

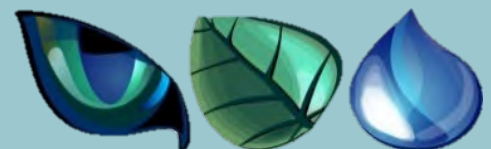
Cuddingwarra Area

Detailed Flora and Vegetation and Basic Fauna Survey

Mid-West, Western Australia



Prepared for
Westgold Resources Ltd by
Animal Plant Mineral Pty Ltd.



July 2026

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EXECUTIVE SUMMARY

Animal Plant Mineral Pty Ltd (APM) was commissioned by Westgold Resources Limited to undertake a Detailed Flora and Vegetation Survey and a Basic Fauna Survey in the Jim's Find, City of Sydney, Fleecepool and Emily Well areas of the Cuddingwarra Project area, located within the Shire of Cue in the Mid-West Region of Western Australia (WA). The Cuddingwarra Project area is approximately 7.5 km west northwest of the township of Cue, approximately 640 km north of Perth on the Great Northern Highway. Collectively the four Survey Areas have an extent of 176.91 ha.

The field survey was conducted between the 14th and 20th April 2026. Rainfall in the months preceding the survey was 67% of average but above median. The survey was conducted within the recommended Primary survey period for flora and vegetation in the Eremaean botanical province. The climatic conditions were not a constraint to the completeness of the flora survey, based on a similar species richness to other local surveys conducted during above average rainfall conditions and the recording of 85% of the modelled richness.

Due to the poor and degraded condition of much of the Survey Areas, reference areas outside of the Survey Areas were included to gain reference about the condition of vegetation and fauna habitats present and context against described features from previous surveys. Local and regional record locations of high conservation significant species were visited to verify detectability under prevailing climatic conditions and obtain local reference of habitat suitability.

Five vegetation types are described for the Survey Areas. No vegetation listed as Threatened (T) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act* (BC Act) was recorded or expected to occur in the local area. Current extent of regional vegetation units is close to pre-European extent. Vegetation is predominantly in Good condition surrounding the Survey Areas but Poor Condition and Completely Degraded Areas are more common within the Survey Areas, with the main disturbances being moderate intensity grazing historically by cattle and currently by feral herbivores, vegetation clearing for historic prospecting and current mining and pastoral activity and a small number of weeds. Completely Degraded areas comprise 37.8 ha or 21.3% of the Survey Areas and Poor condition vegetation covered an additional 41 ha or 23.2%.

The vegetation types within the City of Sydney, Fleecepool and Emily Well Survey Areas are analogous to the Priority Ecological Community (PEC) Austin Land System. The proportion of the remaining local extent of Good Condition Austin Land System PEC occurring within the Survey Areas is 0.94%. Cumulatively, the loss of vegetation within the City of Sydney, Fleecepool and Emily Well Survey Areas would result in an overall reduction of approximately 15% of the local extent of this PEC which does not qualify as a significant impact.

The vegetation of the Jim's Find area is potentially groundwater dependent vegetation containing facultative phreatophytes that are likely to be accessing groundwater in the shallow calcrete aquifer at some time but are not completely dependent on groundwater for all their water needs. The vegetation in Jim's Find also overlies the Taincrow Calcrete PEC, instated to protect the unique invertebrate assemblages identified in the groundwater calcretes. The vegetation overlying the PEC is important to support the health and quality of habitat within the PEC. The proportion of the remaining Good Condition vegetation above Taincrow PEC occurring within the Jim's Find Survey Area is 0.20%. Cumulatively, the loss of vegetation within the Jim's Find Survey Area would result in an overall reduction

of approximately 1.7% of the local extent of vegetation supporting this PEC, which does not constitute a significant impact.

No Threatened flora are known to occur in the Survey Area, and the absence of the Critically Endangered *Eremophila rostrata* subsp. *rostrata*, which occurs in the regional area, is reported with a high level of confidence. Two Priority (P) flora species – *Grevillea inconspicua* (P4) and *Dodonaea amplisemina* (P4) were recorded, with 27.4% of the local population of *D. amplisemina* within the Survey Areas and no individuals of *G. inconspicua* within the Survey Area boundary. An additional five P flora taxa were determined likely or possibly occurring based upon the availability of suitable habitat and proximity of local records and may be present but undetected due to seasonal conditions. The Survey Areas comprise less than 20% of the locally available confirmed suitable habitats for these species. Loss of vegetation within the Survey Areas will not lead to a significant impact to flora.

No Declared weeds or Weeds of National Significance were recorded. Three weeds were recorded in isolated and low frequency occurrences, of species widespread in the Mid West. Declared weeds known to occur in the local area are perennial and their absence is reported with a high level of confidence.

Four fauna habitats are described for the Survey Area. Open stony plain is the most common habitat present covering 77.3 ha (56%) of the Survey Areas. In order of prevalence, other habitats present are Samphire plains followed by Open Acacia woodland then Outcrops covering 30.0 ha (21.6%), 27.0 ha (19.4%) and 4.9 ha (3.5%) of the Survey Areas respectively.

No T or P fauna species have previously been recorded in the Survey Areas and no evidence of presence was recorded during the current Survey, however several species were assessed as likely or possibly occurring as potentially suitable habitat is present. These are:

- Southern Whiteface (listed as Vulnerable [VU] under the EPBC and BC Acts), assessed as Possibly occurring due to the proximity of a contemporary record and the presence of potentially suitable but low quality foraging habitat in the Jim's Find survey Area. No breeding or roosting habitat is present and the Jim's Find Survey Area is not important habitat for the species. No suitable habitat is present in the City of Sydney, Fleecetool or Emily Well Survey Areas for the species.
- West Coast Mulga Slider (Considered P1 in WA) assessed as Possibly occurring due to the presence of open mulga areas on loamy soils, however these were recorded outside of the Survey Areas, within the reference areas. It is possible the species uses the Survey Areas at some time for dispersal however this would be highly constrained due to the poor habitat quality. There is no important habitat for the species present within the Survey Areas.
- Peregrine falcon (Considered Other Specially Protected [OS] under the BC Act) as suitable foraging habitat for occurs across all Survey Areas and therefore has been classified as possibly occurring. Suitable foraging habitat is widespread and the Survey Areas do not contain breeding or roosting habitat or habitat important for the species.
- Fork tailed swift (listed as Migratory [MI] under the EPBC Act) is Likely to occur as it is widespread. The Survey Areas do not contain important habitat for the species as it is known rarely to come to land.

Night Parrot survey guidelines indicate the Survey Areas are within the High Priority survey area. No suitable roosting habitat was recorded at any of the Survey or reference areas or is expected to occur

within 10 km due to the open and sparse nature of vegetation impacted historically and currently by prospecting, grazing, mining and pastoral activities. Potentially suitable foraging habitat is present within the reference areas however vegetation is open and sparse and provides little cover from the predation pressures that have caused the species to decline so catastrophically across its former range. There is no suitable habitat for the species within the Survey Areas. Targeted surveys using automated recording units is not required.

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- Appendix A: Conservation and Declared Categories
- Appendix B: PMST Search Results
- Appendix C: Detailed Flora and Vegetation Sites
- Appendix D: Flora Species by Site Matrix
- Appendix E: Fauna Inventory Outback Ecology (2012)
- Appendix F: Fauna Habitat Assessments
- Appendix G: Fauna Habitat Assessment Site Photos

UNITS OF MEASURE

Unit	Measure
%	Percentage
°C	Degrees Celsius
ha	Hectare
km	Kilometre
m	Metre
mbgl	Metres below ground level
mm	Millimetre
ppm	Parts per million

LIST OF ABBREVIATIONS

Abbreviation	Meaning
APM	Animal Plant Mineral Pty Ltd
BAM Act	<i>BC Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
BoM	Bureau of Meteorology
CR	Critically Endangered
DBCA	Department of Biological Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
EN	Endangered
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GDE	Groundwater Dependent Ecosystems
GPS	Global Positioning System
IBRA	Interim Biogeographic Regionalisation for Australia
MI	Migratory
MNES	Matters of National Environmental Significance
OS	Other Specifically Protected
PEC	Priority Ecological Community
P	Priority
PMST	Protected Matters Search Tool
SRE	Short-range endemic
TEC	Threatened Ecological Community
T	Threatened
VU	Vulnerable
WA	Western Australia
WAH	Western Australian Herbarium

Abbreviation	Meaning
WONS	Weeds of National Significance

1 INTRODUCTION

1.1 PROJECT AND LOCATION

Animal Plant Mineral (APM) was commissioned by Westgold Resources Limited to undertake a Detailed Flora and Vegetation Survey and a Basic Fauna Survey in the Jim's Find, City of Sydney, Fleecepool and Emily Well areas of the Cuddingwarra Project area, located within the Shire of Cue in the Mid-West Region of Western Australia (WA). The Cuddingwarra Project area is approximately 7.5 km west northwest of the township of Cue, approximately 640 km north of Perth on the Great Northern Highway. Collectively the four Survey Areas have an extent of 176.91 ha and are shown in Figure 1-1.

1.2 SCOPE OF WORK

The scope of work includes a Detailed flora and vegetation and Basic fauna survey. Survey data accompanies this report in a format suitable for submission to the Index of Surveys for Assessment online portal.

1.2.1 Flora and Vegetation

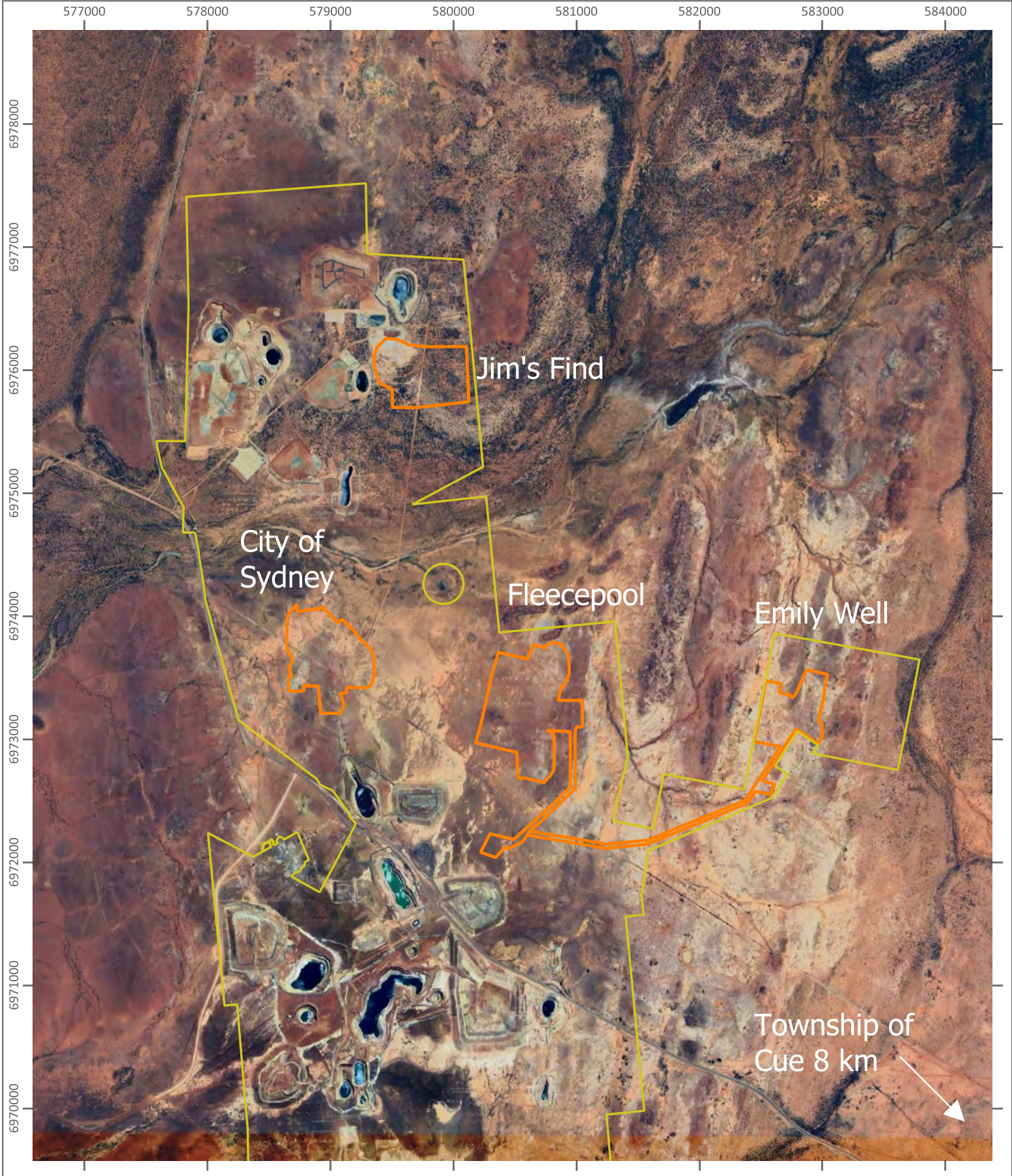
The flora and vegetation survey was conducted in accordance with the Environmental Protection Authority's (EPA) *Technical Guidance - Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment* (2016) at a Detailed level of assessment. The fauna survey was conducted at a Basic level of assessment in accordance with the EPA's fauna guidelines: *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (2020).

A desktop study was conducted to:

- Establish vegetation associations previously determined for the site;
- Identify threatened (T) and priority (P) flora, fauna and ecological communities (PECs and TECs) previously recorded on site;
- Identify introduced species previously determined as present on site, noting any Declared weeds; and
- Identify potentially suitable habitat for conservation significant flora and fauna known from the region

The aims of the field survey were to:

- Describe and map the vegetation types and fauna habitats present and provide comparisons to locally described types;
- Conduct Targeted search for conservation significant species; and
- Verify suitability and condition of habitats present in relation to preferred habitats of conservation significant species known from the region.



Author: EH Date: 16/07/2026

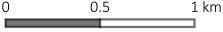
Project Location

Prepared for:



1-1

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Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

-  CPS 8087 Cuddingwarra NVCP Area
-  Survey Areas



2 BACKGROUND AND SUPPORTING INFORMATION

2.1 RELEVANT LEGISLATION AND GUIDANCE

2.1.1 Commonwealth Government EPBC Act

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW). It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as Matters of National Environmental Significance (MNES).

If a project has the potential to significantly impact on MNES it is to be referred to the DCCEEW for determination on whether the matter is a 'controlled action' and therefore requiring assessment.

The EPBC Act provides for the identification and listing of species under several categories listed in Appendix A. The EPBC Act also provides for the development of conservation advice and recovery plans, development of a register of critical habitat, recognition of key threatening processes and the development of threat abatement plans.

2.1.2 Western Australia BC Act

The *Biodiversity Conservation Act 2016* (BC Act) provides a statutory basis for the listing of T species, specially protected species, extinct species, TECs, collapsed ecological communities, critical habitat and key threatening processes in WA. The BC Act provides for the listing of T flora and fauna species and ecological communities under specified conservation categories listed in Appendix A. Species and communities listed under the BC Act are protected and require authorisation by the Minister to take or disturb.

Species may also be listed as being of special conservation interest if they have a naturally low population, restricted natural range, are subject to or recovering from a significant population decline or reduction of range or are of special interest to science. Species of special conservation interest, migratory species and species subject to international agreements are known as Specially Protected Species in the BC Act.

2.1.3 Western Australia Priority species and communities

Flora and fauna species and communities are listed by the Department of Biological Conservation and Attractions (DBCA) as P when they are considered to have a greater level of significance than other native species and communities. This generally occurs where populations are geographically restricted or threatened by local processes, or where there is insufficient information to formally assign them to T species and communities categories. Whilst P species and communities are not specifically listed in the BC Act, all flora and fauna are protected in WA following the provisions in Part 10 of the BC Act. This protection applies even when a species is not listed as T or specially protected. The categories covering P species and communities are listed in Appendix A.

2.1.4 BAM Act

Plants may be 'Declared' by the Agriculture Protection Board under the *Biosecurity and Agriculture Management Act 2007* (WA) (BAM Act). Declared Plants are gazetted under three categories (C1-C3) which define the action required. Details of the definitions of these categories are provided in Appendix A. A declaration may apply to the whole State, to districts, individual properties or even to single paddocks. If a plant is 'Declared', landholders are obliged to control that plant on their properties.

2.1.5 Weeds of National Significance

The DCCEEW, along with the State and Territory governments, has endorsed 32 Weeds of National Significance (WONS). Four major criteria were used in determining WONS:

- The invasiveness of a weed species;
- A weed's impact;
- The potential for spread of a weed; and
- Socio-economic and environmental values.

Each WONS has a national strategy and a national coordinator, responsible for implementing the strategy. WONS are regarded as the worst weeds in Australia because of their invasiveness, potential for spread, and economic and environmental impacts (Department of Agriculture, Water and the Environment 2020).

2.2 LAND USE

The Study Area lies within the Austin Downs (N050063) and Coodardy (N049528) Pastoral Leases. The underlying current land use is cattle grazing and active mining operations.

The Murchison region has a long history of gold and mineral exploration activities. There are several mines and prospects including gold, iron and other minerals which continue to be an important land use for the area, alongside pastoralism. All four Survey Areas have existing disturbance from mining and pastoral activities.

2.3 CLIMATE

The Murchison region experiences an arid climate, with summer and winter rain and annual rainfall in the range of 200 mm (Beard 1990, Pringle et al. 1994). Rainfall over the Study area is unreliable, with zero rainfall potentially recordable in any month (Pringle et al. 1994). While summer rainfall is a feature of the region, most years have a dry spell lasting four to six months, typically commencing around October (Pringle et al. 1994).

Weather data collected from the Cue Meteorological Station (4-25 km east of the Study Areas), indicates mean average rainfall of approximately 234 mm and an average of 32 rain days per annum (Bureau of Meteorology [BoM] 2026a) (Figure 2-1). Peak temperatures are recorded from December to March. Mean daily maximum temperatures range from 18 °C in July to 38 °C in January. The mean daily minimum temperature between June and August ranges from 7 to 8 °C.

The nearest BoM weather station with a long historical record for rainfall is at Cue (BoM Site Number: 7017), 4-25 km east of the Study Areas. Cue has recorded rainfall from 1894, and temperature from 1948 (74 years). Monthly mean rainfall ranges from 29.1 mm in February to 6.6 mm in October, with a mean annual rainfall of 232.3 mm (BoM 2026a). All months have recorded 0 mm of rainfall at least once over the recording period, and the lowest annual rainfall on record is 73.0 mm. Occasional high rainfalls occur in the region, associated with unpredictable tropical low pressure systems, and the highest annual rainfall on record is 558 mm. Despite the unpredictability of rainfall, the median annual rainfall is 216.9 mm, close to the mean and therefore rainfall generally occurs in most years, but with unpredictable timing.

The nearest BoM weather station with a long historical record for temperature (since 1944) is at Meekatharra airport (BoM Site Number: 7045), approximately 117 km northeast of the Study Areas. Monthly mean maximum temperature ranges from 38.4°C in January to 19.3°C in July. Overnight temperatures in January and July are on average 24.5°C and 7.4°C respectively.

The average climate data recorded at Cue (Rainfall) and Meekatharra (temperature) is shown in Figure 2-1.

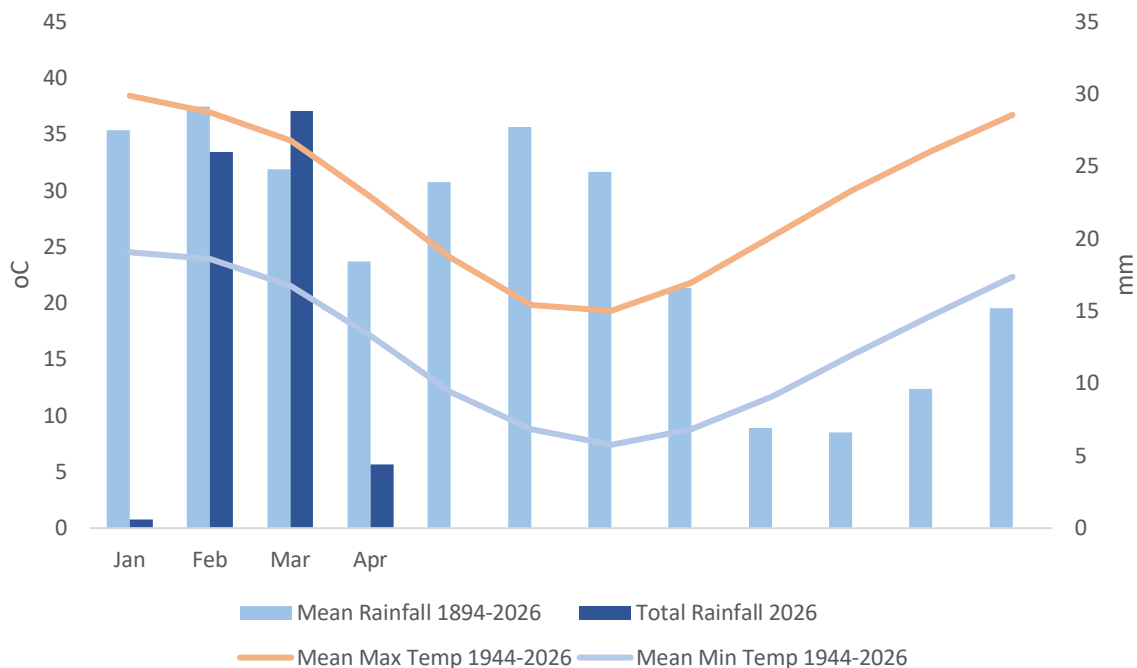


Figure 2-1. Temperature and rainfall averages (BoM 2026a)

2.4 BIOGEOGRAPHIC REGIONALISATION

The Interim Biogeographic Regionalisation for Australia (IBRA, version 7) classifies the Australian continent into regions (bioregions) of similar geology, landform, vegetation, fauna, and climate characteristics (Thackway and Cresswell 1995). The mapping completed by Beard (1975) provides the basis for the IBRA bioregions. IBRA mapping (Version 7), places the Project within the Murchison Bioregion.

The Murchison Bioregion covers an area of 278,360 km² with mining and grazing as the two main land uses (Cowan 2001). The Murchison bioregion encompasses the transitional zone between the Eucalypt dominated environs of south-west Australia and the Mulga/Spinifex dominated areas of central Australia. The bioregion contains several large ephemeral wetlands, providing refuge for waterbirds. The vegetation in the bioregion is closely associated with geology, soils and climate.

Within the Murchison Bioregion, areas of outcropping rock with skeletal soils support Mulga low woodlands. Hummock grassland grows predominately on calcareous soils and samphire (*Tecticornia* sp.) low shrubland mostly on the saline alluvium areas. In the east of the bioregion, the red sand plains support Mallee-Mulga parkland over hummock grassland (Thackway and Cresswell 1995).

The Murchison bioregion includes two sub-regions: the Murchison 1 (MUR1 – East Murchison) subregion, and the Murchison 2 subregion (MUR2 – Western Murchison). The Study area lies within the Eastern Murchison subregion, approximately 12 km east of the border with the Western Murchison subregion (Figure 1-1). The Eastern Murchison subregion consists of extensive areas of elevated red/red-brown desert sandplains with minimal dune development, breakaway complexes and internal drainage and salt lake systems associated with the occluded Palaeodrainage system (Cowan 2001).

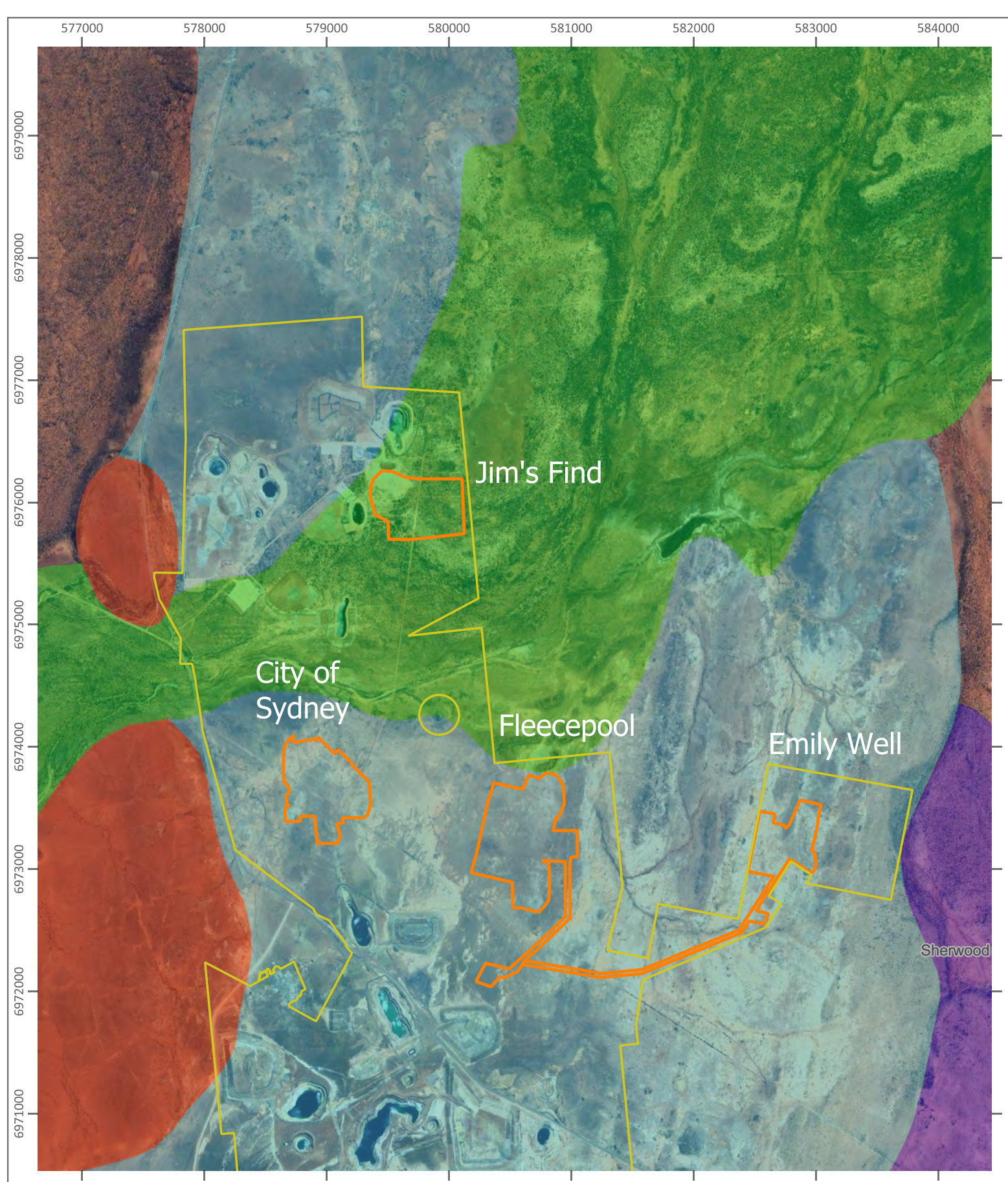
Tecticornia shrublands are common in the Murchison subregions. While the Eastern Murchison subregion drains internally, the Western Murchison subregion contains the headwaters of the Murchison and Wooramel Rivers, which drain the subregion westwards to the ocean.

2.5 LAND SYSTEMS

Land Systems of the Murchison are described by Curry et al (1994). Mapping of Land Systems is available from Department of Primary Industry and Regional Development (DPIRD, 2025). The Survey Areas fall within two soil landscape systems, Austin and Mileura, as listed in Table 2-1 and illustrated in Figure 2-2.

Table 2-1. Land Systems

Land System	Geology	Description	Survey Area
Austin	Quaternary colluvium and alluvium with isolated Precambrian greenstone intrusives and Archaean granitic outcrops	Saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga and snakewood. Occurs mainly adjacent to lakes Austin and Annean, below greenstone hill systems.	City of Sydney, Fleecepool, Emily Well
Mileura	Tertiary calcrete with opaline silica and fine gravel at depth; partly overlain by Quaternary alluvium	Saline and non-saline calcreted river plains with flood plains and calcrete platforms supporting variable tall shrublands, mixed halophytic shrublands and shrubby grasslands.	Jim's Find



Author: EH Date: 16/07/2026

Land Systems

Prepared for:



2-2

Scale: @ A4 1: 40,000



0 0.5 1 km

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

- Survey Areas
- CPS 8087 Cuddingwarra NVCP Area
- Austin
- Gabanintha
- Mileura
- Sherwood



2.6 REGIONAL VEGETATION

The Survey Areas are located within the Eremaean Botanical Province and fall within one pre-European Beard vegetation association (Unit 313) of the Wiluna/Upper Murchison Systems as shown in Figure 2-3 (DPIRD 2019). The remaining extent of vegetation association 313 within the East Murchison sub-region is outlined in the most recent DBCA Statewide Vegetation Statistics table dated 2018 and summarised in Table 2-2 below.

Table 2-2. Pre-European Beard Vegetation Associations extent in the East Murchison sub-region

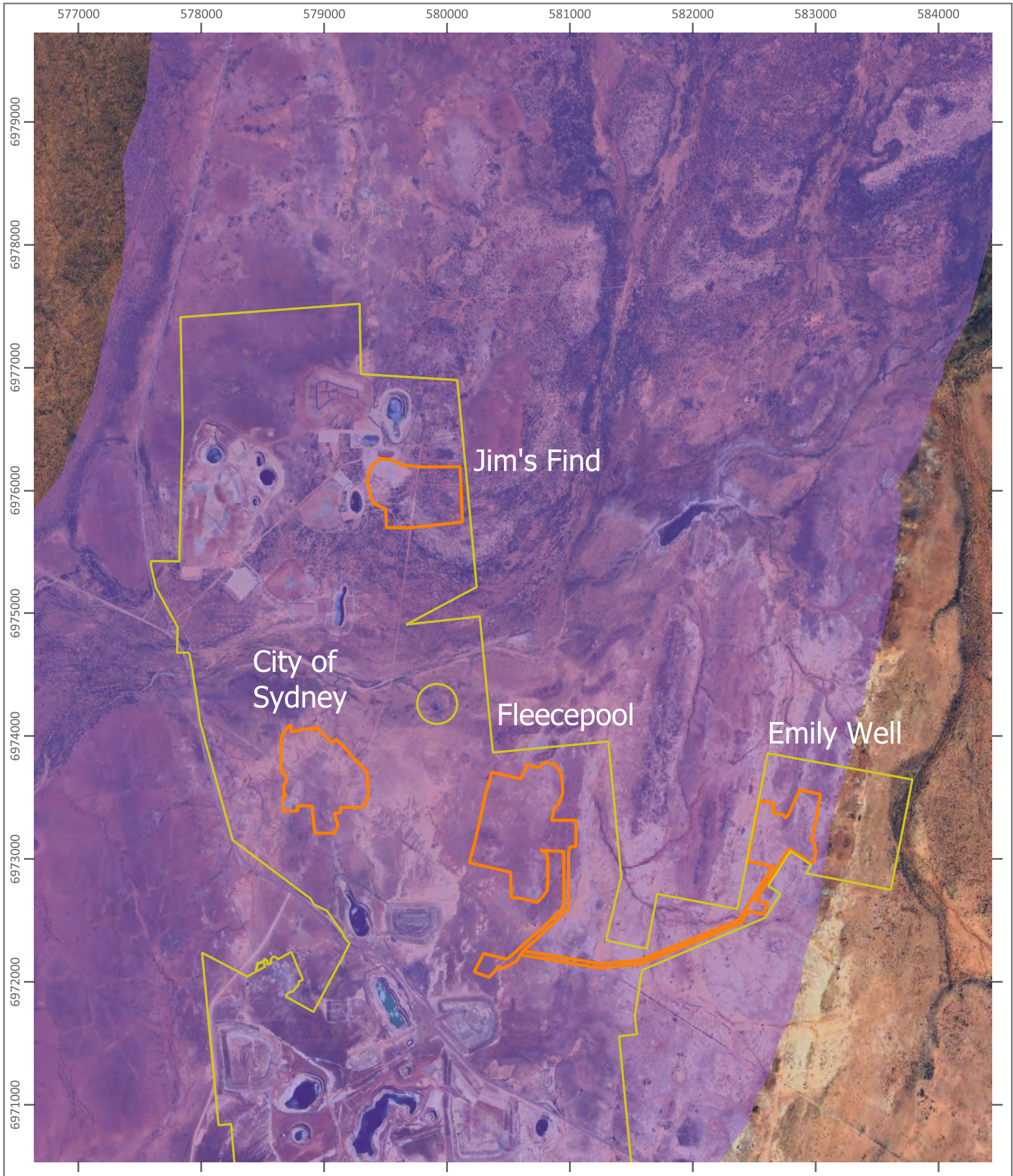
Unit	Vegetation Description	Pre-European Extent (ha)	Current Extent (ha)	Pre-European Extent Remaining (%)	Current Extent within DBCA Managed Lands (%)
313	Saltbush and bluebush with scrub or open scrub of Mulga, other wattle <i>Atriplex</i> spp, <i>Maireana</i> spp. with <i>Acacia aneura</i> and other <i>Acacia</i> spp.	68,844	65,261	94.8	0.0

Vegetation association 313 has 94.8% of the Pre-European extent remaining and is endemic to the Murchison bioregion. The conservation status of vegetation association 313 is Least Concern.

2.7 HYDROLOGY AND HYDROGEOLOGY

The Survey Areas are situated in the Sandford River sub-catchment of the Murchison River Catchment area. Surface hydrology of the local area is disconnected from the surrounding region, with surface and groundwater flows draining centrally into Lake Austin. Lake Austin is located approximately 16 km south of the Survey Areas and is the terminal sink of an endorheic (internally draining) catchment within the Murchison River basin. The waterways in the local area (shown in Figure 2-4) are largely ephemeral and generally only flow after rainfall events. Nallan Creek flows through the central portion of the Cuddingwarra Native Vegetation Clearing Permit Area, approximately 18 km downstream of Nallan Lake, an ephemeral claypan lake.

On a regional scale groundwater discharge occurs to the southwest into Lake Austin. Deeper groundwater flow within the underlying fractured bedrock is governed by the regional north-south trending foliation and associated jointing. Shallow flow through the superficial sediments is controlled by the local topography and drainage. Groundwater recharge is from rainfall. Very limited supplies of fresh to saline quality are available from fractured bedrock and clayey superficial sediments. Moderate to large supplies of brackish to saline groundwater are available from calcrete deposits.



Author: EH Date: 16/07/2026

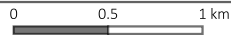
Pre-European Vegetation

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WESTGOLD **2-3**

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Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

-  CPS 8087 Cuddingwarra NVCP Area
-  Survey Areas
-  Pre-European Vegetation Association 313



2.8 GROUNDWATER DEPENDENT ECOSYSTEMS

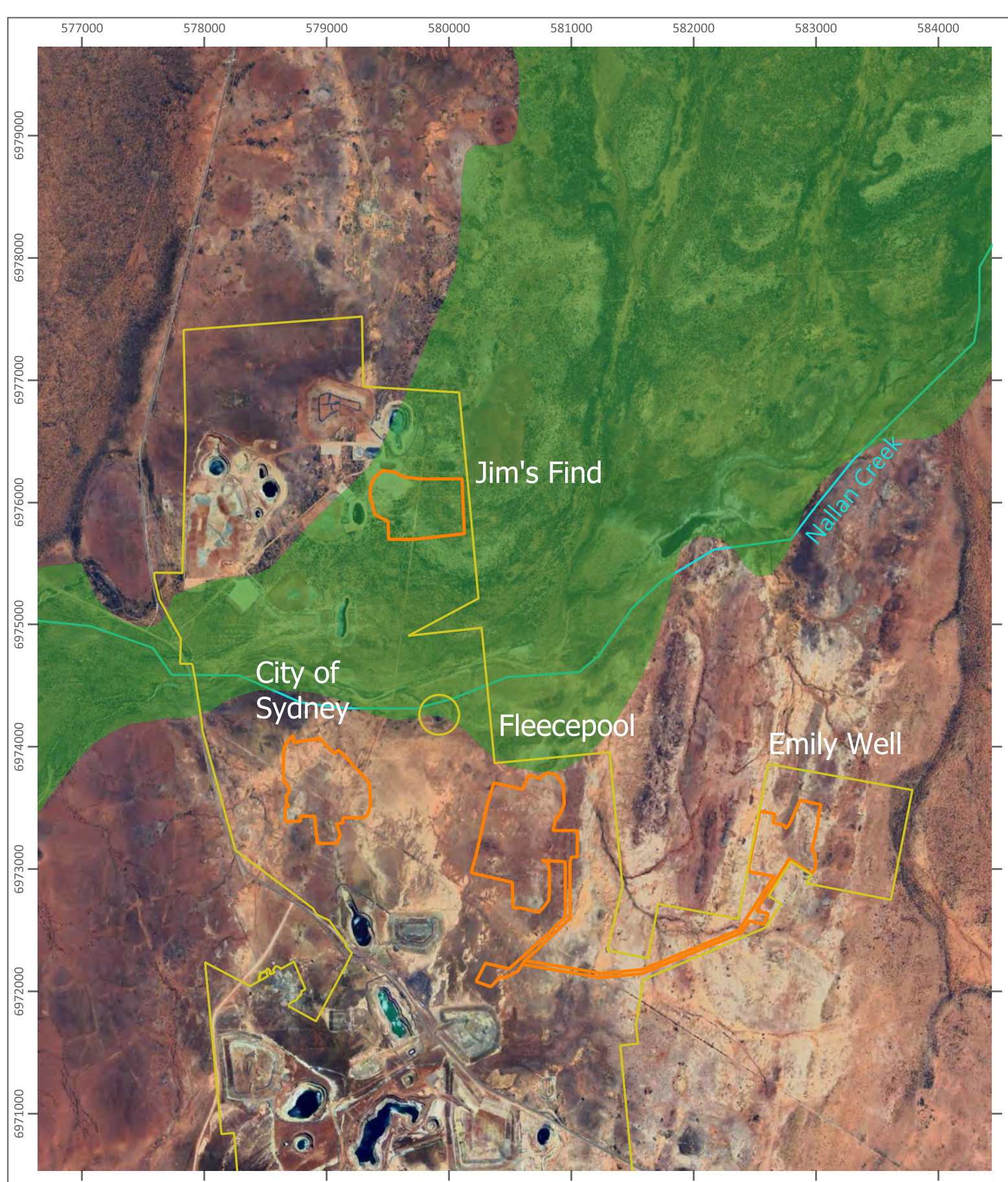
The BoM Groundwater Dependent Ecosystems (GDE) Atlas provides information to support the recognition and identification of GDEs in natural resource management, including water planning and environmental impact assessment. It indicates where ecosystems potentially interact with groundwater, and some of the characteristics of those ecosystems that may be useful in determining water requirements.

The GDE Atlas shows general areas where groundwater interaction may occur. It does not imply that an entire mapped ecosystem is using groundwater, but rather groundwater interaction may be occurring somewhere within the mapped ecosystem. It is recommended that the GDE Atlas be used to flag the location and characteristics of potential GDEs (BoM 2026b).

For WA, the Atlas contains information about two types of ecosystems:

- Aquatic ecosystems that rely on the surface expression of groundwater—this includes surface water ecosystems which may have a groundwater component, such as rivers, wetlands and springs.
- The terrestrial GDE layer expresses the potential for groundwater and mapped vegetation communities across Australia to interact. It shows the vegetation communities that interact with groundwater from the water table or in the capillary zone.

Based on the national assessment, there are no potential aquatic GDE listed on the GDE Atlas within or near the Survey Areas. Under the national assessment the Mileura Land System has High potential for Terrestrial GDE. Figure 2-4 shows the GDE Atlas terrestrial layers in relation to the Survey Areas.



Author: EH Date: 16/07/2026

Hydrology and Hydrogeology

Prepared for:



2-4

Scale: @ A4 0 0.5 1 km
1: 40,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

- CPS 8087 Cuddingwarra NVCP Area
- Survey Areas
- Major Tributary
- High potential GDE from national assessment



2.9 ENVIRONMENTALLY SIGNIFICANT AREAS

2.9.1 Conservation Estate

The Western Australian Conservation Estate includes land and waters vested in the Conservation and Parks Commission under the *Conservation and Land Management Act 1984*. The Conservation Estate is managed by the Parks and Wildlife Service of DBCA to protect WA's biodiversity, and includes National Parks, Nature Reserves, Conservation Reserves, and other areas managed primarily for biodiversity conservation (Department of Energy and the Environment 2016).

DBCA-11 Protected Areas was viewed to identify conservation estates located near the Survey Areas. The closest feature is Lakeside Conservation Park (WA_53840), a Class C Reserve with legal vesting to the Conservation and Parks Commission and Wajarri Yamatji Aboriginal Corporation RNTBC, which is approximately 12 km from the Survey Areas (Figure 2-5).

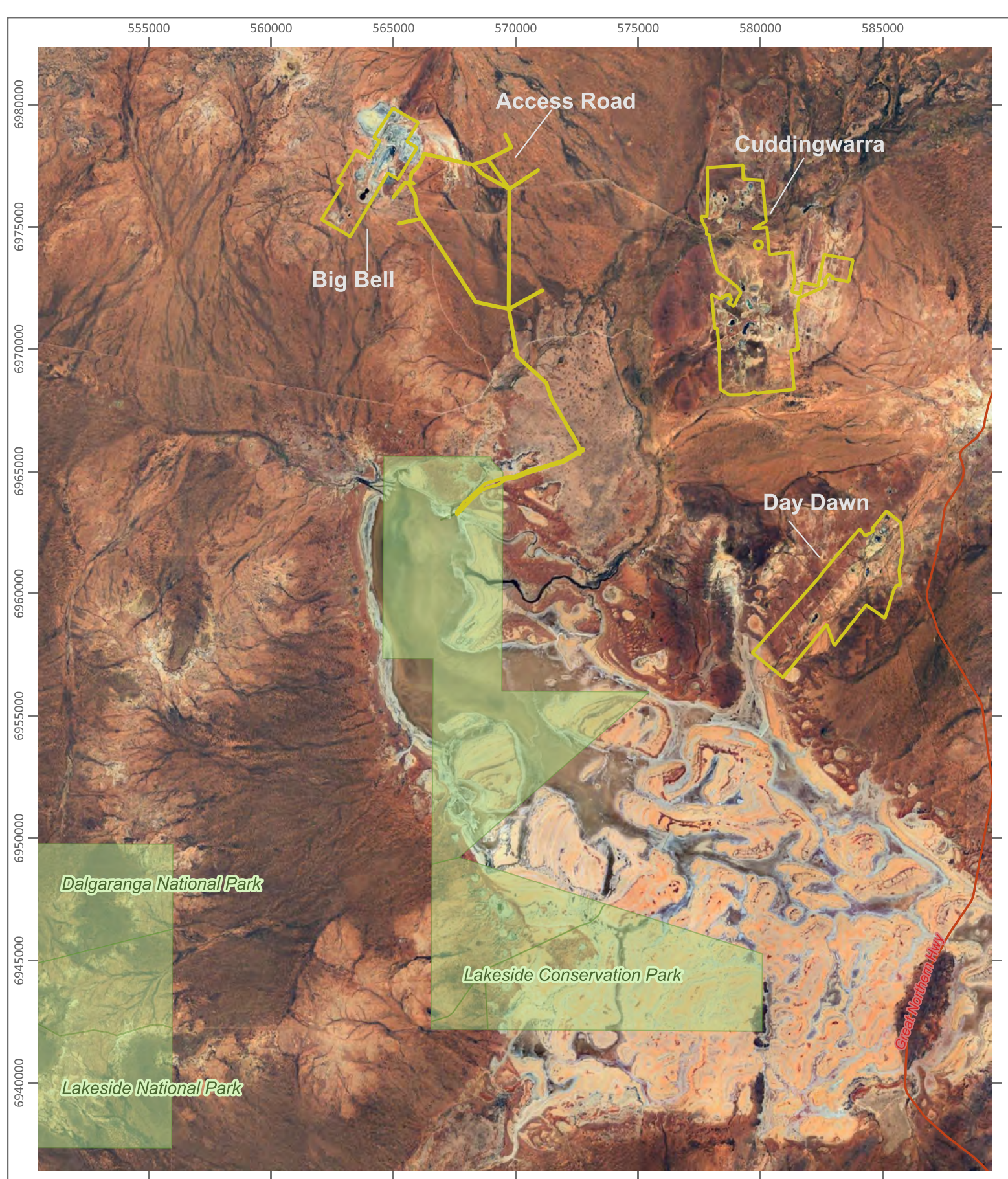
Lakeside National Park (WA_53839) and Dalgara National Park (WA_54419) are approximately 30 km south west of the Survey Areas (Figure 2-5). These conservation Reserves were formerly Lakeside and Dalgara Pastoral Leases, purchased by the WA Government in 2009 for gazettal into the Conservation Reserve system.

2.9.2 Environmentally Sensitive Areas

Environmentally Sensitive Areas are areas that are defined by the Department of Water and Environment Regulation (2023) as:

- A declared World Heritage property as defined in s.13 of the EPBC Act;
- An area that is included on the Register of the National Estate, because of its natural heritage value under the *Australian Heritage Council Act 2003*;
- A defined wetland and the area within 50 m of the wetland;
- The area covered by vegetation within 50 m of T flora, to the extent to which the vegetation is continuous with the vegetation in which the T flora is located;
- The area covered by a TEC;
- A Bush Forever site;
- Areas covered by the Gnarra Mound Crown Land Policy and Western Swamp Tortoise Policy;
- Areas covered by lakes, wetlands, and fringing vegetation of the Swan Coastal Plain Lakes Policy, including Southwest Agricultural Zone Wetlands Policy and Swan and Canning Rivers Policy; and
- Protected wetlands as defined in the Environmental Protection (Southwest Agricultural Zone Wetlands) Policy 1998.

Environmentally Sensitive Areas can be viewed on the Department of Water and Environment Regulation clearing permit system map viewer. There are no Environmentally Sensitive Areas within the Study Areas. The Australian Wetlands Database includes nationally significant wetlands (as listed in the directory of important wetlands), wetlands listed under the Ramsar convention, wetlands that are representative, rare or unique, or wetlands that are considered of international importance (DBCA 2026). The nearest wetlands listed in the Directory are Lake Annean (Lake Nannine) 62 km north east and Wooleen Lake 147 km north west of the Survey Areas.



Author: EH

Date: 13/02/2026

Conservation Reserves

Prepared for:

WESTGOLD

2-5

Scale: @ A4
1: 150,000



0 2 4 km

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

- CPS 8087_Big Bell_Cuddingwarra_Day Dawn NVCP Areas
- Legislated_Lands_and_Waters_DBCA_011_WA_GDA2020_Public — Legislated_Lands_and_Waters_DBCA_011



3 METHODOLOGY

3.1 DESKTOP STUDY

3.1.1 Database Searches

A search for EPBC Act MNES was undertaken using the DCCEE Protected Matters Search Tool (PMST). The PMST identifies EPBC listed flora and fauna species and communities based on predicted distributions of the species and/or their habitat, in conjunction with species records. The PMST may predict the occurrence of a species or community in an area where there are no documented records, or documented records are historic. For this search, the Survey Areas were imported into the PMST viewer as the feature area and a buffer of 30 km applied. The conservation codes are described in Appendix A. The results of the PMST search are included in Appendix B.

The DBCA maintains databases for records of T and P species and communities. A request was made for a search of DBCA databases for T and P flora and fauna and the presence of TECs or PECs. A 30 km buffer was applied to the search results from a central coordinate of 696681, 7674607 (GDA 2020, MGA Zone 50).

Records for Introduced flora and fauna from within 30 km, were obtained from the Dandjoo Biodiversity Data Repository hosted by the DBCA Biodiversity Office (DBCA 2026a).

Table 3-1 lists the database searches conducted for the desktop study.

Table 3-1. Database Searches

Attribute	Search Area	Database	Location
Threatened and Priority Ecological Communities	30 km radius	DBCA	Figure 4-1
	30 km radius	PMST	Appendix B
Groundwater Dependent Ecosystems (GDE)	Study Area	BoM GDE Atlas	Section 4.2
Threatened Flora	30 km radius	DBCA	Figure 4-2
	30 km radius	PMST	Appendix B
Introduced Flora	30 km radius	Dandjoo	Section 4.5
Threatened Fauna	30 km radius	DBCA	Figure 5-1
	30 km radius	PMST	Appendix B
Introduced Fauna	30 km radius	Dandjoo	Section 5.1.3

The DBCA fire history database (DBCA 2026b) was consulted to identify local fire history.

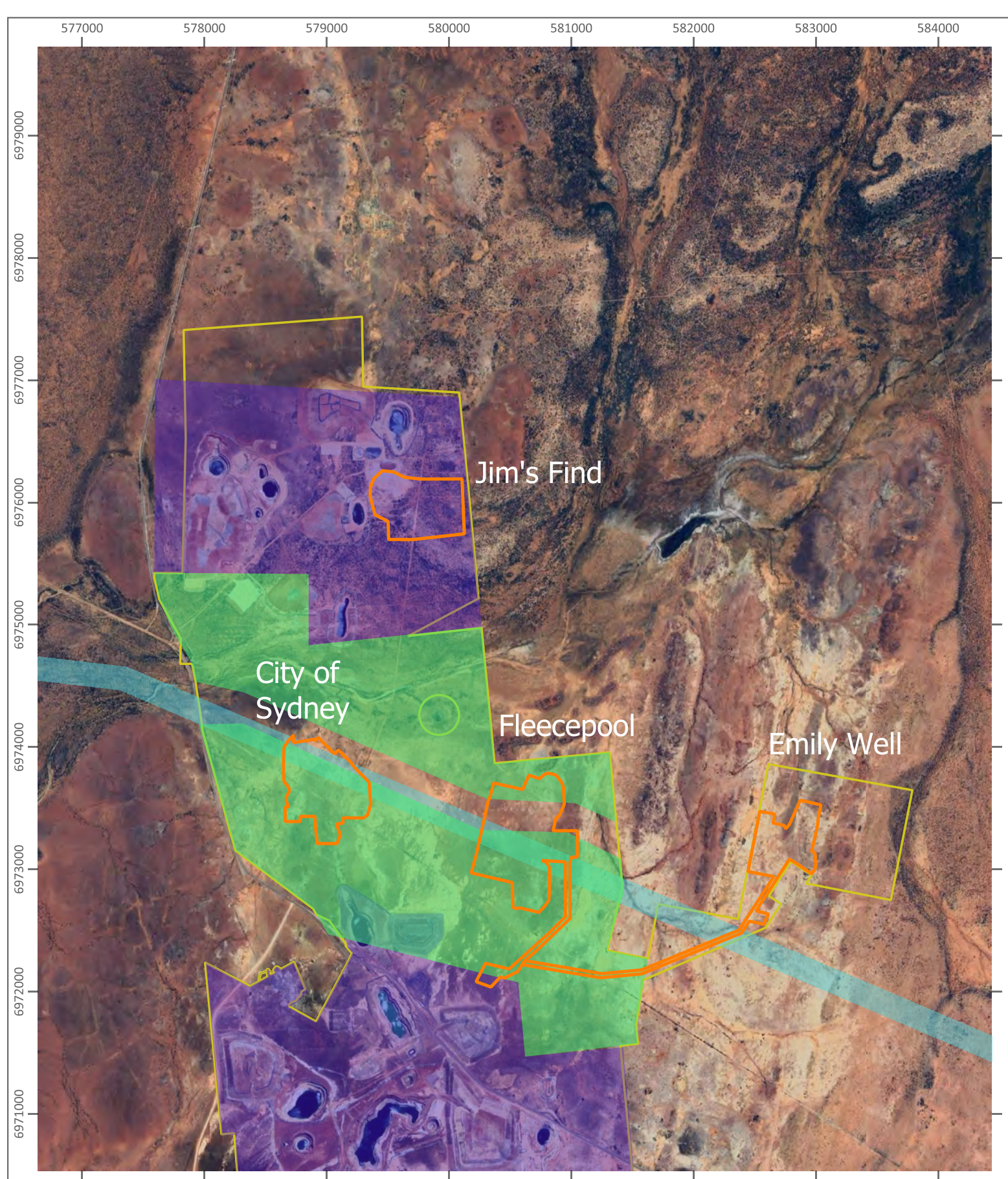
3.1.2 Literature Review

Flora, vegetation, and terrestrial vertebrate fauna surveys have been conducted in the local area. The local surveys were reviewed, and the results incorporated into the Desktop Study where relevant. Table 3-2 lists the locally available surveys, the survey intensity and any limitations identified in the survey reports.

Table 3-2. Previous surveys, survey level and coverage

Reference	Report Title/Survey Level	Survey coverage
Outback Ecology (2012a)	Central Murchison Gold Project Level 1 Vegetation, Flora and Fauna Assessment	Jim's Find
Maia (2017)	Big Bell Haul Road (Tenements L20/76 and L20/77) Level 1 Reconnaissance and Targeted Flora Survey	Partial intersection of City of Sydney, Fleecepool and Emily Well
Maia (2019b)	City of Sydney and Fleece Pool Project Area Reconnaissance and Targeted Flora Survey	Approximately 80% of City of Sydney and Fleecepool

Figure 3-1 shows the extent of previous survey effort.



Author: EH

Date: 16/07/2026

Previous Survey

Prepared for:



3-1

Scale: @ A4 0 0.5 1 km
1: 40,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

- CPS 8087 Cuddingwarra NVCP Area
- Survey Areas
- Maia 2017
- MAIA 2019
- Outback Ecology 2012



3.1.3 Likelihood of Occurrence

Threatened and Priority flora, fauna and communities returned from the database searches and literature review were assessed for their likelihood of occurrence within the Survey Areas using the likelihood of occurrence criteria listed in Table 3-3.

Table 3-3. Likelihood of occurrence criteria

Likelihood of occurrence	Criteria
Recorded	Identified from database records or field survey as occurring within the Study Areas
Likely	Suitable habitat is present in the Survey Areas and the species has previously been recorded within 15 km within the last 15 years
Possible	Suitable habitat is present within the Survey Areas and the species has previously been recorded between 15 – 30 km in any time period, or within 15 km more than 15 years ago
Unlikely	No suitable habitat is present in the Survey Areas

3.2 FIELD SURVEY

3.2.1 Survey Personnel and Timing

The terrestrial vertebrate fauna survey was carried out by Principal Zoologist Dr Mitchell Ladyman. The flora and vegetation field survey was undertaken by Principal Botanist Dr Eleanor Hoy. Survey was conducted from the 14th to 20th April 2026.

3.2.2 Survey Conditions

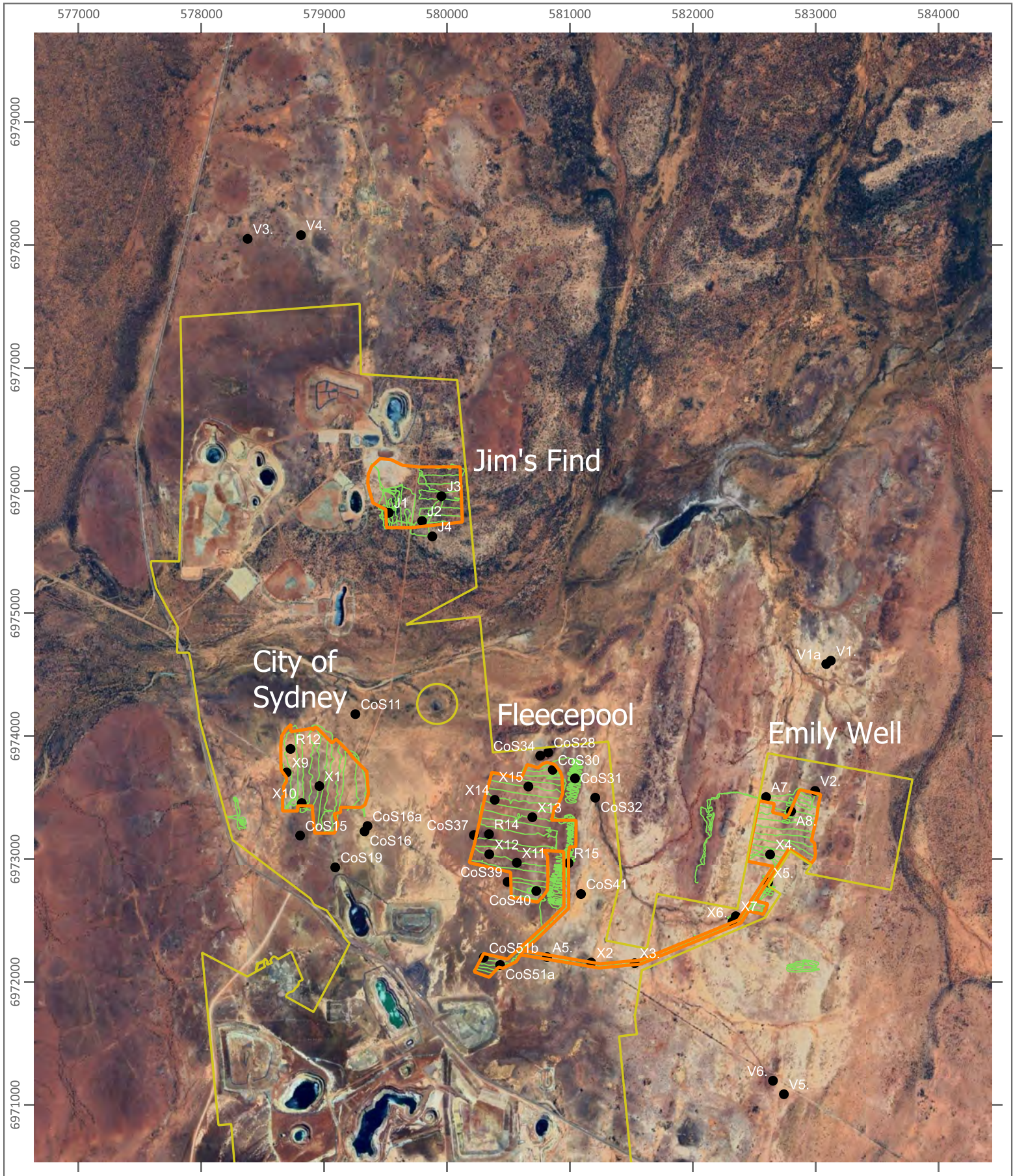
The total annual rainfall prior to survey (1st January 2026 to 14th April 2026) was 67% of average at 59.8 mm compared to 89 mm, but above the median of 45.6 mm for the same period (BoM 2026).

The Survey Area is within the Eremaean botanical province. Recommended timing for flora and vegetation survey is 6-8 weeks post wet season (March – June) for Primary survey. The timing of the field survey is within the primary period recommended for flora and vegetation survey in the region.

Fauna survey timing was within that recommended for reptiles and mammals (EPA 2020).

3.2.3 Flora and Vegetation

A Detailed survey was conducted for flora and vegetation. Vegetation was sampled using 46 quadrats of 20 x 20 m (Figure 3-2). Quadrats are vegetation survey plots which are accurately measured out as 20 x 20 m (or an area equivalent to 400 m²) and marked at the north-west corner using a handheld Global Positioning System (GPS) unit. Due to the highly disturbed condition of vegetation within the Survey Areas, sites positioned in the surrounding area were included in the Survey to verify the pre-disturbance community composition and assess the condition relative to undisturbed areas.



Author: EH Date: 16/07/2026

Survey Sites

Prepared for:

WESTGOLD

3-2

Scale: @ A4
1: 40,000

0 0.5 1 km

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator

Austral Plant Mineral Pty Ltd

Legend

- CPS 8087 Cuddingwarra NVCP Area
- Survey Areas
- Detailed Flora and Vegetation Site
- Targeted Search tracklog



Field data at each survey site was recorded on a pro-forma data sheet and included the parameters listed in Table 3-4. The attributes of Detailed survey sites are provided in Appendix C.

Table 3-4. Parameters recorded at each Detailed site

Variable	Parameters
Collection attributes	Personnel/recorder; date, quadrat dimensions and marking method, site code and georeferenced photographs of the quadrat.
Physical features	Landform, slope, aspect, soil attributes, ground surface cover, litter, rock type and physical attributes.
Location	Coordinates recorded using a hand-held GPS (Garmin) to accuracy approximately ± 5 m.
Vegetation	Dominant growth form, height, cover, and species for the three traditional strata (upper, mid and ground) compatible with NVIS Level V (ESCAVI 2003).
Vegetation condition	Vegetation condition was assessed using the condition rating scale devised by Trudgen (1988).
Disturbance	Level and nature of disturbances (<i>e.g.</i> weed presence, fire, and time since last fire, impacts from grazing, vegetation clearing, erosion).
Flora	List of all species within the quadrat including weeds and listing species average height and cover.

A flora inventory was compiled from taxa listed in Detailed survey sites and from opportunistic floristic collections throughout the Survey Areas, with at least one collection made for every taxon encountered. Specimens were identified by an experienced botanical taxonomist in the Western Australian Herbarium (WAH) using published reference material. The nomenclature applied is consistent with Florabase (WAH 1998-).

The conservation status of all recorded flora was determined from the T and P Flora List (DBCA 2026), and the EPBC Act List of T Flora (DCCEEW 2026). The Western Australian Organisms List database was consulted to determine if any are BAM Act Declared Plants (DPIRD 2026), and the Weeds of National Significance list to determine any WONS (Department of Agriculture, Water and the Environment 2020).

The vegetation types were described based on their structure and species composition, as defined by quadrat data, and field observations. Vegetation was mapped in the field using handheld GPS units and aerial photographs, then digitised using Geographic Information System software. Vegetation is described at the association level (ESCAVI 2003) and referred to as Vegetation Types (EPA 2016).

Vegetation Condition was assigned using the scale developed for the Eremaean and Northern Botanical Provinces adapted from Trudgen (1988) as recommended in EPA (2016). Table 3-5 lists the six potential categories.

Table 3-5. Vegetation Condition Scale

Vegetation Condition	Eremaean and Northern Botanical Provinces adapted from Trudgen (1988)
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; <i>i.e.</i> areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Data analysis was applied using the method recommended by EPA (2016). A species by site matrix was prepared using the complete suite of species recorded. The Primer 7 (Clarke and Gorley, 2015), software was used to perform floristic composition vegetation classification. Data was transformed to presence/absence and a resemblance matrix was constructed using the Bray Curtis similarity measure. A cluster analysis was performed using group averages. The SIMPROF routine was used to test the hypothesis that the species and/or abundances are different at each group of sites using 999 permutations and a significance level of 5%. To verify the equivalence with previous vegetation survey in the local area, quadrat data from the literature review was included in the analysis.

The completeness of the survey was tested using a species accumulation curve and applying the Michaelis-Menton model to estimate the species richness of the Survey Areas.

Targeted searches were conducted at an average of 50 m intervals suitable for the sparse, open nature of the Survey Areas. The resolution was increased to 5 m intervals where suitable habitat was detected (Figure 3-2). The known locations of critically endangered *Eremophila rostrata* subsp. *rostrata* near the Cue township were visited to verify the seasonal conditions were suitable for the detection of the species and familiarise personnel with the suitable habitats. Several locations were visited and the species found to be present and detectable under the prevailing seasonal conditions.

3.2.4 Fauna

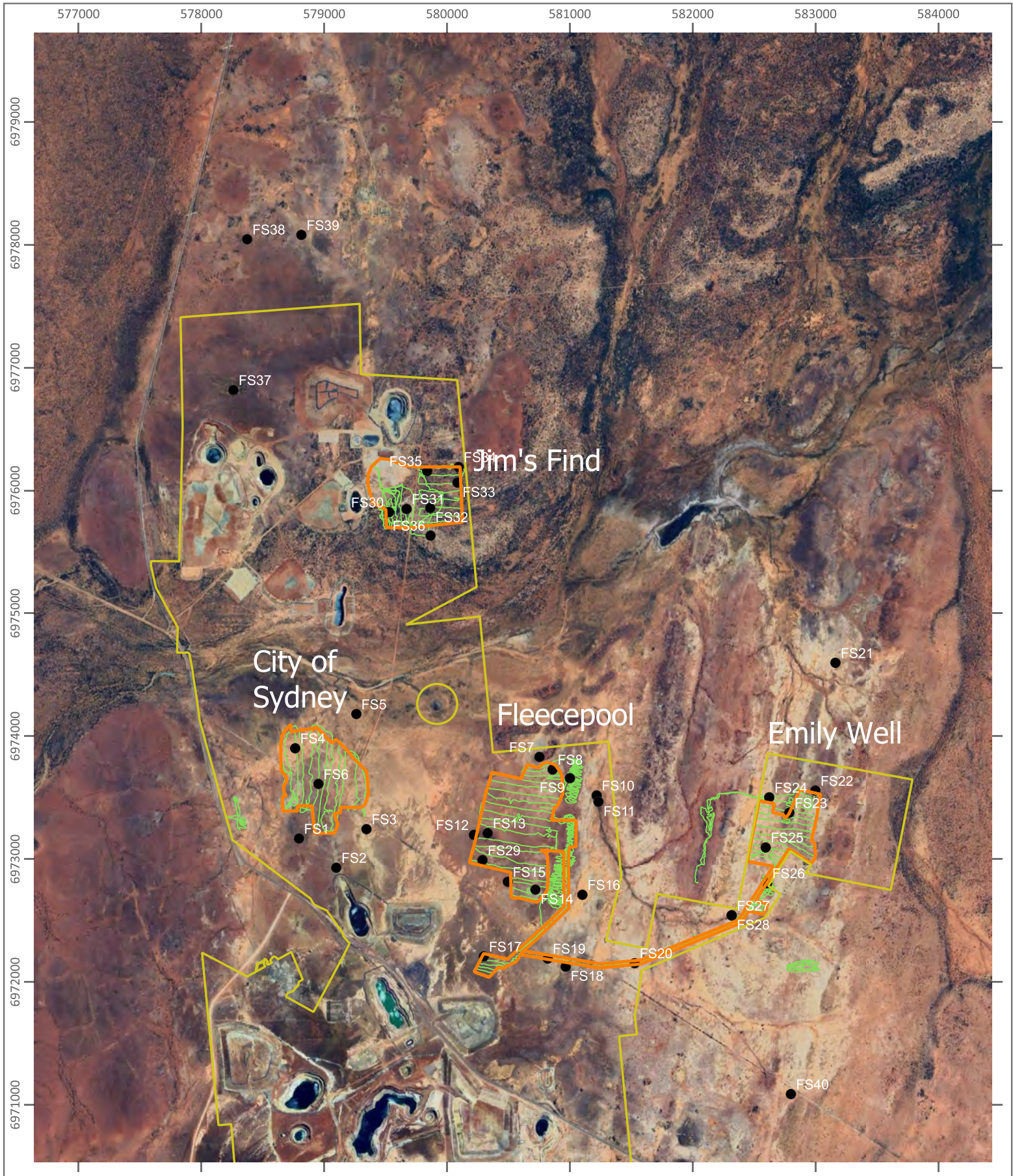
A Basic survey was conducted to verify the overall adequacy of the desktop study and to map and describe habitats. The basic survey included habitat assessments at 40 locations distributed throughout the Survey Areas and into the surrounding reference areas that were included to verify condition. Georeferenced photos were taken at all fauna habitat assessment sites and mapping of the distribution of fauna habitats was conducted on printed maps in the field and converted to Geographic Information System layers. Habitat assessments were conducted using methodology and terminology modified from the *Australian Soil and Land Survey Field Handbook* (National Committee on Soil and Terrain, 2009). The characteristics recorded during the habitat assessments were:

- site information: location, georeferenced photo, broad habitat type, date
- landform: landform type, slope, aspect
- vegetation: leaf litter %, hollow bearing trees, broad floristic formation, vegetation structure (tall, mid and low), and dominant species
- land surface: availability of soil for burrowing, cracks or crevices for sheltering, presence of surface water bodies
- soil: texture
- substrate: bare ground, rock size, rock type, rock outcropping, and
- disturbance: time since last fire, evidence of weeds, grazing, erosion or human disturbances.

Notes were made on the availability of suitable breeding and foraging habitats for conservation significant fauna identified in the desktop study.

Targeted Search was conducted on foot at a minimum of 50 m intervals to detect any suitable microhabitats, signs or evidence of the presence of conservation significant fauna, intensity was increased to 5 m intervals where suitable habitat was potentially occurring. Fauna habitat assessment locations and targeted search tracklogs are shown in Figure 3-3.

The historic location for Night Parrot (record from 1854) and more contemporary record for Southern Whiteface (2017) in the regional area were visited to gain context around local suitable habitat areas.



Author: EH Date: 17/07/2026

Survey Sites

Prepared for:

WESTGOLD **3-3**

Scale: @ A4 1: 40,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator

Legend

- CPS 8087 Cuddingwarra NVCP Area
- Survey Areas
- Fauna Habitat Assessment location
- Targeted Search tracklog



4 FLORA AND VEGETATION RESULTS

4.1 DESKTOP STUDY

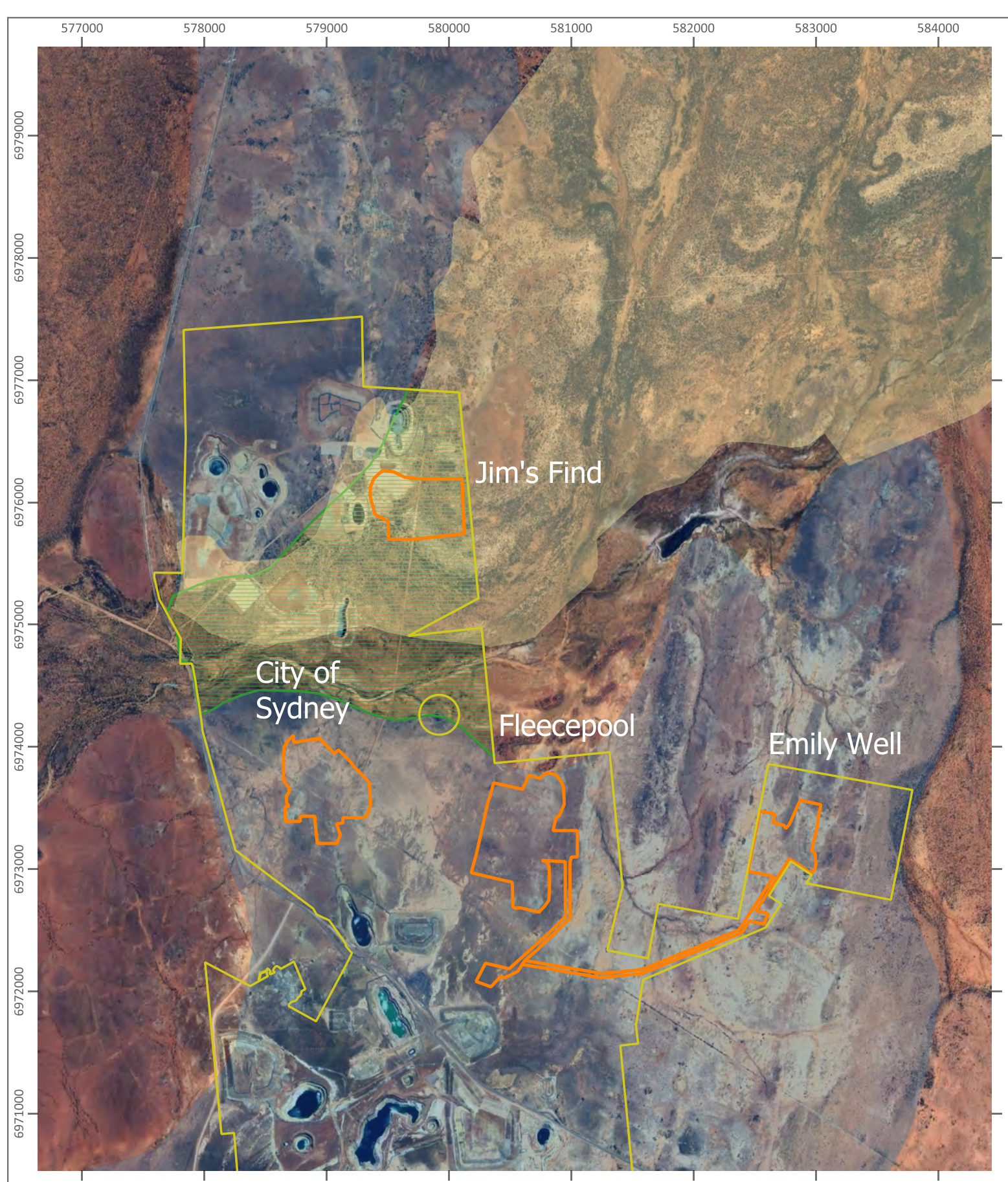
4.1.1 Significant Vegetation

There are no TECs listed under the BC Act or EPBC Act known to occur within the Survey Areas.

Two PEC's intersect with the Study Areas. One: The Taincrow calcrete groundwater drainage is a subterranean fauna assemblage considered a Priority One (P1) Ecological Community. Jim's Find Survey Area overlies the Taincrow calcrete PEC. Given the conservation status of the Taincrow Calcrete PEC is a result of unique invertebrate assemblages identified in the groundwater calcretes, the vegetation overlying the PEC is not necessarily conservation significant.

The Austin Land System is considered as a Priority 3 (P3iii) Ecological Community by the DBCA, as occurrence is limited to the Murchison bioregion. The City of Sydney, Fleecepool and Emily Well Survey Areas intersect the Austin Land System, as shown in Figure 4-1. The Austin Land System PEC requires conservation of its saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga (DBCA 2023a). The five land units described for the Austin LS (Curry et al 1994) are all classified as the P3 PEC (Maia 2019b). All vegetation types occurring within the P3 designated area are part of the PEC.

The GDE Atlas (BoM 2026b) maps the Nallan Creek area as having a high potential to be terrestrial GDE based on the National Assessment. The high potential GDE area overlies the Jim's Find Survey Area within the south western extent of the Taincrow calcrete PEC. Depth to groundwater was reported in Outback Ecology (2012b) as being 2-6 m below ground level (mbgl) and salinity 3-30 ppm in the shallow calcrete aquifer and is therefore capable of supporting ecosystems dependent on subsurface presence of groundwater (Richardson et al 2011).



Author: EH Date: 16/07/2026

Significant Vegetation

Prepared for:

WESTGOLD

4-1

Scale: @ A4 0 0.5 1 km
1: 40,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Legend

 CPS 8087 Cuddingwarra NVCP Area

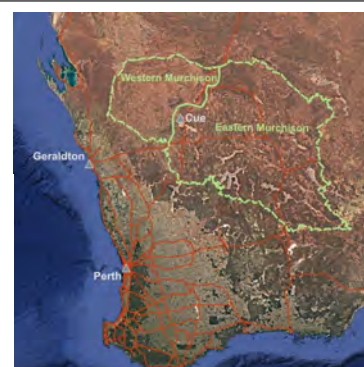
 Survey Areas

 Potential GDE

Priority Ecological Communities

 Austin Land System

 Taincrow calcrete groundwater assemblage



4.1.2 Flora

Table 4-1 lists the flora richness and dominant families recorded for the studies included in the literature review.

Table 4-1. Flora statistics from the literature review

Study	Total richness	Average richness	Dominant families	Indeterminate specimens
Outback Ecology (2012a)	151 taxa from 41 families and 91 genera	16.7	Asteraceae (17), Chenopodiaceae, Fabaceae (23), Poaceae (19) and Scrophulariaceae (10)	52 (34%)
Maia (2017)	198 taxa were recorded from 84 genera and 38 families (85.35% perennial, 14.65% annual)	11.8	Fabaceae (35), Chenopodiaceae (25) and Scrophulariaceae (21)	2 (1%)
Maia (2019a)	176 taxa were recorded from 95 genera and 88 families (69% perennial and 31% annual).	12.1	Chenopodiaceae (30), Asteraceae (29) and Fabaceae (28)	10 (5.7%)
Maia (2019b)	207 taxa (including hybrids, crosses and queries) were recorded from 94 genera and 36 families (72% perennial and 28% annual).	12.9	Chenopodiaceae (41), Fabaceae (32) and Asteraceae (25)	7 (3.4%)

The previous surveys listed in Table 4-1 were all conducted in spring, with Outback Ecology (2012a) and Maia (2017) following higher than average winter rainfall and the 2019 surveys following lower than average winter rainfall.

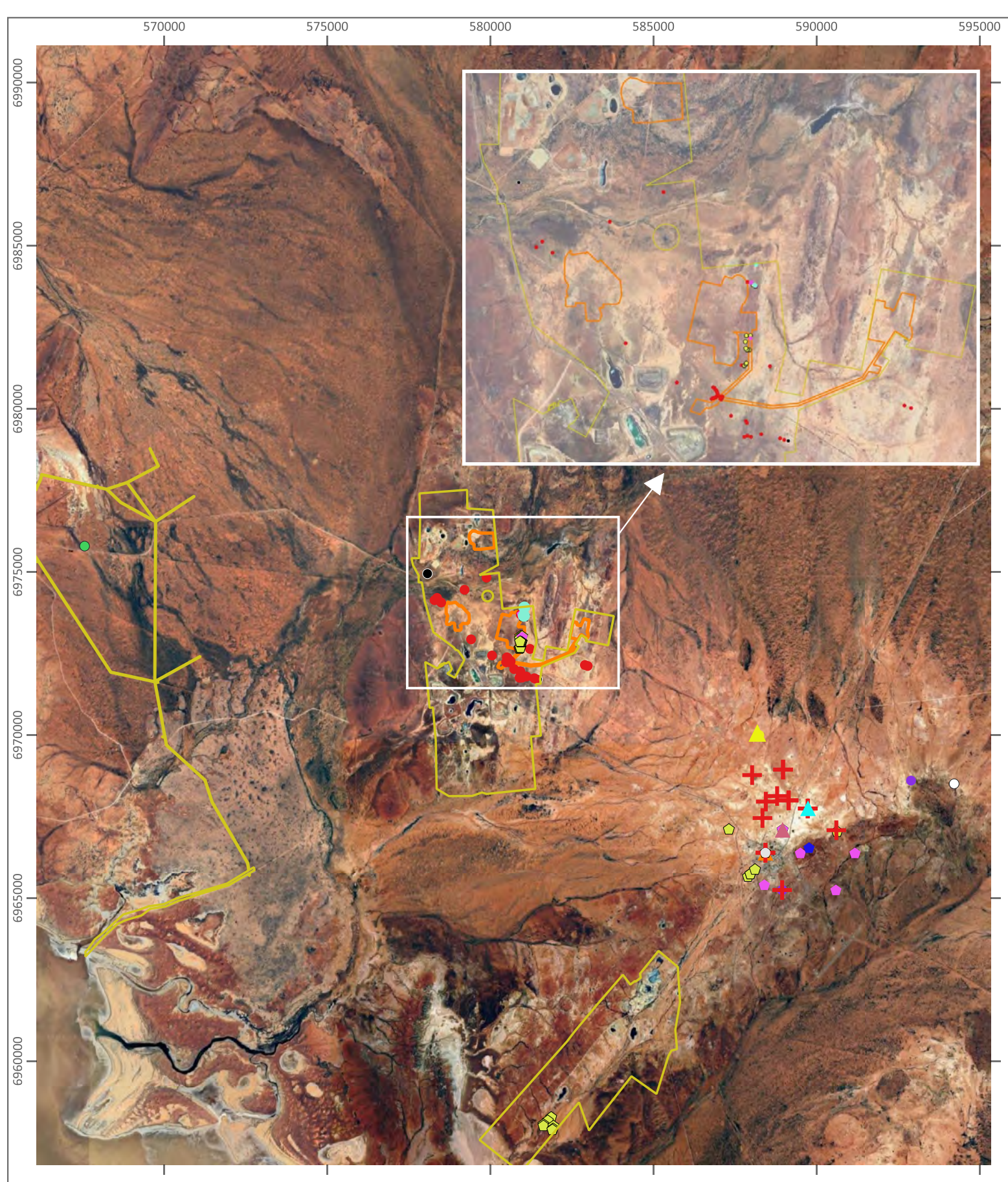
4.1.3 Significant Flora

The DBCA database returned 27 species of significant flora that have database records within 30 km of the Survey Areas. Of these, 1 is T, nine are P1, two are P2, 11 are P3 and four are P4. T and P flora returned from the DBCA database search are shown in Figure 4-2. The database search does not contain any records for flora within the Survey Areas. Some records included in the database return are of low spatial accuracy, being historic records where the general location was recorded as 'Cue'. The database has assigned these records to the townsite, which is within 30 km of the Survey Areas, however the actual record location is unknown and may be significantly remote from the township.

The PMST returned two flora from the 30 km buffered search area: *Minuria tridens* (name revised to *Minuria* sp. Murchison T. Lowrey 1713 in WA) and *Eremophila rostrata*, which were included in the DBCA return. *Minuria* sp. Murchison is considered P1 in WA, and Threatened, in the category Vulnerable under the EPBC Act. *Eremophila rostrata* is listed as Threatened in the category Critically Endangered under both the EPBC Act and the BC Act.

No T flora listed under the BC Act and/or EPBC Act have database records within the Survey Areas or have been recorded in the Survey Areas during previous survey.

The literature review identified nine P flora from studies conducted in the local area. Three of these (*Hibiscus krichauffianus*, *Ptilotus luteolus* and *Sauropus* sp. Woolgorong) were in addition to the database searches and additional records for the remaining species were also added. All records within the current Survey Areas are sourced from the literature review.



Author: EH Date: 16/07/2026

Significant Flora

Prepared for:

WESTGOLD

4-2

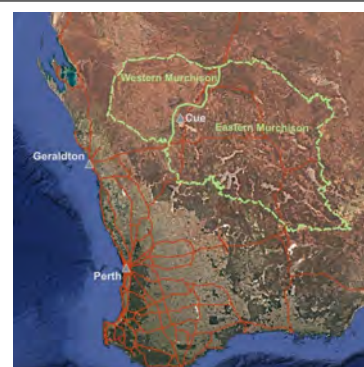
Scale: @ A4 0 2 4 km
1: 150,000

Coordinate System: GDA 2020
MGA Zone 50
Projection: Transverse Mercator



Legend

- | | |
|--|--|
| + Eremophila rostrata subsp. rostrata | ● Prostanthera petrophila |
| ▲ Dicrastylis sp. Cue | ● Ptilotus beardii |
| ▲ Jacksonia lanicarpa | ● Ptilotus luteolus |
| ▲ Hibiscus krichauffianus | ○ Sauropus sp. Woolgorong |
| ▲ Ptilotus sp. Cue | ● Tecticornia fimbriata |
| ● Calotis sp. Perrinvale Station | ◆ Acacia speckii |
| ● Drummondita miniata | ◆ Dodonaea amplisemina |
| ● Hibiscus sp. Bebele | ◆ Grevillea inconspicua |
| ● Maireana prosthecochaeta | |
| ● Micromyrtus placoides | |



An assessment of the likelihood of occurrence of these 27 species within the Survey Areas was performed using the criteria listed in Table 3-3. The results of the assessment are listed in Table 4-2. Preferred habitats were sourced from Florabase (WAH 1998-) where available, and/or from DBCA database return attribute data for local context.

Table 4-2. Threatened and Priority Flora Likelihood of Occurrence

Species	Cons. Code		Preferred Habitat	Likelihood of Occurrence
	BC Act	EPBC Act		
<i>Eremophila rostrata</i> subsp. <i>rostrata</i>	CR	CR	In the Cue subpopulation the species grows on stony, buff-coloured saline clays at the base of quartzite hills in an open shrubland (to 2.5 m) of Acacia and Eremophila species over open low shrubs of <i>Ptilotus polakii</i> .	Unlikely. Quartzite hills highly disturbed and vegetation dissimilar to known population location.
<i>Minuria</i> sp. Murchison (T. Lowrey 1713)	P1	VU	Edge of salt lake on calcrete/gypsum rises in halophytic shrubland	Unlikely. No suitable habitat.
<i>Anacampseros</i> sp. Eremaean (F. Hort, J. Hort and J. Shanks 3248)	P1	-	Sand patches inside rocks, brown sandy clay, granite. Depressions in rock outcrops, breakaways, flats.	Unlikely. No suitable habitat.
<i>Angianthus uniflorus</i>	P1	-	Margin of calcrete rise near gypseous salt lake.	Unlikely. No suitable habitat.
<i>Dicrasyllis</i> sp. Cue (A.A. Mitchell 764)	P1	-	Drainage area, near granite.	Unlikely. No suitable habitat.
<i>Eremophila glabra</i> subsp. Lake Austin (P.J. Curry and P. Hennig 367)	P1	-	Edge of saline dune (Carnegie Land System). Red sand.	Unlikely. No suitable habitat.
<i>Hibiscus krichauffianus</i>	P1	-	Calcrete plains at the base of breakaways	Possible. Calcrete areas at Jim's Find but heavily degraded by grazing.
<i>Isotropis petrensis</i>	P1	-	Edge of flat granite sheet. Yellow brown sandy loam.	Unlikely. No suitable habitat.
<i>Jacksonia lanicarpa</i>	P1	-	Red/orange sandy plains.	Unlikely. No suitable habitat.
<i>Millotia depauperata</i>	P1	-	Sandy loam. Granite outcrops.	Unlikely. No suitable habitat.
<i>Ptilotus</i> sp. Cue (P. Armstrong PA 16/362)	P1	-	Unknown – inferred from record location as Buff-coloured saline clays at the base of quartzite hills	Possible. Quartz bearing rises (MgMaOCSL veg type) in the Cuddingwarra Study Area, but highly disturbed.
<i>Angianthus microcephalus</i>	P2	-	Sandy or clayey soils. Salt swamps and pans.	Unlikely. No suitable habitat.
<i>Bergia auriculata</i>	P2	-	Clay soils. Mud flats.	Unlikely, suitable habitat not present, not known to tolerate saline soils.
<i>Atriplex lindleyi</i> subsp. <i>conduplicata</i>	P3	-	Crabhole plains.	Unlikely. No suitable habitat.
<i>Calotis</i> sp. Perrinvale Station (R.J. Cranfield 7096)	P3	-	Banded ironstone formation or laterised ridges and outcrops	Unlikely. Record is > 100 years old. Suitable habitat not present.

<i>Drummondita miniata</i>	P3	-	Laterite. Breakaways.	Unlikely. No suitable habitat.
<i>Hemigenia tysonii</i>	P3	-	Red sand, sandy clay, lateritic sand. Flats, sand dunes, hills.	Unlikely. No suitable habitat.
<i>Hibiscus</i> sp. Belele (D.W. Goodall 3417)	P3	-	Flat. Orange sandy loam with 50-100% cover of quartz rock, over alluvial and lacustrine valley-fill deposits; in places saline or calcreted.	Possible. Suitable habitat in the stony plains.
<i>Maireana prosthecochaeta</i>	P3	-	Laterite. Hills, salty places.	Unlikely. Database record of low spatial accuracy.
<i>Micromyrtus placoides</i>	P3	-	Red-orange sandy clay, orange-yellow sandy clay to clayey loam, coarse gravel, banded ironstone, laterite, quartz, basalt. Gently undulating plains, dry creek beds, hillcrests, ridges.	Unlikely. Local records on BIF, suitable habitat not present, nearby record of low spatial accuracy.
<i>Petrophile pauciflora</i>	P3	-	Decaying and dissected granite breakaways.	Unlikely. No suitable habitat.
<i>Prostanthera petrophila</i>	P3	-	Lateritic soils.	Unlikely. Local records on BIF, suitable habitat not present, nearby record of low spatial accuracy.
<i>Prostanthera ferricola</i>	P3	-	Shallow red-brown skeletal sandy loam on banded ironstone, laterite, basalt or quartz. Gently inclined mid to upper slopes of hills, rocky crests, outcrops.	Unlikely. No suitable habitat.
<i>Ptilotus beardii</i>	P3	-	Clayey soils. Saline flats, low breakaways.	Present. Recorded in the central Cuddingwarra Study Area in vegetation types MgMaOCSL, MLOCSL, MOLSL, MOSL and TOLSSL.
<i>Ptilotus luteolus</i>	P3	-	Hillslopes, minor rocky drainage line, BIF	Likely. Recorded in the central Cuddingwarra Study Area in vegetation type MOLSL.
<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)	P3	-	BIF, plains.	Unlikely. No suitable habitat.
<i>Tecticornia fimbriata</i>	P3	-	Margins of salt and gypsum lakes.	Unlikely. No suitable habitat.
<i>Acacia speckii</i>	P4	-	Rocky soils over granite, basalt or dolerite. Rocky hills or rises.	Unlikely. No suitable habitat.
<i>Dodonaea amplisemina</i>	P4	-	Red-brown sandy clay on basalt and gabbro and banded ironstone or on dolerite and quartzite. Rocky hills.	Present. Occurs in the MLOSL veg type in the south east of the Day Dawn Study Area.
<i>Goodenia berrinbinensis</i>	P4	-	Along watercourses.	Unlikely. Not known to occur in saline areas. No suitable habitat.
<i>Grevillea inconspicua</i>	P4	-	Along drainage lines on rocky outcrops, creeklines.	Present. Known to occur in the MOLSL veg type in the central Cuddingwarra Study Area.

Three P flora are known to be present within the Fleecepool Survey Area, based on the literature review. No P flora is known to occur in the Jim's Find, City of Sydney or Emily Well Survey Areas. Two

P1 and one P3 flora are possibly occurring based on recent local records and presence of suitable habitat.

4.1.4 Introduced Flora

Dandjoo returned 17 introduced flora species as occurring within the 30 km of the Survey Areas. Sixteen are categorised as S11-Permitted under the BAM Act. One species *Optunia stricta* – one of the prickly pears, is a Declared pest and also listed as a WONS. Most of the weed species identified from the database occur close to the centre of the Shire of Cue in public and historically disturbed areas, when compared to the broader mining region.

Eighteen introduced flora species categorised as S11-Permitted under the BAM Act were identified from the literature review as occurring in the local area, including from within the Study Areas. No records of Declared weeds were identified in the literature review as occurring within the Survey Areas.

Table 4-3 lists the introduced flora species recorded within 30 km of the Survey Areas.

Table 4-3. Introduced Flora Records within 30 km of the Survey Areas

Species	Common Name	BAM Act Listing	WONS
<i>Brassica tournefortii</i>	Mediterranean turnip	Permitted - s11	
<i>Callitriche stagnalis</i>	Common water starwort	Permitted - s11	
<i>Cenchrus ciliaris</i>	Buffel grass	Permitted - s11	
<i>Cenchrus setiger</i>	Birdwood grass	Permitted - s11	
<i>Centaurea melitensis</i>	Maltese star thistle	Permitted - s11	
<i>Centaureum tenuiflorum</i>	Slender Centaury	Permitted - s11	
<i>Chenopodium murale</i>	Nettleleaf goosefoot	Permitted - s11	
<i>Citrullus amarus</i>	Bitter melon	Permitted - s11	
<i>Cucumis myriocarpus</i>	Striped wild cucumber	Permitted - s11	
<i>Cuscuta planiflora</i>	Dodder	Permitted - s11	
<i>Cynodon dactylon</i>	Couch grass	Permitted - s11	
<i>Hordeum glaucum</i>	Meadow barley	Permitted - s11	
<i>Hypochaeris glabra</i>	Smooth cat's ear	Permitted - s11	
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Permitted - s11	
<i>Medicago polymorpha</i>	California burclover	Permitted - s11	
<i>Mesembryanthemum crystallinum</i>	Common iceplant	Permitted - s11	
<i>Opuntia stricta</i>	Prickly Pear	Declared Pest - s22(2) (C3 Restricted)	Yes
<i>Pentameris airoides</i> subsp. <i>airoides</i>	-	Permitted - s11	

<i>Rostraria pumila</i>	Mediterranean grass	Permitted - s11
<i>Rumex vesicarius</i>	Ruby Dock	Permitted - s11
<i>Rumex hypogaeus</i>	Spiny emex	Permitted - s11
<i>Schinus molle</i>	California peppertree	Permitted - s11
<i>Sisymbrium erysimoides</i>	Mediterranean rocket	Permitted - s11
<i>Solanum nigrum</i>	Black nightshade	Permitted - s11
<i>Sonchus oleraceus</i>	Annual sowthistle	Permitted - s11

4.2 FIELD SURVEY

4.2.1 Flora

A total of 126 species of flora from 31 families and 62 genera were recorded within the Survey Areas, comprising 123 native species and three introduced species. Seven specimens (5.6% of the collection) were unable to be identified to species level due to a lack of taxonomically distinct features such as flowering parts.

The Chenopodiaceae (saltbush family, 29 native species), Fabaceae (pea family, 17 native species) and Scrophulariaceae (figwort family, 13 native species) were the most species-rich families recorded.

The complete list of plant species recorded within the Survey Areas is presented in Appendix D. The mean species richness was 12.6 species per quadrat. This is lower than the Outback Ecology (2012a) survey but similar to the Maia surveys in the local area (Table 4-1). The equivalent species richness indicates survey season and seasonal conditions were adequate. The total number of species recorded in the current survey is lower than the previous surveys, reflective of the smaller survey area and fewer landforms present in the Survey Areas.

A species accumulation curve (Appendix C) was performed, returning a modelled Michaelis-Menton species richness of 148, indicating that the floristic survey was approximately 85% complete.

Floristic groups identified in the cluster analysis were organised into vegetation types and are discussed in the following section. The cluster analysis grouped sites into five major divisions, reflective of the major landform units present.

Significant flora are detailed in Section 4.2.4 and introduced flora species are detailed in Section 4.2.7.

4.2.2 Vegetation Types

Five vegetation types are described for the Survey Areas, as summarised in Table 4-4 and detailed below. The extent of each vegetation type in each Survey Area is presented in Table 4-5.

Table 4-4. Vegetation Types

Code	Landform	Vegetation Description
A1	Claypan	Low open shrubland of <i>Maireana glomerifolia</i> , <i>Cratystylis subspinescens</i> and <i>Tecticornia calyptata</i> .
A2	Sparse quartz plain	Low sparse shrubland of <i>Sclerolaena cuneata</i> , <i>Maireana pyramidata</i> and <i>Maireana tomentosa</i> subsp. <i>tomentosa</i> with isolated mid <i>Hakea preissii</i> shrubs.
A3	Plains and low rises	Sparse tall shrubland of <i>Hakea preissii</i> ± <i>Acacia eremaea</i> (stunted) over low open shrubland of <i>Maireana pyramidata</i> , <i>Maireana glomerifolia</i> and <i>Ptilotus obovatus</i> .
A4	Outcrops	Low open woodland to isolated trees of <i>Acacia fuscaneura</i> over sparse to open mid shrubland of <i>Acacia tetragonophylla</i> and <i>Eremophila forrestii</i> subsp. <i>forrestii</i> over low open to sparse shrubland of <i>Ptilotus obovatus</i> , <i>Atriplex vesicaria</i> and <i>Maireana pyramidata</i> .
A5	Alluvial plain	Low open woodland of <i>Grevillea berryana</i> over tall open shrubland of <i>Grevillea berryana</i> , <i>Acacia tetragonophylla</i> and <i>Acacia craspedocarpa</i> over low sparse shrubs of <i>Ptilotus obovatus</i> , <i>Solanum lasiophyllum</i> and <i>Cratystylis subspinescens</i> .
D	-	Disturbed – clear of vegetation

Table 4-5. Extent of vegetation types in Survey Areas

Survey Area	Vegetation Type	Area (ha)	Proportion (%)
City of Sydney	Claypan	15.7	37.6
	Plains and low rises	10.4	24.9
	Disturbed	15.6	37.4
Fleecepool	Claypan	10.9	16
	Outcrops	5.8	8.5
	Plains and low rises	41.3	60.8
	Disturbed	10.0	14.7
Emily Well	Alluvial plain	0.4	1.1
	Claypan	3.3	10
	Outcrops	2.5	7.5
	Plains and low rises	1.8	5.6
	Sparse quartz plain	23.3	71.5
	Disturbed	1.4	4.3
Jim's Find	Alluvial plain	24.0	68.9
	Disturbed	10.8	31.1

Vegetation types are described below and are compared to those previously recorded for the Cuddingwarra area using floristic comparison and common species assemblages.

Inspection of the latest ESRI Satellite Imagery and the DBCA Fire layers identified no record of fire within the Survey Areas. A fire in 2012 occurred approximately 26 km south west of the Survey Areas.

Distribution of vegetation types at a scale of 1: 25,000 is shown in Figure 4-3. The dendrogram resulting from the cluster analysis is shown in Appendix C, followed by the site data sheets and photos.

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Jim's Find

City of
Sydney

Fleecepool

Emily Well

Legend

CPS 8087 Cuddingwarra NVCP Area

Survey Areas

Alluvial plains

Claypans

Outcrop

Plains and low rises

Sparse quartz plains

Disturbed

Vegetation Types

Prepared for:

WESTGOLD

4-3

Scale: @ A4 0 0.5 1 km
1: 25,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Landform: Claypans**Vegetation Type: A1**

Low open shrubland of *Maireana glomerifolia*, *Cratystylis subspinescens* and *Tecticornia calyptrata*.

This vegetation type occurs in the northern and eastern parts of the City of Sydney and Fleecepool Survey Areas and in parts of the access road connecting Fleecepool and Emily Well. This vegetation type occurs in the lower elevations and slight depressions from the surrounding plains, where water accumulates and surface soils contain an elevated clay content.

The vegetation structure is limited to low shrubs, with occasional mid shrubs of *Hakea preisii* and *Acacia tetragonaphylla* present at the fringes with stony plains (Plate 4-2). Common species include *Sclerolaena cuneata*, *Disphyma crassifolium* subsp. *clavellatum*, *Frankenia setosa*, *Sclerolaena diacantha*, *Atriplex vesicaria*, *Frankenia pauciflora* and *Tecticornia halocnemoides* subsp. *catenulata*.

This vegetation type is equivalent to the vegetation types described in previous surveys as Cu1 (Outback Ecology 2012a), TdSSL (Maia 2017) and combines MLOCSL, MOSL and TOLSSL as described in (Maia 2019b).

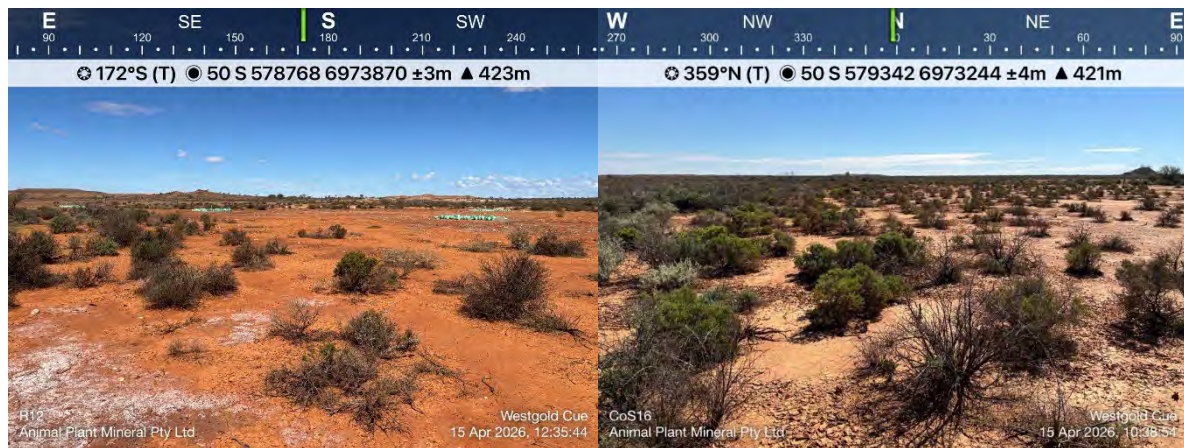


Plate 4-2. Claypans (left poor condition; right reference area)

Condition: Impacts from current and historic clearing for prospecting, exploration and pastoral activities. Historic cattle grazing and current grazing from feral herbivores, high levels of fragmentation between remnant patches, erosion of soils. The condition of this vegetation is Poor within the Survey Areas due to frequent clearing and Good within the surrounding reference areas.

Detailed sites: A5, CoS11, CoS16, CoS16a, CoS30, CoS39, CoS41, R12, V1, V1a, X1, X9, X10, X15

Total richness: 45 species

Average richness: 10.8 species

Introduced/exotic taxa: none recorded

Conservation significant species: none recorded

Landform: Sparse quartz plains**Vegetation Type: A2**

Low sparse shrubland of *Sclerolaena cuneata*, *Maireana pyramidata* and *Maireana tomentosa* subsp. *tomentosa* with isolated mid *Hakea preisii* shrubs.

This vegetation type is lacking an overstory layer and the mid shrub layer is absent except a scattering of *Hakea preisii*. The vegetation type occurs on sandy clay plains with quartz pebbles and gravel (Plate 4-1).

Other common species include *Atriplex codonocarpa*, *Ptilotus obovatus*, *Tecticornia halocnemoides* subsp. *catenulata*, *Ptilotus aervoides* and *Sclerolaena eriacantha*. This vegetation type is equivalent to the vegetation types described in previous surveys as Cu3 (Outback Ecology 2012a), and MLSCSL (Maia 2019b) which in those studies is combined with Plains and Low rises (below).

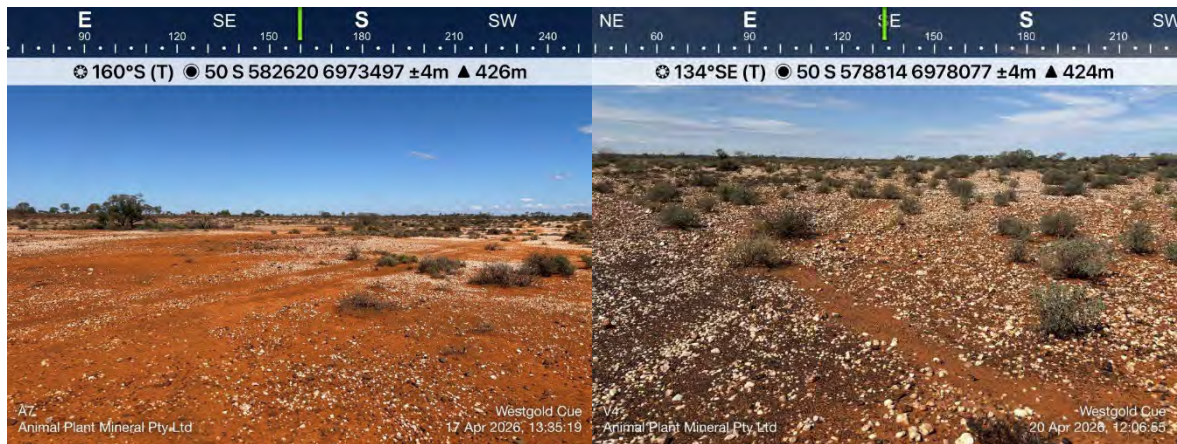


Plate 4-1. Sparse quartz plains

Condition: Impacts from cattle and feral animal grazing (nearby well) and occasional tracks are present. The condition of this vegetation is Good.

Detailed sites: A7, V3, V4, V5, X4, X6

Total richness: 28 species

Average richness: 11.8 species

Introduced/exotic taxa: none

Conservation significant species: none

Landform: Plains and low rises**Vegetation Type: A3**

Sparse tall shrubland of *Hakea preissii* ± *Acacia eremaea* (stunted) over low open shrubland of *Maireana pyramidata*, *Maireana glomerifolia* and *Ptilotus obovatus*.

This vegetation type occurs across the southern portions of the City of Sydney and Fleecepool Survey Areas and in parts of the access road connecting Fleecepool and Emily Well. This vegetation type adjoins the clay plains, with the transition often over extensive areas, and dependent on very small gradients in elevation. The proportion of mid and tall shrubs is variable, with some isolated dense patches occurring on small elevated areas (Plate 4-3).

Common species include *Sclerolaena diacantha*, *Maireana trichoptera*, *Maireana villosa*, *Frankenia setosa*, *Hakea preissii* and *Scaevola spinescens*.

This vegetation type is equivalent to the vegetation types described in previous surveys as Cu3 (Along with Sparse quartz plains above; Outback Ecology 2012a), MSL (1) (Maia 2017) and MLSCSL (Maia 2019b), which in those studies is combined with Sparse quartz plains (above).

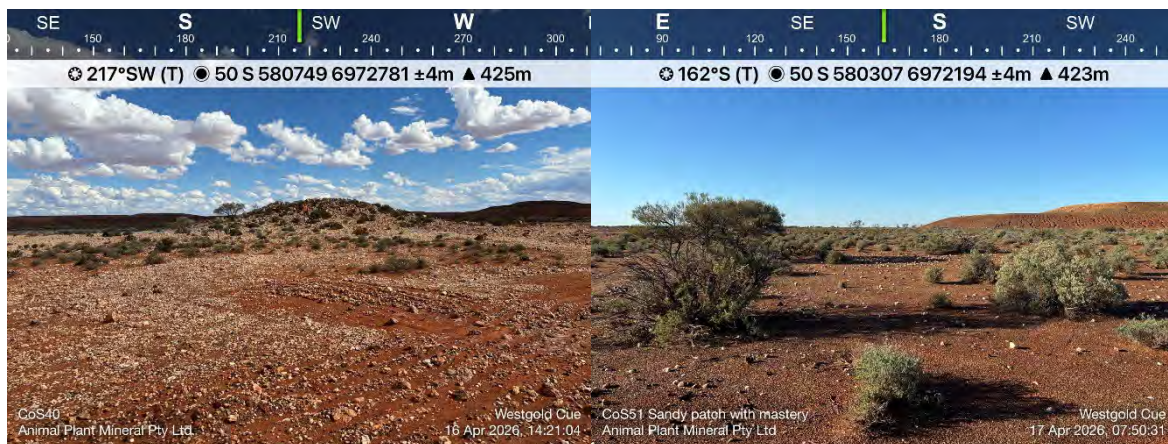


Plate 4-3. Plains and low rises (left poor condition, right good condition)

Condition: Impacts from cattle grazing and feral grazers, clearing for historical prospecting and historic and current exploration, including several rehabilitated areas, frequent tracks, some fragmentation. Vegetation is generally in good condition except in the central portions of the Survey Areas near the more disturbed areas.

Detailed sites: CoS51a, CoS51b, CoS19, CoS40, CoS51a, X11, X12, X13, X14

Total richness: 44 species

Average richness: 12.3 species

Introduced/exotic taxa: None

Conservation significant species: None

Landform: Outcrops Vegetation Type: A4

Low open woodland to isolated trees of *Acacia fuscaneura* over sparse to open mid shrubland of *Acacia tetragonophylla* and *Eremophila forrestii* subsp. *forrestii* over low open to sparse shrubland of *Ptilotus obovatus*, *Atriplex vesicaria* and *Maireana pyramidata*.

Occurs on rocky ridges and outcrops and where sand has accumulated on low outcrops (Plate 4-4) and also includes a sandy creek crossing. The tree layer is sparse to open and is limited to low trees to 4 m tall. The mid shrub layer is sparse to absent on the rockier ground and denser where deep sand has accumulated over low outcrops.

This vegetation type is equivalent to the vegetation types described in previous surveys as Cu2 (Outback Ecology 2012a), ApWL, MSL (2) (Maia 2017) and MOLSL (Maia 2019b).

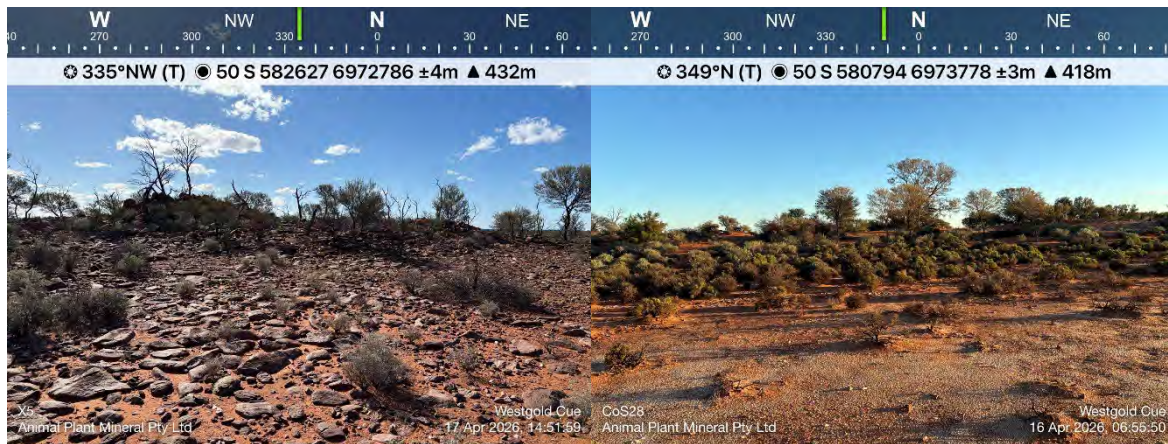


Plate 4-4. Outcrops (left rocky outcrop, right sand accumulated over low outcrop)

Condition: Minor impacts from grazing, and occasional tracks are present. The condition of this vegetation is Good.

Detailed sites: A8, CoS15, CoS31, CoS28, CoS32, CoS34, CoS37, R14, V6, X3, X5, V2, X7, R15

Total richness: 69 species

Average richness: 12.9 species

Introduced/exotic taxa: *Cuscuta planiflora* and *Tribulus terrestris* isolated occurrences.

Conservation significant species: *Dodonaea amplisemina* (P3) and *Grevillea inconspicua* (P3) recorded on the low ridge on the eastern side of Fleecpool Survey Area. *Ptilotus leuteolus* (P3) historically recorded in this vegetation type outside of the Survey Area but not recorded in the current survey.

Landform: Alluvial plains**Vegetation Type: A5**

Low open woodland of *Grevillea berryana* over tall open shrubland of *Grevillea berryana*, *Acacia tetragonaphylla* and *Acacia craspedocarpa* over low sparse shrubs of *Ptilotus obovatus*, *Solanum lasiophyllum* and *Cratystylis subspinescens*.

This vegetation type occurs on alluvial plains on the outer plain of Nallan Creek, and a small, isolated patch on the Access Road to Emily Well. Denser vegetation is present adjacent to banded disturbed areas as a result of increased runoff, and becomes sparser away from disturbed areas (Plate 4-5).

This vegetation type is equivalent to the vegetation types described in previous surveys as MASL (Maia 2017) ATSSL (Maia 2019b).

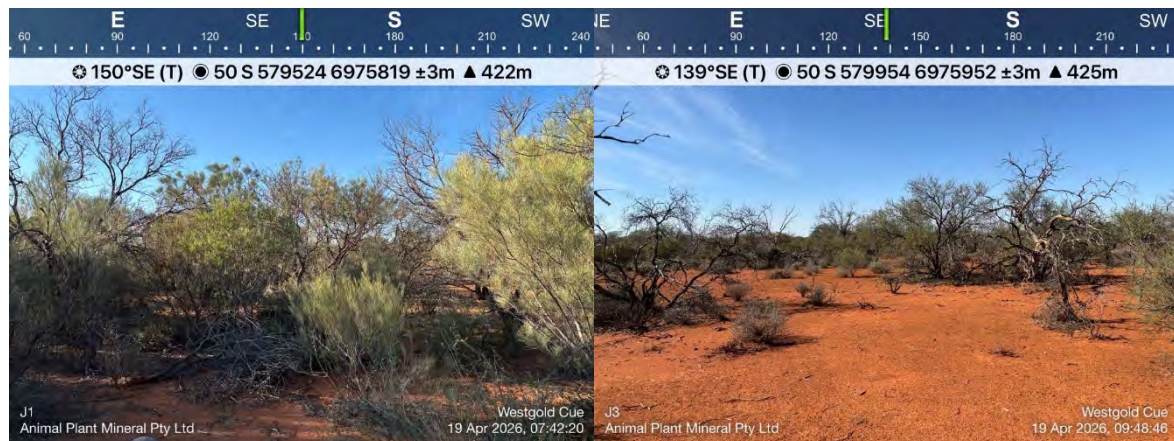


Plate 4-5. Alluvial Plain (left denser adjacent disturbance, right sparser away from disturbance)

Condition: Impacts from cattle and feral grazing, occasional weeds and tracks are present. The condition of this vegetation is Good.

Detailed sites: J1, J2, J3, J4, X2

Total richness: 28 species

Average richness: 10.8 species

Introduced/exotic taxa: *Cuscuta planiflora* isolated occurrences

Conservation significant species: none

4.2.3 Local Representation

As noted in the sections above the vegetation types recorded in the Survey Areas are comparable to those described previously in the local area. Table 4-6 lists the proportion of vegetation types recorded compared to those surveyed in the local area, with areas in Completely Degraded condition excluded and overlaps resolved.

Table 4-6. Local availability of vegetation types

Survey Area	Vegetation Type	Previous Survey Extent (ha)	Current Survey Extent (ha)	Proportion in Current Survey Extent (%)
Claypan	Cu1	55.1	29.8	13.0
	TdSSL	9.8		
	MLOCSL	229.8		
	MOSL	130.6		
	TOLSSL	148.6		
Sparse Quartz	Cu3	543.8	76.9	10.9
Plain and Plains and Low Rises	MLSCSL	159.4		
Outcrops	Cu2	18.6	8.3	4.8
	ApWL	121.6		
	MOLSL	32.3		
Alluvial plain	MASL	124.6	24.4	19.5
	ATSSL	0.6		

The proportion of vegetation types within the Survey Areas, compared to their local surveyed extent is less than 20%, indicating at least 80% of each vegetation type is available in the surrounding local area. Inspection of aerial imagery indicates that the estimates of local extent are conservative, and much larger undisturbed similar areas are available nearby.

4.2.4 Vegetation Condition

Vegetation condition across the Survey Areas was within the categories Good, Poor and Completely Degraded (Table 4-7; Figure 4-4). Vegetation in the surrounding areas was generally in Good condition.

Table 4-7. Vegetation condition within the Survey Areas

Vegetation Condition	City of Sydney	Fleecepool	Emily Well	Jim's Find
	Area ha (%)	Area ha (%)	Area ha (%)	Area ha (%)
Good	11.2 (26.9)	40.8 (60.2)	22.1 (67.7)	24.0 (68.9)
Poor	14.9 (35.7)	17.0 (25.1)	9.2 (28.1)	0
Completely Degraded	15.6 (37.4)	10.0 (14.8)	1.4 (4.3)	10.8 (31.3)

The primary sources of disturbance on-site are low to moderate grazing impact from cattle and feral fauna such as goats. A large flock of goats was observed in the local area during the survey and scats were common. Browsing evidence was noticeable on palatable flora and gasses were particularly heavily grazed. Disturbance from historic prospecting, historic and current exploration activities and tracks that support pastoralism activities are widespread within the Survey Areas.

Areas receiving a condition rating of Good had a low level of grazing activity and occasional tracks may be present. Areas in Poor condition had a high level of clearing and/or fragmentation in addition to impacts from grazing and tracks. Completely Degraded areas were designated where no vegetation was present and the soil profile is disturbed, including rehabilitation areas where vegetation has not yet reestablished.

Reference areas surrounding the Survey Areas were generally in Good Condition.

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Jim's Find

City of
Sydney

Fleecepool

Emily Well

Legend

CPS 8087 Cuddingwarra NVCP Area

Survey Areas

Good

Poor

Completely Degraded

Vegetation Condition

Prepared for:

 WESTGOLD

4-4

Scale: @ A4 0 0.5 1 km
1: 25,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



4.2.5 Significant Flora

No species listed as T under the EPBC Act or BC Act were recorded during the survey.

Two P4 species *Dodonaea amplisemina* and *Grevillea inconspicua* were recorded during the survey. Both species were recorded on the low ridge running parallel to and partially intersecting with the eastern edge of Fleecepool Survey Area. Systematic targeted search at 5 m intervals was conducted along the ridge and all individuals marked using a handheld GPS. Areas outside of the Fleecepool Survey Area were included to allow a comparison of the size of the population within and outside of the Survey Area.

Table 4-8 lists the number of individuals recorded and their distribution in relation to the Fleecepool Survey Area. No *Grevillea inconspicua* was recorded in the Survey Area, with the majority of the population occurring to the north. The Survey Area contains 27.4% of the local population of *Dodonaea amplisemina*.

Table 4-8. Priority flora populations within and outside of the Fleecepool Survey Area

Species	Population in Fleecepool (count)	Population outside Fleecepool (count)	Total population (count)	Proportion in Fleecepool (%)
<i>Dodonaea amplisemina</i>	312	827	1139	27.4
<i>Grevillea inconspicua</i>	0	71	71	0

All Survey Areas were systematically searched at 50 m intervals for conservation significant flora. No conservation significant flora were recorded in the City of Sydney, Emily Well or Jim's Find Survey Areas.

Ptilotus beardii has previously been recorded in the local area, including 6 records within the Access Road to Emily Well. No *Ptilotus beardii* was recorded during the survey and lack of detection during targeted search in locations of previous records indicate seasonal conditions may not have been suitable, noting that previous surveys detecting the species have been conducted in spring. The Survey Areas contain 6 out of 52 previous records or 11.5% of the local population. From previous records the species has been recorded across several landforms including Claypan, Plains and low rises and Alluvial Plain. These landforms and associated vegetation types are widespread in the local area and the proportion within the Survey Areas is 9.3% which is not a significant proportion and includes Poor Condition areas (Table 4-5, Table 4-7).

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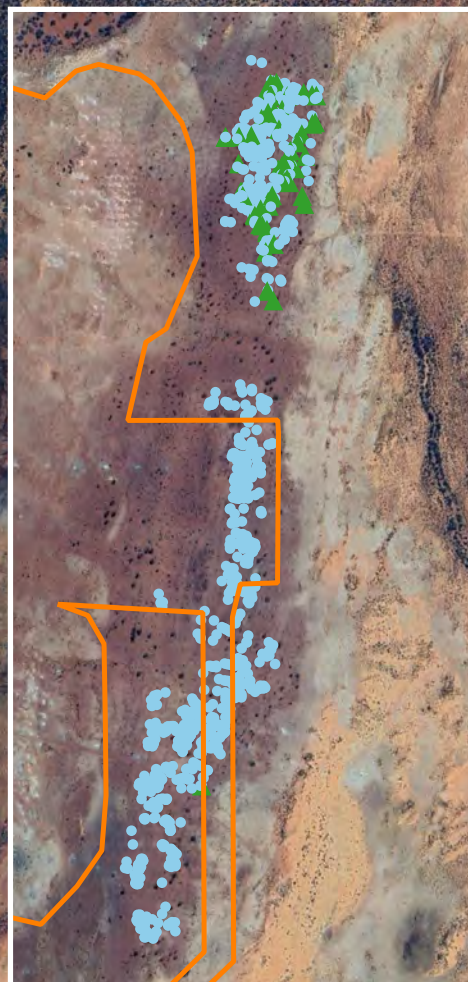
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Jim's Find

City of
Sydney

Fleecepool

Emily Well



Author: EH

Date: 16/07/2026

Priority Flora Records

Prepared for:

WESTGOLD

4-5

Scale: @ A4 0 0.5 1 km
1: 25,000Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator

Legend

CPS 8087 Cuddingwarra NVCP Area

Survey Areas

• Dodonaea amplisemina

▲ Grevillea inconspicua



4.2.6 Significant Vegetation

No vegetation types occurring within the Survey Area are analogous to any known TEC's.

All vegetation types within the City of Sydney, Fleecepool and Emily Well Survey Areas are within the Austin Land System PEC, which is described as saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga (DBCA 2023a):

- Vegetation types Sparse quartz plain, Plains and low rises and Outcrops are within the PEC described as saline stony plains with low rises
- Drainage foci supporting low halophytic shrublands is represented by the Claypan vegetation type, and
- Mulga is scattered throughout the land system, predominantly in the Outcrops.

Existing disturbances are present within the local extent of the Austin Land System PEC, including current and historic mining activities, the township of Cue and local roads (Figure 4-6). Existing disturbance is estimated at 13.4% of the Pre-European extent of the Austin Land System PEC within the local area (Table 4-9).

The Fleecepool Survey Area is within the mapped extent of the Taincrow calcrete PEC. Whilst the PEC has been designated for the protection of subterranean fauna and therefore not specifically requiring protection of surface features, it is likely that surface conditions affect habitat quality of subterranean fauna habitats. Existing disturbance is estimated at 1.4% of the Pre-European extent of the Taincrow PEC within the local area (Figure 4-6, Table 4-9).

The proportion of the local occurrence of PECs within the Survey Areas is listed in Table 4-9.

Table 4-9. Proportion of local occurrence of PECs within the Survey Areas

Pre-European extent of Land System in local area (ha)	Extent of remaining Land System in local area (ha)	Survey Area	Survey Area total area (ha)	Proportion of remaining Local extent %	Survey Area in Good condition (ha)	Proportion of remaining Local extent %
Austin Land System PEC						
9037.5	7827.9	City of Sydney	41.6	0.53	11.2	0.14
		Fleecepool	67.8	0.87	40.8	0.52
		Emily Well	32.6	0.42	22.1	0.28
		Total	142.1	1.81	74.1	0.94
Taincrow Calcrete PEC						
12,367.0	12,189.0	Jim’s Find	34.8	0.29	24.0	0.20

The proportion of the remaining local extent of the Austin Land System PEC occurring within the City of Sydney, Fleecepool and Emily Well Survey Areas is 1.81%. When Completely Degraded and Poor Condition areas are removed, this is reduced to 0.94% of the locally available extent of the PEC. Cumulatively, the loss of vegetation within the City of Sydney, Fleecepool and Emily Well Survey Areas would result in an overall reduction of approximately 15% of the local extent of this PEC.

The proportion of the remaining vegetation above Taincrow PEC occurring within the Jim's Find Survey Area is 0.29%. When areas in a Completely Degraded Condition areas are removed, this is reduced to 0.20% of the locally available extent of the PEC. Cumulatively, the loss of vegetation within the Jim's Find Survey Area would result in an overall reduction of approximately 1.7% of the local extent of vegetation supporting this PEC.

The Jim's Find Survey Area is within the area modelled under the National Assessment to contain potentially groundwater dependent vegetation (Figure 4-1). The vegetation within the Jim's Find area contains *Grevillea berryana* low open woodland with scattered mulga, and a tall stand of *Acacia tetragonophylla* was also observed to be growing in the area nearby. The Alluvial plains contain pockets of calcrete at the surface, and studies conducted for subterranean fauna in the Taincrow Calcrete (Outback Ecology 2012b) indicate groundwater to be 2-6 mbgl and of fresh water quality. This is within the accessible range of large *Grevillea berryana* and *Acacia tetragonophylla* roots. Mulga and *Grevillea berryana* communities growing on calcrete have been identified in environmental assessments in the Mid West to be potentially groundwater dependent ecosystems (Cameco 2015). The higher density of vegetation growing in the Alluvial plains of the Nallan Creek area and the presence of taller individuals indicates these species are likely to be using groundwater to some extent. As these species are frequently occurring in areas with no access to groundwater, they are considered facultative phreatophytes, capable of taking water from a variety of sources, which may include groundwater at some time.

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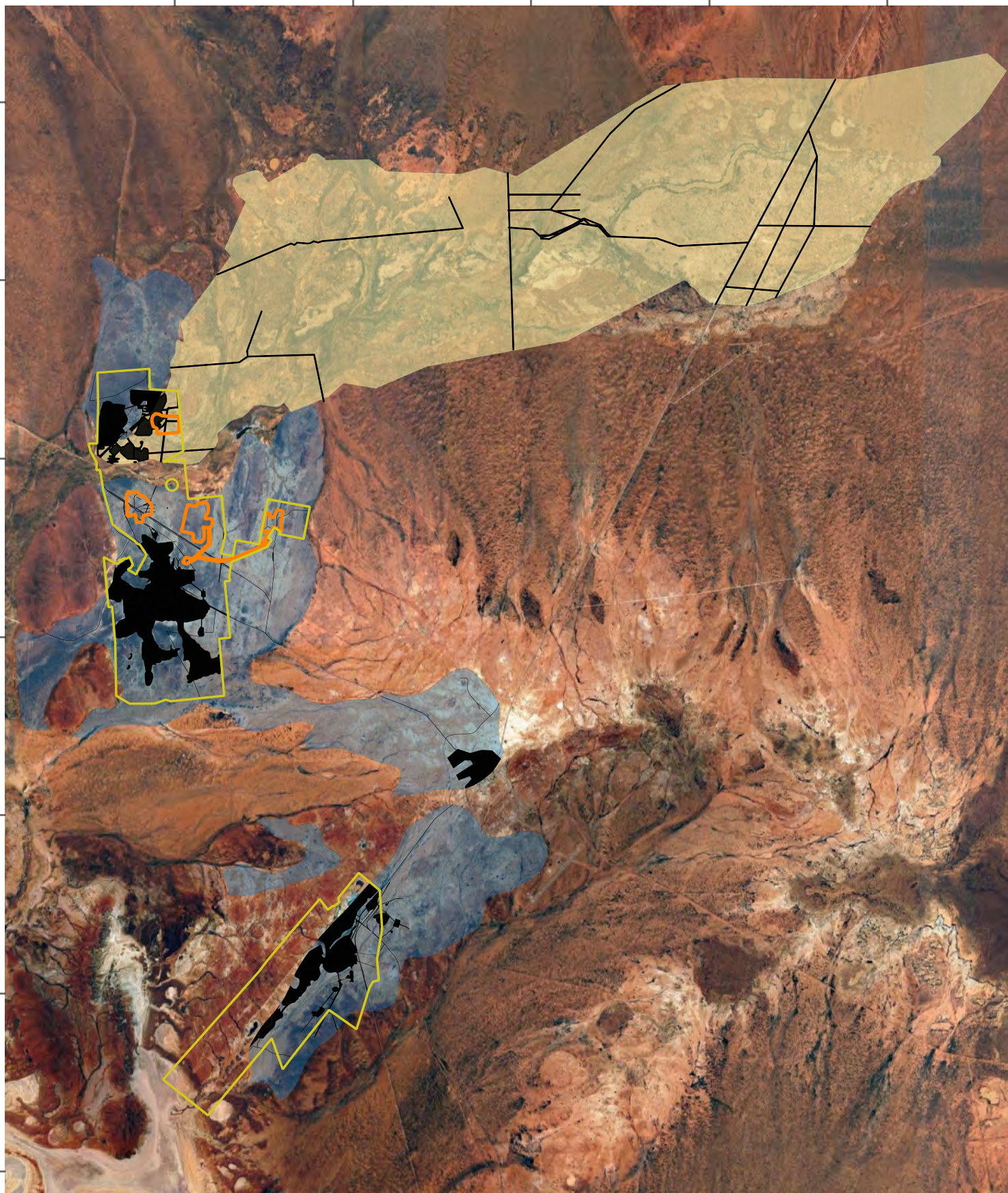
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Author: EH

Date: 16/07/2026

Cumulative disturbance in local PECs

Prepared for:

4-6

 Scale: @ A4 0 2.5 5 km
 1: 140,000

 Coordinate System: GDA 2020 MGA Zone 50
 Projection: Transverse Mercator


Legend

- CPS 8087 Cuddingwarra NVCP Area
- Survey Areas
- Austin Land System
- Taincrow calcrete groundwater assemblage
- Cumulative disturbance



4.2.7 Introduced Flora

Three introduced flora species were recorded in the Survey Area and are listed in Table 4-10. No Declared Weeds or WONS were recorded.

Table 4-10. Introduced Flora Recorded within the Survey Area

Species	Common name	Description
BAM Act S11 - Permitted		
<i>Citrullus amarus</i>	jam melon	Trailing annual, herb or climber. Flowers are yellow, occurring in January to December. Prefers sandy gravelly soil, loam, clay on plains, river banks, centres of dry lakes, drainage areas or disturbed areas.
<i>Cuscuta planiflora</i>	-	Parasitic, twining annual herb or climber. Flowers are white, occurring in September to October. Parasitic on ephemerals. Prefers clay flats and hills.
<i>Tribulus terrestris</i>	caltrop	Prostrate annual herb, plants hairy; leaflets are in pairs of 4-7; fruit segments with distinct divergent, median spines 3-8 mm long. Flowers are yellow, occurring in January to December. Often found on sandy soils and in disturbed areas.

Weeds recorded in the Survey were common environmental weeds of the region and are not included on the Midwest Region Priority Alert Weeds list (DBCA 2023b). The distribution of weeds was restricted to isolated occurrences of low abundance.

5 FAUNA RESULTS

5.1 DESKTOP STUDY

5.1.1 Fauna Habitats

Broad fauna habitats were described by Outback Ecology (2012a) across a large area partially including the current Survey Areas. Described broad fauna habitats for the local area are listed in Table 5-1.

Table 5-1. Broad fauna habitats

Broad Fauna Habitat	Habitat value
Quartz outcrop	High
Drainage line	Moderate
Open Acacia woodland	Low
Open stony plain	Low
Samphire plains	Low

Quartz Outcrop and Drainage Line habitats were identified as significant fauna habitats within the 2012 study (Outback Ecology 2012a). Quartz Outcrop is potential habitat for short-range endemic (SRE) invertebrate species, and refugia for small mammals and reptiles. The elevation from the surrounding flat landscape may offer vantage points for conservation significant birds of prey such as the Grey Falcon (*Falco hypoleucos*) and the Peregrine Falcon (*Falco peregrinus*). Quartz Outcrop habitats are restricted in distribution in the local area and can be isolated.

Drainage Line habitat provides refugia and dispersal corridors for fauna, however, is more readily available and connected in the broader landscape.

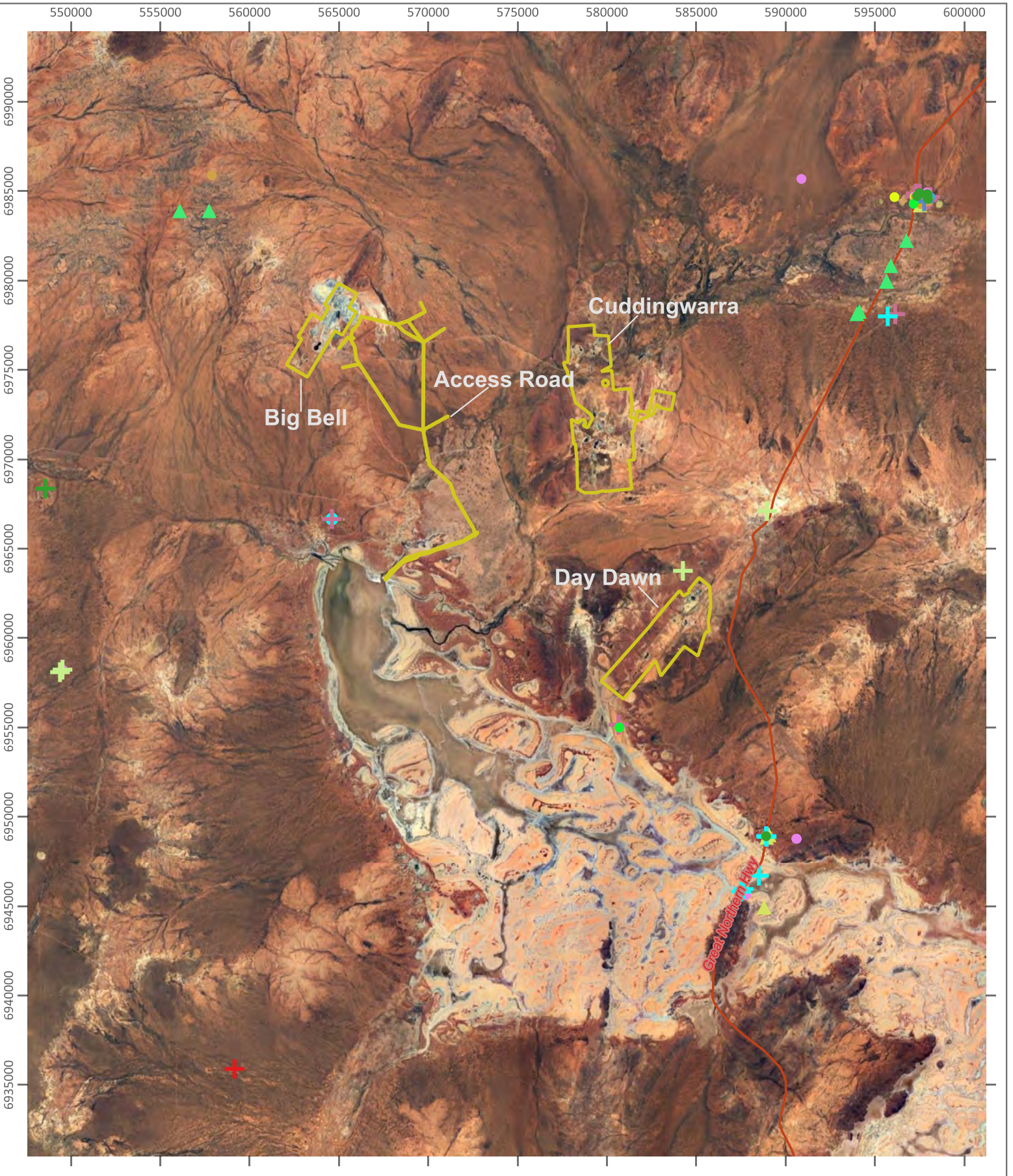
5.1.2 Significant Fauna

The DBCA database returned 20 species of significant fauna that have previously been recorded within 30 km of the Survey Areas. Of these, four are T, three are P, 12 are migratory bird species (MI) and one is Other Specifically Protected (OS). Record locations of significant fauna in relation to the Survey Areas are shown in Figure 5-1. The database does not contain any records for significant fauna within the Survey Areas.

The PMST returned three additional T species, five T, and two MI species. These are species that do not have records within 30 km but where modelling has identified that suitable habitat is known to occur, likely to occur or may occur.

No records of T or P fauna were identified from the literature review. Outback Ecology (2012a) determined that potential SRE habitat within the local area is limited to the Quartz Outcrops that occur in the Big Bell and Day Dawn areas. The extent of this habitat is limited and it does not appear to be well connected within the wider landscape. Consequently, there may be some potential for SRE species to reside within this habitat type.

Database search results of T, P and MI fauna within 30 km of the Survey Areas are listed in Section 5.2.2, with the outcome of the likelihood of occurrence assessment. A summary of fauna previously recorded in the local area (Outback Ecology 2012a) is included in Appendix E.



Author: EH Date: 13/02/2026

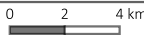
Significant Fauna

Prepared for:

**5-1**

Scale: @ A4
1: 275,000

Coordinate System: GDA 2020
MGA Zone 50
Projection: Transverse Mercator



Legend



common greenshank



curlew sandpiper



grey falcon



night parrot



sharp-tailed sandpiper



southern whiteface



western spiny-tailed skink



malleefowl



blue-billed duck



hooded plover



West Coast mulga slider



bar-tailed godwit



Caspian tern



common sandpiper



fork-tailed swift



glossy ibis



gull-billed tern



marsh sandpiper



pectoral sandpiper



peregrine falcon



red-necked stint



white-winged black tern



wood sandpiper

5.1.3 Introduced Fauna

Database records for introduced fauna species within 30 km of the Survey Areas include:

- Rock Dove (*Columbia livia gmelin*)
- Cattle (*Bos taurus*);
- Dog (*Canis familiaris*)
- European rabbit (*Oryctolagus cuniculus*)

During field survey (Outback Ecology 2012a), the following introduced fauna were recorded:

- Cattle
- Goat (*Capra hircus*)
- Sheep (*Ovis aries*)
- Common Dog/Dingo
- Brumby / Horse (*Equus caballus*)
- Cat (*Felis cattus*)
- Rabbit
- House Mouse (*Mus musculus*).

Several introduced fauna are linked to key threatening processes of significant fauna occurring in the region. Goats, cattle, sheep, horse and rabbit degrade native habitat for species such as Night Parrot, Malleefowl and Southern whiteface. Feral cats are inferred to impact Night Parrot populations through predation (DCCEEW 2026).

5.2 FIELD SURVEY

5.2.1 Broad Fauna Habitats

The Survey Area is characterised by claypans in the lowest elevations, bordered by sandy to stony plains at slightly higher elevations. The stony plains are interspersed with low to very low rises and outcrops, most emerging less than 10 m from the surrounding surface. There are higher ranges between Emily Well and Fleecepool and west of City of Sydney. The Jim's Find area is part of the floodplains of Nallan Creek, containing alluvial soils and calcrete patches. The presence of water is ephemeral, and no permanent or semi-permanent water is available. Seasonal inundation is likely to occur in the clay pans following significant rainfall. Vegetation is predominantly low open shrublands dominated by *Tecticornia* and *Maireana* in the Samphire plains and stony plains, and *Acacia* and *Grevillea* tall shrubs/low trees on the Outcrops and Alluvial plains.

No evidence of recent fire was present during field survey. Vegetation was sparse and leaf litter was very rarely observed. Evidence of historic grazing and current grazing by feral herbivores was observed and a large flock of goats was observed in the nearby area.

Four fauna habitats are described for the Survey Area and are summarised in Table 5-2 and the extent in each Survey Area listed in Table 5-3 and shown in Figure 5-1. Fauna Habitat Assessments are listed in Appendix F and Photos of Fauna Habitat assessment sites are included in Appendix G.

Table 5-2. Fauna habitats

Habitat	Key habitat elements	Photo
Outcrops	- Quartz, ironstone and some sedimentary outcrops - Very low, maximum height less than 10 m generally - Some outcrops very isolated and small (e.g. 10 m² or less) - Several low ridges - Boulders up to 0.3 m but generally smaller rocks and gravel - Few crevices and cracks, vegetation sparse, no litter.	
Open Acacia woodland	- Low trees present but no hollows observed - Soils of sand to clay loam, sometimes with calcrete - Sandier patches possible for burrowing, but these were outside of Survey Areas in reference area - Very limited leaf litter, mostly bare ground - Grazing evidence, historic stock and current feral herbivores, understory very sparse and grazed	

Open stony plain

- Canopy lacking, midstory sparse, generally low open shrublands
- Sandy clay or clay loam, quartz and ironstone pebbles common
- Shrubs are sparse and provide very little cover, no connectivity between patches
- No leaf litter
- Too stony for burrowing generally



Samphire plains

- No canopy or mid story, generally low open shrublands
- Diversity of chenopod species but very open, very little cover from predators
- Clay soils, accumulates shallow surface water following significant rainfall, saline, some cracking clays when dry.



Disturbed

- No habitat, cleared areas

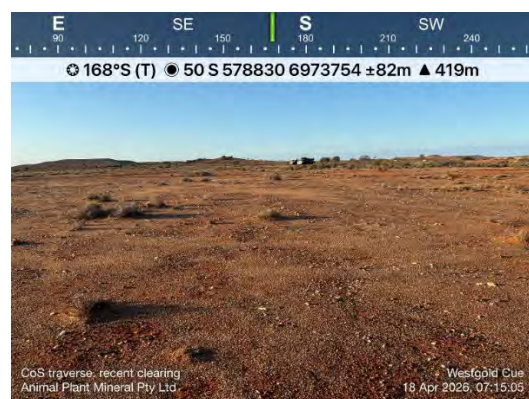


Table 5-3. Extent of fauna habitats

Survey Area	Vegetation Type	Area (ha)	Proportion (%)
City of Sydney	Open Stony Plain	10.4	24.9
	Samphire Plain	15.7	37.6
	Disturbed	15.6	37.4
Fleecepool	Open Acacia woodland	2.6	3.9
	Open Stony Plain	41.2	60.6
	Samphire Plains	10.9	16.0
	Outcrops	3.2	4.7
	Disturbed	10.0	14.7
Emily Well	Open Acacia woodland	0.4	1.1
	Open Stony Plain	25.7	78.9
	Samphire Plains	3.5	10.7
	Outcrops	1.7	5.1
	Disturbed	1.4	4.3
Jim's Find	Open Acacia woodland	24.0	68.9
	Disturbed	10.8	31.1

5.2.2 Significant Fauna

Database search results of T, P and MI fauna within 30 km of the Survey Areas are listed in Table 5-4, with the outcome of the likelihood of occurrence assessment, with consideration of the fauna habitats available in the Survey Areas.

It is possible that Southern Whiteface, Westcoast Mulga Slider and Peregrine Falcon may occasionally forage within parts of the Survey Areas under favourable conditions, however no breeding habitat is present and the quality of habitats is low due to impacts from current and historic clearing and grazing. No important habitat for these species is present within the Survey Areas.

For all other conservation significant fauna identified from the Desktop Study as occurring or potentially occurring in the region, there is no suitable habitat present within the Survey Areas.

579000

580000

581000

582000

583000

6977000

6976000

6975000

6974000

6973000

6972000

Jim's Find

City of
Sydney

Fleecepool

Emily Well

Legend

 CPS 8087 Cuddingwarra NVCP Area

 Survey Areas

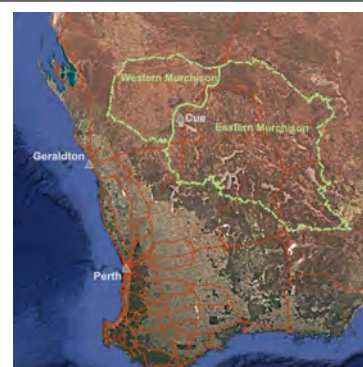
 Samphire plains

 Open stony plain

 Open Acacia woodland

 Outcrops

 Disturbed



Fauna Habitat

Prepared for:

 WESTGOLD

5-2

Scale: @ A4 0 0.5 1 km
1: 25,000

Coordinate System: GDA 2020 MGA Zone 50
Projection: Transverse Mercator



Date: 17/07/2026

Author: EH

Table 5-4. Significant fauna likelihood of occurrence

Species	Common Name	Conservation Code		Assessment of Occurrence
		BC Act	EPBC Act	
<i>Actitis hypoleucos</i>	Common sandpiper	MI	MI	Unlikely. No suitable habitat present.
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	VU, MI	
<i>Calidris ferruginea</i>	Curlew sandpiper	CR	CR, MI	
<i>Calidris melanotos</i>	Pectoral Sandpiper	MI	MI	
<i>Calidris ruficollis</i>	Red Necked Stint	MI	MI	
<i>Charadrius cucullatus</i>	hooded plover, hooded dotterel	P4	-	
<i>Chlidonias leucopterus</i>	White-winged Black Tern	MI	MI	
<i>Gelochelidon nilotica</i>	Gull-billed Tern	MI	MI	
<i>Hydroprogne caspia</i>	Caspian tern	MI	MI	
<i>Limosa lapponica</i>	Bar – tailed Godwit	MI	MI	
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	
<i>Tringa nebularia</i>	Common Greenshank	MI	EN, MI	
<i>Tringa stagnatilis</i>	Marsh Sandpiper	MI	MI	
<i>Aphelocephala leucopsis</i>	Southern Whiteface	VU	VU	Possible. Contemporary database record 20 km northeast of Jim's Find Survey Area near Lake Nallan. Suitable habitat comprises undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both, where low tree densities and an herbaceous understory with litter cover provides essential

Species	Common Name	Conservation Code		Assessment of Occurrence
		BC Act	EPBC Act	
				foraging habitat and living and dead trees with hollows and crevices for roosting and nesting are present. Habitats in the City of Sydney, Fleecepool and Emily Well Survey Areas are unsuitable. Habitats in the denser vegetation of the Jim's Find Survey Area may be suitable for foraging under favourable conditions where groundcover vegetation is dense following significant rainfall, however the area is heavily grazed and the poor condition is unlikely to support suitable foraging habitat. No breeding habitat (tree hollows) were present within the Survey Area but may occur in the broader floodplain that extends for several km to the northeast and southwest. No important habitat for the species is present within the Jim's Find Survey Area.
<i>Apus pacificus</i>	Fork-tailed swift	MI	MI	Likely. The species occurs broadly but rarely come to land.
<i>Falco hypoleucos</i>	Grey Falcon	VU	VU	Unlikely. No large trees are present that would be suitable for nesting.
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Possible. All areas are suitable for foraging. No suitable nesting habitat.
<i>Pezoporus occidentalis</i>	Night parrot	CR	CR	Unlikely. Recorded south west of Lake Austin in 1854. No reported contemporary records however East Murchison is within the High Priority survey area for Night Parrot (DBCA 2024). No suitable roosting or breeding habitat is present, with vegetation being sparse and open. Some chenopod shrublands have the potential to support foraging habitat under favourable seasonal conditions, however these were all occurring outside of the Survey Areas within the reference areas. The Survey Areas contained no suitable habitat.
<i>Leipoa ocellata</i>	Malleefowl	VU	VU	Unlikely. Historically known to be present in the region but extensive surveys in the local area have recorded no signs of presence and habitat was noted to be degraded from grazing. No mounds or signs of presence were observed during Targeted Search.

Species	Common Name	Conservation Code		Assessment of Occurrence
		BC Act	EPBC Act	
<i>Motacilla cinerea</i>	Grey Wagtail	MI	MI	Unlikely. Primarily found near fast-flowing, clear water sources such as rocky streams, rivers, and waterfalls in upland, wooded areas. No suitable habitat present.
<i>Oxyura australis</i>	Blue-billed Duck	P4	-	Unlikely. Requires freshwater wetlands, no suitable habitat present.
<i>Egernia stokesii badia</i>	Western spiny-tailed skink	VU	EN	Unlikely. Local 'black form' lives on granite outcrops and ironstone breakaways and shelters in horizontal crevices. Outcropping in the Survey Areas consists of quartz, dolerite and basalt, being blocky and lacking in suitable horizontal crevices required to support the species. This has been confirmed during the targeted searches.
<i>Lerista eupoda</i>	West Coast Mulga Slider	P1	-	Possible. Historic records to the east and west of the Survey Areas. Suitable habitat is present within open mulga areas on loamy soils, however these were recorded outside of the Survey Areas, within the reference areas.
<i>Idiosoma nigrum</i>	Shield-backed Trapdoor Spider	EN	VU	Unlikely. Taxonomy of <i>Idiosoma</i> revised and extent of <i>I. nigrum</i> limited to include only those populations from the central and central-western Wheatbelt bio-region. Local records revised to <i>I. clypeatum</i> (P3), which is restricted to BIF in the local area. No suitable habitat in the Survey Areas. Outcrops were searched at high intensity but lacked the tree cover and shading required to support suitable habitat.

6 CONCLUSIONS

6.1 FLORA

The flora and vegetation survey recorded a total of 126 taxa within the Survey Area which is lower than the number of taxa recorded in other previous local surveys (Table 4-1) reflecting the smaller survey area with a low diversity of habitats. The species diversity per quadrat was similar to previous surveys conducted under average and above average conditions, indicating the season of survey and seasonal conditions were adequate. Modelling indicates that the survey captured 85% of the species richness, further indicating that conditions were suitable under the median rainfall received prior to survey. The composition of the flora was similar to previous surveys and is typical for the regional area.

6.2 FLORA OF CONSERVATION SIGNIFICANCE

No T flora was recorded in the Survey Areas. The critically endangered *Eremophila rostrata* subsp. *rostrata* occurs near the township of Cue 6.5 km to 10.5 km south east of the Survey Areas. The known populations were visited and the species was observed to be detectable under the prevailing climatic conditions. No suitable habitat for the species occurs within the Survey Areas. The absence of the species form within the Survey Areas is reported with a high level of confidence.

Two Priority flora species were recorded. *Grevillea inconspicua* (P4) and *Dodonaea amplisemina* (P4) were recorded on the low north-south oriented ridge that runs parallel to, and is partially intersected by, the eastern edge of the Fleecepool Survey Area. All the individuals of *Grevillea inconspicua* were outside of the Survey Area. A small number of *Dodonaea amplisemina* were recorded on the taller ridge between the Fleecepool and Emily Well Survey Areas, and cumulatively the proportion of the local population within the Fleecepool Survey Area is 27.4%.

Ptilotus beardii (P3) has previously been recorded during spring surveys but was not present during the current survey. The proportion of historic records within the Survey Areas is 11.5% or 9.5% of the locally available confirmed suitable habitat.

Dodonaea amplisemina and *Ptilotus beardii* are known from 21 and 32 record locations across the Mid West respectively and Cue is within the known Extent of Occurrence, being around the central portions of their ranges (WAH 1998-). Loss of individuals or suitable habitat within the Survey Areas would not lead to an increase in the conservation category eligibility for these species, or lead to their loss in the local or regional area.

An additional species (*Ptilotus luteolus*; P3) was considered likely to occur and three species (*Hibiscus krichauffianus* P1 calcrete on Alluvial Plain; *Ptilotus* sp. Cue P1 and *Hibiscus* sp. Belele P3) were assessed as possible to occur based upon the availability of suitable habitat and proximity of local records. *Ptilotus luteolus* was previously recorded in the Outcrop habitats but was not recorded in the current survey. The Survey Areas contain 4.8% of the locally available confirmed habitat for this species (Table 4-6). Suitable habitat for *Hibiscus krichauffianus* is present in the Jim's Find Survey Area on the calcrete deposit within the Alluvial Plain. This area was heavily grazed but remained in Good Condition. The proportion of suitable habitat in the Survey Areas compared to the locally confirmed extent is 19.5%. *Ptilotus* sp. Cue (P. Armstrong PA 16/362) suitable habitat occurs on quartz outcrops. A very small quartz outcrop occurs in the south east of the Fleecepool Survey Area. This area was searched at a high

resolution and no individuals of *Ptilotus* sp. Cue were recorded. The areas was in Poor condition with historic clearing and poor rehabilitation success and it is unlikely that an important population of this species would be present. *Hibiscus* sp. Belele suitable habitat occurs on stony plains, of which 10.9% of the locally available suitable habitat is within the Survey Areas. No significant impact to these species is expected.

6.3 INTRODUCED FLORA

No weeds Declared under the BAM Act or classed as WONS were recorded in the Survey Areas. Three weeds were recorded, *Citrullus amarus*, *Cuscuta planiflora* and *Tribulus terrestris*. Occurrences were isolated and infrequent. The species are common environmental weeds of the Mid West.

Declared weeds known to occur in the region are perennial species able to be identified from vegetative parts. The absence of Declared weeds within the Survey Area is reported with a high level of confidence.

6.4 VEGETATION OF CONSERVATION SIGNIFICANCE

There are no recognised TECs located within or adjacent to the Survey Area.

The vegetation types described for the City of Sydney, Fleecepool and Emily Well Survey Areas are analogous to the P3 PEC Austin Land System. The Austin Land System PEC requires conservation of its saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga (DPIRD 2023). The proportion of the remaining local extent of the Austin Land System PEC occurring within the City of Sydney, Fleecepool and Emily Well Survey Areas is 1.81%. When Completely Degraded and Poor Condition areas are removed, this is reduced to 0.94% of the locally available extent of the PEC. Cumulatively, the loss of vegetation within the City of Sydney, Fleecepool and Emily Well Survey Areas would result in an overall reduction of approximately 15% of the local extent of this PEC. Loss of the vegetation within the City of Sydney, Fleecepool and Emily Well Survey Areas would not lead to an increase in the eligibility of the community under conservation categories and is therefore not a significant impact.

The vegetation of the Jim's Find area is potentially groundwater dependent vegetation containing facultative phreatophytes that are likely to be accessing groundwater in the shallow calcrete aquifer at some time. As facultative phreatophytes they are accustomed to sourcing water from a variety of sources and are not completely dependent on groundwater for all of their water needs. The vegetation in Jim's Find overlies the Taincrow Calcrete PEC, instated to protect the unique invertebrate assemblages identified in the groundwater calcretes. The vegetation overlying the PEC is important to support the health and quality of habitat within the PEC. The proportion of the remaining vegetation above Taincrow PEC occurring within the Jim's Find Survey Area is 0.29%. When areas in a Completely Degraded Condition areas are removed, this is reduced to 0.20% of the locally available extent of the PEC. Cumulatively, the loss of vegetation within the Jim's Find Survey Area would result in an overall reduction of approximately 1.7% of the local extent of vegetation supporting this PEC, which does not constitute a significant impact.

Regional Vegetation Associations within the Survey Areas have over 99% pre-European Vegetation extent remaining. Conservation significance ranking of vegetation associations occurring within the Survey Areas are of 'Least Concern'.

6.5 FAUNA OF CONSERVATION SIGNIFICANCE

No T or P fauna species have previously been recorded in the Survey Areas; however several T and P fauna are considered Likely or Possibly occurring due to the presence of suitable habitat and are discussed below.

Suitable foraging habitat for Southern whiteface possibly occurs under more favourable climatic conditions in the Alluvial Plain of the Jim's Find Survey Area and therefore has been classified as Possibly occurring. No breeding or roosting habitat is present within the Survey Area but may be present in the broader Alluvial Plain habitat that stretches for several km to the northeast and southwest. The condition of potential foraging habitat was poor at the time of survey and impacts of historic cattle grazing and current feral grazing were evident, with a very sparse groundcover and very limited litter layer, not able to support Southern Whiteface. It is possible that under more favourable conditions the quality may improve, but not without significant intervention and the removal of both domestic and feral stock from the general area. The Jim's Find Survey Area is not important habitat for the species. No suitable habitat is present in the City of Sydney, Fleecepool or Emily Well Survey Areas.

Potentially suitable habitat for West Coast Mulga Slider occurs within open mulga areas on loamy soils, however these were recorded outside of the Survey Areas, within the reference areas. It is possible the species uses the Survey Areas at some time for dispersal however the recorded patches are small and isolated and the ability of the species to disperse across unsuitable habitats is highly constrained. There is no important habitat for the species present in the Survey Areas.

Suitable foraging habitat for Peregrine falcon occurs across all Survey Areas and therefore has been classified as possibly occurring. Suitable foraging habitat is widespread and the Survey Areas do not contain breeding or roosting habitat or habitat important for the species.

Fork tailed swift is Likely to occur as it is widespread and known rarely to come to land. The Survey Areas do not contain important habitat for the species.

Night Parrot survey guidelines indicate the Survey Areas are within the High Priority survey area. Night Parrot was historically recorded at Lake Austin and salt lake environments are considered to host potentially suitable habitat, as they may host a range of chenopod flora that provide food and shelter. Chenopod shrublands were recorded both within and surrounding the Survey Areas. No suitable roosting habitat was recorded at any of the Survey or reference areas; however potentially suitable foraging habitat is present within the reference areas. It is noted however that the vegetation is open and sparse and provides little cover from the predation pressures that have caused the species to decline so catastrophically across its former range. It is unlikely that suitable roosting or breeding habitat is present within 10 km of the Survey Areas due to the open and sparse nature of vegetation impacted historically and currently by prospecting, grazing, mining and pastoral activities. There is no suitable habitat for the species within the Survey Areas. Targeted surveys using automated recording units is not required.

Migratory shorebirds, including species listed as T under the EPBC and BC Acts, are likely to occur in Lake Austin, 17 km south of the Survey Areas, at some time. Occurrence within the lake would be transitory and during the non-breeding season. Due to the size of the lake and the infrequency with which it fills, the occurrence of these species is expected to be extremely rare. Lake Annean to the north of the study area is a wetland of national significance due to the more regular occurrence of surface

water and the increased habitat suitability this holds for wading birds. Whilst Samphire plains habitats in the Survey Areas may on occasion be inundated, it is unlikely these highly mobile migratory waders would use this habitat due to the high level of human activity and disturbance compared to other higher value habitats nearby such as Lake Austin and Lake Annean.

Quartz outcrops have previously been identified as potentially significant for their ability to support SRE fauna. The quartz outcrop in the Fleecepool area is a very small and highly disturbed outcrop and is not expected to be able to support significant habitat for SREs as it lacks a canopy or shrub cover, accumulated leaf litter or any shading that typically are required to support SRE habitats in the arid regions.

6.6 INTRODUCED FAUNA

A large flock of goats was observed in the local area during survey and evidence of high intensity grazing from feral herbivores was observed. Tracks and scats of cats and dogs were very common across all Survey Areas.

7 REFERENCES

- ALA (2023) Atlas of Living Australia. Online database. Accessed December 2023.
- Beard JS (1990) *Plant life of Western Australia*. Kangaroo Press, Kenthurst, New South Wales.
- Beard JS (1975) Vegetation survey of Western Australia. Western Australia 1: 1 000 000 vegetation series.
- BoM (2026a) *Climate Data Online*. Available online: <http://www.bom.gov.au/climate/data/>
- BoM (2026b) GDE Atlas <https://www.bom.gov.au/water/groundwater/gde/>
- Cameco (2015) Public Environmental Review - Yeelirrie Uranium Project. Cameco Australia Pty Ltd https://epa.wa.gov.au/sites/default/files/PER_documentation/Yeelirrie%20Uranium%20Project%20-%20PER.pdf
- Clarke K and Gorley R (2015) PRIMER v7: User Manual/Tutorial. PRIMER-E Plymouth.
- Cowan (2001) Murchison 1 (MUR1 – East Murchison subregion) <https://library.dbca.wa.gov.au/FullTextFiles/021927.036.pdf>
- Curry PJ, Payne AL, Leighton KA, Hennig P and Blood DA (1994) An inventory and condition survey of the Murchison River catchment, Western Australia. Department of Agriculture, Perth. Technical Bulletin 84. https://library.dpird.wa.gov.au/tech_bull/4
- Department of Agriculture, Water and the Environment (2020) National Established Weed Priorities – Towards A National Framework – Final Draft. Prepared by Wild Matters Pty. Ltd. for the Department of Agriculture, Water and the Environment July 2020.
- DBCA (2023a) Priority Ecological Communities for Western Australia Version 35. Species and Communities Program, Department of Biodiversity, Conservation and Attractions. 19 June 2023
- DBCA (2023b) Midwest Impact and Invasiveness Ratings. Department of Biodiversity Conservation and Attractions Last updated 27-04-2023.
- DBCA (2024) Guidelines for determining the likely presence and habitat usage of Night Parrot (*Pezoporus occidentalis*) in Western Australia, published March 2024.
- DBCA (2026a) *Dandjoo* search accessed on the 25/01/2026. Available at <https://dandjoo.bio.wa.gov.au/>
- DBCA (2026b) DBCA Fire History (DBCA-060). Fire Management Services Branch. Last updated 22/01/2026. Available at <https://catalogue.data.wa.gov.au/dataset/dbca-fire-history>
- DBCA (2025) Threatened and priority flora December 2025. <https://www.dbca.wa.gov.au/sites/default/files/2025-12/Threatened%20and%20Priority%20Flora%20list%20Dec%202025.xlsx>
- DBCA (2025) Threatened and Priority Ecological Communities November 2025. <https://www.dbca.wa.gov.au/sites/default/files/2025-11/Threatened%20Ecological%20Communities%20List%20-%20November%202025.xlsx>

DBCA (2026) Directory of Important Wetlands in Australia - Western Australia (DBCA-045). Last updated 15-04-2026.

DCCEEW (2025) Conservation Advice for *Pezoporus occidentalis* (night parrot). Canberra: Department of Climate Change, Energy, the Environment and Water. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/59350-conservation-advice-05092025.pdf>. In effect under the EPBC Act from 05-Sep-2025.

DCCEEW (2026) Approved lists under the EPBC Act. <https://www.dcceew.gov.au/environment/epbc/our-role/approved-lists>

Department of Mines, Industry Regulation and Safety (2023) Clearing Permit Decision Report 8087/3 Purpose Permit Big Bell Gold Operations Pty Ltd 29 May 2023

DPIRD (2019) Pre-European Vegetation (DPIRD-006). Last updated 23/07/2019

DPIRD (2025) Soil Landscape Mapping – Best Available DPIRD-027. Version 05.01. Data last updated 11/11/2025.

DPIRD (2026) Western Australian Organism List (WAOL). <https://www.dpird.wa.gov.au/online-tools/western-australian-organism-list/>

Department of Energy and the Environment (2016) Collaborative Australian Protected Areas Database - Terrestrial CAPAD 2016. Australian Government

Department of Water and Environment Regulation (2023) Clearing Regulations - Environmentally Sensitive Areas 01/08/2023. <https://www.wa.gov.au/service/environment/environment-information-services/environmentally-sensitive-areas>

Environment Online (2026) Index of Surveys for Assessment <https://environmentonline.dwer.wa.gov.au/article/?code=KA-00081>

EPA (2016) *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available online: <https://www.epa.wa.gov.au/policies-guidance/technical-guidance-flora-and-vegetation-surveys-environmental-impact-assessment>

EPA (2020) *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment*. Available online: <https://www.epa.wa.gov.au/policies-guidance/technical-guidance-terrestrial-vertebrate-fauna-surveys-environmental-impact>

ESCAVI (2003) Australian Vegetation Attribute Manual National Vegetation Information System, Version 6.0 Department of the Environment and Heritage.

Maia (2017) Big Bell Haul Road (Tenements L20/76 and L20/77) Level 1 Reconnaissance and Targeted Flora Survey – Prepared on behalf of Westgold Resources Limited by Maia Environmental Consultancy, November 2017.

Maia (2019a) Crème d'Or, Racecourse and Mt Fingall Project Area Reconnaissance and Targeted Flora Survey – Prepared on behalf of Westgold Resources Limited by Maia Environmental Consultancy, September 2019

Maia (2019b) City of Sydney and Fleece Pool Project Area Reconnaissance and Targeted Flora Survey – Prepared on behalf of Westgold Resources Limited by Maia Environmental Consultancy, April 2020.

National Committee on Soil and Terrain (2009) *Australian Soil and Land Survey Field Handbook*. CSIRO Publishing Australia.

Outback Ecology (2012a) Central Murchison Gold Project Level 1 Vegetation, Flora and Fauna Assessment - Prepared on behalf of Westgold Resources Limited by Outback Ecology Services, July 2012

Outback Ecology (2012b) Central Murchison Austin Downs, Big Bell and City of Chester, Subterranean Fauna Pilot Survey – Prepared on behalf of Westgold Resources Limited by Outback Ecology Services, December 2012

Pringle HJR, Van Vreeswyk AME and Gilligan SA (1994) Technical Bulletin No 87. An inventory and condition survey of the north-eastern Goldfields, Western Australia. Department of Agriculture, Perth.

Richardson S, et al 2011 Australian groundwater-dependent ecosystem toolbox part 1: assessment framework, Waterlines report, National Water Commission, Canberra

Schoenjahn J (2018) Adaptations of the rare endemic grey falcon *Falco hypoleucos* that enable its permanent residence in the arid zone of Australia. PhD Thesis. University of Queensland

Thackway R and Cresswell I (1995) *An Interim Biogeographic Regionalisation for Australia*. Available online: <https://www.environment.gov.au/system/files/resources/4263c26f-f2a7-4a07-9a29-b1a81ac85acc/files/ibra-framework-setting-priorities-nrs-cooperative-program.pdf>

Threatened Species Scientific Committee (2020) Conservation Advice *Falco hypoleucos* grey falcon. Approved from 09/07/2020.

Trudgen M (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Western Australian Herbarium (1998-) Florabase. Descriptions by the Western Australian Herbarium, Department of Biodiversity, Conservation and Attractions. Text used with permission (<https://florabase.dpaw.wa.gov.au/help/copyright>). Accessed on 17 May 2023

Western Australian Museum (2025) Checklist of the Terrestrial Vertebrate Fauna of Western Australia. Available at <https://museum.wa.gov.au/research/departments/terrestrial-zoology/checklist-terrestrial-vertebrate-fauna-western-australia>

APPENDICES

APPENDIX A: CONSERVATION AND DECLARED CATEGORIES

Commonwealth Conservation Category descriptions are available at

<https://www.dcceew.gov.au/environment/biodiversity/threatened/nominations/forms-and-guidelines>

A list of Weeds of National Significance is available at

<https://weeds.org.au/lists/established/>

Western Australian Conservation Categories are available at

<https://www.dbca.wa.gov.au/media/792/download>

Western Australian Declared species category descriptions are available at

<https://www.dpir.wa.gov.au/online-tools/western-australian-organism-list/>

APPENDIX B: PMST SEARCH RESULTS



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 09-Feb-2026

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	12
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	4
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Indigenous			
Wilgie Mia Aboriginal Ochre Mine	WA	Listed place	In buffer area only

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
Eremophila rostrata Beaked Eremophila [65124]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Minuria tridens Minnie Daisy [13753]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Egernia stokesii badia Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area	In feature area
SPIDER			
Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In buffer area only
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Dalgaranga	National Park	WA	In buffer area only
Lakeside	National Park	WA	In buffer area only
Lakeside	Conservation Park	WA	In feature area
Lakeside Pastoral Lease	NRS Addition - Gazettal in Progress	WA	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Oakajee Rail Development	2010/5500	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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APPENDIX C: DETAILED FLORA AND VEGETATION SITES

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

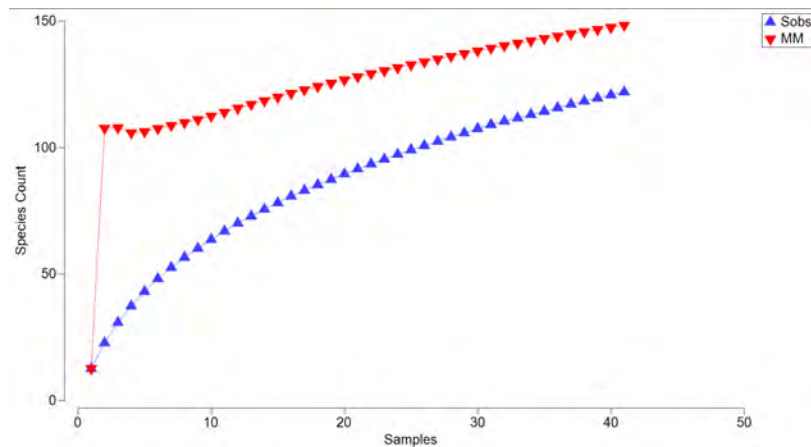


Figure C-1: Species accumulation curves showing the total number of different plant taxa as quadrats are successively pooled for the survey areas (Sobs, blue triangles) and the Michaelis Menton theoretical richness (MM, red triangles).

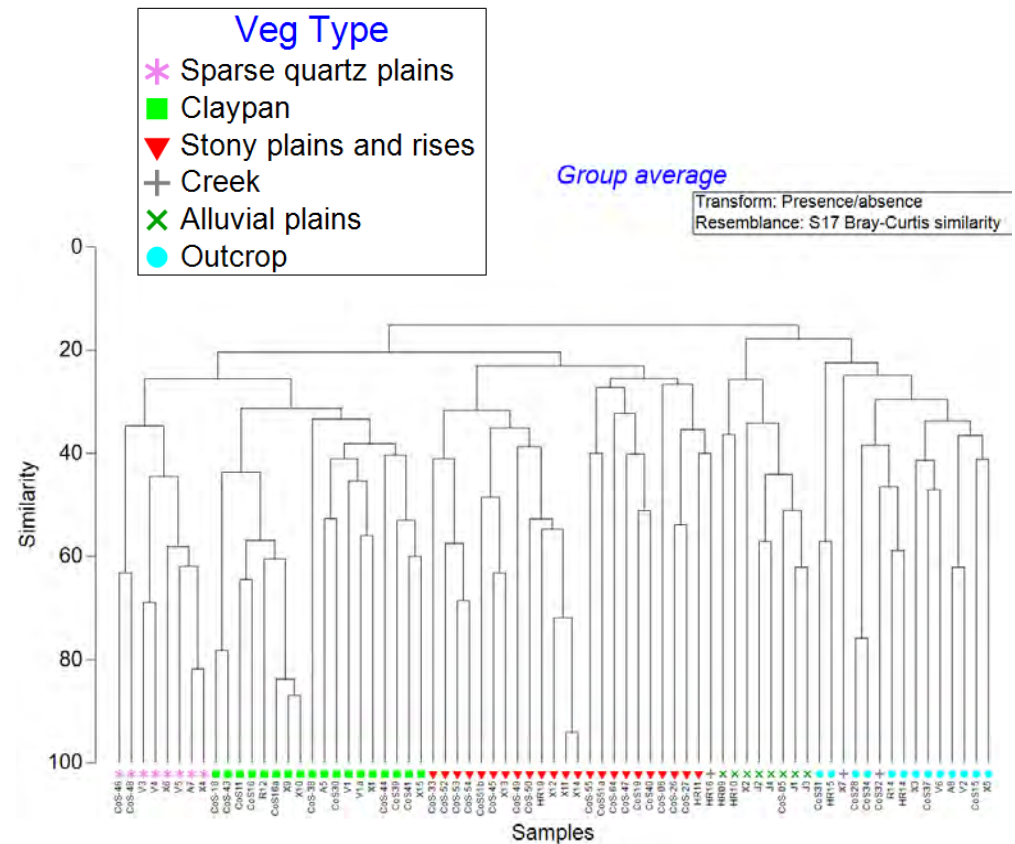
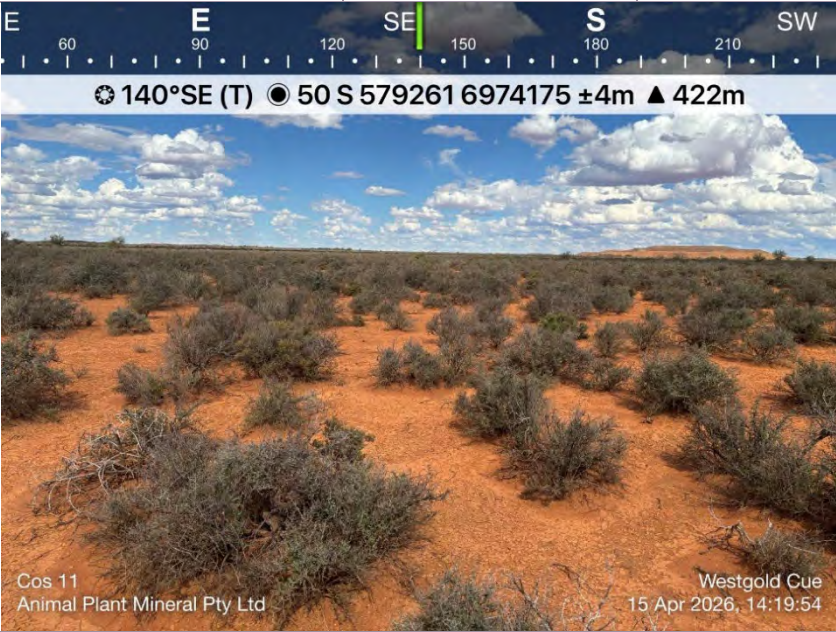
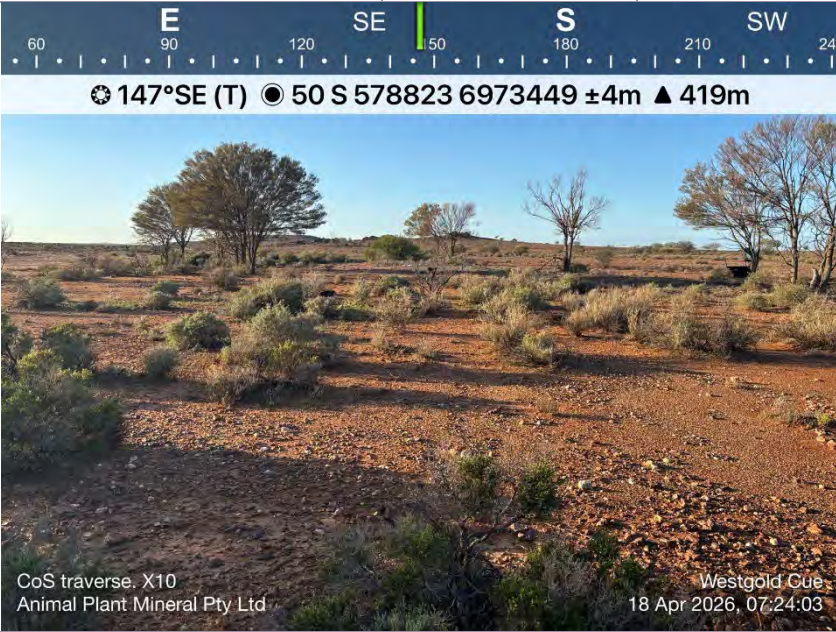


Figure C-2: Cluster analysis indicating the grouping of quadrats in the four Survey Areas and surrounding reference areas according to floristics. Vegetation types are strongly influenced by landscape position as shown by the symbols.

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X9				Site: R12			
Date: 17/04/2026				Date: 15/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
NW N NE E 300 330 0 30 60 90 ☼ 9°N (T) ● 50 S 578696 6973688 ±3m ▲ 420m  CoS traverse. Poor cond. some recent clearing Animal Plant Mineral Pty Ltd Westgold Cue 18 Apr 2026, 06:52:34				E SE S SW 90 120 150 180 210 240 ☼ 172°S (T) ● 50 S 578768 6973870 ±3m ▲ 423m  R12 Animal Plant Mineral Pty Ltd Westgold Cue 15 Apr 2026, 12:35:44			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Clay loam		Soil Type:		Clay loam	
Surface Rocks Size/Shape:		0.01-5cm Pebbles and gravel		Surface Rocks Size/Shape:		0.1-2 cm Rock Gravel	
Rock Type:		Quartz		Rock Type:		Quartz and Ironstone	
Landform		Plain		Landform		Plain, slight depression	
Slope aspect		Flat		Slope aspect		flat	
Vegetation Description		Low open shrubland		Vegetation Description		sparse low shrubland	
Condition		Poor		Condition		Poor	
Disturbances		Recent clearing, highly fragmented, feral grazing		Disturbances		Clearing, fragmentation, saline water	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	Nil	Overstorey	-	-	Nil
Midstorey	0.7	2	Nil	Midstorey	2.5	0.5	<i>Acacia ceasaneura</i> , <i>Acacia tetragonophylla</i>
Understorey	0.3	25	<i>Marieana tomentosa</i> , <i>Scleroleana eriacantha</i>	Understorey	0.5	5	<i>Atriplex vesicaria</i> , <i>C. subspinescens</i> , <i>T. calyptrata</i>
Conservation Significant Flora: Nil				Conservation Significant Flora: Nil			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS11				Site: X10			
Date: 15/04/2026				Date: 18/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
							
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Clay loam		Soil Type:		Sand silt	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		0.1-4cm Rocks and gravel	
Rock Type:		Nil		Rock Type:		Ironstone and quartz	
Landform		Claypan		Landform		Plain (very minor drainage line in background)	
Slope aspect		Flat		Slope aspect		Very slight rise	
Vegetation Description		Low open shrubland		Vegetation Description		Low open shrubland	
Condition		Very Good		Condition		Poor.	
Disturbances		Some evidence of grazing, infrequent tracks		Disturbances		Previously disturbed, frequent rubbish, highly fragmented, feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	Nil	Overstorey	-	-	Nil (Trees in background not in quadrat)
Midstorey	-	-	Nil	Midstorey	-	-	Nil
Understorey	0.4	35	<i>C. subspinescens</i> , <i>T. calypttrata</i> , <i>T. indica</i> ssp. <i>bidens</i>	Understorey	0.6	30	<i>Hibiscus</i> sp., <i>Sida ectogama</i>
Conservation Significant Flora: Nil				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS30				Site: CoS16			
Date: 16/04/2026				Date: 15/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
SE 150 180 210 240 270 300 NV WP-NW-(E) 580862 (N) 6973727 222°SW (T) ● 50 S 580857 6973726 ±4m ▲ 421m  CoS30 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 08:31:06				SE 120 150 180 210 240 270 W WP-NW-(E) 579330 (N) 6973226 189°S (T) ● 50 S 579343 6973244 ±3m ▲ 419m  CoS16 Animal Plant Mineral Pty Ltd Westgold Cue 15 Apr 2026, 10:35:06			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy clay		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Gravel		Surface Rocks Size/Shape:		Nil	
Rock Type:		Ironstone, quartz		Rock Type:		Nil	
Landform		Depression between two rises		Landform		Sandy patch in flat plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Low sparse shrubland		Vegetation Description		Mid open shrubland with scattered tall shrubs	
Condition		Poor		Condition		Good	
Disturbances		Recent clearing, off track driving		Disturbances		Some cattle evidence, some clearing for tracks and exploration	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	Nil	Overstorey	3	2	<i>Acacia tetragonophylla</i> , <i>Hakea preissii</i>
Midstorey	-	-	Nil	Midstorey	1.1	10	<i>Atriplex bunburyana</i> , <i>Scaevola spinescens</i>
Understorey	0.2	10	<i>Frankenia setosa</i> , <i>Tecticornia calyptrata</i> , <i>M. glomerifolia</i>	Understorey	0.3	7	<i>Tecticornia calyptrata</i> , <i>Atriplex codonocarpa</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

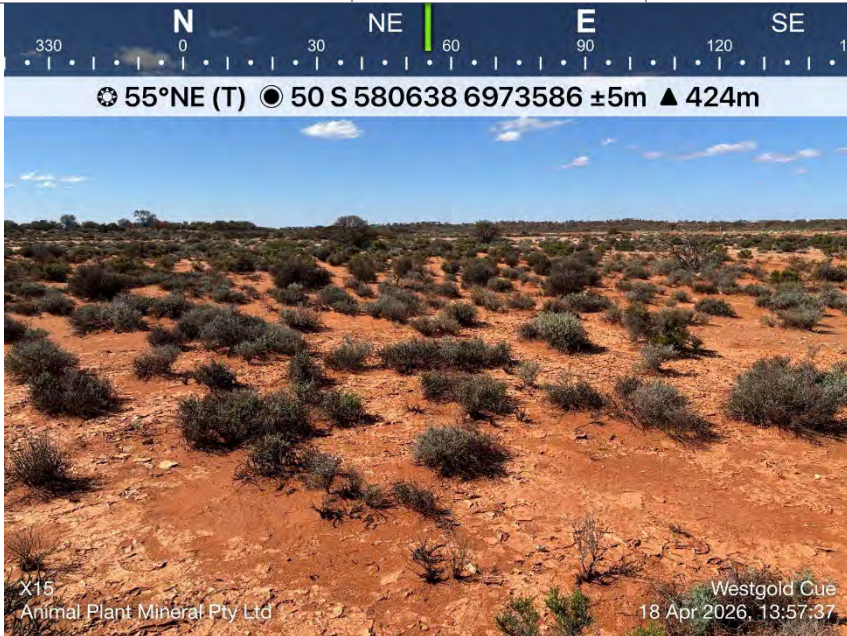
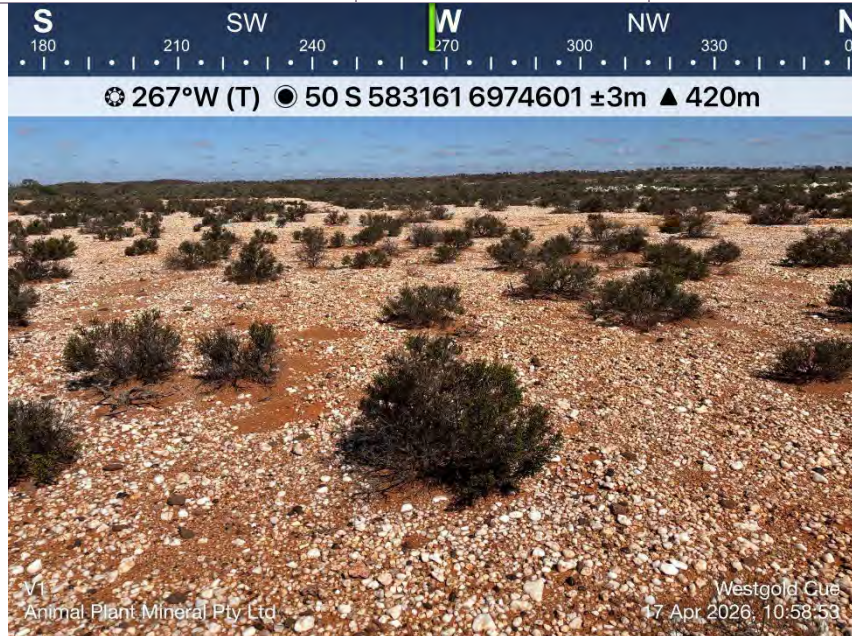
Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS16a				Site: CoS39			
Date: 15/04/2026				Date: 16/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
W 270 NW 300 330 N 30 NE 60 E 90 ☀ 359°N (T) ● 50 S 579342 6973244 ±4m ▲ 421m  CoS16 Animal Plant Mineral Pty Ltd Westgold Cue 15 Apr 2026, 10:38:54				SW 210 W 240 270 NW 30 N 30 E 30 ☀ 302°NW (T) ● 50 S 580496 6972811 ±4m ▲ 419m  CoS39 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 15:39:41			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Clay loam		Soil Type:		Sandy clay	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		Nil	
Rock Type:		Nil		Rock Type:		Nil	
Landform		Flat plain		Landform		Shallow depression	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Low open shrubland		Vegetation Description		Low sparse shrubland	
Condition		Good		Condition		Good	
Disturbances		Some cattle evidence, some clearing for tracks and exploration		Disturbances		Minor clearing, feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	Nil	Overstorey	-	-	Nil
Midstorey	-	-	Nil	Midstorey	-	-	Nil
Understorey	0.4	35	<i>Atriplex vesicaria</i> , <i>Cratystylis subspinescens</i> , <i>T calyptata</i>	Understorey	0.4	15	<i>M. glomerifolia</i> , <i>T. halocnemoides ssp catenulata</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS41				Site: A5			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
W 270 NW 300 330 N 0 NE 60 90 ☀ 356°N (T) ● 50 S 581101 6972711 ±3m ▲ 422m  CoS41 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026, 06:42:48				SW 210 W 240 270 NW 300 330 N 0 ☀ 293°NW (T) ● 50 S 580809 6972178 ±3m ▲ 423m  A5 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026, 09:12:10			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Clay loam		Soil Type:		Sandy clay	
Surface Rocks Size/Shape:		gravel		Surface Rocks Size/Shape:		Rocks and gravel	
Rock Type:		Quartz		Rock Type:		Quartz and Ironstone	
Landform		Claypan		Landform		Open flat stony plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Low sparse shrubland		Vegetation Description		Low open shrubland	
Condition		Good		Condition		Good	
Disturbances		Minor clearing, grazing		Disturbances		Previously disturbed, cattle and feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	<i>Nil</i>	Overstorey	-	-	<i>Nil</i>
Midstorey	-	-	<i>Nil</i>	Midstorey	1.2	1	<i>Eremophila margarethae</i>
Understorey	0.4	25	<i>M. glomerifolia</i> , <i>T. halocnemoides ssp catenulata</i>	Understorey	0.5	20	<i>T. halocnemoides ssp catenulata</i> , <i>Marieana glomerifolia</i>
Conservation Significant Flora: Nil				Conservation Significant Flora: Nil			

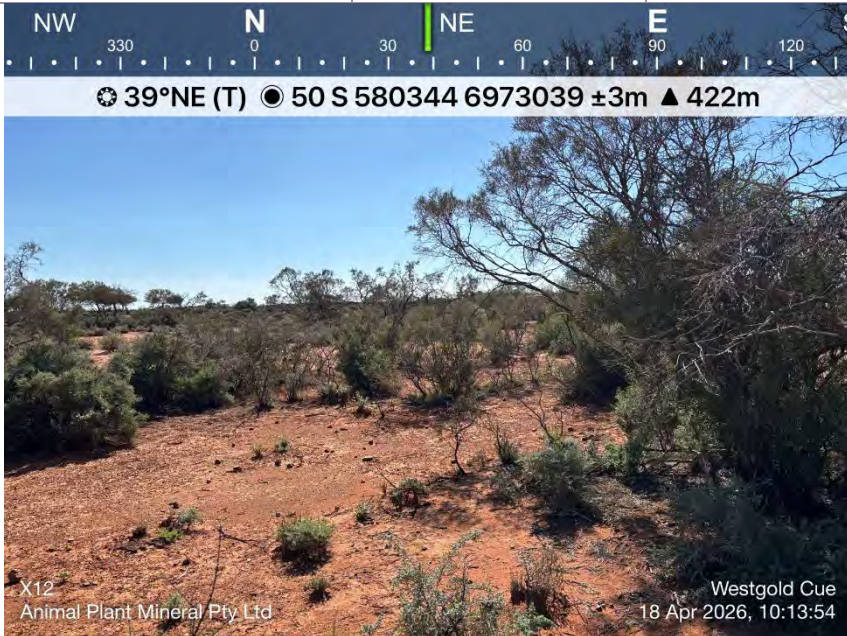
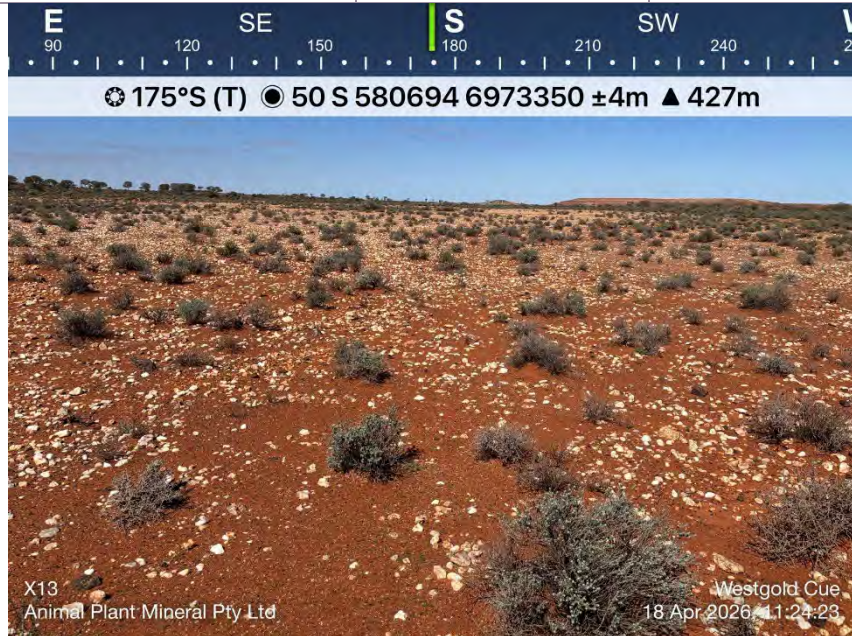
Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X15				WP-NW-(E) 578959				(N) 6973592				Site: V1				WP-NW-(E) 583126				(N) 6974616											
Date: 18/04/2026				Survey Area:				Fleecepool				Date: 17/04/2026				Survey Area:				Reference area											
Botanist: EH				Vegetation Type:				Claypan				Botanist: EH				Vegetation type:				Claypan											
Site Type / Size: 20x20 Quadrat												Site Type / Size: 20x20 Quadrat																			
																															
Seasonal Conditions:				Recent rain				Age Since Last Fire:								Seasonal Conditions:				Recent rain				Seasonal Conditions:				> 5 years			
Soil Type:				Sandy Clay				Soil Colour:				Orange				Soil Type:				Sandy clay				Soil Type:				Red			
Surface Rocks Size/Shape:				Nil				Surface Rock Cover (%):				Nil				Surface Rocks Size/Shape:				Stones and gravel				Surface Rock Cover (%):				80			
Rock Type:				Nil												Rock Type:				Quartz											
Landform				Shallow depression												Landform				Flat plain											
Slope aspect				Flat												Slope aspect				Flat											
Vegetation Description				Low shrubland												Vegetation Description				Low open shrubland											
Condition				Good												Condition				Very Good											
Disturbances				Grazing, minor clearing												Disturbances				Occasional pastoral tracks, minor grazing											
Strata		Height (m)		Cover (%)		Species								Strata		Height (m)		Cover (%)		Species											
Overstorey		-		-		Nil								Overstorey		-		-		Nil											
Midstorey		-		-		Nil								Midstorey		-		-		Nil											
Understorey		0.3		30		<i>M. glomerifolia</i> , <i>T. halocnemoides ssp catenulata</i>								Understorey		0.4		30		<i>M. glomerifolia</i> , <i>T. halocnemoides ssp catenulata</i>											
Conservation Significant Flora: Nil																Conservation Significant Flora: Nil															

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X1				Site: X11			
Date: 15/04/2026				Date: 18/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
NE 30 60 90 120 150 180 S ☀ 106°E (T) ● 50 S 578959 6973592 ±3m ▲ 420m  X1 Animal Plant Mineral Pty Ltd Westgold Cue 15 Apr 2026, 15:30:03				SW 210 240 270 300 330 0 30 N ☀ 299°NW (T) ● 50 S 580568 6972971 ±4m ▲ 428m  X11 Animal Plant Mineral Pty Ltd Westgold Cue 18 Apr 2026, 10:06:40			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy loam		Soil Type:		Sand	
Surface Rocks Size/Shape:		rock and gravel		Surface Rocks Size/Shape:		Nil	
Rock Type:		Ironstone, quartz		Rock Type:		Nil	
Landform		Stony plain/ low ironstone rise		Landform		Plain	
Slope aspect		Crest and east/west slopes		Slope aspect		Flat	
Vegetation Description		Sparse low shrubland		Vegetation Description		Tall sparse shrubland, low open shrubland	
Condition		Poor		Condition		Good	
Disturbances		Clearing, fragmentation, grazing		Disturbances		None	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	<i>Nil</i>	Overstorey	-	-	-
Midstorey	1.4	0.1	<i>Eremophila pterocarpa</i>	Midstorey	2.5	5	<i>Hakea preissii</i> , <i>Acacia eramaea</i>
Understorey	0.3	10	<i>M. tomentosa</i> subsp. <i>tomentosa</i> , <i>Sclerolaena eriacantha</i>	Understorey	0.5	30	<i>M. pyramidata</i> , <i>M. atkinsiana</i> , <i>Frankenia setosa</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X12		WP-NW-(E) 580345		(N) 6973040		Site: X13		WP-NW-(E) 580696		(N) 6973341			
Date: 18/04/2026		Survey Area:		Fleecepool		Date: 18/04/2026		Survey Area:		Fleecepool			
Botanist: EH		Vegetation Type:		Plains and low rises		Botanist: EH		Vegetation Type:		Plains and low rises			
Site Type / Size: 20x20 Quadrat						Site Type / Size: 20x20 Quadrat							
													
Seasonal Conditions:		Recent rain		Age Since Last Fire:		> 5 years		Seasonal Conditions:		Recent rain			
Soil Type:		Sand and clay		Soil Colour:		Red orange		Soil Type:		Sandy clay			
Surface Rocks Size/Shape:		Rocks and gravel		Surface Rock Cover (%):		10%		Surface Rocks Size/Shape:		Rocks and gravel			
Rock Type:		Ironstone		Rock Type:		Ironstone and quartz		Rock Type:		Ironstone and quartz			
Landform		Plain		Landform		Open quartz and ironstone plain		Landform		Open quartz and ironstone plain			
Slope aspect		Flat		Slope aspect		Flat		Slope aspect		Flat			
Vegetation Description		Tall open shrubland, mid open shrubland, low open shrubland		Vegetation Description		Low open shrubland		Vegetation Description		Low open shrubland			
Condition		Good		Condition		Good		Condition		Good			
Disturbances		grazing, frequent tracks		Disturbances		Occasional tracks, clearing nearby		Disturbances		Occasional tracks, clearing nearby			
Strata	Height (m)	Cover (%)	Species	Strata		Height (m)	Cover (%)	Species	Strata		Height (m)	Cover (%)	Species
Overstorey	2.5	15	<i>Hakea preiseii</i>	Overstorey		-	-	<i>Nil</i>	Overstorey		-	-	<i>Nil</i>
Midstorey	1.5	15	<i>Acacia tetragonophylla</i>	Midstorey		-	-	<i>Nil</i>	Midstorey		-	-	<i>Nil</i>
Understorey	0.5	20	<i>Maireana pyramidata, Cratystylis subspinescens</i>	Understorey		0.5	1	<i>Maireana pyramidata, Maireana glomerifolia</i>	Understorey		0.5	1	<i>Maireana pyramidata, Maireana glomerifolia</i>
Conservation Significant Flora: None						Conservation Significant Flora: None							

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X14				Site: CoS40			
Date: 18/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
S SW W NW 180 210 240 270 300 330 ☉ 261°W (T) ☉ 50 S 580392 6973481 ±4m ▲ 426m  X14 Animal Plant Mineral Pty Ltd Westgold Cue 18 Apr 2026, 13:45:28				SE S SW W 150 180 210 240 270 300 ☉ 217°SW (T) ☉ 50 S 580749 6972781 ±4m ▲ 425m  CoS40 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 14:21:04			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy Clay		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		small stones, gravel	
Rock Type:		Nil		Rock Type:		Quartz, Ironstone	
Landform		Open plain		Landform		Open plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Isolated tall shrubs with open low shrubland		Vegetation Description		Sparse tall shrubland, Sparse low shrubland	
Condition		Good		Condition		Poor	
Disturbances		Occasional tracks, clearing nearby		Disturbances		Isolated small patch near recent rehabilitation area	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	<i>Nil</i>	Overstorey	-	-	<i>Nil</i>
Midstorey	1.8	2	<i>Hakea preissii</i>	Midstorey	1.7	5	<i>Hakea preissii</i> , <i>Acacia tetragonaphylla</i> , <i>Eremophila spp.</i>
Understorey	0.4	0.5	<i>Maireana pyramidata</i> , <i>Maireana glomerifolia</i>	Understorey	0.5	10	<i>M. glomerifolia</i> , <i>Frankenia setosa</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS51a		WP-NW-(E) 580432		(N) 6972137	
Date: 17/04/2026		Survey Area:		Access road to Emily Well	
Botanist: EH		Vegetation Type:		Plains and low rises	
Site Type / Size: 20x20 Quadrat					
E SE S SW 90 120 150 180 210 240 ☀ 162°S (T) 🌑 50 S 580307 6972194 ±4m ▲ 423m  CoS51 Sandy patch with mastery Animal Plant Mineral Pty LtdWestgold Cue 17 Apr 2026, 07:50:31					
Seasonal Conditions:		Recent rain		Age Since Last Fire:	
Soil Type:		Sandy		Soil Colour:	
Surface Rocks Size/Shape:		Rocks and gravel		Surface Rock Cover (%):	
Rock Type:		Quartz and ironstone		5 years	
Landform		Open plain		Red brown	
Slope aspect		Flat		5%	
Vegetation Description		Sparse mid shrubland over open low shrubland			
Condition		Good			
Disturbances		Occasional tracks, grazing			
Strata	Height (m)	Cover (%)	Species		
Overstorey	-	-	Nil		
Midstorey	1.7	5	Acacia eramaea A. tetragonophylla		
Understorey	0.5	15	M. pyramidata, P. obovatus		
Conservation Significant Flora: none					

Site: Cos51b		WP-NW-(E) 580300		(N) 6972199	
Date: 17/04/2026		Survey Area:		Access road to Emily Well	
Botanist: EH		Vegetation Type:		Plains and low rises	
Site Type / Size: 20x20 Quadrat					
SW W NW N NE 240 270 300 330 0 30 ☀ 318°NW (T) 🌑 50 S 580298 6972208 ±4m ▲ 425m  Cos51 Animal Plant Mineral Pty LtdWestgold Cue 17 Apr 2026, 07:35:56					
Seasonal Conditions:		Dry		Age Since Last Fire:	
Soil Type:		Sandy		Soil Colour:	
Surface Rocks Size/Shape:		Rocks and gravel		Surface Rock Cover (%):	
Rock Type:		Quartz and ironstone		> 5 years	
Landform		Open plain		Red brown	
Slope aspect		Flat		20%	
Vegetation Description		Open low shrubland			
Condition		Good			
Disturbances		Occasional tracks, grazing			
Strata	Height (m)	Cover (%)	Species		
Overstorey	-	-	Nil		
Midstorey	1	0.5	Acacia eramaea		
Understorey	0.7	5	M pyramidata, M. glomerifolia		
Conservation Significant Flora: none					

318°NW (T)

50 S 580298 6972208 ±4m ▲ 425m

Cos51

Animal Plant Mineral Pty Ltd

Westgold Cue

17 Apr 2026, 07:35:56

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: R14				Site: R15			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
E SE S SW W 90 120 150 180 210 240 270 183°S (T) 50 S 579753 6971964 ±464m ▲ 423m  R14 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 13:21:43							
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy loam		Soil Type:		Clay loam	
Surface Rocks Size/Shape:		N/A		Surface Rocks Size/Shape:		Small boulders, rocks	
Rock Type:		N/A		Rock Type:		Sedimentary rock	
Landform		Low rise		Landform		Low ridge	
Slope aspect		flat top		Slope aspect		crest and upper slopes east and west facing	
Vegetation Description		Low open woodland sparse mid shrubland sparse tussocks and herbs		Vegetation Description		Low open woodland sparse mid shrubland sparse tussocks and herbs	
Condition		Good		Condition		Good	
Disturbances		Cattle and feral grazing		Disturbances		Cattle and feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	5	15	<i>Acacia fuscaneura</i>	Overstorey	4.5	5	<i>Acacia aptaneura</i> , <i>Acacia pteraneura</i>
Midstorey	1.5	10	<i>Acacia fuscaneura</i> , <i>Hakea preissii</i>	Midstorey	1.5	2	<i>Acacia tetragonophylla</i> , <i>E. mcmilliana</i> , <i>E. jucunda</i>
Understorey	0.3	5	<i>Aristida holathera</i> , <i>Atriplex vesicaria</i>	Understorey	0.5	1	<i>Ptilotus obovatus</i> , <i>Dodonaea amplisemina</i> (P3),
Conservation Significant Flora: None				Conservation Significant Flora: <i>Dodonaea amplisemina</i> (P3),			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: Cos37				Site: A8			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
S SW W NW 180 210 240 270 300 330 ☉ 255°W (T) ● 50 S 580307 6973238 ±3m ▲ 422m  Cos37 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 13:22:42				SW W NW N 210 240 270 300 330 0 30 ☉ 303°NW (T) ● 50 S 582816 6973395 ±4m ▲ 428m  A8 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026, 12:19:20			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy		Seasonal Conditions:		Sandy loam	
Surface Rocks Size/Shape:		Nil		Soil Type:		Red brown	
Rock Type:		Nil		Surface Rocks Size/Shape:		Small stones, gravel	
Landform		Aeolian sand over low outcrop		Rock Type:		Quartz, ironstone	
Slope aspect		Crest		Landform		Low outcrop	
Vegetation Description		Low open woodland, sparse low shrubland		Slope aspect		Crest	
Condition		Good		Vegetation Description		Low open woodland, sparse low shrubland	
Disturbances		Cattle and feral grazing		Condition		Good	
Strata	Height (m)	Cover (%)	Species	Disturbances		Cattle and feral grazing	
Overstorey	4.5	5	<i>Acacia pteraneura</i>	Strata	Height (m)	Cover (%)	Species
Midstorey	-	-	-	Overstorey	3.5	10	<i>Acacia fuscanera</i>
Understorey	0.5	0.5	<i>Maireana pyramidata, Atriplex vesicaria</i>	Midstorey	-	-	-
Conservation Significant Flora: None				Understorey	0.5	10	<i>Eremophila forrestii ssp. forrestii, Sclerolaena eriacantha</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X3				Site: X5			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
W 270 300 330 0 30 60 NW N NE 351°N (T) 50 S 581527 6972152 ±3m ▲ 425m  X3 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026 09:55:29				W 270 300 330 0 30 60 NW N NE 335°NW (T) 50 S 582627 6972786 ±4m ▲ 432m  X5 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026 14:51:59			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy loam		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Rocks and gravel		Surface Rocks Size/Shape:		Rocks and boulders	
Rock Type:		Sedimentary rock		Rock Type:		Ironstone	
Landform		Very low rise		Landform		Low rise	
Slope aspect		Crest		Slope aspect		Crest	
Vegetation Description		Sparse low shrubs		Vegetation Description		Open low woodland sparse low shrubland	
Condition		Poor		Condition		Good	
Disturbances		Cleared, poor rehabilitation success, long historic disturbance from rail		Disturbances		Pastoral tracks, historic prospecting, feral grazing,	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	-	Overstorey	3	10	<i>Acacia fuscaneura</i>
Midstorey	-	-	-	Midstorey	-	-	-
Understorey	0.2	5	<i>Tecticornia halocnemoides ssp catenulata, Atriplex</i>	Understorey	0.5	20	<i>A. tetragonophylla, Atriplex vesicaria, M. pyramidata</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X7				Site: V2			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
N NE E SE 0 30 60 90 120 150 79°E (T) 50 S 582346 6972506 ±3m ▲ 437m  X7 crossing Animal Plant Mineral Pty Ltd Westgold Que 17 Apr 2026 15:48:27				No photo available			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sand		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Sml Rocks and gravel		Surface Rocks Size/Shape:		Rocks and gravel	
Rock Type:		Ironstone and quartz		Rock Type:		Sedimentary rock	
Landform		Minor drainage line		Landform		Low gentle rise	
Slope aspect		West		Slope aspect		west	
Vegetation Description		Tall opens shrubland, mid open shrubland		Vegetation Description		Tall sparse shrubland, mid open shrubland, low open shrubland	
Condition		Poor at crossing, Good downstream		Condition		Good	
Disturbances		Cattle, occasional tracks		Disturbances		Occasional tracks, cattle and feral grazing (well nearby)	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	-	Overstorey	3	5	<i>Acacia synchronicia</i> , <i>A. grasbyii</i> , <i>A. fuscaneura</i>
Midstorey	-	-	-	Midstorey	1.5	5	<i>E. forrestii</i> , <i>E. lachnocalyx</i> , <i>Hakea preissii</i>
Understorey	0.5	10	<i>Atriplex vesicaria</i> , <i>Solanum lasiophyllum</i> , <i>M. pyramidata</i>	Understorey	0.6	0.5	<i>Scaevola spinescens</i> , <i>Ptilotus obovatus</i> , <i>Cratystylis</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: V6				Site: CoS15			
Date: 20/04/2026				Date: 15/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
SE S SW W 120 150 180 210 240 270 300 ☉ 209°SW (T) ● 50 S 582656 6971196 ±2m ▲ 439m  V6 Animal Plant Mineral Pty Ltd Westgold Cue 20 Apr 2026, 14:31:50				E SE S SW 90 120 150 180 210 240 ☉ 166°S (T) ● 50 S 578798 6973192 ±3m ▲ 425m  CoS15-1 Animal Plant Mineral Pty Ltd Westgold Cue 15 Apr 2026, 07:16:09			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy Clay loam		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Boulders and rocks		Surface Rocks Size/Shape:		Boulders and gravel	
Rock Type:		Granite		Rock Type:		Ironstone	
Landform		Outcrop		Landform		Outcrop	
Slope aspect		Crest		Slope aspect		Crest	
Vegetation Description		Sparse tall shrubs, sparse mid shrubs, sparse low shrubs.		Vegetation Description		Low open shrubland with scattered low trees	
Condition		Good		Condition		Good	
Disturbances		Cattle		Disturbances		Frequent tracks, feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	2.5	1	<i>Acacia fuscaneura</i>	Overstorey	3	1	<i>Acacia fuscaneura</i>
Midstorey	1.2	10	<i>Acacia fuscaneura</i> , <i>Eremophila forrestill</i> ,	Midstorey	1.5	1	<i>Eremophila forrestill</i> , <i>E. macmilliana</i> , <i>E. latrobei</i>
Understorey	0.5	1	<i>Ptilotus obovatus</i> ,	Understorey	0.5	15	<i>Ptilotus obovatus</i> , <i>Tribulus suberosus</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS28				Site: CoS31			
Date: 16/04/2026				Date: 16/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
W 270 NW 300 330 0 30 60 NE ☉ 349°N (T) ☉ 50 S 580794 6973778 ±3m ▲ 418m  CoS28 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 06:55:50				E 90 SE 120 150 180 210 240 SW ☉ 169°S (T) ☉ 50 S 581006 6973655 ±7m ▲ 423m  CoS31 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 09:49:57			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sand		Soil Type:		Sandy Clay loam	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		Small rocks and gravel	
Rock Type:		Nil		Rock Type:		Ironstone and sedimentary rock	
Landform		Aeolian sand over low rock outcrop		Landform		Low ridge	
Slope aspect		Crest		Slope aspect		Crest	
Vegetation Description		Low open woodland, tall open shrubland low open shrubland		Vegetation Description		Mid open shrubland sparse low shrubland, isolated low trees	
Condition		Good		Condition		Good	
Disturbances		Grazing		Disturbances		Grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	3.5	15	<i>Acacia fuscaneura</i> , <i>Santalum spicatum</i> , <i>Acacia grasbyi</i>	Overstorey	3.5	1	<i>Acacia fuscaneura</i>
Midstorey	2	10	<i>Acacia scleosperma</i> , <i>Exocarpos aphyllus</i> ,	Midstorey	1.3	10	<i>Calytrix desolata</i> , <i>Eremophila exilifolia</i> , <i>E. mcmilliana</i>
Understorey	0.5	10	<i>Maireana glomerifolia</i> , <i>Aristida holathera</i> , <i>M. pyramidata</i>	Understorey	0.3	10	<i>P. obovatus</i> , <i>Dodonaea amplisemina</i> , <i>Aristida contorta</i>
Conservation Significant Flora: None				Conservation Significant Flora: <i>Dodonaea amplisemina</i> , <i>Grevillea inconspicua</i> nearby			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: CoS32				Site: CoS34			
Date: 16/04/2026				Date: 16/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
SE S SW W 120 150 180 210 240 270 191°S (T) 50 S 581219 6973502 ±3m ▲ 420m  CoS32 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 11:28:35				S SW W NW 150 180 210 240 270 300 330 237°SW (T) 50 S 580744 6973841 ±3m ▲ 421m  CoS34 Animal Plant Mineral Pty Ltd Westgold Cue 16 Apr 2026, 07:03:42			
Seasonal Conditions:		Dry		Seasonal Conditions:		Dry	
Soil Type:		Sand		Soil Type:		Sand	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		Nil	
Rock Type:		Nil		Rock Type:		Nil	
Landform		Aeolian sand over low rock outcrop		Landform		Aeolian sand over low rock outcrop	
Slope aspect		Crest		Slope aspect		Crest	
Vegetation Description		Low open woodland, mid sparse shrubland low open shrubland		Vegetation Description		Low open woodland, tall open shrubland low open shrubland	
Condition		Good		Condition		Good	
Disturbances		Grazing		Disturbances		Grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	3.5	10	<i>Acacia fuscaneura</i>	Overstorey	3.5	15	<i>Acacia fuscaneura</i> , <i>Acacia ermaea</i>
Midstorey	1.3	1	<i>Acacia tetragonophylla</i>	Midstorey	1.8	10	<i>Exocarpos aphyllus</i> , <i>Santalum spicatum</i>
Understorey	0.5	10	<i>Atriplex bunburyana</i> , <i>Cratystylis subspinescens</i> , <i>M. pyram</i>	Understorey	0.5	10	<i>Aristida holathera</i> , <i>M. pyramidata</i> , <i>P. obovatus</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: A7				Site: X4			
Date: 17/04/2026				Date: 19/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
E SE S SW 90 120 150 180 210 240 160°S (T) 50 S 582620 6973497 ±4m ▲ 426m  A7 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026, 13:35:19				NE E SE S SW 60 90 120 150 180 210 135°SE (T) 50 S 582635 6973038 ±3m ▲ 432m  X4 Animal Plant Mineral Pty Ltd Westgold Cue 19 Apr 2026, 12:32:33			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy clay		Soil Type:		Sandy clay	
Surface Rocks Size/Shape:		Pebbles		Surface Rocks Size/Shape:		Small rocks, pebbles	
Rock Type:		Quartz and Ironstone		Rock Type:		Quartz and Ironstone	
Landform		Plain		Landform		Plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Sparse low shrubs		Vegetation Description		Sparse low shrubs	
Condition		Good		Condition		Good	
Disturbances		Pastoral tracks, cattle and feral grazing, minor exploration activity		Disturbances		Pastoral tracks, cattle and feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	<i>Nil</i>	Overstorey	-	-	<i>Nil</i>
Midstorey	-	-	<i>Nil</i>	Midstorey	-	-	<i>Nil</i>
Understorey	0.3	10	<i>Tecticornia indica ssp. bidens, Maireana pyramidata</i>	Understorey	0.5	10	<i>Tecticornia halocnemoides, Maireana pyramidata</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X6				Site: V3			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
S SW W NW 50 180 210 240 270 300 330 243°SW (T) 50 S 582324 6972486 ±3m ▲ 434m  X6 Animal Plant Mineral Pty Ltd Westgold Cue 17 Apr 2026, 15:49:37				W NW N NE E 270 300 330 0 30 60 90 2°N (T) 50 S 578378 6978049 ±4m ▲ 425m  V3 Animal Plant Mineral Pty Ltd Westgold Cue 20 Apr 2026, 11:35:10			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sandy clay		Soil Type:		Sandy clay	
Surface Rocks Size/Shape:		Pebbles, gravel		Surface Rocks Size/Shape:		Pebbles, gravel	
Rock Type:		Ironstone and quartz		Rock Type:		Ironstone and quartz	
Landform		Plain		Landform		Plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Sparse low shrubs		Vegetation Description		Sparse mid shrubs, sparse low shrubs	
Condition		Good		Condition		Good	
Disturbances		Pastoral tracks, cattle and feral grazing, minor exploration activity		Disturbances		Pastoral tracks, cattle and feral grazing	
Strata	Height (m)	Cover (%)	Species	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	Nil	Overstorey	-	-	Nil
Midstorey	-	-	Nil	Midstorey	1.8	10	<i>Hakea preisii</i> , <i>Acacia synchronicia</i> , <i>A. tetragonaphylla</i>
Understorey	0.4	2	<i>Tecticornia halocnemoides</i> ,	Understorey	0.5	12	<i>Maireana pyramidata</i> , <i>Sclerolaena erianantha</i> , <i>Atriplex ve</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

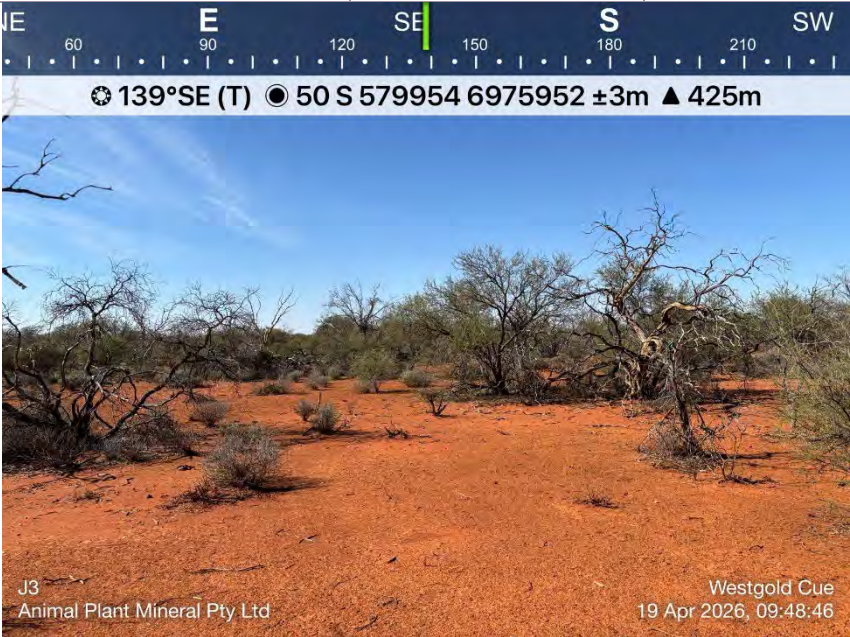
Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: V4				Site: V5			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
NE 60 90 120 150 180 210 SW 134°SE (T) 50 S 578814 6978077 ±4m ▲ 424m  V4 Animal Plant Mineral Pty Ltd -Westgold Cue 20 Apr 2026, 12:06:55				SE 120 150 180 210 240 270 W 194°S (T) 50 S 582746 6971087 ±3m ▲ 435m  V5 Animal Plant Mineral Pty Ltd -Westgold Cue 20 Apr 2026, 14:19:21			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Dry	
Soil Type:		Sandy loam		Soil Type:		Clay loam	
Surface Rocks Size/Shape:		Boulders and gravel		Surface Rocks Size/Shape:		Rocks and gravel	
Rock Type:		Ironstone and quartz		Rock Type:		Ironstone and quartz	
Landform		Plain		Landform		Plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Sparse mid shrubs, open low shrubs		Vegetation Description		Sparse low shrubs	
Condition		Good		Condition		Good	
Disturbances		Pastoral tracks, cattle and feral grazing,		Disturbances		Pastoral tracks, cattle and feral grazing,	
Strata	Height (m)	Cover (%)	Strata	Strata	Height (m)	Cover (%)	Species
Overstorey	-	-	<i>Nil</i>	Overstorey	-	-	<i>Nil</i>
Midstorey	1.9	2	<i>Hakea preisii, Acacia synchronicia</i>	Midstorey	-	-	<i>Nil</i>
Understorey	0.4	25	<i>Maireana pyramidata, Sclerolaena eriacantha</i>	Understorey	0.5	20	<i>Maireana pyramidata, Tecticornia halocnemoides</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: J1				Site: J2			
Date: 17/04/2026				Date: 17/04/2026			
Botanist: EH				Botanist: EH			
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
E SE S SW 60 90 120 150 180 210 240 ☀ 150°SE (T) 📍 50 S 579524 6975819 ±3m ▲ 422m  J1 Animal Plant Mineral Pty Ltd Westgold Cue 19 Apr 2026, 07:42:20				E SE S SW 60 90 120 150 180 210 240 ☀ 147°SE (T) 📍 50 S 579797 6975747 ±4m ▲ 426m  Animal Plant Mineral Pty Ltd 19 Apr 2026, 09:26:51			
Seasonal Conditions:		Recent rain		Seasonal Conditions:		Recent rain	
Soil Type:		Sand		Soil Type:		Sandy loam	
Surface Rocks Size/Shape:		Nil		Surface Rocks Size/Shape:		gravel	
Rock Type:		Nil		Rock Type:		Calcrete	
Landform		Alluvial plain		Landform		Alluvial plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Tall shrubland with open mid shrubs and sparse low shrubs		Vegetation Description		Low open woodland, sparse low shrubs	
Condition		Good		Condition		Good	
Disturbances		Frequent tracks, feral grazing		Disturbances		Frequent tracks, feral grazing	
Strata	Height (m)	Cover (%)	Strata	Strata	Height (m)	Cover (%)	Species
Overstorey	4	25	<i>Grevillea berryana</i> , <i>Acacia tetragonophylla</i> <i>Melaleuca</i>	Overstorey	3	8	<i>Grevillea berryana</i>
Midstorey	1	15	<i>Scaevola spinescens</i> , <i>Eremophila pantonii</i> , <i>E. longifolia</i>	Midstorey	1.2	10	<i>Grevillea berryana</i> , <i>Acacia aneura</i>
Understorey	0.3	1	<i>Ptilotus obovatus</i> , <i>Rhagodia eremaea</i>	Understorey	0.3	5	<i>Ptilotus obovatus</i> , <i>Sclerolaena eriacantha</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: J3		WP -(E) 579955	(N) 6975955	Site: J4		WP -(E) 579881	(N) 6975627
Date: 17/04/2026		Survey Area:	Jim's Find	Date: 17/04/2026		Survey Area:	Reference area
Botanist: EH		Vegetation type:	Alluvial Plain	Botanist: EH		Vegetation type:	Alluvial Plain
Site Type / Size: 20x20 Quadrat				Site Type / Size: 20x20 Quadrat			
							
Seasonal Conditions:		Recent rain	Age Since Last Fire:	Seasonal Conditions:		Dry	Age Since Last Fire:
Soil Type:		Sandy loam	Soil Colour:	Soil Type:		Sandy loam	Soil Colour:
Surface Rocks Size/Shape:		Nil	Rock Cover (%):	Surface Rocks Size/Shape:		gravel	Surface Rock Cover:
Rock Type:		Nil		Rock Type:		Calcrete	
Landform		Alluvial plain		Landform		Alluvial plain	
Slope aspect		Flat		Slope aspect		Flat	
Vegetation Description		Tall open shrubland with sparse mid shrubs and sparse low shrubs		Vegetation Description		Low open woodland, sparse low shrubs	
Condition		Good		Condition		Good	
Disturbances		Frequent tracks, feral grazing, many dead stag trees, no sign of fire		Disturbances		Frequent tracks, feral grazing, many dead stag trees, no sign of fire	
Strata	Height (m)	Cover (%)	Strata	Strata	Height (m)	Cover (%)	Species
Overstorey	2.5	10	<i>Acacia tetragonophylla</i> , <i>A. grasbyii</i> , <i>Codonocarpus cotin</i>	Overstorey	3	8	<i>Grevillea berryana</i> , <i>Codonocarpus cotiniifolius</i>
Midstorey	1.2	5	<i>Acacia aneura</i> , <i>Scaevola spinescens</i> , <i>E. latrobei</i>	Midstorey	1.2	5	<i>Grevillea berryana</i> , <i>Acacia craspedocarpa</i> , <i>A. tetragonaph</i>
Understorey	0.4	2	<i>Cratystylis subspinescens</i> , <i>Ptilotus obovatus</i>	Understorey	0.5	2	<i>Ptilotus obovatus</i> , <i>Senna artemisioides ssp. filifolia</i>
Conservation Significant Flora: None				Conservation Significant Flora: None			

Cuddingwarra Area Flora and Vegetation Survey
Appendix C – Detailed Flora and Vegetation Sites

Site: X2	WP -(E) 581175	(N) 6972159
Date: 17/04/2026	Survey Area:	Access Road to Emily Well
Botanist: EH	Vegetation type:	Alluvial Plain
Site Type / Size: 20x20 Quadrat		

178°S (T) 50 S 581173 6972157 ±3m ▲ 423m

X2 Animal Plant Mineral Pty Ltd

Westgold Cue 17 Apr 2026 09:22:57

Seasonal Conditions:	Recent rain	Age Since Last Fire:	>5 years
Soil Type:	Sandy loam	Soil Colour:	Red Brown
Surface Rocks Size/Shape:	Nil	Rock Cover (%):	Nil
Rock Type:	Nil		
Landform	Small sandy depression		
Slope aspect	Flat		
Vegetation Description	Low open woodland, mid open shrubland, low open shrubland		
Condition	Good		
Disturbances	Frequent tracks, feral grazing		
Strata	Height (m)	Cover (%)	Strata
Overstorey	4	15	<i>Pittosporum angustifolium</i>
Midstorey	2	10	<i>Exocarpos aphyllus</i> , <i>Acacia tetragonophylla</i> , <i>Scaevola spi</i>
Understorey	0.3	10	<i>Ptilotus obovatus</i> , <i>Tecticornia halocnemoides</i>
Conservation Significant Flora: None			

APPENDIX D: FLORA SPECIES BY SITE MATRIX

Appendix D - Flora Species by Site

Westgold Resources Limited 1 of 1

Appendix D - Flora Species by Site

Westgold Resources Limited

Appendix D - Flora Species by Site

[illegible]

APPENDIX E: FAUNA INVENTORY OUTBACK ECOLOGY (2012A)

BIG BELL, CUDDINGWARRA, DAY DAWN DESKTOP STUDY

Appendix D - Fauna inventory

Family	Scientific Name	Common Name	Status	Outback Ecology (2012)
BOVIDAE	<i>Bos taurus</i>	European Cattle	Introduced	*
	<i>Capra hircus</i>	Goat	Introduced	*
	<i>Ovis aries</i>	Sheep	Introduced	*
CANIDAE	<i>Canis familiaris/Canis lupus dingo</i>	Common Dog/Dingo	Introduced	*
DASYURIDAE	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart		*
EQUIDAE	<i>Equus caballus</i>	Brumby / Horse	Introduced	*
FELIDAE	<i>Felis catus</i>	Cat	Introduced	*
LEPORIDAE	<i>Oryctolagus cuniculus</i>	Rabbit	Introduced	*
MACROPODIAE	<i>Macropus robustus erubescens</i>	Euro		*
	<i>Macropus rufus</i>	Red Kangaroo		*
RODENTIA	<i>Mus musculus</i>	House Mouse	Introduced	*
TACHYGLOSSIDAE	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna		*
ACANTHIZIDAE	<i>Acanthiza apicalis</i>	Broad-tailed Thornbill		*
ACCIPITRIDAE	<i>Aquila audax</i>	Wedge-tailed Eagle		*
	<i>Circus assimilis</i>	Spotted Harrier		*
ANATIDAE	<i>Anas superciliosa</i>	Pacific Black Duck		*
ARTAMIDAE	<i>Artamus cinereus</i>	Black-faced Woodswallow		*
CRACTICIDAE	<i>Cracticus nigrogularis</i>	Pied Butcherbird		*
	<i>Cracticus tibicen</i>	Australian Magpie		*
CACATUIDAE	<i>Eolophus roseicapillus</i>	Galah		*
CAMPEPHAGIDAE	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		*
CHARADRIIDAE	<i>Cladorhynchus leucocephalus</i>	Banded Stilt		*
COLUMBIDAE	<i>Geopelia cuneata</i>	Diamond Dove		*
	<i>Phaps chalcoptera</i>	Common Bronzewing		*
DICRURIDAE	<i>Rhipidura leucophrys</i>	Willie Wagtail		*
ESTRILDIDAE	<i>Taeniopygia guttata</i>	Zebra Finch		*
FALCONIDAE	<i>Falco cenchroides</i>	Nankeen Kestrel		*
MALURIDAE	<i>Malurus lamberti</i>	Variegated Fairy-wren		*

BIG BELL, CUDDINGWARRA, DAY DAWN DESKTOP STUDY

Appendix D - Fauna inventory

MONARCHIDAE	<i>Grallina cyanoleuca</i>	Magpie-lark	*
	<i>Anthus novaeseelandiae</i>	Australasian Pipit	*
POMATOSTOMIDAE	<i>Pomatostomus superciliosus</i>	White-browed Babbler	*
PSITTACIDAE	<i>Melopsittacus undulatus</i>	Budgerigar	*
	<i>Nymphicus hollandicus</i>	Cockatiel	*
PSOPHODIDAE	<i>Psophodes occidentalis</i>	Chiming Wedgebill	*
TURNICIDAE	Turnix velox	Little Button-quail	*
AGAMIDAE	<i>Ctenophorus reticulatus</i>	Western Netted Dragon	*
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon	*
VARANIDAE	<i>Varanus gouldii</i>	Gould's Monitor	*

APPENDIX F: FAUNA HABITAT ASSESSMENTS

DETAILED FLORA AND VEGETATION AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix F - Fauna Habitat Assessments

Site	Habitat	Species	Landform	Soil type	Veg structure	Veg. litter	Dominant veg type	Suitable breeding	Suitable foraging	Hollows	Water present	Disturbances	Last fire	Photo
FS01	Open Stony Plain	General	Small conical ironstone rise, 30m across	Boulder rock ironstone	Sparse overstory, no mid story, sparse understory	Nil	Senna shrubland	No - no structure	No - no suitable vegetation	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-15_07-30-16_APM Pty Ltd
FS02	Outcrops	General	Ironstone ridge approximately 150 m long.	Upright plate rock and skeletal soil	Moderate to sparse low Acacia shrubland with low Attriplex	Nil	Acacia fuscaneura shrub.	Refuge includes blowouts in rocks forming small caverns but not caves	Foraging for some rock dwelling species, but the habitat is small and isolated.	No	No	Adjacent open pit.	Nil	WGR008 Cuddingwarra_2026-04-15_08-48-08_APM Pty Ltd
FS03	Samphire plains	Night Parrot	Open salt pan/potential small salt lake	Clay	Very low open midstory shrubs, with moderate to dense low story shrubs.	Nil	Chenopod shrubs	vegetation and no shrubs large enough to provide refuge from feral predators	Potential - the lake system is approximately 1km x 2km.	No	Damp	Fenced - no apparent cattle impact	Nil	WGR008 Cuddingwarra_2026-04-15_10-54-31_APM Pty Ltd
FS04	Samphire plains	Night Parrot & General	Chenapod shrubland claypan fringe rising to stony plain	Ironstone and quartz stony claypan	Sparse low shrubs	Nil	Acacia and chenopod with Cratystylis	No - no structure	Marginal	No	No	Clearing, fragmented patches, Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-15_15-15-56_APM Pty Ltd
FS05	Samphire plains	Night Parrot	Salt pan run on, drainage plain.	Heavy clay	Low shrubland	Nil	Low cratystylis and tectacornia	No - no structure	Potential - the lake system is approximately 1km x 2km.	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-15_15-06-00_APM Pty Ltd
FS06	Open Stony Plain	General	Chenapod shrubland rising to rocky plain	Clay loam	Very sparse low chenapod	Nil	Very low Mariaina and Sclerolena	No	No - no suitable vegetation	No	No	fragmented patches, Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-15_15-24-17_APM Pty Ltd
FS07	Open Acacia woodland	Night Parrot & General	Sandune rise on salt lake fringe	Sand	Open Acacia in clusters	Present under Acacia	Acacia tall shubland to 3.5m mixed shrub understory	No - clusters of shrubs are too open	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_07-03-05_APM Pty Ltd
FS08	Samphire plains	Night Parrot	Fringe of salt pan	Loam sand	Very low very open chenapod	Nil	Frankenia, Mariaina, Tectocornia	No	No - too sparse with too few species.	No	No	fragmented patches, Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_08-48-08_APM Pty Ltd
FS09	Outcrops	General	Very low ironstone ridge/rise	BIF and quartz	Extremely sparse low shrubland	Nil	Acacia low shrub. Sparse overstory and uniform midstory	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_11-19-40_APM Pty Ltd
FS10	Open Stony Plain	Night Parrot	Clay depression and open drainage / channel	Clay	Moderate very low shrubland with a very sparse ground story	Nil	Predominantly tectocornia	No - no structure between shrubs and shrubs too small	Potential - dominated by chenapod and part of the expansive salt pan drainage system extending approximately 1km x 2km	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_11-38-33_APM Pty Ltd
FS11	Open Stony Plain	Southern Whiteface	Drainage run on on open plain	Clay loam	Tall moderate density Acacia shrubland	Nil	Tall Acacia fuscineura with a midstory of Cratystylis and Atriplex	No - tall shrubs but none have hollows	Potential if understory responds to rain and is not grazed	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_12-02-12_APM Pty Ltd
FS12	Open Acacia woodland	Night Parrot / Mulga Slider	Low sand rise rising up from claypan lake	Sand	Open tall Acacia shrubland with very large midstory shrubs.	Present under Acacia	Acacia and large Mariana shrubs, but no groundstory	Possible for Mulga Slider	Possible for Mulga Slider	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_12-46-53_APM Pty Ltd
FS13	Open Acacia woodland	Southern Whiteface	Sandy rise with taller shrubland / woodland grove	Sand	Open tall Acacia shrubland with very large midstory shrubs.	Present under Acacia	Acacia and large Mariana shrubs, but no groundstory	No - extremely sparse and isolated. No hollows were observed.	No - no understory	No	No	Yes - cattle and feral grazing	Nil	WGR008 Cuddingwarra_2026-04-18_10-22-23_APM Pty Ltd
FS14	Outcrops	General	Conical rise	Quartz	Extremely sparse low shrubland	Nil	Mixed eremophila, with 4 sp present	No	No	No	No	Clearing, fragmented patches, Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_14-15-48_APM Pty Ltd
FS15	Samphire plains	Night Parrot	Drainage depression run on	Sand clay	Very low open shrubland	Nil	Tectacornia and mariaina	No	Potential - the lake system is approximately 1km x 2km.	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-16_15-42-54_APM Pty Ltd
FS16	Samphire plains	Night Parrot	Open salt pan salt lake	Clay	Very sparse very low shrubland	Nil	Tectacornia and Cratystylis	No	Potential - the lake system is approximately 1km x 2km.	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_06-55-28_APM Pty Ltd
FS17	Open Stony Plain	Night Parrot	Flat plains	Clay	Very sparse very low shrubland	Nil	Tectacornia and Cratystylis	No	Marginal - Chenapod shrubs are sparse and location is near a truck yard.	No	No	Close to a truck facility	Nil	WGR008 Cuddingwarra_2026-04-18_09-10-15_APM Pty Ltd
FS18	Samphire plains	Night Parrot	Claypan depression with water present	Clay with quartz rock	Very sparse very low shrubland	Nil	Mariaina	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_08-42-51_APM Pty Ltd
FS19	Samphire plains	Night Parrot	Claypan	Quartz rock over clay	Extremely sparse shrubs	Nil	Tectocornia, Mariaina	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_09-16-23_APM Pty Ltd
FS20	Samphire plains	Night Parrot	Quartz stony plain chenopod shrubland	Sandy clay	Extremely sparse shrubs	Nil	Tectocornia	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_10-04-25_APM Pty Ltd
FS21	Open Stony Plain	Night Parrot	Quartz stony plain chenopod shrubland	quartz with ironstone over clay	Very sparse shrubland	Nil	Tectocornia	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_11-04-16_APM Pty Ltd

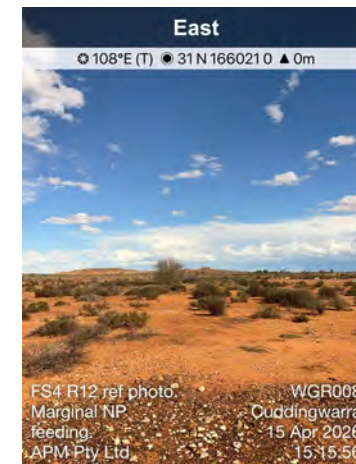
DETAILED FLORA AND VEGETATION AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix F - Fauna Habitat Assessments

Site	Habitat	Species	Landform	Soil type	Veg structure	Veg. litter	Dominant veg type	Suitable breeding	Suitable foraging	Hollows	Water present	Disturbances	Last fire	Photo
FS22	Open Stony Plain	Southern Whiteface	Open plain with ironstone and quartz		Open tall shrubland	Nil	Acacia fuscineura, A. grasbyii, Eremophila compacta	No - dominant shrubs are tall but not hollow	No - open grove with no mid or ground storey	No	No	Feral grazing, well nearby, historic cattle grazing	Nil	WGR008 Cuddingwarra_2026-04-17_11-42-14_APM Pty Ltd
FS23	Outcrops	General	Very low rocky rise	Ironstone	Sparse tall shrubland	Nil	Acacia fuscaneura and Ptilotus obavartus	No - trees to 4m but slim	No - no mid or ground storey	No	No	well nearby, historic cattle grazing	Nil	WGR008 Cuddingwarra_2026-04-17_12-21-38_APM Pty Ltd
FS24	Open Stony Plain	Night Parrot	Stony claypan	Quartz rock over clay	Open low shrubland	Nil	Tectocornia with some Hakea	No	Marginal - patches of dense chenopod shrubland but generally sparse	No	No	well nearby, historic cattle grazing	Nil	WGR008 Cuddingwarra_2026-04-17_13-39-07_APM Pty Ltd
FS25	Open Stony Plain	Night Parrot	Quartz stony plain chenopod shrubland	Sand silt	Sparse low shrubs	Nil	Tectocornia and mariaina	No	Marginal	No	No	well nearby, historic cattle grazing	Nil	WGR008 Cuddingwarra_2026-04-17_14-21-39_APM Pty Ltd
FS26	Open Stony Plain	General	Isolated sandstone rise	Sandstone, skeletal sand	Mid story shrubland	Nil	Acacia aneura, A. tetragonaphylla and Mariaina		No	No	No	Feral grazing degraded in Study Area.	Nil	WGR008 Cuddingwarra_2026-04-17_15-03-23_APM Pty Ltd
FS27	Open Acacia woodland	Southern Whiteface and Mulga Slider	Deeply dissected dense clay and sand drainage line	Sand loam	Dense tall woodland with dense mid and understory. Some trees to 8m.	Yes	Ptostrum, Acacia, Hakea	Yes - mulga slider	Yes - mulga slider. Marginal for SWF	Possible to develop	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_16-05-53_APM Pty Ltd
FS28	Open Acacia woodland	Night Parrot	Quartz sparse stony plain	Quartz rock over clay	Extremely sparse low shrubland	Nil	Tectocornia	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-17_16-05-53_APM Pty Ltd
FS29	Open Stony Plain	General	Quartz chenopod stony plain	Quartz sand	Patches of low dense shrub	Yes	Snakewood and grevillea	Suitable for general fauna - dragons, skinks and mammals	Suitable for general fauna - dragons, skinks and mammals	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-18_10-09-41_APM Pty Ltd
FS30	Open Acacia woodland	Southern Whiteface	Alluvial plain	Clay loam	Tall moderately dense shrubland	Yes - patchy	Acacia, grevillea, melaleuca, scavola	Possible	Potential when tall grasses present	Nearby	No	Historical grazing	Nil	WGR008 Cuddingwarra_2026-04-19_07-37-42_APM Pty Ltd
FS31	Open Acacia woodland	Southern Whiteface	Alluvial plain	Clay loam	Sparse Acacia shrub	Nil	Acacia and grevillea shrubland	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_08-25-59_APM Pty Ltd
FS32	Open Acacia woodland	Southern Whiteface	Alluvial plain	Loam calcrete	Open mid story shrubland	Yes - patchy	Acacia ramulosa, Ascia fuscinerua	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_08-49-47_APM Pty Ltd
FS33	Open Acacia woodland	Southern Whiteface	Alluvial plain	Calcrete loam	Open shrubland	Yes - patchy	Acacia mixed shrubland	No	Marginal - the shrub lower layers are more complete	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_09-17-42_APM Pty Ltd
FS34	Open Acacia woodland	Southern Whiteface	Tall shrubland on alluvial plain	Clay loam	Tall open shrubland with little or no mid story or understory	Sparse	Acacia fuscaneura and anerura	No - no hollows despite larger trees	No - some Grevillea and scavoleae	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_09-42-33_APM Pty Ltd
FS35	Open Acacia woodland	Southern Whiteface	Alluvial plain	Calcrete clay and loam	Tall open shrubland with little or no mid story or understory	Sparse	Acacia fuscaneura and anerura, poplar	No - no hollows despite larger trees	No - very barren	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_10-39-33_APM Pty Ltd
FS36	Open Acacia woodland	General	Calcrete rise	Calcrete	Sparse tall shrubs	Nil	Native poplar and Acacia	Possible for general fauna with calcrete having potential crevices and caves	No - very barren	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-19_10-26-25_APM Pty Ltd
FS37	Open Acacia woodland	Southern Whiteface and Night Parrot	Claypan soak with recent water	Clay	Sparse mid level shrubs	Nil	Acacia and hakea	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-20_11-01-56_APM Pty Ltd
FS38	Open Stony Plain	Southern Whiteface and Night Parrot	Quartz stony plain shrubland	Clay loam	Sparse low shrubs	Nil	Mariaina	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-20_11-35-14_APM Pty Ltd
FS39	Open Stony Plain	Night Parrot	Quartz chenopod stony plain	Clay quartz	Sparse low shrubs	Nil	Tectocornia and mariaina	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-20_12-08-30_APM Pty Ltd
FS40	Open Stony Plain	Night Parrot & General	Quartz chenopod stony plain	Clay quartz	Sparse very sparse low shrubs	Nil	Tectocornia and mariaina	No	No	No	No	Feral grazing	Nil	WGR008 Cuddingwarra_2026-04-20_14-25-27_APM Pty Ltd

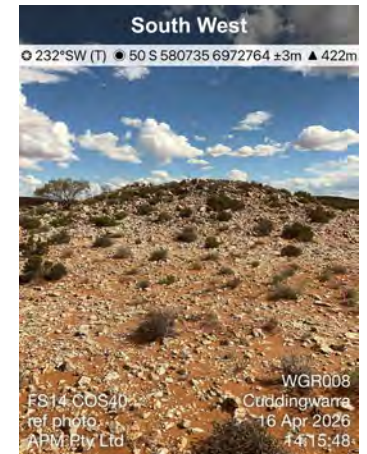
APPENDIX G: FAUNA HABITAT ASSESSMENT SITE PHOTOS

DETAILED FLORA AND VEGETATION SURVEY AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix G – Fauna Habitat Assessment Site Photos

**Fauna Habitat
Assessment Sites**



DETAILED FLORA AND VEGETATION SURVEY AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix G – Fauna Habitat Assessment Site Photos



DETAILED FLORA AND VEGETATION SURVEY AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
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Appendix G – Fauna Habitat Assessment Site Photos



DETAILED FLORA AND VEGETATION SURVEY AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix G – Fauna Habitat Assessment Site Photos



**Regional Night Parrot Reference
Site (Record from 1854)**



DETAILED FLORA AND VEGETATION SURVEY AND BASIC FAUNA SURVEY – CUDDINGWARRA AREA
Appendix G – Fauna Habitat Assessment Site Photos

**Regional Southern Whiteface
Habitats (Contemporary
record)**



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