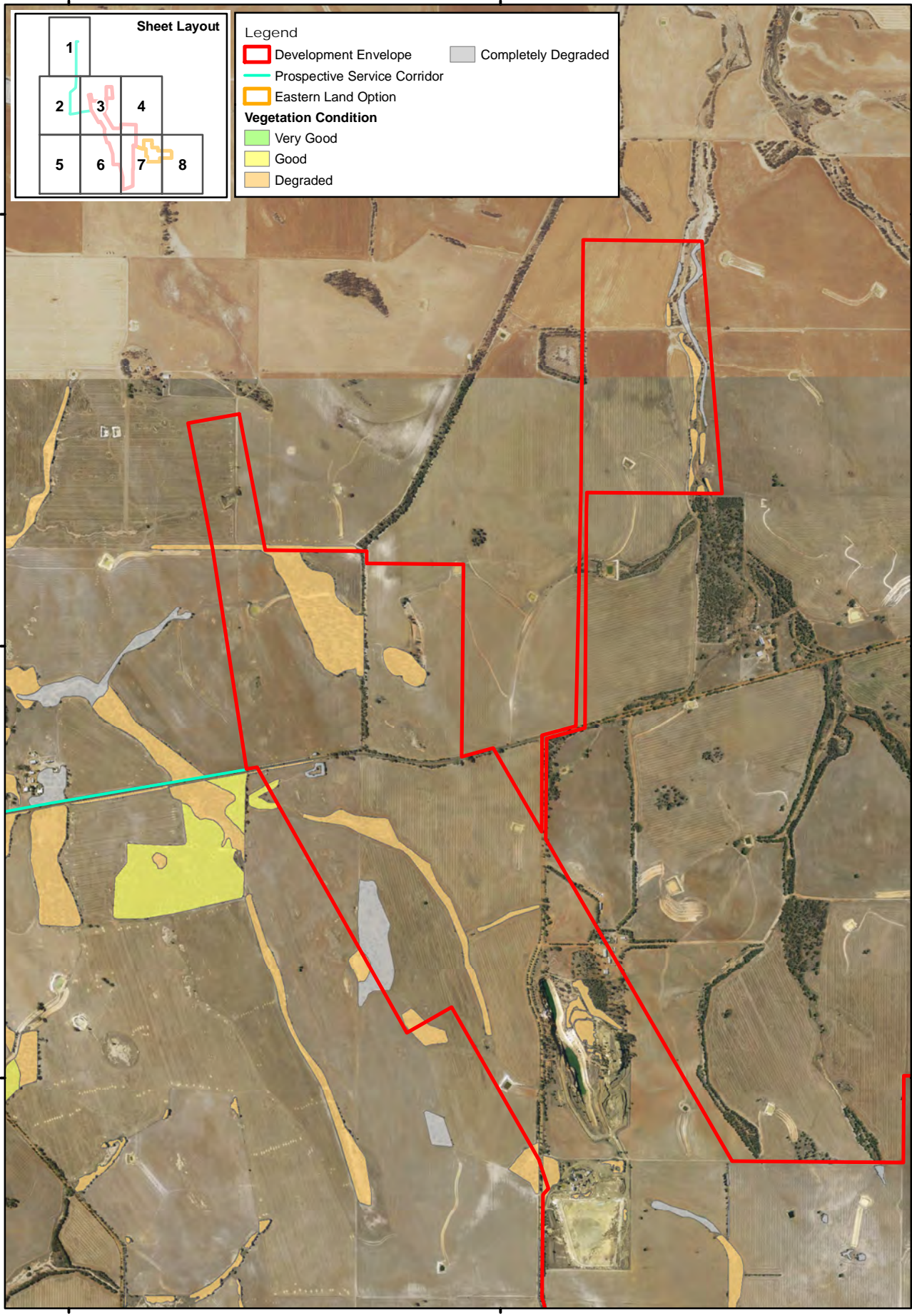
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584000

N

0 200 400 m

Scale: 1:25,000
MGA94 (Zone 50)

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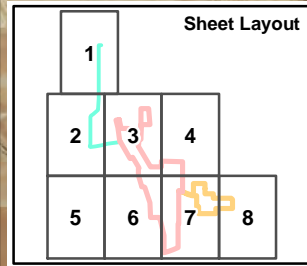
Katanning Gold Project Vegetation Condition

Sheet 3 of 8

Figure:

11.3

586000 588000 590000



Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- Completely Degraded

Vegetation Condition

- Very Good
- Good
- Degraded

6292000

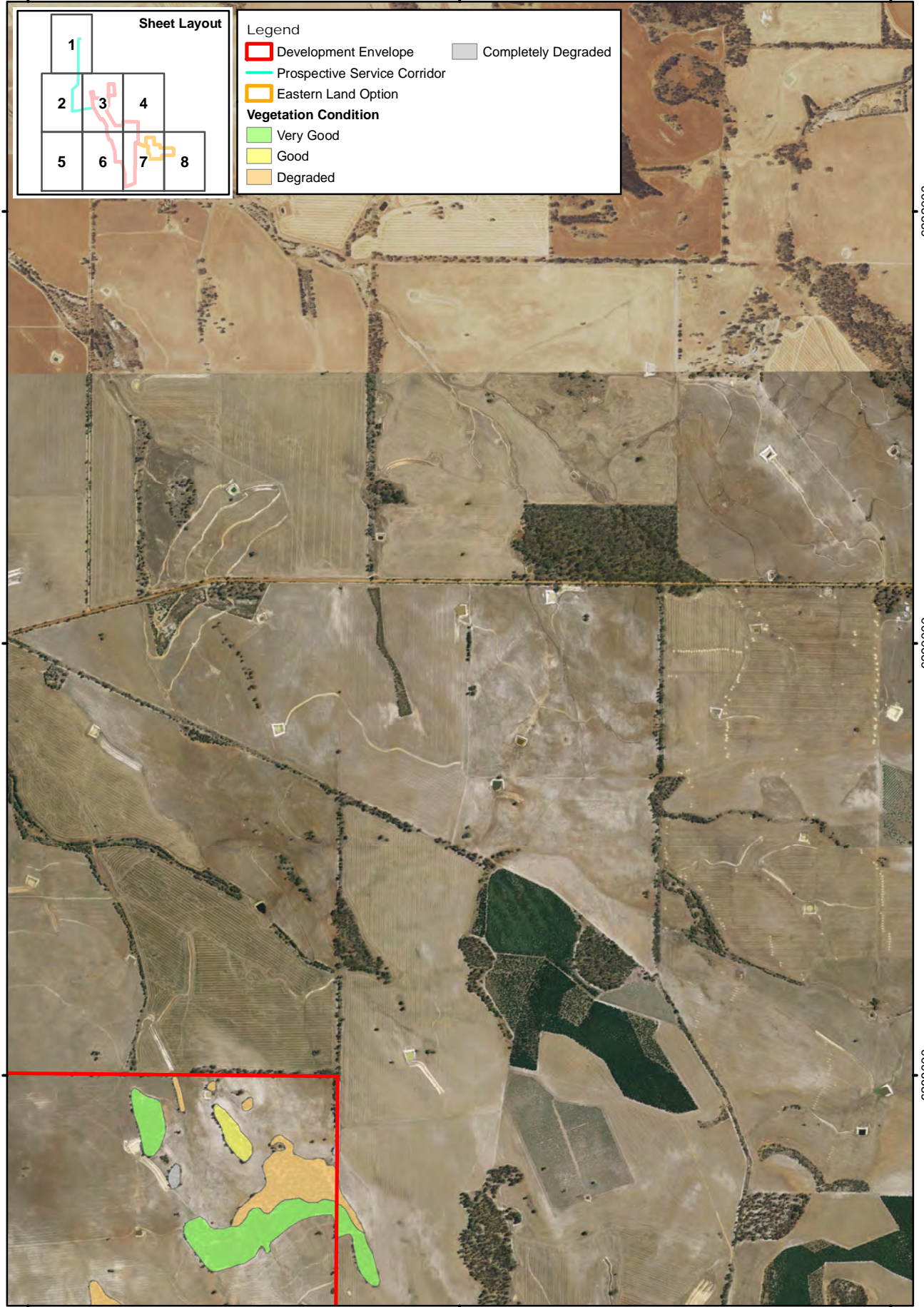
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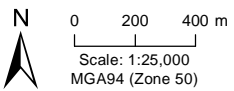
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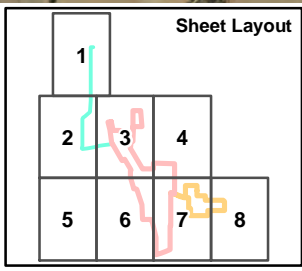
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Figure:
11.4



Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- Completely Degraded

Vegetation Condition

- Very Good
- Good
- Degraded

N

0 200 400 m

Scale: 1:25,000
MGA94 (Zone 50)

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Vegetation Condition

Sheet 5 of 8

Figure:

11.5

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6286000

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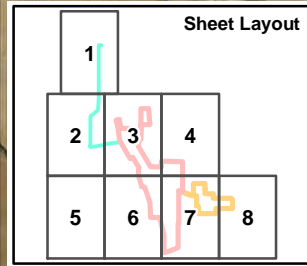
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6282000

582000

584000

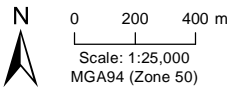
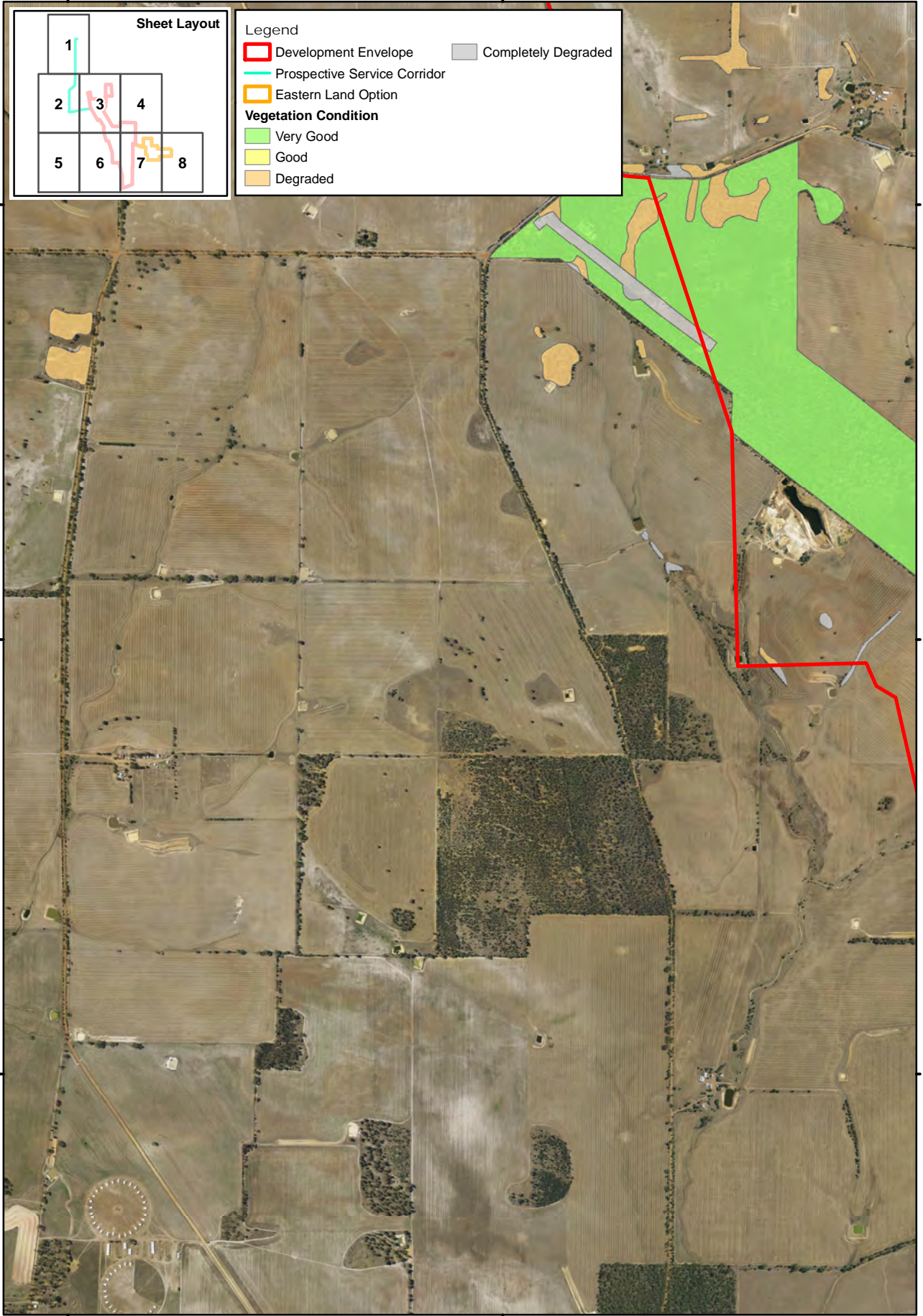


Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- Completely Degraded

Vegetation Condition

- Very Good
- Good
- Degraded



Scale: 1:25,000
MGA94 (Zone 50)



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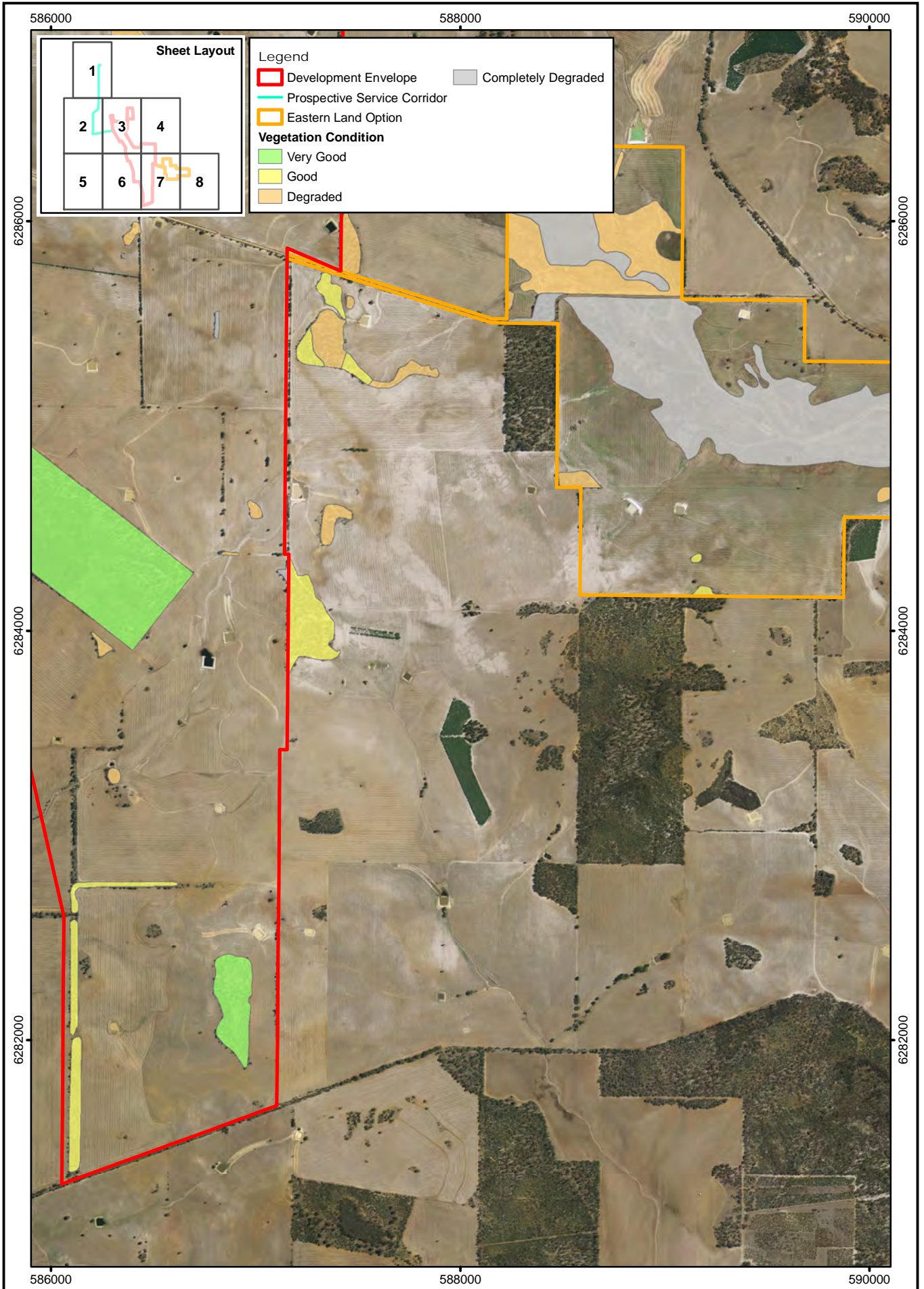
Author: E M Mattiske MCPL Ref:


Drawn: CAD Resources - www.cadresources.com.au
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CAD Ref: a2561_F029_02
Date: April 2025 Rev: A | A4

Katanning Gold Project Vegetation Condition Sheet 6 of 8

Figure:
11.6




 0 200 400 m
 Scale: 1:25,000
 MGA94 (Zone 50)


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Katanning Gold Project
Vegetation Condition
Sheet 7 of 8

Figure:
11.7

CAD Ref: a2561_F029_02
 Date: April 2025 Rev: A | A4

592000

594000

6286000

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Sheet Layout

Legend

- Development Envelope
- Prospective Service Corridor
- Eastern Land Option
- Completely Degraded

Vegetation Condition

- Very Good
- Good
- Degraded



N

0 200 400 m

Scale: 1:25,000
MGA94 (Zone 50)

CAD Ref: a2561_F029_02
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**Katanning Gold Project
Vegetation Condition
Sheet 8 of 8**

Figure:
11.8

7. DISCUSSION

A total of 302 vascular plant taxa which are representative of 151 genera and 58 families were recorded within the Katanning Gold survey area. Data was collected from foot traverses and detailed plots. The majority of taxa recorded were representative of the Myrtaceae (65 taxa), Asteraceae (27 taxa), Fabaceae (26 taxa), Poaceae (25 taxa) and Proteaceae (22 taxa) families. The majority of the taxa recorded were widespread both locally and more broadly within the associated biogeographical subregion; although some occurred as representative of the southern Wheatbelt and nearby southern coastal and mallee communities.

Based on this value and the total of 185 species recorded in vegetation “AG” mapping sites, approximately 72.6% of the flora species potentially present within the Katanning Gold development area were recorded. If one included the additional opportunistic collections in the Development Envelope and the wider survey areas the total number of 302 exceeds that in the key mapping sites.

A total of 13 Eucalypt woodland communities (W1 to W13). 4 mixed Proteaceous – Myrtaceae heath communities/lithic complexes and low woodlands on impeded soils and outcrops (S1 to S4) and one Chenopod shrubland (C1) were recorded on the Katanning Gold survey area. In addition, most areas were cleared for agricultural activities (CL) and a few were planted (PL). Several communities were only recorded in restricted areas and as a result the number of sites reflect their local occurrences.

There is some overlap in the Eucalypt woodlands with *Eucalyptus wandoo*, *Eucalyptus longicornis* and *Eucalyptus loxophleba* overlapping in some localised areas as well as a range of mallee species associated with the *Eucalyptus wandoo*, the *Melaleuca* shrubs and the Banksia heaths. The C1 - Chenopod shrublands and W13 – Woodlands occur on the infrastructure areas and as such are very limited in area and outside the main Development Envelope.

The vast majority of the Development Envelope (>88%) supports cleared lands. This reduces the range of native species and in many instances the communities also had low diversity in the understorey. The exception to the lack of understorey species occurred in the larger less disturbed areas of vegetation and mainly in association with the heath and mallee communities.

The listing of the “Eucalypt woodlands of the Western Australian Wheatbelt” in December 2015 (DotEE 2015) at the national level under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (*EPBC Act 1999*) raises the conservation significance of the woodlands on the Katanning Gold survey area. In view of the diversity of Eucalypts associated with the “Eucalypt woodlands of the Western Australian Wheatbelt” Threatened Ecological Community (see Conservation Advice for this TEC, DotEE 2015) highlights the range of Eucalypt species in this community. As the State Priority Ecological Communities are a subset of the nationally listed Threatened Ecological Community. The woodlands were considered on the basis of their condition which delineates the extent of exotic species in the understorey. As indicated by the assessment of the vegetation condition, some of the survey area was either degraded or completely degraded and the values in these areas are less for the Eucalypt woodlands. The majority of the degraded areas occurred mainly in the woodlands of York Gum and Jam (*Eucalyptus loxophleba* – *Acacia acuminata*).

Some of the heath communities in the Katanning Gold survey area have the potential to support some of the Priority flora species that occur on shallow lateritic and sandy ridges. Whilst no Threatened or Priority flora species were recorded in these heath communities further targeted searching would be recommended in these communities within the vicinity of the project development area.

In summary, the principle issues at this juncture with respect to the flora and vegetation surveyed is in relation to the presence of the Heath communities that support a range of species, the Heath communities

for the variety of flora and the Eucalypt woodland communities that fall within the definition of the “Eucalypt woodlands of the Western Australian Wheatbelt” (DotEE 2015).

It should be noted that the maps of the listed Eucalypt woodlands are very broad and do not account for the nature of the agriculture or remnant areas as defined by the Department of Primary Industries and Regional Development (2025a). In the local context there remain other stands of some of the woodlands and heaths in nearby reserves, proposed town sites that were not developed and some private land.

8. ACKNOWLEDGEMENTS

The authors would like to thank employees of Ausgold Limited for their assistance with this project. The authors would also like to thank taxonomists (in particular Mike Hislop) from the Western Australian Herbarium for their plant identification support.

9. PERSONNEL

A range of personnel from Mattiske Consulting Pty Ltd have been involved in this project over the last few years. The recent work was undertaken by the following personnel.

| NAME | POSITION | PROJECT INVOLVEMENT | FLORA COLLECTION PERMITS |
|----------------|---|--|--------------------------|
| Dr EM Mattiske | Managing Director & Principal Ecologist | Planning, managing, data interpretation, reporting | SB 62000019-3 |
| Mr L Rowles | Senior Botanist | Assisting with Data Summaries | N/A |
| Ms K Smith | Experienced Botanist | Assisting with Reporting | N/A |

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APPENDIX A1: THREATENED AND PRIORITY FLORA DEFINITIONS

Under section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), **threatened flora** are categorised as extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent (Table A1.1).

Table A1.1 Federal definition of threatened flora species

Note: Adapted from section 179 of the EPBC Act.

| CODE | CATEGORY | DEFINITION |
|------|------------------------|--|
| Ex | Extinct | Species which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died. |
| ExW | Extinct in the Wild | Species which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form. |
| CE | Critically Endangered | Species which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria. |
| E | Endangered | Species which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria. |
| V | Vulnerable | Species which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria. |
| CD | Conservation Dependent | Species which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years. |

The *Wildlife Conservation Act 1950* (WC Act) provides for (amongst other things) the protection of flora likely to become extinct or rare or otherwise in need of special protection in Western Australia under section 23F. **Threatened** (or **rare**) **flora** are listed in the *Wildlife Conservation (Rare Flora) Notice 2016* (under section 23F(2) of the WC Act; Department of Biodiversity, Conservation and Attractions 2018) and are categorised under Schedules 1-4 as critically endangered, endangered, vulnerable or extinct, respectively. Threatened flora are defined as “likely to become extinct or is rare, or otherwise in need of special protection”, pursuant to section 23F(2) of the WC Act. Threatened species are categorised as critically endangered, endangered, vulnerable and presumed extinct (Table A1.2).

Table A1.2 State definition of threatened flora species

Note: Adapted from Department of Biodiversity, Conservation and Attractions (2025).

| CODE | CATEGORY | DEFINITION |
|------|---------------------------------|--|
| CR | Critically endangered | Species considered to be facing an extremely high risk of becoming extinct in the wild (listed under Schedule 1 of the <i>Wildlife Conservation (Rare Flora) Notice 2016</i>). |
| EN | Endangered | Species considered to be facing a very high risk of becoming extinct in the wild (listed under Schedule 2 of the <i>Wildlife Conservation (Rare Flora) Notice 2016</i>). |
| VU | Vulnerable | Species considered to be facing a high risk of becoming extinct in the wild (listed under Schedule 3 of the <i>Wildlife Conservation (Rare Flora) Notice 2016</i>). |
| EX | Presumed extinct species | Species that have been adequately searched for and there is no reasonable doubt that the last individual has died (listed under Schedule 4 of the <i>Wildlife Conservation (Rare Flora) Notice 2016</i>). |

Priority flora species are defined as “possibly threatened species that do not meet the survey criteria, or are otherwise data deficient; or are adequately known, are rare but not threatened, meet criteria for near threatened or have recently been removed from the threatened species list for other than taxonomic reasons” (Table A1.3).

Table A1.3: State definition of priority flora species

| CODE | CATEGORY | DEFINITION |
|------|---|--|
| P1 | Priority 1: Poorly-known species | Known from one or a few locations (< 5) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation; or are otherwise under threat of habitat destruction or degradation. In urgent need of further survey. |
| P2 | Priority 2: Poorly-known species | Known from one or a few locations (< 5). Some occurrences are on lands managed primarily for nature conservation. In urgent need of further survey. |
| P3 | Priority 3: Poorly-known species | Known from several locations and the species does not appear to be under imminent threat; or from few but widespread locations with either a large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. In need of further survey. |
| P4 | Priority 4: Rare, Near Threatened, and other species in need of monitoring | <p>a) Rare - Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>b) Near Threatened - Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>c) Other - Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p> |

APPENDIX A2: THREATENED AND PRIORITY ECOLOGICAL COMMUNITY DEFINITIONS

Under section 181 of the EPBC Act, **threatened ecological communities** are categorised as critically endangered, endangered and vulnerable (Table A2.1).

Table A2.1 Federal definition of threatened ecological communities

Note: Adapted from section 181 and section 182 of the EPBC Act.

| CATEGORY | DEFINITION |
|------------------------------|---|
| Critically Endangered | If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future. |
| Endangered | If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future. |
| Vulnerable | If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future. |

Currently there is no Western Australian legislation covering the conservation of state listed **threatened ecological communities** (TECs), however, a non-statutory process is in place, whereby the Department of Parks and Wildlife have been identifying and informally listing TECs since 1994. Some of these TECs are endorsed by the Federal Minister as threatened, and some of these are also listed under the EPBC Act and therefore afforded legislative protection at the Commonwealth level.

Table A2.2 State definition of threatened ecological communities

Note: Adapted from Department of Environment and Conservation (2013).

| CODE | CATEGORY | DEFINITION |
|------|-----------------------------------|--|
| PD | Presumed Totally Destroyed | An ecological community will be listed as PD if there are no recent records of the community being extant and either of the following applies: <ol style="list-style-type: none"> 1. Records within the last 50 years have not been confirmed despite thorough searches or known likely habitats; or 2. All occurrences recorded within the last 50 years have since been destroyed. |
| CR | Critically Endangered | An ecological community will be listed as CR when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one or more of the following criteria: <ol style="list-style-type: none"> 1. The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; 2. The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; or 3. The ecological community is highly modified with potential of being rehabilitated in the immediate future. |
| EN | Endangered | An ecological community will be listed as EN when it has been adequately surveyed and is not CR, but is facing a very high risk of total destruction in the near future. The ecological community must meet any one or more of the following criteria: <ol style="list-style-type: none"> 1. The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; 2. The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; or 3. The ecological community is highly modified with potential of being rehabilitated in the short term future. |
| VU | Vulnerable | An ecological community will be listed as VU when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one or more of the following criteria: <ol style="list-style-type: none"> 1. The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; 2. The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; or 3. The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes. |

Priority ecological communities (PECs) are defined as possible threatened ecological communities that do not meet the stringent survey criteria for the assessment of threatened ecological communities, and are listed by the Department of Parks and Wildlife. Similarly to priority flora, PECs are not afforded legislative protection, however are considered significant under the Environmental Protection Authority's (2016a) *Environmental Factor Guideline: Flora and Vegetation*. The Department of Parks and Wildlife categorises priority ecological communities into five categories: Priority 1; Priority 2, Priority 3, Priority 4 and Priority 5 (Table A2.3).

Table A2.3 State definition of priority ecological communities

Note: Adapted from Department of Environment and Conservation (2013).

| CODE | CATEGORY | DEFINITION |
|------|--|---|
| P1 | Priority 1 (Poorly known ecological communities) | Ecological communities that are known from very few, restricted occurrences (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Most of these occurrences are not actively managed for conservation (e.g. located within agricultural or pastoral lands, urban areas, or active mineral leases) and for which immediate threats exist. |
| P2 | Priority 2 (Poorly known ecological communities) | Communities that are known from few small occurrences (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. |
| P3 | Priority 3 (Poorly known ecological communities) | <ol style="list-style-type: none"> 1. Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation; 2. Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat; or 3. Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes. |
| P4 | Priority 4 (Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring) | <ol style="list-style-type: none"> 1. Rare – Communities known from few occurrences that are considered to have been adequately surveyed, sufficient knowledge is available, and are considered not to be currently threatened. 2. Near Threatened – Communities considered to have been adequately surveyed and do not qualify for Conservation Dependent, but are close to qualifying for Vulnerable. 3. Communities that have been removed from the list of threatened communities during the past five years. |
| P5 | Priority 5 (Conservation Dependent ecological communities) | Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years. |

APPENDIX A3: CATEGORIES AND CONTROL MEASURES OF DECLARED PEST (PLANT) ORGANISMS IN WESTERN AUSTRALIA

Section 22 of Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act) makes provision for a plant taxon to be listed as a declared pest organism in respect to parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under the *Biosecurity and Agriculture Management Regulations 2013* (WA), declared pest plants are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Table A4.1). The current listing of declared pest organisms and their control category is through the Western Australian Organism List (Department of Primary Industries and Regional Development, Western Australia 2025a).

Table A3.1 Categories and control measures of declared pest (plant) organisms

Note: Adapted from *Biosecurity and Agriculture Management Regulations 2013*.

| CONTROL CATEGORY | CONTROL MEASURES |
|--|---|
| <p style="text-align: center;">C1 (Exclusion)</p> <p>'(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented.'</p> <p>Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.</p> | <p>In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p> |
| <p style="text-align: center;">C2 (Eradication)</p> <p>'(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible.'</p> <p>Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.</p> | <p>In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p> |
| <p style="text-align: center;">C3 (Management)</p> <p>'(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to:</p> <p>(i) alleviate the harmful impact of the declared pest in the area; or</p> <p>(ii) reduce the number or distribution of the declared pest in the area; or</p> <p>(iii) prevent or contain the spread of the declared pest in the area.'</p> <p>Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.</p> | <p>In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to:</p> <p>(a) alleviate the harmful impact of the declared pest in the area for which it is declared; or</p> <p>(b) reduce the number or distribution of the declared pest in the area for which it is declared; or</p> <p>(c) prevent or contain the spread of the declared pest in the area for which it is declared.</p> |

APPENDIX A4: OTHER DEFINITIONS

Environmentally sensitive areas

Environmentally sensitive areas are declared by the State Minister under section 51B of the *Environmental Protection Act 1986* (EP Act) and are listed in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, gazetted 8 April 2005. Specific environmentally sensitive areas relevant to this report include: a defined wetland and the area within 50 metres of the wetland; the area covered by vegetation within 50 metres of rare flora; the area covered by a threatened ecological community; a Bush Forever site – further areas and information are described in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*.

Conservation significant flora

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), flora may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority species;
- locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems);
- new species or anomalous features that indicate a potential new species;
- representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- unusual species, including restricted subspecies, varieties or naturally occurring hybrids; or
- relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Conservation significant vegetation

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), vegetation may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority ecological communities;
- restricted distribution;
- degree of historical impact from threatening processes;
- a role as a refuge; or
- providing an important function required to maintain ecological integrity of a significant ecosystem.

APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE KATANNING GOLD SURVEY AREA

Note: * denotes introduced species; T denotes threatened flora and P1-P4 denote priority flora species (WAH 1998-).
 SCC - State conservation code, FCC - Federal conservation code under the EPBC Act. E denotes Endangered and V denotes Vulnerable.

| Family | Species | SCC | FCC | Naturemap |
|-------------------|--|-----|-----|-----------|
| POTAMOGETONACEAE | <i>Lepilaena preissii</i> | | | X |
| RUPPIACEAE | <i>Ruppia megacarpa</i> | | | X |
| | <i>Ruppia polycarpa</i> | | | X |
| POACEAE | * <i>Aira caryophylla</i> | | | X |
| | <i>Austrostipa elegantissima</i> | | | X |
| | <i>Austrostipa</i> sp. Marchagee (B.R. Maslin 1407) | | | X |
| | <i>Austrostipa tenuifolia</i> | | | X |
| | <i>Austrostipa trichophylla</i> | | | X |
| | <i>Austrostipa variabilis</i> | | | X |
| | * <i>Avena barbata</i> | | | X |
| | * <i>Briza maxima</i> | | | X |
| | * <i>Ehrharta longiflora</i> | | | X |
| | <i>Microlaena stipoides</i> | | | X |
| | * <i>Parapholis incurva</i> | | | X |
| | * <i>Puccinellia ciliata</i> | | | X |
| | <i>Puccinellia longior</i> | | | X |
| | <i>Sporobolus virginicus</i> | | | X |
| | <i>Vulpia</i> sp. | | | X |
| CYPERACEAE | <i>Isolepis marginata</i> | | | X |
| | <i>Lepidosperma sanguinolentum</i> | | | X |
| | <i>Schoenus armeria</i> | | | X |
| JUNCACEAE | <i>Juncus kraussii</i> subsp. <i>australiensis</i> | | | X |
| ASPARAGACEAE | <i>Chamaescilla corymbosa</i> | | | X |
| | <i>Lomandra effusa</i> | | | X |
| | <i>Thysanotus dichotomus</i> | | | X |
| DASYPOGONACEAE | <i>Calectasia obtusa</i> | P3 | | X |
| XANTHORRHOEACEAE | <i>Xanthorrhoea drummondii</i> | | | X |
| HEMEROCALLIDACEAE | <i>Corynotheca micrantha</i> var. <i>panda</i> | | | X |
| | <i>Dianella brevicaulis</i> | | | X |
| | <i>Dianella revoluta</i> | | | X |
| | <i>Stypandra glauca</i> | | | X |
| HAEMODORACEAE | <i>Conostylis pusilla</i> | | | X |
| | <i>Conostylis seorsiflora</i> subsp. <i>Nyabing</i> (A. Coates s.n. 2/10/1988) | P2 | | X |
| | <i>Conostylis seorsiflora</i> subsp. <i>seorsiflora</i> | | | X |
| | <i>Conostylis setigera</i> subsp. <i>setigera</i> | | | X |
| IRIDACEAE | * <i>Romulea rosea</i> | | | X |
| ORCHIDACEAE | <i>Caladenia doutchiae</i> | | | X |
| | <i>Caladenia erythronema</i> | | | X |
| | <i>Caladenia multiclavia</i> | | | X |
| | <i>Caladenia pendens</i> subsp. <i>pendens</i> | | | X |
| | <i>Caladenia roei</i> | | | X |
| | <i>Caladenia</i> x <i>exoleta</i> | | | X |
| | <i>Cyanicula gemmata</i> | | | X |
| | <i>Diuris purdiei</i> | T | E | X |
| | <i>Elythranthera brunonis</i> | | | X |
| | <i>Paracaleana triens</i> | | | X |
| | <i>Pterostylis macroscelus</i> | | | X |
| | <i>Pterostylis picta</i> | | | X |
| | <i>Pterostylis vittata</i> | | | X |
| | <i>Thelymitra graminea</i> | | | X |

APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE KATANNING GOLD SURVEY AREA

Note: * denotes introduced species; T denotes threatened flora and P1-P4 denote priority flora species (WAH 1998-).
 SCC - State conservation code, FCC - Federal conservation code under the EPBC Act. E denotes Endangered and V denotes Vulnerable.

| Family | Species | SCC | FCC | Naturemap |
|--------------------------------|---|-----|-----|-----------|
| CASUARINACEAE | <i>Allocasuarina huegeliana</i> | | | X |
| | <i>Casuarina obesa</i> | | | X |
| URTICACEAE | <i>Parietaria debilis</i> | | | X |
| PROTEACEAE | <i>Adenanthos pungens</i> subsp. <i>effusus</i> | T | E | |
| | <i>Adenanthos pungens</i> subsp. <i>pungens</i> | T | V | |
| | <i>Banksia acanthopoda</i> | P2 | | X |
| | <i>Banksia acuminata</i> | P4 | | X |
| | <i>Banksia armata</i> var. <i>armata</i> | | | X |
| | <i>Banksia armata</i> var. <i>ignicida</i> | | | X |
| | <i>Banksia parva</i> | P4 | | X |
| | <i>Banksia densa</i> var. <i>Wheatbelt</i> (M. Pieroni s.n. PERTH 04083407) | | | X |
| | <i>Banksia drummondii</i> subsp. <i>hiemalis</i> | | | X |
| | <i>Banksia drummondii</i> subsp. <i>macrorufa</i> | P2 | | X |
| | <i>Banksia meqanotia</i> | P3 | | X |
| | <i>Banksia octotriginta</i> | | | X |
| | <i>Banksia oligantha</i> | T | E | |
| | <i>Banksia porrecta</i> | P4 | | X |
| | <i>Banksia violacea</i> | | | X |
| | <i>Conospermum croniniae</i> | | | X |
| | <i>Conospermum triplinervium</i> | | | X |
| | <i>Grevillea hookeriana</i> subsp. <i>hookeriana</i> | | | X |
| | <i>Grevillea insignis</i> subsp. <i>insignis</i> | | | X |
| | <i>Grevillea newbeyi</i> | P3 | | X |
| | <i>Grevillea uncinulata</i> | | | X |
| | <i>Hakea brownii</i> | | | X |
| | <i>Hakea cygna</i> subsp. <i>cygna</i> | | | X |
| | <i>Hakea hastata</i> | | | X |
| | <i>Hakea lissocarpha</i> | | | X |
| | <i>Hakea multilineata</i> | | | X |
| | <i>Hakea newbeyana</i> | | | X |
| | <i>Hakea pandanocarpha</i> subsp. <i>crassifolia</i> | | | X |
| | <i>Isopogon teretifolius</i> | | | X |
| | <i>Persoonia quinquenervis</i> | | | X |
| | <i>Petrophile antecedens</i> | | | X |
| | <i>Petrophile brevifolia</i> | | | X |
| | <i>Petrophile glauca</i> | | | X |
| <i>Petrophile heterophylla</i> | | | X | |
| SANTALACEAE | <i>Exocarpos sparteus</i> | | | X |
| | <i>Santalum spicatum</i> | | | X |
| CHENOPODIACEAE | * <i>Chenopodium album</i> | | | X |
| | <i>Enchylaena lanata</i> | | | X |
| | <i>Enchylaena tomentosa</i> | | | X |
| | <i>Rhagodia preissii</i> | | | X |
| | <i>Roycea pycnophylloides</i> | T | E | |
| | <i>Sarcocornia quinqueflora</i> | | | X |
| | <i>Suaeda australis</i> | | | X |
| | <i>Tecticornia lepidosperma</i> | | | X |
| AMARANTHACEAE | * <i>Amaranthus caudatus</i> | | | X |
| | <i>Ptilotus humilis</i> | | | X |
| | <i>Ptilotus manglesii</i> | | | X |
| AIZOACEAE | <i>Carpobrotus modestus</i> | | | X |
| | <i>Disphyma crassifolium</i> | | | X |
| PORTULACACEAE | <i>Calandrinia corriqiolooides</i> | | | X |
| | <i>Calandrinia eremaea</i> | | | X |

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Note: * denotes introduced species; T denotes threatened flora and P1-P4 denote priority flora species (WAH 1998-).
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| Family | Species | SCC | FCC | Naturemap |
|-------------------------------|---|-----|-----|-----------|
| CARYOPHYLLACEAE | * <i>Petrohragia dubia</i> | | | X |
| | * <i>Polycarpon tetraphyllum</i> | | | X |
| LAURACEAE | <i>Cassytha melantha</i> | | | X |
| PAPAVERACEAE | * <i>Fumaria muralis</i> subsp. <i>muralis</i> | | | X |
| BRASSICACEAE | <i>Lepidium rotundum</i> | | | X |
| DROSERACEAE | <i>Drosera leucoblata</i> | | | X |
| | <i>Drosera purpurascens</i> | | | X |
| CRASSULACEAE | <i>Crassula exserta</i> | | | X |
| PITTOPOACEAE | <i>Marianthus bicolor</i> | | | X |
| FABACEAE | <i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i> | | | X |
| | <i>Acacia acuminata</i> | | | X |
| | <i>Acacia bidentata</i> | | | X |
| | <i>Acacia crassistipula</i> | | | X |
| | <i>Acacia erinacea</i> | | | X |
| | <i>Acacia glaucoptera</i> | | | X |
| | <i>Acacia grisea</i> | P4 | | X |
| | <i>Acacia lineolata</i> subsp. <i>lineolata</i> | | | X |
| | <i>Acacia maxwellii</i> | | | X |
| | <i>Acacia multispicata</i> | | | X |
| | <i>Acacia myrtifolia</i> | | | X |
| | <i>Acacia quinquenervia</i> | | | X |
| | <i>Acacia sclerophylla</i> var. <i>pilosa</i> | P2 | | X |
| | <i>Acacia sphacelata</i> subsp. <i>sphacelata</i> | | | X |
| | <i>Acacia sulcata</i> var. <i>planoconvexa</i> | | | X |
| | <i>Acacia sulcata</i> var. <i>platyphylla</i> | | | X |
| | <i>Acacia trigonophylla</i> | | | X |
| | <i>Acacia trinalis</i> | P1 | | X |
| | <i>Bossiaea divaricata</i> | P4 | | X |
| | <i>Daviesia articulata</i> | | | X |
| | <i>Daviesia incrassata</i> subsp. <i>incrassata</i> | | | X |
| | <i>Daviesia longifolia</i> | | | X |
| | <i>Daviesia scoparia</i> | | | X |
| | <i>Gastrolobium calycinum</i> | | | X |
| | <i>Gastrolobium crassifolium</i> | | | X |
| | <i>Gastrolobium spinosum</i> | | | X |
| | <i>Glycyrrhiza acanthocarpa</i> | | | X |
| <i>Jacksonia furcellata</i> | | | X | |
| <i>Pultenaea empetrifolia</i> | | | X | |
| <i>Templetonia rossii</i> | | | X | |
| RUTACEAE | <i>Boronia subsessilis</i> | | | X |
| POLYGALACEAE | <i>Comesperma integerrimum</i> | | | X |
| SAPINDACEAE | <i>Dodonaea bursariifolia</i> | | | X |
| RHAMNACEAE | <i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i> | | | X |
| | <i>Cryptandra leucopogon</i> | | | X |
| | <i>Spyridium microcephalum</i> | | | X |
| MALVACEAE | <i>Androcalva cuneata</i> | | | X |
| | <i>Lysiosepalum hexandrum</i> | | | X |
| DILLENACEAE | <i>Hibbertia rupicola</i> | | | X |

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| Family | Species | SCC | FCC | Naturemap |
|--|---|-----|-----|-----------|
| THYMELAEACEAE | <i>Pimelea brachyphylla</i> | | | X |
| | <i>Pimelea brevifolia</i> | | | X |
| MYRTACEAE | <i>Beaufortia incana</i> | | | X |
| | <i>Calothamnus planifolius</i> var. <i>planifolius</i> | | | X |
| | <i>Chamelaucium ciliatum</i> | | | X |
| | <i>Darwinia diosmoides</i> | | | X |
| | <i>Darwinia oxylepis</i> | T | E | |
| | <i>Darwinia</i> sp. Karonie (K. Newbey 8503) | | | X |
| | <i>Darwinia wittwerorum</i> | T | E | |
| | <i>Ericomyrtus serpyllifolia</i> | | | X |
| | <i>Eucalyptus albida</i> | | | X |
| | <i>Eucalyptus annulata</i> | | | X |
| | <i>Eucalyptus dissimulata</i> subsp. <i>dissimulata</i> | | | X |
| | <i>Eucalyptus extensa</i> | | | X |
| | <i>Eucalyptus falcata</i> | | | X |
| | <i>Eucalyptus flocktoniae</i> | | | X |
| | <i>Eucalyptus horistes</i> | | | X |
| | <i>Eucalyptus incrassata</i> | | | X |
| | <i>Eucalyptus latens</i> | | | X |
| | <i>Eucalyptus longicornis</i> | | | X |
| | <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> | | | X |
| | <i>Eucalyptus loxophleba</i> x <i>wandoo</i> | P4 | | X |
| | <i>Eucalyptus marginata</i> subsp. <i>marginata</i> | | | X |
| | <i>Eucalyptus myriadena</i> subsp. <i>myriadena</i> | | | X |
| | <i>Eucalyptus occidentalis</i> | | | X |
| | <i>Eucalyptus orthostemon</i> | | | X |
| | <i>Eucalyptus phaenophylla</i> subsp. <i>interjacens</i> | | | X |
| | <i>Eucalyptus phaenophylla</i> subsp. <i>phaenophylla</i> | | | X |
| | <i>Eucalyptus phenax</i> | | | X |
| | <i>Eucalyptus platypus</i> subsp. <i>platypus</i> | | | X |
| | <i>Eucalyptus pluricaulis</i> subsp. <i>porphyrea</i> | | | X |
| | <i>Eucalyptus rudis</i> | | | X |
| | <i>Eucalyptus spathulata</i> | | | X |
| | <i>Eucalyptus spathulata</i> subsp. <i>spathulata</i> | | | X |
| | <i>Eucalyptus sporadica</i> | | | X |
| | <i>Eucalyptus thamnoides</i> subsp. <i>megista</i> | | | X |
| | <i>Eucalyptus thamnoides</i> subsp. <i>thamnoides</i> | | | X |
| | <i>Eucalyptus uncinata</i> | | | X |
| | <i>Eucalyptus vegrandis</i> | | | X |
| | <i>Eucalyptus vegrandis</i> subsp. <i>vegrandis</i> | | | X |
| | <i>Kunzea preissiana</i> | | | X |
| | <i>Melaleuca acuminata</i> subsp. <i>acuminata</i> | | | X |
| | <i>Melaleuca brophyi</i> | | | X |
| | <i>Melaleuca carrii</i> | | | X |
| <i>Melaleuca depauperata</i> | | | X | |
| <i>Melaleuca fulgens</i> subsp. <i>fulgens</i> | | | X | |
| <i>Melaleuca halmaturorum</i> | | | X | |
| <i>Melaleuca hamata</i> | | | X | |
| <i>Melaleuca hamulosa</i> | | | X | |
| <i>Melaleuca lateriflora</i> | | | X | |
| <i>Melaleuca pauperiflora</i> subsp. <i>fastigiata</i> | | | X | |
| <i>Melaleuca platycalyx</i> | | | X | |
| <i>Melaleuca torquata</i> | | | X | |
| <i>Melaleuca tuberculata</i> var. <i>tuberculata</i> | | | X | |
| <i>Melaleuca villosisepala</i> | | | X | |
| <i>Melaleuca viminea</i> | | | X | |
| <i>Melaleuca viminea</i> subsp. <i>viminea</i> | | | X | |
| <i>Rinzia communis</i> | | | X | |
| <i>Verticordia acerosa</i> var. <i>preissii</i> | | | X | |
| <i>Verticordia brevifolia</i> subsp. <i>brevifolia</i> | P3 | | X | |
| <i>Verticordia chrysanthella</i> | | | X | |

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| Family | Species | SCC | FCC | Naturemap |
|--------------------------|---|-----|-----|-----------|
| MYRTACEAE (continued) | <i>Verticordia coronata</i> | P3 | | X |
| | <i>Verticordia densiflora</i> var. <i>cespitosa</i> | | | X |
| | <i>Verticordia grandiflora</i> | | | X |
| | <i>Verticordia habrantha</i> | | | X |
| | <i>Verticordia huegelii</i> var. <i>tridens</i> | P3 | | X |
| | <i>Verticordia insignis</i> subsp. <i>compta</i> | | | X |
| | <i>Verticordia lindleyi</i> subsp. <i>purpurea</i> | | | X |
| | <i>Verticordia pennigera</i> | | | X |
| | <i>Verticordia plumosa</i> var. <i>brachyphylla</i> | | | X |
| | <i>Verticordia roei</i> subsp. <i>roei</i> | | | X |
| | <i>Verticordia serrata</i> var. <i>serrata</i> | | | X |
| | <i>Verticordia staminosa</i> var. <i>cylindracea</i> | T | E | |
| HALORAGACEAE | <i>Glischrocaryon angustifolium</i> | | | X |
| ARALIACEAE | <i>Hydrocotyle pilifera</i> | | | X |
| | <i>Trachymene cyanopetala</i> | | | X |
| | <i>Trachymene pilosa</i> | | | X |
| APIACEAE | <i>Actinotus humilis</i> | | | X |
| | <i>Apium annuum</i> | | | X |
| LOGANIACEAE | <i>Orianthera tortuosa</i> | | | X |
| CONVOLVULACEAE | <i>Wilsonia rotundifolia</i> | | | X |
| LAMIACEAE | <i>Chloanthes coccinea</i> | | | X |
| | <i>Prostanthera serpyllifolia</i> subsp. <i>microphylla</i> | | | X |
| SOLANACEAE | * <i>Solanum triflorum</i> | | | X |
| SCROPHULARIACEAE | <i>Eremophila glabra</i> subsp. <i>albicans</i> | | | X |
| | <i>Eremophila verticillata</i> | T | E | |
| RUBIACEAE | <i>Opercularia vaginata</i> | | | X |
| GOODENIACEAE | <i>Goodenia trinervis</i> | | | X |
| | <i>Goodenia viscida</i> | | | X |
| | <i>Verreauxia reinwardtii</i> | | | X |
| STYLIDIACEAE | <i>Stylidium leptophyllum</i> | | | X |
| | <i>Stylidium neglectum</i> | | | X |
| | <i>Stylidium zeicolor</i> | | | X |
| ASTERACEAE | * <i>Arctotheca calendula</i> | | | X |
| | <i>Asteridea asteroides</i> | | | X |
| | <i>Blennospora phlegmatocarpa</i> | | | X |
| | <i>Brachyscome ciliaris</i> | | | X |
| | <i>Brachyscome iberidifolia</i> | | | X |
| | <i>Gnephosis tenuissima</i> | | | X |
| | * <i>Hypochaeris glabra</i> | | | X |
| | <i>Millotia tenuifolia</i> var. <i>tenuifolia</i> | | | X |
| | <i>Ozothamnus lepidophyllus</i> | | | X |
| | <i>Podotheca gnaphalioides</i> | | | X |
| | <i>Rhodanthe citrina</i> | | | X |
| | * <i>Ursinia anthemoides</i> | | | X |
| | <i>Waitzia acuminata</i> | | | X |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEE 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|---|------------|-----|------------|---|--------------------------|
| <i>Acacia lanuginophylla</i> | FABACEAE | T | Endangered | Habit: Dense shrub, to 0.5-1.2m high Flower colour: Yellow Flowering period: July to October Soils: White/grey sand, clayey sand, gravelly soils. Flats and along drainage lines IBRA Distribution: COO, MAL Florabase records: 29 | Highly Unlikely |
| <i>Adenanthos pungens</i> subsp. <i>effusus</i> | PROTEACEAE | T | Endangered | Habit: Prostrate shrub, to 0.5 m high, forming large mats to 3 m wide. Flower colour: pink Flowering period: August to November Soils: White siliceous sand. IBRA Distribution: AVW, JAF Florabase records: 30 | Unlikely |
| <i>Adenanthos pungens</i> subsp. <i>pungens</i> | PROTEACEAE | T | Vulnerable | Habit: Erect shrub, 0.5-3 m high Flowers: pink/red Flowering period: August to November Soils: White/grey or pink sand, rocky soils, gypsum. Sand dunes, hillsides IBRA Distribution: AVW, ESP, MAL Florabase records: 30 | Unlikely |
| <i>Banksia oligantha</i> | PROTEACEAE | T | Endangered | Habit: Non-lignotuberous shrub, to 3 m high. Flower colour: red & cream/orange-brown Flowering period: October to November Soils: Yellow or yellow-brown sand. IBRA Distribution: AVW, JAF Florabase records: 16 | Unlikely |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEEW 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|--|----------------|-----|-----------------------|---|--------------------------|
| <i>Caladenia luteola</i> | ORCHIDACEAE | T | Critically Endangered | Habit: Tuberous, perennial herb. 0.3m high Flower colour: yellow and red/brown Flowering period: September Soils: Lateritic sand IBRA Distribution: AVW, JAF Florabase records: 7 | Unlikely |
| <i>Darwinia oxylepis</i> | MYRTACEAE | T | Endangered | Habit: Upright, dense shrub, 0.6-1.5 m high. Flower colour: red Flowering period: August to November Soils: Stony, peaty sand. Rocky gullies. IBRA Distribution: ESP, SWA Florabase records: 31 | Highly Unlikely |
| <i>Darwinia wittwerorum</i> | MYRTACEAE | T | Endangered | Habit: Erect, single-stemmed shrub, 0.3-1 m high. Flower colour: green/white & pink Flowering period: September to December Soils: Clay loam, sandy clay. Roadsides, slopes. IBRA Distribution: ESP, SWA Florabase records: 32 | Highly Unlikely |
| <i>Duma horrida</i> subsp. <i>abdita</i> | POLYGONACEAE | T | Critically Endangered | Habit: Small shrub, 0.6m high Flowers: pink/red Flowering period: Depends on rainfall and seasonal conditions Soils: Edge and bed of lakes, white sands IBRA Distribution: MAL Florabase records: 17 | Highly Unlikely |
| <i>Roycea pycnophylloides</i> | CHENOPODIACEAE | T | Endangered | Habit: Perennial, herb, forming densely branched, silvery mats to 1 m wide. Flower colour: - Flowering period: September Soils: Sandy soils, clay. Saline flats. IBRA Distribution: AVW, MAL Florabase records: 60 | Highly Unlikely |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEE 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|--|------------|-----|------------|--|--------------------------|
| <i>Verticordia staminosa</i> subsp. <i>cylindracea</i> var. <i>cylindracea</i> | MYRTACEAE | T | Endangered | Habit: Spreading shrub, 0.3-0.8 m high Flowers: green-yellow/yellow-brown Flowering period: July to October Soils: Soil pockets. Granite outcrops. IBRA Distribution: Mallee Florabase records: 30 | Highly Unlikely |
| <i>Acacia trinalis</i> | FABACEAE | P1 | - | Habit: Dense, rounded, bushy shrub or tree, 1.5-4 m high. Flower colour: yellow Flowering period: September Soils: Brown sand, clay loam. Salt lakes & flats, swampy areas. IBRA Distribution: AVW, MAL Florabase records: 20 | Potential |
| <i>Acacia sclerophylla</i> var. <i>pilosa</i> | FABACEAE | P2 | - | Habit: Low spreading to erect shrub, 0.2-1 m high Flowers: yellow Flowering period: August to October Soils: Sandy loam or clay IBRA Distribution: AVW, MAL Florabase records: 6 | Unlikely |
| <i>Banksia acanthopoda</i> | PROTEACEAE | P2 | - | Habit: Spreading, non-lignotuberous shrub, 0.9-3 m high, up to 5 m wide Flowers: yellow Flowering period: July to October Soils: Gravelly clay-sand over laterite. Low ridges IBRA Distribution: AVW, JAF Florabase records: 25 | Potential |
| <i>Banksia drummondii</i> subsp. <i>macrorufa</i> | PROTEACEAE | P2 | - | Habit: Non-lignotuberous shrub, to 1.5 m high, to 2 m wide Flowers: yellow & red Flowering period: January Soils: Sand & gravel IBRA Distribution: JAF, MAL Florabase records: 5 | Unlikely |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEEW 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|---|----------------|-----|-----|--|--------------------------|
| <i>Conostylis seorsiflora</i> subsp. Nyabing (A. Coates s.n. 2/10/1988) | HAEMODORACEAE | P2 | - | Habit: Rhizomatous, perennial grass-like or herb Flowers: yellow Flowering period: October to November Soils: Lateritic soils IBRA Distribution: AVW, MAL Florabase records: 7 | Potential |
| <i>Banksia meganotia</i> | PROTEACEAE | P3 | - | Habit: Straggly or erect prickly lignotuberous shrub, 0.3-1m high. Flower colour: yellow Flowering period: October Soils: Sand, sandy loam or clay loam over laterite IBRA Distribution: AVW, JAF, MAL Florabase records: 38 | Potential |
| <i>Calectasia obtusa</i> | DASYPOGONACEAE | P3 | - | Habit: Erect low herb 0.25-0.4m high with aerial roots. Flower colour: blue Flowering period: August to September Soils: Sand, clay loam, gravel, laterite, on flats IBRA Distribution: AVW, ESP, JAF, MAL Florabase records: 23 | Potential |
| <i>Grevillea newbeyi</i> | PROTEACEAE | P3 | - | Habit: Bushy, intricately branched, spreading shrub, 0.6-1.5m high. Flower colour: pink or pink/red cream Flowering period: Jan or June or September to November Soils: Clay loam, sandy gravelly soils IBRA Distribution: AVW, MAL Florabase records: 37 | Unlikely |
| <i>Verticordia brevifolia</i> subsp. <i>brevifolia</i> | MYRTACEAE | P3 | - | Habit: Shrub, 0.2-0.4 m high. Flower colour: yellow/orange-red Flowering period: October to November Soils: Gravelly loam & clay. Road verges. IBRA Distribution: AVW, ESP, JAF, MAL Florabase records: 24 | Potential |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEEW 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|---|------------|-----|-----|---|--------------------------|
| <i>Verticordia coronata</i> | MYRTACEAE | P3 | - | Habit: Erect or spreading shrub, 0.15-0.5 m high Flowers: yellow Flowering period: September to December Soils: Clay loam, clay & sandy loam, sometimes gravelly. IBRA Distribution: AVW, ESP, MAL Florabase records: 37 | Potential |
| <i>Verticordia huegelii</i> var. <i>tridens</i> | MYRTACEAE | P3 | - | Habit: Shrub, 0.15-0.6 m high. Flower colour: green-yellow/red Flowering period: September to November Soils: Sandy or gravelly loam. Winter-wet areas, low hills. IBRA Distribution: AVW, ESP, JAF, SWA Florabase records: 32 | Potential |
| <i>Acacia grisea</i> | FABACEAE | P4 | - | Habit: Spreading or compact shrub, 0.1-0.6 m high. Flower colour: yellow Flowering period: June to August Soils: Lateritic gravelly loamy soils. Undulating plains and slopes. IBRA Distribution: AVW, ESP, JAF, MAL Florabase records: 36 | Potential |
| <i>Banksia acuminata</i> | PROTEACEAE | P4 | - | Habit: Prostrate, lignotuberous shrub, to 0.2 m high, to 1 m wide Flowers: yellow-orange Flowering period: October Soils: Gravelly soils IBRA Distribution: AVW, JAF Florabase records: 44 | Potential |

APPENDIX C: BRIEF DESCRIPTION OF CONSERVATION LISTED FLORA WITH POTENTIAL TO OCCUR WITHIN THE KATANNING GOLD SURVEY AREA

Note: Refer to Appendix A for State (SCC; DBCA 2025a) and Federal (FCC; EPBC Act) conservation code definitions (DCCEEW 2025a). IBRA Distribution: AVW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Plains; GES – Geraldton Sandplains; JAF – Jarrah Forrest; MAL – Mallee; SWA – Swan Coastal Plain. Likelihood of occurrence in survey area is given as a Highly Unlikely, Unlikely, Potential, Known.

| Species | Family | SCC | FCC | Description and Habitat | Likelihood of Occurrence |
|---|------------|-----|-----|---|--------------------------|
| <i>Banksia parva</i> (formerly <i>Banksia densa</i> var. <i>parva</i>) | PROTEACEAE | P4 | - | Habit: Shrub, 0.7-1.5 m high. Flower colour: yellow Flowering period: June to August Soils: Lower slopes, undulating plains and on grey sands to sandy clay loams over laterite or sandstones. IBRA Distribution: AVW, ESP, JAF, MAL Florabase records: 25 | Potential |
| <i>Banksia porrecta</i> | PROTEACEAE | P4 | - | Habit: Prostrate, sprawling, mat-forming, lignotuberous shrub, 0.2-0.35 m high, 0.6-4 m wide Flowers: white-cream Flowering period: July to August Soils: White/grey sand, sandy loam IBRA Distribution: AVW, ESP, JAF, MAL Florabase records: 52 | Potential |
| <i>Bossiaea divaricata</i> | FABACEAE | P4 | - | Habit: Shrub, to 0.6 m high. Flower colour: yellow red or brown Flowering period: January to December Soils: Sandy lateritic and shale soils IBRA Distribution: AVW, ESP, MAL Florabase records: 25 | Potential |
| <i>Eucalyptus loxophleba</i> x <i>wandoo</i> | MYRTACEAE | P4 | - | Habit: Mallee or tree, 4-20 m high, bark rough black-brown on trunk. Flower colour: - Flowering period: - Soils: Sandy clay or loam. IBRA Distribution: AVW, GES, JAF Florabase records: 14 | Potential |

APPENDIX D: SUMMARY OF OCCURRENCE OF MAIN SPECIES IN THE SAMPLING SITES ON THE KATANNING GOLD SURVEY AREA

| Species | W10_AG093 | W10_AG101 | W10_AG102 | W10_AG107 | W10_AG111 | W10_AG149 | W10_AG151 | W10_AG152 | W10_AG153 | W10_AG154 | W11_AG115 | W11_AG116 | W11_AG117 | W11_AG128 | W11_AG129 | W11_AG130 | W11_AG131 | W11_AG132 | W11_AG133 | W12_AG134 | W12_AG143 | W12_AG144 | W12_AG147 | W12_AG074 | W12_AG099 | W12_AG176 | W12_AG181 | W12_AG182 | W13_AG079 | W13_AG080 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <i>Grevillea uncinulata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea ferruginea</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea hastata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea laurina</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea lissocarpha</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea marginata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hakea trifurcata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hibbertia commutata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hibbertia exasperata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hibbertia gracilipes</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hibbertia hibbertioides</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hypocalymma puniceum</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Isopogon teretifolius</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Jacksonia racemosa</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Jacksonia sternbergiana</i> | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Juncus subsecundus</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lagenophora huegelii</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Laxmannia squarrosa</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidobolus preissianus</i> subsp. <i>volubilis</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidosperma apricola</i> | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidosperma humile</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidosperma leptostachyum</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidosperma</i> sp. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lepidosperma</i> sp. <i>Bandalup Scabrid</i> (N. Eveleigh 10798) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Leptospermopsis erubescens</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Leptospermopsis oligandra</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Linum marginale</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lomandra effusa</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lomandra mucronata</i> | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Lomandra</i> sp. | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | |
| <i>Maireana brevifolia</i> | | | | | | | 1 | | | 1 | | | | | | | | | | | | 1 | 1 | | | 1 | 1 | | | |
| <i>Marianthus bicolor</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca atroviridis</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca brophyi</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca pauperiflora</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca pungens</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca pungens</i> var. <i>pungens</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melaleuca scalena</i> | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>Melaleuca</i> sp. | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|---------------|--------------------------------------|------|------|------|------|------|
| Aizoaceae | * <i>Mesembryanthemum nodiflorum</i> | | X | | | X |
| Amaranthaceae | <i>Ptilotus manglesii</i> | X | X | X | X | |
| | <i>Ptilotus polystachyus</i> | X | X | X | X | |
| Anacardiaceae | * <i>Schinus molle</i> | X | | X | X | |
| Apiaceae | <i>Daucus glochidiatus</i> | X | | X | X | |
| Araliaceae | <i>Trachymene pilosa</i> | X | | X | X | X |
| Asparagaceae | * <i>Asparagus asparagoides</i> | | | | | X |
| | <i>Laxmannia squarrosa</i> | X | | X | X | |
| | <i>Lomandra effusa</i> | | | X | X | |
| | <i>Lomandra mucronata</i> | | X | X | X | |
| | <i>Lomandra rupestris</i> | | | | | X |
| | <i>Lomandra</i> sp. | X | X | | | X |
| | <i>Thysanotus patersonii</i> | X | | X | X | |
| | <i>Thysanotus</i> sp. | X | | | | |
| Asteraceae | * <i>Arctotheca calendula</i> | X | X | X | X | X |
| | <i>Asteridea asteroides</i> | | | X | X | |
| | <i>Brachyscome ciliaris</i> | X | | X | X | |
| | * <i>Carduus pycnocephalus</i> | X | | X | X | |
| | <i>Craspedia variabilis</i> | X | | X | X | |
| | <i>Gnephosis drummondii</i> | | X | | | |
| | * <i>Hypochaeris glabra</i> | X | X | X | X | X |
| | * <i>Hypochaeris radicata</i> | | X | | | |
| | <i>Lagenophora huegelii</i> | X | | X | X | |
| | <i>Lawrencella rosea</i> | X | | X | X | |
| | <i>Olearia muelleri</i> | | | | X | |
| | <i>Olearia pimeleoides</i> | | | | | X |
| | <i>Olearia rudis</i> | X | | X | X | X |
| | <i>Siemssenia capillaris</i> | | X | | | |
| | <i>Panaetia lessonii</i> | X | X | X | X | |
| | <i>Podolepis aristata</i> | | | | | X |
| | <i>Podolepis</i> sp. | | X | | | |
| | <i>Pterochaeta paniculata</i> | X | | X | X | X |
| | <i>Rhodanthe manglesii</i> | X | X | X | X | X |
| | <i>Rhodanthe citrina</i> | X | | X | X | |
| | <i>Rhodanthe polycephala</i> | X | | X | X | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|-----------------|--|------|------|------|------|------|
| Asteraceae | * <i>Sonchus oleraceus</i> | x | x | x | x | x |
| (continued) | * <i>Ursinia anthemoides</i> | x | x | x | x | x |
| | <i>Vittadinia gracilis</i> | x | x | x | x | |
| | <i>Waitzia acuminata</i> | | | | x | x |
| | <i>Waitzia acuminata</i> var. <i>acuminata</i> | x | x | x | x | |
| | <i>Waitzia suaveolens</i> var. <i>suaveolens</i> | x | | x | x | |
| Boraginaceae | <i>Halgania anagalloides</i> | | | | | x |
| Boryaceae | <i>Borya sphaerocephala</i> | x | | x | x | |
| Brassicaceae | * <i>Lepidium africanum</i> | | x | | | |
| | * <i>Raphanus raphanistrum</i> | | x | | | x |
| Caryophyllaceae | <i>Spergularia marina</i> | | x | | | |
| | * <i>Petrorhagia dubia</i> | x | x | x | x | |
| Casuarinaceae | <i>Allocasuarina campestris</i> | | x | | | x |
| | <i>Allocasuarina huegeliana</i> | x | x | x | x | x |
| | <i>Allocasuarina humilis</i> | | | | | x |
| | <i>Allocasuarina microstachya</i> | | | | | x |
| | <i>Allocasuarina</i> sp. | | x | | | |
| | <i>Casuarina obesa</i> | x | x | | | x |
| Celastraceae | <i>Stackhousia monogyna</i> | x | | x | x | x |
| | <i>Stackhousia scoparia</i> | x | | x | x | |
| Chenopodiaceae | <i>Atriplex cinerea</i> | | | | x | |
| | <i>Atriplex semibarbata</i> | | | | | x |
| | <i>Atriplex</i> sp. | | x | | | x |
| | <i>Chenopodium desertorum</i> | | | | x | |
| | <i>Chenopodium desertorum</i> subsp. <i>microphyllum</i> | x | | x | x | |
| | <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> | | x | | | |
| | <i>Maireana brevifolia</i> | | x | x | x | x |
| | <i>Maireana erioclada</i> | | | | | x |
| | <i>Rhagodia preissii</i> subsp. <i>preissii</i> | x | | x | x | |
| | <i>Sclerolaena uniflora</i> | | | | x | |
| | <i>Tecticornia halocnemoides</i> | | | | | x |
| | <i>Tecticornia pergranulata</i> | | | | | x |
| | <i>Tecticornia</i> sp. | | x | | | |
| | Chenopodiaceae sp. | | x | | | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|----------------|--|------|------|------|------|------|
| Colchicaceae | <i>Wurmbea</i> sp. | | x | | | x |
| Convolvulaceae | <i>Wilsonia humilis</i> | | x | | | x |
| Crassulaceae | <i>Crassula colorata</i> | x | x | x | x | x |
| | <i>Crassula decumbens</i> var. <i>decumbens</i> | | x | | | |
| Cupressaceae | <i>Callitris roei</i> | x | x | x | x | x |
| Cyperaceae | <i>Caustis dioica</i> | | | | | x |
| | <i>Chorizandra enodis</i> | x | | x | x | |
| | <i>Gahnia ancistrophylla</i> | | | | x | |
| | <i>Lepidosperma apricola</i> | | x | | | |
| | <i>Lepidosperma humile</i> | x | x | x | x | |
| | <i>Lepidosperma leptostachyum</i> | x | | x | x | x |
| | <i>Lepidosperma</i> sp. Bandalup Scabrid (N. Eveleigh 10798) | x | | x | x | |
| | <i>Lepidosperma</i> sp. | x | | | | |
| | <i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391) | | | | | x |
| | <i>Netrostylis</i> sp. Mt Madden (C.D. Turley 40 BP/897) | x | | | | |
| | <i>Schoenus armeria</i> | | | | x | |
| | <i>Schoenus</i> sp. | | x | | | |
| Dilleniaceae | <i>Hibbertia commutata</i> | | | | x | |
| | <i>Hibbertia exasperata</i> | x | | x | x | |
| | <i>Hibbertia gracilipes</i> | | | | x | |
| | <i>Hibbertia hibbertioides</i> | | | x | | |
| | <i>Hibbertia hibbertioides</i> var. <i>hibbertioides</i> | x | | | | |
| Droseraceae | <i>Drosera glanduligera</i> | | | | x | |
| | <i>Drosera micrantha</i> | | | | x | |
| Ericaceae | <i>Styphelia serratifolia</i> | | | | x | |
| Fabaceae | <i>Acacia acuminata</i> | x | x | x | x | x |
| | <i>Acacia deficiens</i> | | x | | | |
| | <i>Acacia erinacea</i> | x | x | x | x | |
| | <i>Acacia microbotrya</i> | x | | x | x | x |
| | <i>Acacia myrtifolia</i> | x | | x | x | |
| | <i>Acacia pulchella</i> | | | | x | |
| | <i>Acacia pycnocephala</i> | x | | x | x | |
| | <i>Acacia saligna</i> | | x | | x | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|-------------------|---|------|------|------|------|------|
| Fabaceae | <i>Acacia lasiocarpa</i> var. <i>sedifolia</i> | x | | x | x | |
| (continued) | <i>Acacia</i> sp. | | x | | | |
| | <i>Bossiaea eriocarpa</i> | x | x | x | x | x |
| | <i>Daviesia angulata</i> | x | x | x | x | |
| | <i>Daviesia articulata</i> | | x | | | |
| | <i>Daviesia incrassata</i> subsp. <i>teres</i> | x | | x | x | |
| | <i>Gastrolobium calycinum</i> | | | | | x |
| | <i>Gastrolobium parviflorum</i> | | | | | x |
| | <i>Gastrolobium spinosum</i> | | | | x | x |
| | <i>Gastrolobium tricuspdatum</i> | | x | | | |
| | <i>Gastrolobium trilobum</i> | x | x | x | x | x |
| | <i>Jacksonia racemosa</i> | | | | x | |
| | <i>Jacksonia sternbergiana</i> | | x | | | x |
| | <i>Kennedia prostrata</i> | | | | | x |
| | * <i>Medicago polymorpha</i> | | | x | x | |
| | * <i>Medicago</i> sp. | x | x | | | x |
| | <i>Templetonia sulcata</i> | | | | x | x |
| | * <i>Trifolium angustifolium</i> | | x | | | |
| Frankeniaceae | * <i>Frankenia pulverulenta</i> | | x | | | |
| Geraniaceae | * <i>Erodium botrys</i> | | x | | | |
| | <i>Geranium solanderi</i> | | | x | x | |
| Goodeniaceae | <i>Dampiera juncea</i> | | | | | x |
| | <i>Dampiera lavandulacea</i> | x | | x | x | x |
| | <i>Dampiera sacculata</i> | x | | x | x | |
| | <i>Goodenia trinervis</i> | x | | | | |
| Haemodoraceae | <i>Conostylis seorsiflora</i> subsp. <i>seorsiflora</i> | x | | | | |
| Haloragaceae | <i>Glischrocaryon aureum</i> | x | | | | x |
| Hemerocallidaceae | <i>Caesia micrantha</i> | x | | | | |
| | <i>Caesia</i> sp. | x | | | | |
| | <i>Chamaescilla corymbosa</i> | x | | x | x | |
| | <i>Conostylis seorsiflora</i> subsp. <i>seorsiflora</i> | | | x | x | |
| | <i>Dianella revoluta</i> var. <i>divaricata</i> | | | | x | |
| | <i>Dianella revoluta</i> | x | x | x | x | x |
| | <i>Dianella</i> sp. | | x | | | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|-------------------|---|------|------|------|------|------|
| Hemerocallidaceae | <i>Stypandra glauca</i> | x | x | x | | x |
| (continued) | <i>Tricoryne elatior</i> | | | | | x |
| Iridaceae | <i>Patersonia juncea</i> | x | | x | x | |
| | <i>Patersonia occidentalis</i> | x | | x | x | x |
| | * <i>Romulea rosea</i> | x | | x | x | |
| Juncaceae | <i>Juncus subsecundus</i> | x | | x | x | |
| Lamiaceae | <i>Prostanthera serpyllifolia</i> subsp. <i>microphylla</i> | x | | x | x | |
| | <i>Westringia cephalantha</i> var. <i>caterva</i> | x | | x | x | |
| | Lamiaceae sp. | x | | | | |
| Lauraceae | <i>Cassytha melantha</i> | | | | x | x |
| Linaceae | <i>Linum marginale</i> | x | | x | x | |
| Loranthaceae | <i>Amyema miquelii</i> | x | | x | x | x |
| Montiaceae | <i>Calandrinia calyptrata</i> | x | | x | x | |
| | <i>Calandrinia granulifera</i> | | | x | x | |
| Myrtaceae | <i>Apectospermum spinescens</i> | | | | | x |
| | <i>Babingtonia camphorosmae</i> | | | | x | |
| | <i>Beaufortia bracteosa</i> | x | | x | x | |
| | <i>Beaufortia incana</i> | | x | | | x |
| | <i>Callistemon phoeniceus</i> | | | | | x |
| | <i>Calothamnus quadrifidus</i> | | | | | x |
| | <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i> | x | | x | x | |
| | <i>Calytrix amethystina</i> | | | | x | |
| | <i>Calytrix leschenaultii</i> | x | | x | x | |
| | <i>Calytrix tetragona</i> | | | | | x |
| | <i>Chamelaucium ciliatum</i> | x | | x | x | |
| | <i>Darwinia diosmoides</i> | | | | | x |
| | <i>Ericomyrtus serpyllifolia</i> | x | | x | x | |
| | <i>Eucalyptus arachnaea</i> subsp. <i>arachnaea</i> | | | | | x |
| | <i>Eucalyptus astringens</i> | | x | | x | x |
| | <i>Eucalyptus astringens</i> subsp. <i>astringens</i> | x | x | x | x | x |
| | PL <i>Eucalyptus camaldulensis</i> | | x | | | |
| | <i>Eucalyptus capillosa</i> | | x | | | |
| | PL <i>Eucalyptus cladocalyx</i> | | | | x | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|--------------------------|--|------|------|------|------|------|
| Myrtaceae (continued) | <i>Eucalyptus dorrienii</i> | x | x | x | | |
| | <i>Eucalyptus extensa</i> | | x | | | |
| | <i>Eucalyptus falcata</i> | | x | | | |
| | <i>Eucalyptus gardneri</i> subsp. <i>gardneri</i> | x | x | x | x | x |
| | <i>Eucalyptus hebetifolia</i> | x | x | x | x | |
| | <i>Eucalyptus incrassata</i> | x | | x | x | x |
| | <i>Eucalyptus kondininensis</i> | x | | x | x | |
| | <i>Eucalyptus longicornis</i> | x | x | x | x | x |
| | <i>Eucalyptus loxophleba</i> | x | x | x | x | x |
| | <i>Eucalyptus loxophleba</i> subsp. <i>gratae</i> | | x | | | |
| | <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> | x | x | | | |
| | <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> | | x | | | |
| | <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> | | x | | | |
| | <i>Eucalyptus occidentalis</i> | | x | | | |
| | <i>Eucalyptus phaenophylla</i> | | | | x | x |
| | <i>Eucalyptus phenax</i> subsp. <i>phenax</i> | | x | | | |
| | <i>Eucalyptus redunca</i> | | | | x | |
| | <i>Eucalyptus redunca</i> subsp. <i>pluricaulis</i> | | | x | | |
| | <i>Eucalyptus salmonophloia</i> | x | x | x | x | x |
| | <i>Eucalyptus salubris</i> | | x | | | |
| | <i>Eucalyptus sargentii</i> subsp. <i>sargentii</i> | | x | | | |
| | <i>Eucalyptus sheathiana</i> | | x | | | |
| | <i>Eucalyptus spathulata</i> | | | x | | |
| | <i>Eucalyptus spathulata</i> subsp. <i>spathulata</i> | | | x | | x |
| | <i>Eucalyptus thamnoides</i> | x | x | x | x | |
| | <i>Eucalyptus uncinata</i> | | x | | | |
| | <i>Eucalyptus utilis</i> | | x | | | |
| | <i>Eucalyptus virella</i> | | x | | | |
| | <i>Eucalyptus wandoo</i> | x | | x | x | x |
| | <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> | | | x | x | |
| | <i>Eucalyptus sp.</i> | | | x | | x |
| | <i>Hypocalymma angustifolium</i> | | | | | x |
| | <i>Hypocalymma puniceum</i> | | x | | | |
| | <i>Leptospermopsis erubescens</i> | x | | x | x | x |
| | <i>Leptospermopsis oligandra</i> | | x | | | x |
| | <i>Melaleuca atroviridis</i> | x | | x | x | |
| | <i>Melaleuca brophyi</i> | | x | | | |
| | <i>Melaleuca pauperiflora</i> | | | | x | |
| | <i>Melaleuca pungens</i> | x | | | x | |
| | <i>Melaleuca pungens</i> var. <i>pungens</i> | x | | x | x | |
| <i>Melaleuca scalena</i> | | x | | x | x | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|----------------|----------------------------------|------|------|------|------|------|
| Myrtaceae | <i>Melaleuca subtrigona</i> | x | | x | x | |
| (continued) | <i>Melaleuca</i> sp. | | x | | | |
| | <i>Rinzia fumana</i> | x | | x | x | |
| | <i>Tetrapora preissiana</i> | x | | x | x | |
| | <i>Verticordia grandiflora</i> | x | | x | x | |
| Onagraceae | * <i>Oenothera stricta</i> | | x | | | |
| Orchidaceae | <i>Caladenia flava</i> | | | | x | |
| | <i>Caladenia hiemalis</i> | | | | x | |
| | * <i>Disa bracteata</i> | | x | | | |
| | <i>Diuris porrifolia</i> | | | | x | |
| Orobanchaceae | * <i>Orobanche minor</i> | x | | x | x | |
| Oxalidaceae | * <i>Oxalis corniculata</i> | x | x | x | x | |
| Parmeliaceae | Parmeliaceae sp. | | | x | | |
| Pinaceae | PL <i>Pinus</i> sp. | | x | | | |
| Pittosporaceae | <i>Billardiera fusiformis</i> | x | x | x | x | x |
| | <i>Marianthus bicolor</i> | | | | x | |
| Poaceae | * <i>Aira caryophyllea</i> | x | x | x | x | x |
| | <i>Austrostipa elegantissima</i> | x | x | x | x | x |
| | <i>Austrostipa hemipogon</i> | x | x | x | x | |
| | <i>Austrostipa macalpinei</i> | | x | | | |
| | <i>Austrostipa nitida</i> | | | x | x | x |
| | <i>Austrostipa variabilis</i> | | x | | | |
| | * <i>Avellinia festucoides</i> | x | | x | x | |
| | * <i>Avena barbata</i> | | x | | | x |
| | * <i>Avena</i> sp. | | x | | | |
| | * <i>Briza maxima</i> | x | x | x | x | x |
| | * <i>Bromus diandrus</i> | x | x | x | x | x |
| | <i>Diplachne fusca</i> | | x | | | |
| | * <i>Ehrharta longiflora</i> | x | x | x | x | x |
| | * <i>Hordeum hystrix</i> | x | | x | x | x |
| | * <i>Hordeum marinum</i> | | x | | | |
| | * <i>Lolium perenne</i> | x | x | x | x | x |
| | * <i>Lolium</i> sp. | | x | | | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|--------------|--|------|------|------|------|------|
| Poaceae | <i>Neurachne alopecuroidea</i> | X | X | X | X | X |
| (continued) | * <i>Puccinellia ciliata</i> | | X | | | |
| | <i>Rytidosperma caespitosum</i> | X | X | X | X | X |
| | <i>Rytidosperma setaceum</i> | X | X | X | X | |
| | * <i>Triticum aestivum</i> | | | X | X | |
| | * <i>Vulpia muralis</i> | | X | | | |
| | * <i>Vulpia myuros</i> | X | | X | X | X |
| | Poaceae sp. | | | | | X |
| Polygalaceae | <i>Comesperma volubile</i> | | | X | X | |
| | <i>Comesperma scoparium</i> | | | | | X |
| | <i>Comesperma</i> sp. | X | | | | |
| Primulaceae | * <i>Lysimachia arvensis</i> | X | | X | X | |
| Proteaceae | <i>Banksia armata</i> var. <i>armata</i> | | X | | | |
| | <i>Banksia armata</i> var. <i>ignicida</i> | X | | X | X | X |
| | <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> | X | | X | X | |
| | <i>Banksia sessilis</i> | X | | X | X | X |
| | <i>Banksia sphaerocarpa</i> var. <i>caesia</i> | X | | X | X | |
| | <i>Banksia squarrosa</i> subsp. <i>squarrosa</i> | X | | X | X | |
| | <i>Banksia</i> sp. | X | | | | |
| | <i>Grevillea anethifolia</i> | | | | | X |
| | <i>Grevillea insignis</i> subsp. <i>insignis</i> | X | | X | X | X |
| | <i>Grevillea uncinulata</i> | | | X | X | |
| | <i>Hakea erecta</i> | | | | | X |
| | <i>Hakea ferruginea</i> | X | | X | X | |
| | <i>Hakea francisiana</i> | | | | | X |
| | <i>Hakea hastata</i> | | | X | X | |
| | <i>Hakea laurina</i> | X | | X | X | |
| | <i>Hakea lissocarpha</i> | X | | X | X | |
| | <i>Hakea marginata</i> | X | | X | X | |
| | <i>Hakea prostrata</i> | | | | | X |
| | <i>Hakea trifurcata</i> | X | | X | X | |
| | <i>Isopogon teretifolius</i> | X | | X | X | |
| | <i>Petrophile glauca</i> | | X | | | |
| | <i>Petrophile seminuda</i> | X | | X | X | |
| Pteridaceae | <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> | | X | | | |

APPENDIX E: VASCULAR PLANT SPECIES RECORDED ON THE AUSGOLD SURVEY AREA, 2017 TO 2024

* Denotes introduced species, P1 - P4 denotes Priority species

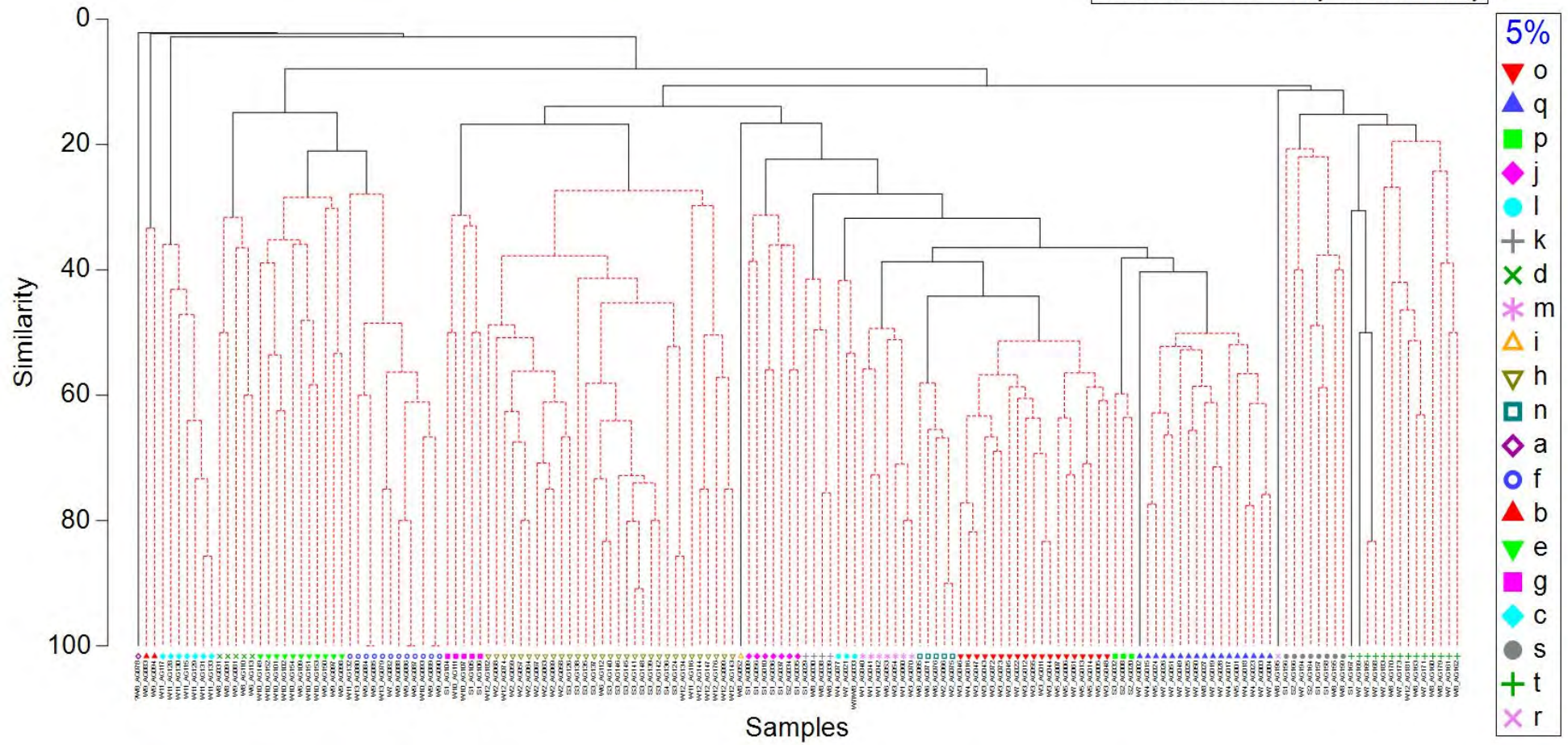
| Family | Species | 2017 | 2019 | 2022 | 2023 | 2024 |
|------------------|--|------|------|------|------|------|
| Restionaceae | <i>Chordifex sphacelatus</i> | | | | | x |
| | <i>Desmocladius asper</i> | x | | x | x | x |
| | <i>Desmocladius flexuosus</i> | | x | | | |
| | <i>Desmocladius quiricanus</i> | | | | x | |
| | <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> | x | | x | x | |
| | <i>Lepidobolus preissianus</i> subsp. <i>volubilis</i> | x | | x | x | |
| Rhamnaceae | <i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i> | x | | x | x | |
| | <i>Cryptandra nutans</i> | | | | x | |
| Rubiaceae | <i>Opercularia spermacocea</i> | x | | x | x | |
| | <i>Opercularia vaginata</i> | | | | | x |
| Rutaceae | <i>Phebalium tuberculosum</i> | x | | x | x | x |
| Santalaceae | <i>Choretrum glomeratum</i> | x | | x | x | |
| | <i>Exocarpos sparteus</i> | | | | | x |
| | <i>Santalum acuminatum</i> | | | | | x |
| Sapindaceae | <i>Dodonaea bursariifolia</i> | | | | x | |
| | <i>Dodonaea caespitosa</i> | x | | x | x | |
| | <i>Dodonaea humifusa</i> | x | | x | x | |
| | <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> | x | | x | x | |
| | <i>Dodonaea</i> sp. | x | | | | |
| Stylidiaceae | <i>Stylidium piliferum</i> | x | | x | x | |
| | <i>Stylidium repens</i> | x | | x | x | |
| | <i>Stylidium zeicolor</i> | x | | x | x | |
| Xanthorrhoeaceae | <i>Xanthorrhoea drummondii</i> | x | x | x | x | x |
| Zygophyllaceae | <i>Roepera</i> sp. | | x | | | |

APPENDIX F: DENDROGRAM OF SITRES FROM KATTANNING GOLD SURVEY AREA


DENDROGRAM BRAY CURTIS SITE GROUPINGS

Group average

Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

| Vegetation Community Description | |
|--|---|
| Vegetation map code: W1 | |
| Vegetation community description | |
| Open Woodland of <i>Eucalyptus wandoo</i> and <i>Eucalyptus longicornis</i> with occasional <i>Eucalyptus salmonophloia</i> over <i>Acacia acuminata</i> over <i>Vittadinia gracilis</i> , <i>Stackhousia monogyne</i> and a range of herbs and grasses on lower slopes and valley floors with sandy loams and some clays. | |
| Statistically associated species | |
| <i>Eucalyptus longicornis</i> , <i>Eucalyptus wandoo</i> and <i>Acacia acuminata</i> | |
| Soils and Landforms: Sandy-loams with some clays on slopes and broader valley floors | |
| Surface rocks: not present | Outcropping: not present |
| Condition: Good to Very Good | |
| Area: 7.69 ha | Proportion of survey area: 0.48% |
| Number of Quadrats: 4 | |
| Representative Photograph | |
|  | |

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024**Vegetation Community Description**

Vegetation map code: W2

Vegetation community description

Open Woodland of Eucalyptus loxophleba, Allocasuarina huegeliana over Acacia acuminata tall sparse shrubland over mixed grasses and herbs and mixed paddock species on slopes.

Soils and Landforms: Sandy-loams with some clays on slopes and broader valley floors

Surface rocks: not present

Outcropping: not present

Condition: Completely Degraded to Degraded and Very Good

Area: 3.52 ha

Proportion of survey area: 0.22%

Number of Quadrats: 10

Representative Photograph

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024

Vegetation Community Description

Vegetation map code: W3

Vegetation community description

Open Woodland of *Eucalyptus wandoo*, *Allocasuarina huegeliana*, *Acacia acuminata* over *Hakea lissocarpha*, *Xanthorrhoea drummondii* over *Lepidosperma preissianus* subsp. *volubilis*, *Neurachne alopecuroidea* on sandy loams on slopes.

Soils and Landforms: sandy-clays and gravels on slopes and undulating hills

Surface rocks: not present

Outcropping: not present

Condition: Good to Very Good

Area: 32.92 ha

Proportion of survey area: 2.07%

Number of Quadrats: 13

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: W4

Vegetation community description

Woodland of *Eucalyptus wandoo*, *Eucalyptus longicornis*, *Allocasuarina huegeliana*, *Acacia acuminata* over *Dodonaea humifusa*, *Hakea lissocarpa*, *Gastrolobium trilobum* over mixed herbs and grasses on clay loams on slopes.

Soils and Landforms: Sandy clays and gravels on mid and upper slopes of undulating hills

Surface rocks: gravel

Outcropping: not present

Condition: completely degraded to very good

Area: 6.32ha

Proportion of survey area: 0.40 %

Number of Quadrats: 6

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024

Vegetation Community Description

Vegetation map code: W5

Vegetation community description

Open Woodland of *Eucalyptus wandoo* over *Allocasuarina huegeliana* over *Gastrolobium trilobum*, *Dodonaea humifusa* and *Xanthorrhoea drummondii* over *Neurachne alopecuroidea*, *Austrostipa hemipogon*, *Velleia trinervis* and a wide range of herbs and grasses on upper slopes and ridges of undulating hills with sandy-clays and gravels.

Soils and Landforms: sandy clays and gravels on upper slopes and ridges of undulating hills.

Surface rocks: not present

Outcropping: not present

Condition: good to very good

Area: 13.35 ha

Proportion of survey area: 0.84%

Number of Quadrats: 7

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024

Vegetation Community Description

Vegetation map code: W6

Vegetation community description

Open Woodland of *Eucalyptus loxophleba* over *Acacia acuminata* and dense stands of *Allocasuarina huegeliana* over *Acacia erinacea* over *Stackhousia monogyna*, *Stypandra glauca*, *Neurachne alopecuroidea* and a wide range of herbs and grasses on slopes and broader valley floors with sandy loams and some clays.

Soils and Landforms: Sandy loams and some clays on ridges and slopes.

Surface rocks: not present

Outcropping: not present

Condition: completely degraded to very good

Area: 2.95ha


Proportion of survey area: 0.19%

Number of Quadrats: 7

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024

| Vegetation Community Description | |
|--|--|
| Vegetation map code: W7 | |
| Vegetation community description | |
| Open Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus longicornis</i> and occasional <i>Eucalyptus hebetifolia</i> and <i>Eucalyptus phaenophylla</i> over <i>Acacia acuminata</i> over <i>Gastrolobium trilobum</i> , <i>Acacia erinacea</i> , <i>Acacia lasiocarpa</i> var. <i>sedifolia</i> , <i>Melaleuca atroviridis</i> , <i>Xanthorrhoea drummondii</i> over mixed herbs and grasses on slopes. | |
| Soils and Landforms: sandy loams with some clays on slopes and broader valley floors | |
| Surface rocks: not present | Outcropping: not present |
| Condition: good to very good | |
| Area: 39.56 ha | Proportion of survey area: 2.49 % |
| Number of Quadrats: 23 | |
| Representative Photograph | |
|  | |

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: W8

Vegetation community description

Mixed Open Woodland of *Eucalyptus longicornis*, *Eucalyptus kondininensis*, *Eucalyptus astringens*, *Eucalyptus phaenophylla*, *Eucalyptus wandoo* over *Gastrolobium trilobum*, *Melaleuca atroviridis*, *Melaleuca scalena* over mixed shrubs, herbs and grasses on clay loams on slopes.

Soils and Landforms: clay loam on slopes

Surface rocks: lateritic gravels

Outcropping: not present

Condition: completely degraded, good to very good

Area: 24.60 ha

Proportion of survey area: 1.55 %

Number of Quadrats: 17

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: W9

Vegetation community description

Open Woodland of *Eucalyptus salmonophloia*, *Eucalyptus longicornis* *Eucalyptus wandoo* over low mixed *Eucalyptus* mallee species over *Daviesia articulata* over mixed low herbs and grasses on clay loams on slopes

Soils and Landforms: clay loam on slopes

Surface rocks: lateritic gravels

Outcropping: not present

Condition: completely degraded, good to very good

Area: 1.26 ha

Proportion of survey area: 0.08 %

Number of Quadrats: 14

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: W10

Vegetation community description

Open Woodland of *Eucalyptus wandoo*, *Eucalyptus salmonophloia*, *Eucalyptus kondinensis* and other low mallees over *Acacia acuminata*, *Acacia erinacea*, *Acacia saligna*, *Maireana brevifolia* over low mixed herbs and grasses on clay loams on slopes.

Soils and Landforms: clay loam on slopes

Surface rocks: lateritic gravels

Outcropping: not present

Condition: completely degraded, good to very good

Area: 17.04 ha

Proportion of survey area: 1.07 %

Number of Quadrats: 10

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024**Vegetation Community Description**

Vegetation map code: W11

Vegetation community description

Woodland of *Eucalyptus sargentii* subsp. *sargentii*, *Eucalyptus spathulata*, *Casuarina obesa*, *Callitris roei* over *Melaleuca scalena*, *Atriplex* species and *Tecticornia* spp. on lower slopes.

Soils and Landforms: clay loam on lower slopes

Surface rocks: lateritic gravels

Outcropping: not present

Condition: completely degraded, good to very good

Area: 7.16 ha

Proportion of survey area: 0.45 %

Number of Quadrats: 9

Representative Photograph

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: W12

Vegetation community description

Open Woodland of *Eucalyptus loxophleba*, *Allocasuarina huegeliana* with occasional *Eucalyptus wandoo* over *Acacia acuminata* over *Maireana brevifolia* over mixed herbs and grasses on sandy loams on slopes.

Soils and Landforms: clay loam on lower slopes

Surface rocks: lateritic gravels

Outcropping: not present

Condition: completely degraded, good to very good

Area: 7.16 ha

Proportion of survey area: 0.45 %

Number of Quadrats: 9

Representative Photograph



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITIES, 2024

Vegetation Community Description

Vegetation map code: S1

Vegetation community description

Open to Closed Heath of *Banksia sphaerocarpa* var. *caesia*, *Banksia armata* var. *ignicida*, *Babingtonia camphorosmae* mid shrubland over *Petrophile seminuda*, *Hibbertia gracilipes* low shrubland with occasional *Eucalyptus phaenophylla* mallee over *Lepidosperma* sp. Bandalup Scabrid isolated sedges on clay loams with some outcropping on slopes and ridges.

Soils and Landforms: sandy gravels and clays

Surface rocks: gravel

Outcropping: shallow soils

Condition: Good to Very Good

Area: 15.01 ha


Proportion of survey area: 0.95 %

Number of Quadrats: 15

Representative Photographs



APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024

| Vegetation Community Description | |
|---|--|
| Vegetation map code: S2 | |
| Vegetation community description | |
| Low Woodland of <i>Eucalyptus phaenophylla</i> , <i>Eucalyptus kondininensis</i> , <i>Eucalyptus wandoo</i> and <i>Allocasuarina huegeliana</i> over open heath of <i>Gastrolobium spinosum</i> , <i>Gastrolobium trilobum</i> , <i>Melaleuca atroviridis</i> , <i>Xanthorrhoea drummondii</i> , <i>Banksia armata</i> var. <i>ignicida</i> mid open shrubland over <i>Neurachne alopecuroidea</i> low isolated tussock grasses on clay loams with some outcropping on slopes and ridges. | |
| Soils and Landforms: clay loams with some outcropping on slopes and ridges | |
| Surface rocks: some laterite gravel in patches | Outcropping: shallow and present |
| Condition: good to very good | |
| Area: 4.72 ha | Proportion of survey area: 0.30 % |
| Number of Quadrats: 5 | |
| Representative Photographs | |
|  | |

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024**Vegetation Community Description**

Vegetation map code: S3

Vegetation community description

Open Low Woodland of Eucalyptus loxophleba, Acacia acuminata with isolated trees over *Neurachne alopecuroidea, Austrostopa elegantissima, Austrostipa variabilis* and mixed low herbs with sandy loam with localized granite boulders.

Soils and Landforms: clay loams with some outcropping

Surface rocks: some laterite gravel in patches

Outcropping: shallow and present

Condition: good to very good

Area: 6.45 ha

Proportion of survey area: 0.41 %

Number of Quadrats: 13

Representative Photographs

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024**Vegetation Community Description**

Vegetation map code: S4

Vegetation community description

Lithic Complex on outcrops of granite with only localized herbs, grasses and occasional shrubs on slightly deeper sandy soils.

Soils and Landforms: sandy soils with some outcropping

Surface rocks: outcropping

Outcropping: shallow and present

Condition: Degraded to Good

Area: 0.11 ha

Proportion of survey area: 0.01 %

Number of Quadrats: 1

Representative Photographs

APPENDIX G: PHOTOGRAPHS OF VEGETATION COMMUNITES, 2024**Vegetation Community Description**

Vegetation map code: C1

Vegetation community description

Chenopod Shrubland of *Tecticornia halocnemoides* and *Tecticornia pergranulata* over mixed annual grasses on clay loams.

Soils and Landforms: clays on saline flats and valley floors (outside Development Envelope)

Surface rocks: outcropping

Outcropping: shallow and present

Condition: Degraded to Good

Area: 0.11 ha

Proportion of survey area: 0.01 %

Number of Quadrats: 1

Representative Photographs