



PHOENIX

ENVIRONMENTAL SCIENCES

Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project

Prepared for Northern Star Resources Ltd

September 2024

Final



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Prepared for Northern Star Resources Ltd

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EXECUTIVE SUMMARY

In October 2023, Phoenix Environmental Sciences Pty Ltd was commissioned to undertake a reconnaissance flora and vegetation survey for the Kalgoorlie Operation Project.

The survey area is located in the Eastern Goldfields and Eastern Murchison subregions of the Coolgardie and Murchison bioregions respectively and is located in both the Eremaean and South-West Interzone Botanical Provinces and Climatic Regions.

The purpose of the survey was to identify further survey requirements for potential future developments, and to support the submission of necessary regulatory approvals. The survey comprised a desktop assessment followed by a field survey.

A desktop assessment was compiled prior to the field survey conducted between 25-27 March 2024. The desktop assessment determined:

- the presence of *Eremophila praecox* (P2) in the study area and high likelihood of further populations
- potential presence of a further of 24 significant flora species comprising one Threatened flora, 23 Priority flora
- the study area was unlikely to contain any listed Threatened or Priority Ecological Communities (TEC or PEC)

The field survey determined:

- the presence of further populations of *Eremophila praecox*
- location of one plant of *Notisia intonsa* (P3)
- the presence of a Weed of National Significance **Lycium ferocissimum*
- 7 species may possibly occur as there was suitable habitat in the study area, 15 were unlikely to occur due to a lack of suitable habitat
- no vegetation represented a TEC or PEC
- 5 vegetation types may be considered locally significant as habitat for significant flora of which 4 were habitat for *Eremophila praecox*

The key botanical value of the study area is the presence of Priority flora and potential for further Priority flora to occur. Subsequently, future survey requirements are likely to require targeted searches for these significant species in areas proposed for development.

CONTENTS

Executive summary	ii
Contents.....	iii
1 Introduction	6
1.1 Scope of work.....	6
1.2 Study area	6
2 Legislative context	8
2.1 Commonwealth.....	8
2.2 State	8
2.2.1 Threatened and Priority species.....	8
2.2.2 Critical habitat	9
2.2.3 Threatened and Priority Ecological Communities	9
2.2.4 Other significant flora, vegetation and fauna.....	9
2.2.5 Environmentally Sensitive Areas	10
2.2.6 Introduced flora.....	10
3 Existing environment	12
3.1 Interim Biogeographic Regionalisation of Australia.....	12
3.2 Land systems and surface geology.....	12
3.3 Climate and weather	17
3.4 Land use	18
3.5 Conservation reserves and ESAs	18
4 Methods.....	19
4.1 Desktop review	19
4.2 Field survey	20
4.2.1 Survey timing.....	20
4.2.2 Flora and vegetation.....	20
4.2.3 Survey personnel	24
5 Results.....	25
5.1 Desktop review	25
5.1.1 Flora assemblage	25
5.1.2 Significant flora.....	25
5.1.3 Introduced flora.....	29
5.1.4 Vegetation associations.....	29
5.1.5 Significant vegetation	31
5.2 Field survey	32
5.2.1 Flora and vegetation.....	32
5.3 Survey limitations.....	50
6 Discussion.....	51
6.1 Flora and vegetation	51
6.1.1 Significant flora.....	51
6.1.2 Introduced flora.....	51

6.1.3	Vegetation	52
6.2	Conclusion	52
	References	53

LIST OF FIGURES

Figure 1-1	Project location and study area	7
Figure 3-1	Study area in relation to IBRA bioregions and subregions.....	15
Figure 3-2	Land systems and surface geology in the study area.....	16
Figure 3-3	Annual climate and weather data for Kalgoorlie-Boulder Airport (no. 012038) and mean monthly data for the 12 months preceding the survey (BoM 2024)	17
Figure 4-1	Flora and vegetation survey sites.....	23
Figure 5-1	Desktop records of significant flora and vegetation	28
Figure 5-2	Vegetation associations of the study area	30
Figure 5-3	Significant flora records from the field survey.....	34
Figure 5-4	Vegetation types recorded in the field survey.....	46
Figure 5-5	Vegetation condition in the study area.....	48

LIST OF TABLES

Table 2-1	Bioregional conservation status of ecological vegetation classes	10
Table 3-1	Land systems and extent in study area	13
Table 3-2	Surface geology of the study area, extent by deposit type	14
Table 4-1	Database searches conducted for the desktop review	19
Table 4-2	Survey reports included in the desktop review	20
Table 4-3	Vegetation condition rating scale (EPA 2016b).....	24
Table 4-4	Survey personnel.....	24
Table 5-1	Significant flora identified in the desktop review	25
Table 5-2	Desktop records of significant weeds	29
Table 5-3	Statewide extent of Pre-European vegetation associations present in the study area (Government of Western Australia 2019).....	29
Table 5-4	TECs and PECs identified in the desktop review	31
Table 5-5	Details of significant flora recorded during the field survey.....	33
Table 5-6	Likelihood of occurrence for significant flora identified in the desktop review	35
Table 5-7	Introduced flora recorded in the field survey	36
Table 5-8	Vegetation types, description and extent in the study area.....	37
Table 5-9	Vegetation condition – extent of each condition rating in study area	47
Table 5-10	Consideration of potential survey limitations.....	50

LIST OF APPENDICES

- Appendix 1 Flora survey site locations
- Appendix 2 Flora survey site descriptions
- Appendix 3 NVIS hierarchy
- Appendix 4 Introduced flora identified in the desktop review
- Appendix 5 Flora species inventory

TABLE OF ABBREVIATIONS

BC Act	Biodiversity Conservation Act 2016
BoM	Bureau of Meteorology
CD	Conservation Dependant
CR	Critically Endangered
DBCA	Department of Biodiversity, 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
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESAs	Environmentally Sensitive Areas
EW	Extinct in the Wild
EX	Extinct
IBRA	Interim Biogeographic Regionalisation of Australia
NES	National Environmental Significance
NVIS	National Vegetation Information System
PEC	Priority Ecological Communities
TEC	Threatened or Priority Ecological Communities
VU	Vulnerable
WoNS	Weed of National Significance

1 INTRODUCTION

In October 2023, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Northern Star Resources Ltd NSR to undertake a reconnaissance flora and vegetation survey for the Kalgoorlie Operation Project (the Project).

The purpose of the survey was to identify further survey requirements for potential future developments, and to support the submission of necessary regulatory approvals.

The survey area is located in the Eastern Goldfields and Eastern Murchison subregions of the Coolgardie and Murchison bioregions respectively, and is located in both the Eremaean and South-West Interzone Botanical Provinces and Climatic Regions, as defined by EPA (2016b) and EPA (2020).

1.1 SCOPE OF WORK

The scope of work for the flora and vegetation survey from the Request for Quotation was as follows:

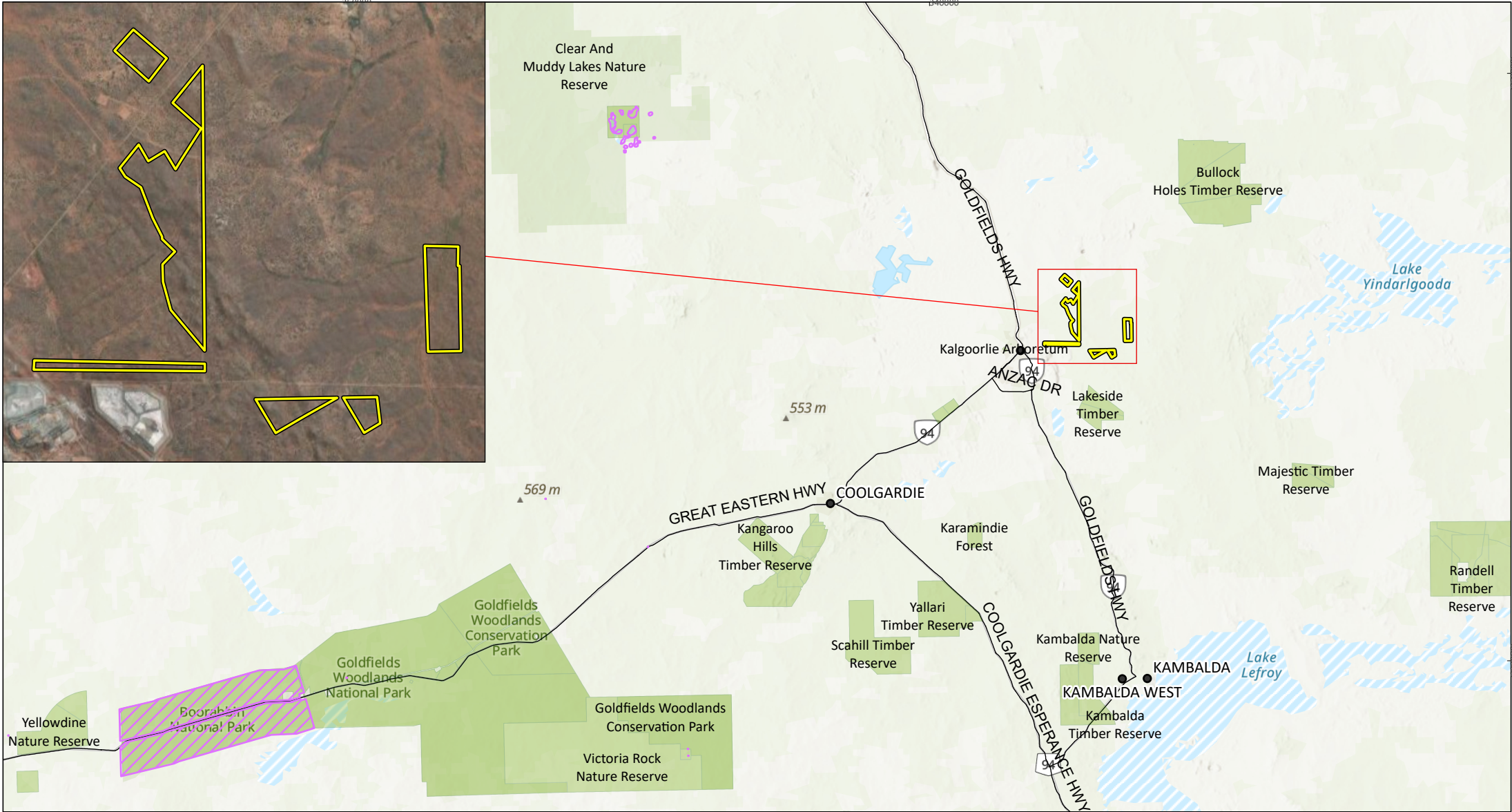
- Conduct a reconnaissance/Level 1 flora and vegetation survey (as per Environmental Protection Authority (EPA) guidelines), with targeted searches for any Threatened species that are known or likely to occur in the area


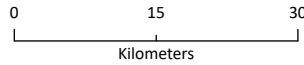
Accordingly, Phoenix proposed the following scope of work for the flora and vegetation survey:

- desktop study – to gather contextual information on the study area
- reconnaissance survey – to gather broad information about the flora and vegetation present, including
 - low intensity sampling to describe the general flora vegetation characteristics and condition
 - assess potential for study area to support any significant flora or vegetation
- targeted survey – significant flora identified in the desktop study, particularly *Eremophila praecox*

1.2 STUDY AREA

The study area comprised 6 polygons of variable size and shape for a total of 1776.5 ha and located adjacent to existing Project operations (Figure 1-1).



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-  Study area
-  Environmentally Sensitive Area (ESA)
-  DBCA managed land

Figure 1-1
Project location and study area

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2 LEGISLATIVE CONTEXT

The protection of flora in WA is principally governed by 3 acts:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- State *Biodiversity Conservation Act 2016* (BC Act)
- State *Environmental Protection Act 1986* (EP Act).

2.1 COMMONWEALTH

The EPBC Act is administered by the Federal Department of Climate Change, Energy, the Environment and Water (DCCEE). The EPBC Act provides for the listing of Threatened flora, Threatened fauna and Threatened Ecological Communities (TECs) as matters of National Environmental Significance (NES). Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of NES, require approval from the Australian Government Minister for the Environment through a formal referral process. Key threats and habitat critical to the survival of EPBC Act Threatened species are usually defined in the conservation advice and/or recovery plan for the species.

Conservation categories applicable to Threatened flora species under the EPBC Act are as follows:

- Extinct (EX)¹ – there is no reasonable doubt that the last individual has died
- Extinct in the Wild (EW) – taxa known to survive only in captivity
- Critically Endangered (CR) – taxa facing an extremely high risk of extinction in the wild in the immediate future
- Endangered (EN) – taxa facing a very high risk of extinction in the wild in the near future
- Vulnerable (VU) – taxa facing a high risk of extinction in the wild in the medium-term
- Conservation Dependent (CD)¹ – taxa whose survival depends upon ongoing conservation measures; without these measures, a conservation dependent taxon would be classified as Vulnerable, Endangered or Critically Endangered.

Ecological communities are defined as ‘naturally occurring biological assemblages that occur in a particular type of habitat’ (English & Blyth 1997). There are 3 categories under which ecological communities can be listed as TECs under the EPBC Act: Critically Endangered, Endangered and Vulnerable.

2.2 STATE

2.2.1 Threatened and Priority species

In WA, the BC Act provides for the listing of Threatened flora species (Government of Western Australia 2018a, b) in the following categories:

- Critically Endangered (CR) – species facing an extremely high risk of extinction in the wild in the immediate future²
- Endangered (EN) – species facing a very high risk of extinction in the wild in the near future²
- Vulnerable (VU) – species facing a high risk of extinction in the wild in the medium-term future².

¹ Species listed as Extinct and Conservation Dependent are not matters of NES and therefore do not trigger the EPBC Act.

² As determined in accordance with criteria set out in the ministerial guidelines.

The Department of Biodiversity, Conservation and Attractions (DBCA) administers the BC Act and also maintains a non-statutory list of Priority flora. Priority species are still considered to be of conservation significance – that is they may be Threatened – but cannot be considered for listing under the BC Act until there is adequate understanding of threat levels imposed on them. Species on the Priority flora list are assigned to one of 4 Priority (P) categories, P1 (highest) – P4 (lowest), based on level of knowledge/concern.

2.2.2 Critical habitat

Under the BC Act, habitat is eligible for listing as critical habitat if it is critical to the survival of a Threatened species or a TEC and its listing is otherwise in accordance with the ministerial guidelines.

2.2.3 Threatened and Priority Ecological Communities

The BC Act provides for the listing of TECs in the following categories:

- Critically Endangered – facing an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future²
- Endangered – facing a very high risk of becoming eligible for listing as a collapsed ecological community in the near future²
- Vulnerable – facing a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future².

An ecological community may be listed as a collapsed ecological community under the BC Act if there is no reasonable doubt that the last occurrence of the ecological community has collapsed or the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure.

The DBCA also maintains a non-statutory list of Priority Ecological Communities (PECs), which may become TECs in the future; however, do not currently meet survey criteria or that are not adequately defined. PECs are assigned to one of 5 categories depending on their priority for survey or definition, with Priority 1 of highest concern and Priority 5 of lowest concern.

2.2.4 Other significant flora, vegetation and fauna

Under the EPA's environmental factor guidelines, flora and vegetation may be considered significant for a range of reasons other than listing as a Threatened or Priority species or ecological community.

In addition to listing as Threatened or Priority, EPA (2016a) identifies the following:

- flora may be significant for
 - local endemism or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)
 - new species or anomalous features that indicate a potential new species
 - representing the range of a species (particularly at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
 - being unusual species, including restricted subspecies, varieties or naturally occurring hybrids
 - having relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape
- vegetation may be significant for:
 - having restricted distribution
 - subject to a degree of historical impact from threatening processes

- having a role as a refuge
- providing an important function required to maintain ecological integrity of a significant ecosystem.

Provided in the guide for assessment of applications to clear native vegetation (DER 2014) is a scale for assessing the bioregional conservation status of ecological vegetation classes (Table 2-1).

Table 2-1 Bioregional conservation status of ecological vegetation classes

Conservation status	Description
Presumed extinct	Probably no longer present in the bioregion
Endangered*	Less than 10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	More than 30% and up to 50% pre-European extent exists
Least concern	More than 50% of pre-European extent exists and subject to little or no degradation over a majority of this area

*or a combination of depletion, loss of quality, current threats and rarity gives a comparable status.

2.2.5 Environmentally Sensitive Areas

Under section 51B of the EP Act the Minister for Environment may declare by notice either a specified area of the State or a class of areas of the State to be Environmentally Sensitive Areas (ESAs). ESAs are declared in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, which was gazetted on 8 April 2005 (Government of Western Australia 2005).

ESAs are areas where the vegetation has high conservation value. Several types of areas are declared ESAs including:

- the area covered by vegetation within 50 metres (m) of Threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the Threatened flora is located
- the area covered by a TEC
- a defined wetland (Ramsar wetlands, conservation category wetlands and nationally important wetlands) and the area within 50 m of the wetland
- Bush Forever sites.

2.2.6 Introduced flora

Introduced flora (weeds) pose threats to biodiversity and natural values by successfully out-competing native species for available nutrients, water, space and sunlight; reducing the natural structural and biological diversity by smothering native plants or preventing them from growing back after clearing, fire or other disturbance; replacing the native plants that animals use for shelter, food and nesting; and altering fire regimes, often making fires hotter and more destructive (Australian Weeds Committee 2007).

Management of some weed species is required under Commonwealth or State frameworks. Key classifications for significant introduced flora that are relevant to this report are:

- Declared Pest – the Biosecurity and Agriculture Management Act 2007, Section 22 makes provision for a plant taxon to be listed as a Declared Pest organism in parts of, or the entire State. Under the Biosecurity and Agriculture Management Regulations 2013 Declared Pests are assigned to one of 3 control categories that dictate the level of management required (DPIRD 2019).

- Weed of National Significance (WoNS) – high impact, established introduced flora causing major economic, environmental, social and/or cultural impacts in a number of states/territories, and which have strong potential for further spread (Australian Weeds Committee 2012). Management is required in accordance with Department of Primary Industries and Regional Development (DPIRD) guidelines for particular WoNS.

Throughout this report, introduced flora species are indicated with an asterisk (*).

3 EXISTING ENVIRONMENT

3.1 INTERIM BIOGEOGRAPHIC REGIONALISATION OF AUSTRALIA

The Interim Biogeographic Regionalisation of Australia (IBRA) classifies Australia's landscapes into large 'bioregions' and 'subregions' based on climate, geology, landform, native vegetation and species information (DoEE 2016). The study area lies on both the East Murchison subregion (MUR1) of the Murchison bioregion, and the Eastern Goldfield subregion (COO3) of the Coolgardie bioregion (Figure 3-1).

The East Murchison subregion is characterised by (Cowan 2001b):

- internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development
- salt lake systems associated with the occluded Paleodrainage system
- broad plains of red-brown soils and breakaway complexes as well as red sandplains
- vegetation is dominated by Mulga Woodlands often rich ephemerals; hummock grasslands, saltbush shrublands and *Halosarcia* (i.e., *Tecticornia*) shrublands
- land use dominated by grazing, followed by Crown Reserves with considerable mining interests.

The Eastern Goldfields subregion is characterised by (Cowan 2001a):

- subdued relief comprised of undulating plains interrupted by low hills and ridges in the west and a horst in the east
- playa lakes associated with the remnants of an ancient major drainage line
- calcareous earths that cover much of the plains and greenstone areas
- vegetation dominated by Mallees, *Acacia* thickets, shrubland heaths, *Eucalyptus* woodlands and dwarf samphire shrublands
- land use dominated by Unallocated Crown Land, Crown Reserves, and grazing.

3.2 LAND SYSTEMS AND SURFACE GEOLOGY

DPIRD undertakes land system mapping for WA using a nesting soil-landscape mapping hierarchy (Schoknecht & Payne 2011). While the primary purpose of the mapping is to inform pastoral and agricultural land capability, it is also useful for informing biological assessments. Under this hierarchy, land systems are defined as areas with recurring patterns of landforms, soils, vegetation and drainage (Payne & Leighton 2004). The study area intersects 5 land systems (Table 3-1; Figure 3-2).

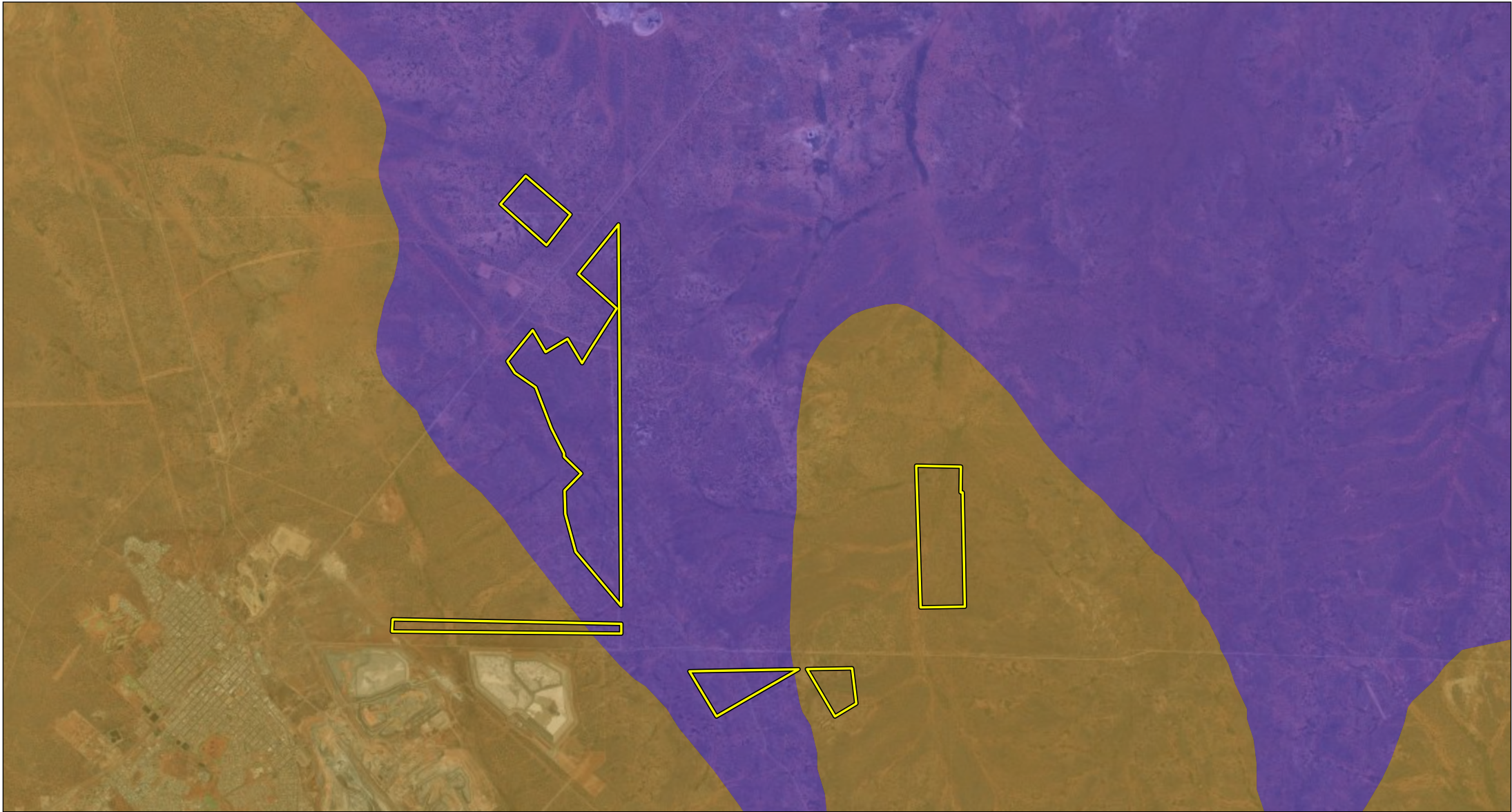
According to the Surface Geology of Australia 1:1,000,000 scale, Western Australia database (Stewart *et al.* 2008), the study area intersects 6 geological formations (Table 3-2; Figure 3-2).


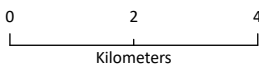
Table 3-1 Land systems and extent in study area

Land system	Description	Area (ha)	% of study area
Graves System	Basalt and greenstone rises and low hills supporting eucalypt woodlands with prominent saltbush and bluebush understoreys.	626.8	35.29
Gumland System	Extensive pediplains supporting eucalypt woodlands with halophytic and non-halophytic shrub understoreys.	251.3	14.15
Moriarty System	Low greenstone rises and stony plains supporting chenopod shrublands with patchy Eucalypt overstoreys.	145.6	8.20
Mx43	Gently undulating valley plains and pediments; some outcrop of basic rock.	539.1	30.35
Zed System	Low hills, rises and gently undulating stony plains based on metasedimentary rocks supporting <i>Acacia</i> shrublands.	213.6	12.02
Total		1776.5	100

Table 3-2 Surface geology of the study area, extent by deposit type

Surface geology	Abbreviation	Description	Area (ha)	% of study area
alluvium 38485	Qa	Channel and flood plain alluvium; gravel, sand, silt, clay, locally calcreted	343.42	19.33
colluvium 38491	Qrc	Colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite	234.23	13.18
ferruginous duricrust 38498	Czl	Pisolitic, nodular or vuggy ferruginous laterite; some lateritic soils; ferricrete; magnesite; ferruginous and siliceous duricrusts and reworked products, calcrete, kaolinised rock, gossan; residual ferruginous saprolite	441.16	24.83
mafic intrusive rocks 74263	Ade	Mafic intrusive rocks, medium to coarse grained; layered mafic to ultramafic intrusions - dolerite, gabbro, olivine gabbro, peridotite, pyroxenite, leucogabbro, quartz dolerite, quartz gabbro, gabbronorite	154.67	8.71
sedimentary rocks 74322	Ase	Phyllitic schist, siltstone, sandstone, greywacke, pelite, conglomerate, quartzite, phyllite, shale, slate, claystone, chert, minor felsic volcanic and volcanoclastic rocks; arkose, para- and orthoamphibolites; rare banded iron formation	542.96	30.56
ultramafic and minor mafic rocks 74475	Aue	Tremolite-chlorite-talc amphibolite, metapyroxenite, pyroxenite, peridotite, serpentinite, ultramafic schists, komatiite, high-Mg basalt; also chalcedony, silica, jasper, silcrete, silica cap rock on ultramafic rocks	60.05	3.38
Total			1776.5	100



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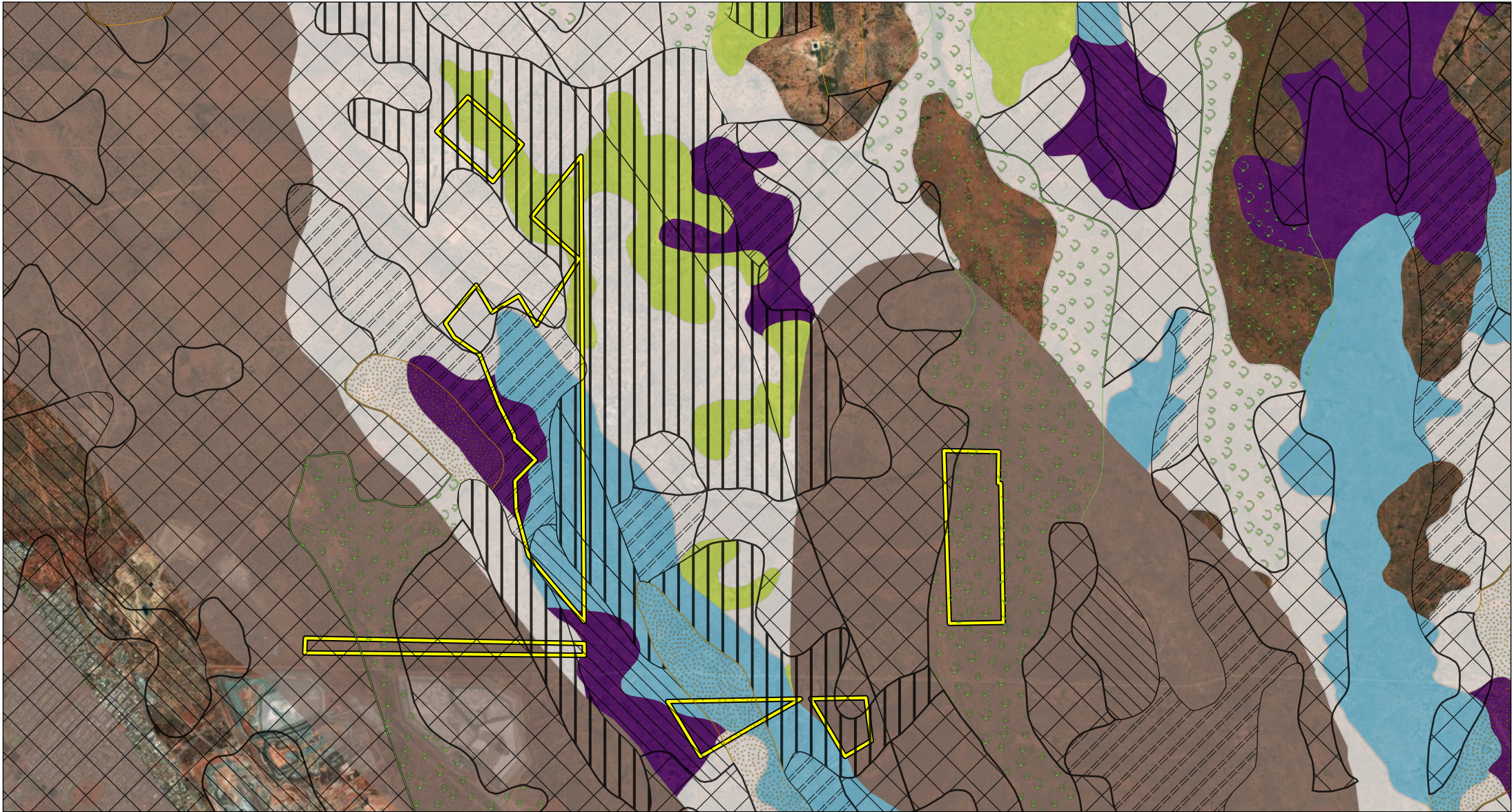

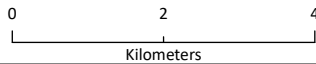






-  Study area
- Region, subregion**
-  Coolgardie, Eastern Goldfield
-  Murchison, Eastern Murchison

Figure 3-1
Study area in relation to IBRA bioregion and subregions

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Project No	1631	
Date	29/07/2024	
Drawn by	GW	
Map author	GW	
		
1:100,000 (at A4)		GCS WGS 1984

-  Study area
- Land system**
-  Graves System
-  Gumland System
-  Moriarty System
-  Mx43
-  Zed System

- Surface geology**
-  Ade
-  Ase
-  Aue
-  Czl
-  Qa
-  Qrc

Figure 3-2

Land systems and surface geology in the study area



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3.3 CLIMATE AND WEATHER

The climate of the East Murchison subregion is described as arid with mostly winter rainfall (Cowan 2001b). The climate of the Eastern Goldfields subregion is characterised by arid to semi-arid with 200-300 mm of rainfall annually, sometimes falling in Summer but usually winter (Cowan 2001a).

The nearest Bureau of Meteorology (BoM) weather station with comprehensive data collection and recent historic climate data is Kalgoorlie-Boulder Airport (no. 012038), Latitude: 30.78°S Longitude 121.45°E, located 6 km southwest of the study area.

Kalgoorlie-Boulder Airport records the highest mean maximum monthly temperature (33.6°C) in January (lowest in July, 16.9°C) and the lowest minimum mean monthly temperature (5.1°C) in July (highest in January, 18.3°C) (BoM 2024) (Figure 3-3). Mean annual rainfall is 264.6 mm with February, June and January recording the highest monthly means (31.9, 26.9 and 26.6 mm respectively) (Figure 3-3).

Mean daily maximum temperatures at Kalgoorlie-Boulder Airport were higher than long-term means in 9 out of the 12 months (May and July through March) preceding the survey and mean daily minimum temperatures were higher in 8 out of 12 (August through March) (Figure 3-3).

Records from Kalgoorlie-Boulder Airport show 4 out of the 12 months preceding the survey had higher than mean rainfall compared with long-term data, including the month of the survey. Total monthly rainfall for March 2024 (78.4 mm) was over triple that of the long-term mean (25 mm) and total rainfall for the 12 months prior to the monitoring was 233.2 mm which is 31.4 mm less than the long-term average (Figure 3-3).

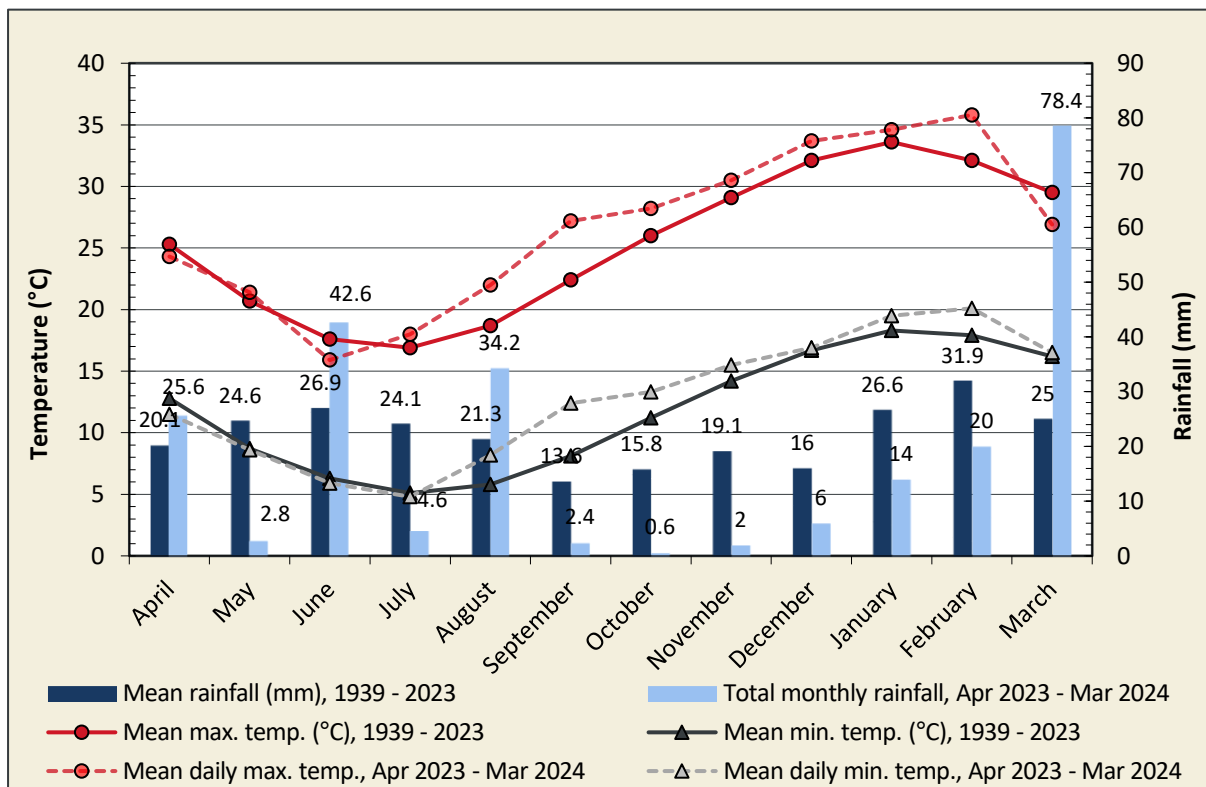


Figure 3-3 Annual climate and weather data for Kalgoorlie-Boulder Airport (no. 012038) and mean monthly data for the 12 months preceding the survey (BoM 2024)

3.4 LAND USE

The study area occurs within the Eastern Goldfields and Eastern Murchison subregion. The dominant land use within the Eastern Goldfields subregion is Unallocated Crown Land and Crown reserves. This accounts for the vast majority of the land use in the subregion with grazing on native pastures, freehold, conservation and mining making up the remainder (Cowan 2001a). The dominant land use within the Eastern Murchison subregion is grazing on native pastures, with Unallocated Crown Land, Crown reserves, mining and conservation making up the remainder (Cowan 2001b).

The dominant land use of the study area is grazing on native pastures. The study area encompasses pastoral lease N049574 and N049574.

3.5 CONSERVATION RESERVES AND ESAS

The study area does not intersect any current or proposed conservation reserves; however, Kalgoorlie Arboretum is located 6.6 km west of the study area and Lakeside Timber Reserve is located 4.4 km south of the study area. The closest Environmentally Sensitive Area is located approximately 53.5 km north-west of the study area (Figure 1-1).

4 METHODS

The reconnaissance survey was conducted in accordance with relevant survey guidelines and guidance, including:

- *EPA Environmental Factor Guideline: Flora and vegetation* (EPA 2016a)
- *EPA Technical Guidance: Flora and vegetation surveys for Environmental Impact Assessment* (EPA 2016b)

4.1 DESKTOP REVIEW

Searches of several biological databases were undertaken to identify and prepare lists of significant flora and vegetation that may occur within the study area (Table 4-1). The database search was within a 40 km buffer from the study area.

Table 4-1 Database searches conducted for the desktop review

Database	Target group/s	Search coordinates and extent
Protected Matters Search Tool (DCCEEW 2024)	EPBC Act Threatened flora, and ecological communities	Approximate centre point of study area with 40 km buffer
Dandjoo Biodiversity Information Office (DBCA 2024a)	All flora taxa	Approximate centre point of study area with 40 km buffer
DBCA Threatened and Priority Flora Database (DBCA 2024c)	Threatened and Priority flora	Study area plus a 40 km buffer
DBCA Threatened and Priority Ecological Communities Database (DBCA 2024b)	TECs and PECs	Study area plus a 40 km buffer

A literature search was conducted for accessible reports for biological surveys conducted within 40 km of the study area to build on the lists developed from the database searches (Table 4-2).

Table 4-2 Survey reports included in the desktop review

Report author	Survey description	Project
McKenzie & Hall (1992)	Level 2 flora and fauna surveys	Eastern Goldfields Biological Survey
Jim's Seeds, Weeds & Trees (2004)	Flora and vegetation survey	Fimiston III (KCGM)
Jim's Seeds, Weeds & Trees (2006)	Flora and vegetation survey	KCGM rehabilitation sites
Botanica (2014)	Desktop flora assessment	Tailings Storage Facility Expansion (KCGM)
Botanica (2015b)	Level 2 flora and vegetation survey	Tailings Storage Facility Expansion (KCGM)
Botanica (2015a)	Level 1 flora and vegetation survey	Fimiston Waste Rock Dump Extension (KCGM)
Phoenix (2016)	Level 2 aquatic and riparian flora and fauna survey	Hannan Lake (KCGM)
Phoenix (2017)	Level 2 aquatic and riparian flora and fauna survey	Hannan Lake (KCGM)
Phoenix (2018b)	Level 2 flora and vegetation and Level 1 terrestrial fauna	Gidji Operations (KCGM)
Phoenix (2018a)	Level 2 flora and vegetation and Level 1 terrestrial fauna	Crossroads Tenement (KCGM)
Phoenix (2019a)	Detailed flora and vegetation and Level 1 terrestrial fauna	Fimiston operations (KCGM)
Phoenix (2020)	Targeted searches for <i>Eremophila praecox</i>	Fimiston operations (KCGM)
Phoenix (2022b)	Reconnaissance and targeted flora and vegetation survey	Kalgoorlie Operations regional core yard
Phoenix (2023)	Reconnaissance and targeted flora and vegetation survey	Kalgoorlie Operations

4.2 FIELD SURVEY

4.2.1 Survey timing

The field survey was conducted from the 25th to the 27th March 2024 by Dr Grant Wells and Natasha Rogers.

4.2.2 Flora and vegetation

Field methods for the flora and vegetation survey included:

- surveying of relevés and mapping notes (see 4.2.2.1)
- targeted flora searches (see 4.2.2.2)
- vegetation type and condition mapping (see 4.2.2.3, 4.2.2.4)

Prior to the commencement of the field survey, data including satellite imagery, survey boundary, and pre-selected relevés were loaded onto electronic field devices. The field survey involved assessing and mapping vegetation boundaries, conducting relevé sampling and collecting opportunistic flora

specimens. GPS locations of vegetation and condition boundaries, survey sites and flora specimen data were recorded digitally.

4.2.2.1 Relevés

Relevés locations were selected to ensure that an accurate representation of the major vegetation types within the study area were sampled adequately. Two methods were used for the selection of relevé placement within the study area. Preliminary relevé locations were pre-selected using aerial photography, with selection based on apparent changes in the vegetation visible in the aerial imagery. Final relevé placement was determined in the field while ground-truthing the study area on foot. Some preliminary relevés were moved to locations which better represented vegetation types.

In total, 51 relevés were surveyed across the study area (Figure 4-1; Appendix 1).

The following information was recorded for each relevé (Appendix 2):

- location – a single geographic coordinate was recorded central to the area surveyed
- description of vegetation – a broad description utilising the structural formation and height classes based on National Vegetation Information System (ESCAVI 2003) and in accordance with EPA (2016b) (Appendix 3)
- habitat – a brief description of landform and habitat
- geology – a broad description of surface soil type and rock type
- disturbance history – a description of any observed disturbance including an estimate of time since last fire, weed invasions, soil disturbance, human activity and fauna activity
- vegetation condition – using the condition scale in EPA (2016b) for the Eremaean and South-West Interzone Botanical Province
- height and percentage foliage cover – a visual estimate of cover of total vegetation cover, cover of shrubs and trees >2 m tall, cover of shrubs <2 m, total grass cover and total herb cover
- photograph – a colour photograph of the vegetation within each quadrat in a south-easterly direction from the north-west corner of the quadrat
- flora species list – list of all prominent flora species.

For mapping notes the following was recorded:

- location – a single geographic coordinate was recorded central to the area surveyed
- description of vegetation – a broad description utilising the structural formation and height classes based on National Vegetation Information System (ESCAVI 2003) and in accordance with EPA (2016b) (Appendix 3)
- habitat – a brief description of landform and habitat
- geology – a broad description of surface soil type and rock type
- disturbance history – a description of any observed disturbance including an estimate of time since last fire, weed invasions, soil disturbance, human activity and fauna activity
- vegetation condition – using the condition scale in EPA (2016b) for the Eremaean and South-West Interzone Botanical Province
- photograph – a colour photograph of the vegetation within each quadrat in a south-easterly direction from the north-west corner of the quadrat

To ensure accurate taxonomic identification of flora species present within the study area, collections were made of each specimen at least once and each collection was pressed and documented for identification using the WA Herbarium resources.

For each species identified, records on FloraBase and the Australasian Virtual Herbarium were consulted to provide information on known ranges to determine whether the survey area represented a range extension for the species.

4.2.2.2 Targeted flora searches

Targeted searches were undertaken for significant flora (Threatened and Priority), Declared Pests and WoNS. Remnant vegetation was traversed by foot in meandering transects with the searches focused on habitats considered likely to support significant flora, in addition to previously recorded locations of significant plants or populations in the study area.

If a flora species was considered to potentially be a significant species (i.e. similar floristic characteristics and occurring within suitable habitat) the following information was collected:

- GPS coordinates, including population boundary where applicable
- description of the habitat and floristic community in which the potential significant species was located
- population size estimate (i.e. estimated number of individual plants) where applicable
- specimen collection for taxonomic identification and lodgement at the WA Herbarium
- photograph of live plant in situ and description of important details, such as flower colour, height of individual or average height of population.

Following the field survey, the likelihood of occurrence for each significant flora species identified in the desktop review was assessed and assigned to one of 3 ratings:

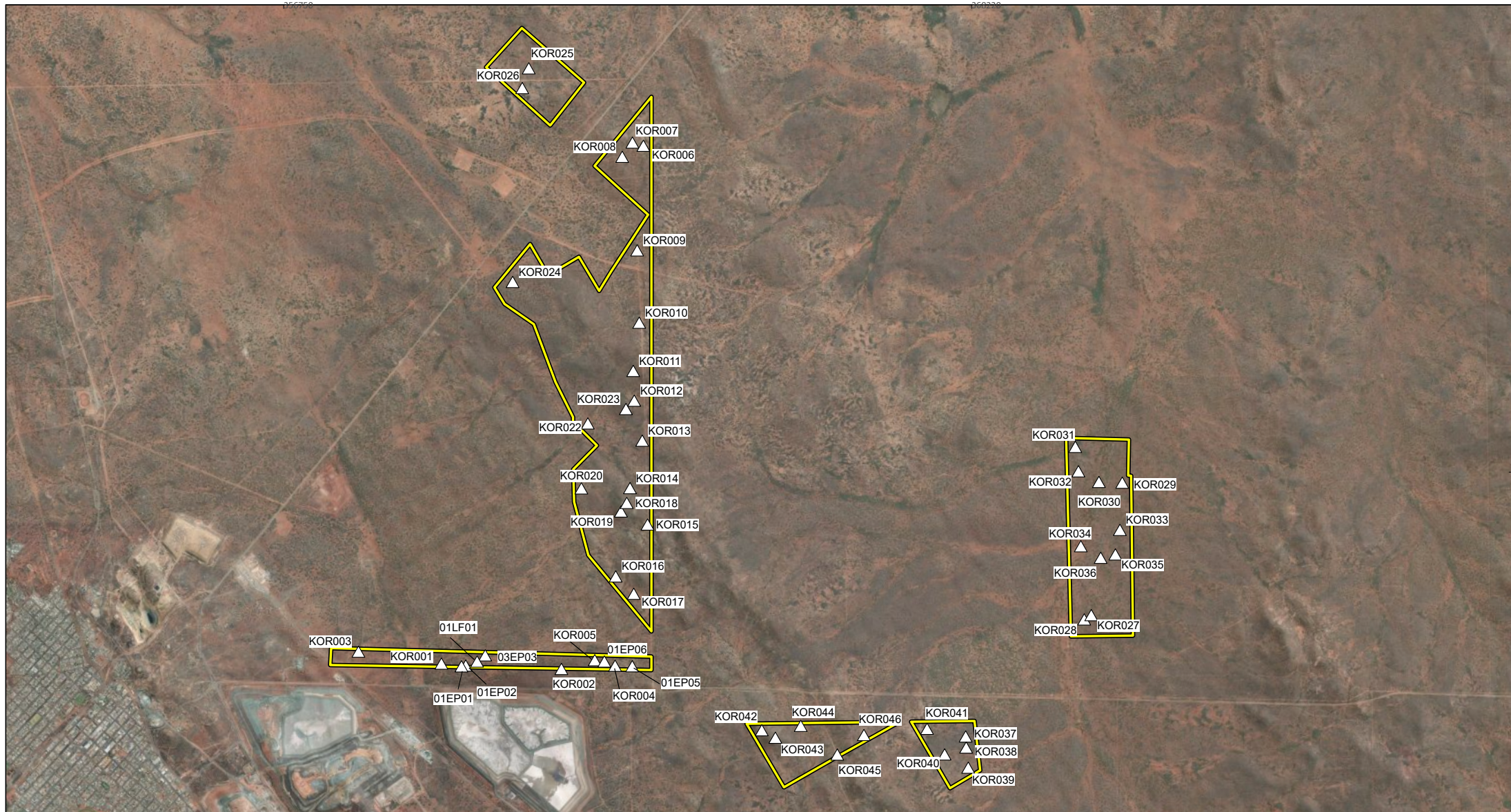
- recorded – species recorded within the study area by previous or current survey
- possible – study area within known range of species; potential habitat within the study area, records within 5 km of study area and may not have been detectable during survey (e.g. survey conducted outside flowering period, annual plant survey conducted outside likely period of occurrence, small herbaceous plant in dense vegetation), or entire area of habitat not thoroughly searched
- unlikely – study area outside known range of species and/or no suitable habitat present in study area and/or suitable/potential habitat present but study area considered adequately searched for the species.


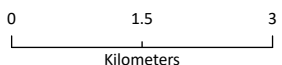
4.2.2.3 Vegetation type mapping

Vegetation mapping was undertaken at a scale of 1:10,000 using the National Vegetation Information System (NVIS) sub-formation level (L4) for structural descriptions (ESCAVI 2003). The vegetation descriptions from relevés and mapping from the survey were grouped according to similarity of community structure (i.e. canopy levels), species composition and combination of species and the prevalent community structure (i.e. woodland, shrubland, etc.). The vegetation boundaries were mapped utilising ArcGIS ESRI imagery.

4.2.2.4 Vegetation condition mapping

The condition of vegetation was mapped across the study area based on the condition scale for the Eremaean and South-West Interzone Botanical Province (Trudgen 1988 in EPA 2016b) (Table 4-3). The vegetation condition ratings relate to vegetation structure, the level of disturbance and weed cover at each structural layer and the ability of the vegetation unit to regenerate. Vegetation condition ranges from Excellent being the highest rating to Completely Degraded as the lowest.



Northern Star Resources Kalgoorlie Operations		
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Drawn by	GW	
Map author	GW	
		
1:87,000 (at A4)		GCS WGS 1984



-  Study area
-  Relevé

Figure 4-1
Flora and vegetation survey sites



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Table 4-3 Vegetation condition rating scale (EPA 2016b)

Condition rating	Description
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.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

4.2.3 Survey personnel

The personnel involved in the surveys are listed in Table 4-4. All survey work was carried out under relevant licences issued by DBCA under the BC Act (Table 4-4).

Table 4-4 Survey personnel

Name	Permit	Qualifications	Role/s
Dr Grant Wells	FB62000538	PhD Botany	Field survey, data analysis, reporting, report review
Dr Grace Wells	NA	PhD Botany	Reporting, GIS mapping, cartography
Dr Andrew Perkins	NA	PhD Botany	Taxonomy
Natasha Rogers	FB62000518	BSc (Botany)	Field survey, data management, reporting
Naomi Lee	NA	Dip. Business Admin	Logistics and administration
Brigitte Kovar	NA	BSc (Ex. Sci.)	GIS, spatial data management

5 RESULTS

5.1 DESKTOP REVIEW

5.1.1 Flora assemblage

The desktop review identified records of 789 flora taxa within the desktop search extent comprised of 77 families and 299 genera. This included 698 native and 91 introduced flora. The most prominent families were the Asteraceae (102 taxa), Chenopodiaceae (93 taxa), Fabaceae (89 taxa), Myrtaceae (67 taxa) and Poaceae (63 taxa). The most recent reconnaissance flora and vegetation survey (Phoenix 2023) recorded 136 species representing 33 families mostly of the Chenopodiaceae (19 spp.), Scrophulariaceae (18 spp.), Fabaceae (15 spp.), Myrtaceae (13 spp.) and Asteraceae (13 spp.).

5.1.2 Significant flora

Records of 24 significant flora species were identified within the desktop search extent, comprising one Threatened (Vulnerable) flora listed under the EPBC Act (this species is a Priority 2 under State listing) and 23 Priority flora (Table 5-1).

Phoenix data from previous surveys included 448 records of 3 significant flora species, *Eremophila xantholaemus* (P1, one record), *Eremophila praecox* (P2, 446 records) and *Allocasuarina eriochlamys* subsp. *grossa* (P3, one record).

In total, 6 records of *Eremophila praecox* (P2) occurred in the study area (Figure 5-1):

Table 5-1 Significant flora identified in the desktop review

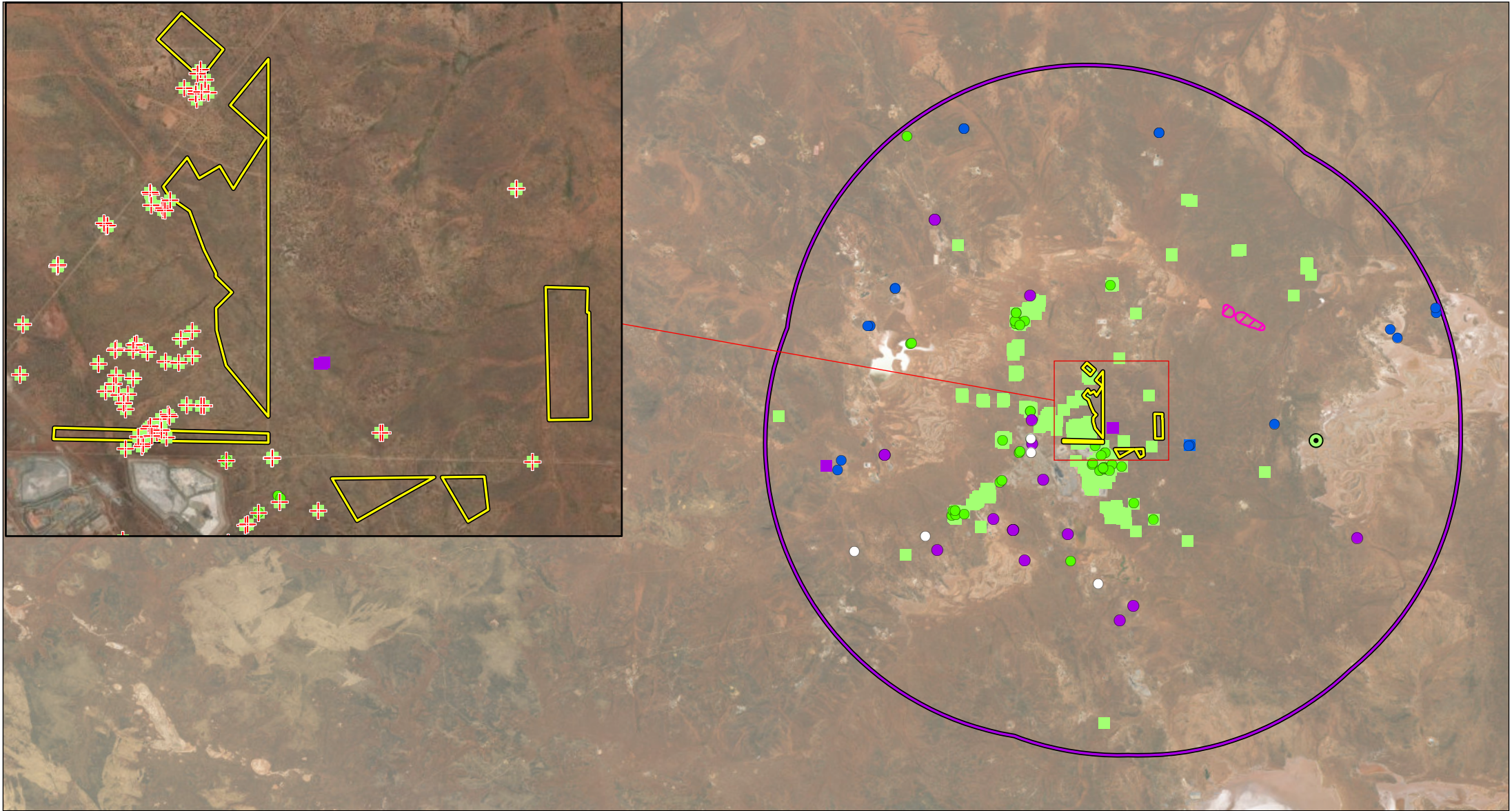
Species	Status	Proximity to study area	Habitat
<i>Tecticornia flabelliformis</i>	VU/P2 (EPBC Act; DBCA list)	20.6 km E of study area	On salt lake playa or near the shoreline of salt lake in clay soils in samphire and chenopod dominated shrublands (WA Herbarium 1998).
<i>Acacia epedunculata</i>	P1 (DBCA list)	35.5 km NNW of study area	<i>Eucalyptus</i> mallee woodland, <i>Callitris</i> , <i>Banksia</i> and shrubland over <i>Triodia</i> grasses on yellow sand plain. Flowers July to August (WA Herbarium 1998).
<i>Calandrinia lefroyensis</i>	P1 (DBCA list)	29.0 km W of study area	Occurs on salt lake flats among samphire communities, soils are brown silty loams or brown-grey sandy clays, favour the outer edges of samphire communities including within the ecotone of adjacent communities where there are open assemblages of taller species such as <i>Casuarina obesa</i> and <i>Eucalyptus</i> spp. Flowers October to November (Obbens 2018).
<i>Eremophila xantholaemus</i>	P1 (DBCA list)	3.6 km ESE of study area	Growing in stony, brown loam soils in <i>Eucalyptus-Casuarina</i> woodland on the upper slopes of low rocky hills. Associated species include <i>Casuarina pauper</i> , <i>Eremophila glabra</i> subsp. <i>glabra</i> , <i>E. parvifolia</i> subsp. <i>auricampa</i> , <i>E. pustulata</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Westringia rigida</i> . Flowers from September to October (Brown & Davis 2019).
<i>Ptilotus procumbens</i>	P1 (DBCA list)	5.7 km SSW of study area	Open <i>Acacia</i> shrubland over mixed forbland in red clay, in deep red clay and in mulga scrub on

**Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd**

Species	Status	Proximity to study area	Habitat
			plain with lateritic gravel. Recorded flowering September to November (WA Herbarium 1998).
<i>Ptilotus rigidus</i>	P1 (DBCA list)	29.4 km W of study area	Associated with salt lakes, occurs in red loam/clay, orange sand on salt lake edges, quartz rises, rocky outcrops in <i>Tecticornia</i> shrublands, kopi dune vegetation and <i>Melaleuca</i> shrublands. Flowers September to November (Lally 2009; WA Herbarium 1998).
<i>Ptilotus</i> sp. Kalgoorlie (J. Jackson & B. Moyle 260)	P1 (DBCA list)	27.3 km WNW of study area	Quartz hills and outcrop in <i>Tecticornia</i> dominated shrublands. Recorded in flower bud in September (WA Herbarium 1998).
<i>Elachanthus pusillus</i>	P2 (DBCA list)	4.3 km W of study area	Sparse <i>Eucalyptus</i> spp. woodland over open mixed shrubland over open mixed herbs or Chenopod shrubland in bare lateritic gravel – red loamy clay soils or red loam over limestone on low plain. Flowers August to October (WA Herbarium 1998).
<i>Eremophila praecox</i>	P2 (DBCA list)	Within study area	Red/brown sandy loam. Undulating plains. Hill slope. Red-brown clay loam over ferrous ironstone. Low <i>Eucalyptus</i> woodland over dwarf scrubland in red-brown sandy loam on undulating plains. Flowers October to December (WA Herbarium 1998).
<i>Goodenia salina</i>	P2 (DBCA list)	16.7 km SSW of study area	Found in low gypseous dunes near salt pans in well-drained, saline, grey or brown loamy clay with scattered <i>Callitris preissii</i> subsp. <i>verrucosa</i> , <i>Tecticornia</i> spp. and <i>Austrostipa juncifolia</i> . Flowers September to October (Sage & Shepherd 2007).
<i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>	P3 (DBCA list)	1.3 km E of study area	Hill crests and slopes in lateritic soils and granite outcrops in <i>Melaleuca</i> , <i>Acacia</i> and <i>Allocasuarina</i> thickets and tall shrublands and <i>Eucalyptus</i> mallee woodland (WA Herbarium 1998)
<i>Alyxia tetanifolia</i>	P3 (DBCA list)	13.6 km SW of study area	<i>Casuarina</i> pauper woodland or Chenopod shrubland in sandy clay, loam, concretionary gravel or granite on drainage lines near lakes or lateritic low rises and breakaways. Recorded flowering May to June and November (WA Herbarium 1998).
<i>Angianthus prostratus</i>	P3 (DBCA list)	11.8 km NW of study area	<i>Tecticornia</i> low heath over open herbs or dense low grass in red clay or loamy soils in saline depressions on beach edge of salt lake. Flowers July to September (WA Herbarium 1998).
<i>Austrostipa turbinata</i>	P3 (DBCA list)	20.0 km S of study area	<i>Eucalyptus</i> woodlands on hillslopes and claypan with crabholes in sandy loam to cracking clay soils. Flowers September to October (WA Herbarium 1998; Williams 2022).
<i>Cyathostemon verrucosus</i>	P3 (DBCA list)	5.0 km WNW of study area	Found on yellow sand plains, recorded in shrublands, sometimes dominated by mallees or <i>Banksia</i> (Trudgen & Rye 2014). Flowers mainly

**Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd**

Species	Status	Proximity to study area	Habitat
			from late September to early December, also recorded in early March (Trudgen & Rye 2014).
<i>Eremophila arachnoides</i> subsp. <i>tenera</i>	P3 (DBCA list)	29.3 km ESE of study area	Shrublands frequently dominated by <i>Maireana sedifolia</i> , <i>Cratystylis subspinescens</i> and <i>Atriplex</i> spp. with open <i>Eucalyptus</i> woodland overstorey on plains in calcareous sandy loam. Recorded flowering from September to January (WA Herbarium 1998).
<i>Isolepis australiensis</i>	P3 (DBCA list)	16.7 km SSW of study area	<i>Melaleuca</i> open shrubland or <i>Casuarina/Eucalyptus</i> open woodland in silty sand, sandy clay and red clay on lake margins, pools or granite outcrop. Recorded flowering in June and September (WA Herbarium 1998).
<i>Lepidium fasciculatum</i>	P3 (DBCA list)	4.2 km W of study area	Open <i>Acacia</i> or <i>Maireana</i> shrubland in brown cracking clay on plain or red loam on dry lakebed. Recorded in fruit in September (WA Herbarium 1998).
<i>Melaleuca coccinea</i>	P3 (DBCA list)	5.7 km SSW of study area	<i>Acacia</i> or <i>Melaleuca</i> shrubland in sandy loam over granite on granite outcrops, sandplain and river valleys. Recorded flowering from September to November and in January (WA Herbarium 1998).
<i>Notisia intonsa</i>	P3 (DBCA list)	22.2 km SW of study area	<i>Eucalyptus</i> woodlands over shrubland in red-orange clayey sand with ironstone and quartz gravel on plains, floodplains and shallow depressions. Recorded flowering September to November (WA Herbarium 1998).
<i>Eremophila caerulea</i> subsp. <i>merrallii</i>	P4 (DBCA list)	31.6 km WSW of study area	Open <i>Eucalyptus</i> woodland over shrubland in sand, clay or loam with ironstone/quartz pebbles on undulating plains. Recorded flowering from October to December (WA Herbarium 1998).
<i>Eucalyptus jutsonii</i> subsp. <i>jutsonii</i>	P4 (DBCA list)	22.4 km WSW of study area	Open <i>Eucalyptus</i> mallee woodland with spinifex grassland in red, yellow or orange deep sands on sandplain, undulating areas and on dunes. Recorded flowering April to March and November (WA Herbarium 1998).
<i>Eucalyptus x brachyphylla</i>	P4 (DBCA list)	4.5 km WSW of study area	Sandy loam. Granite outcrops. Red loam over granite, on slope. <i>Eucalyptus</i> mallee woodland over shrubland in sandy loam or clay loam on granite outcrops. Recorded flowering in December with buds recorded in January (WA Herbarium 1998).
<i>Frankenia glomerata</i>	P4 (DBCA list)	4.3 km W of study area	Associated primarily with waterways and saline areas in particular salt lake/pan edges in shrublands including samphire shrublands in sandy to clay loam soils. Recorded flowering August to December (WA Herbarium 1998).



Northern Star Resources Kalgoorlie Operations		
Project No	1631	
Date	29/07/2024	
Drawn by	GW	
Map author	GW	1:700,000 (at A4) GCS WGS 1984

- Study area
- Desktop study area
- Database search**
- P2 (DBC list), VU (EPBC Act)
- P1 (DBC list)
- P2 (DBC list)
- P3 (DBC list)
- P4 (DBC list)

- Species in the study area**
- Eremophila praecox* P2 (DBC list)
- PEC, Conservation status**
- Emu Land System, P3
- Phoenix data**
- P1 (DBC list)
- P2 (DBC list)
- P3 (DBC list)

Figure 5-1

Desktop records of significant flora and vegetation

PHOENIX
ENVIRONMENTAL SCIENCES

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5.1.3 Introduced flora

The desktop review identified records of 91 introduced species within the desktop search extent, of which 10 are a Declared Pest and 6 are WoNS (Table 5-2; Appendix 4).

Table 5-2 Desktop records of significant weeds

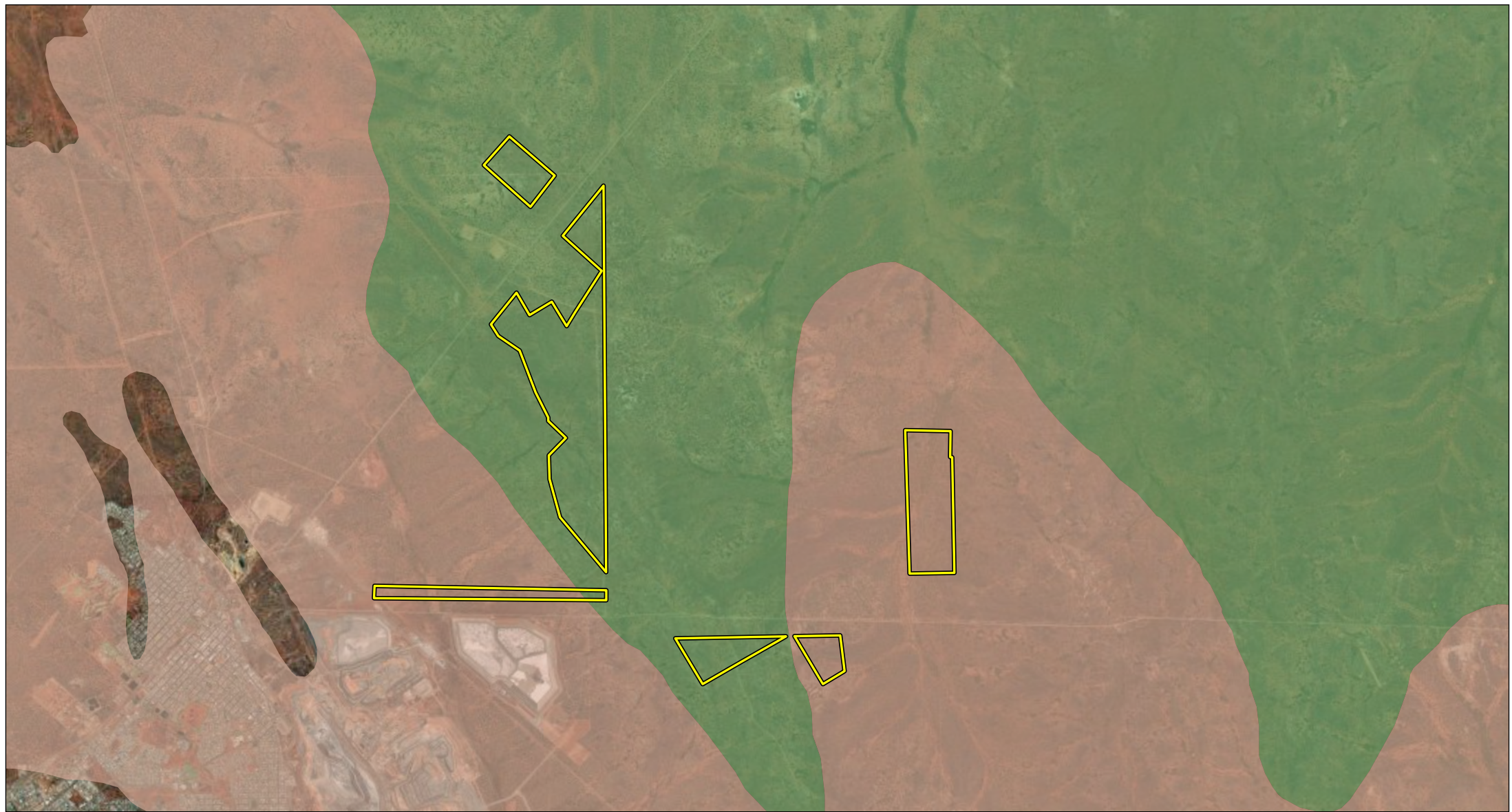
Species	Declared Pest	WoNS
Asteraceae	* <i>Xanthium spinosum</i>	Declared pest, S22(2) (C2, C3)
Boraginaceae	* <i>Echium plantagineum</i> (Paterson's Curse)	Declared pest, S22(2) (C3)
Cactaceae	* <i>Cylindropuntia fulgida</i> var. <i>mamillata</i> (Boxing Glove Cactus)	Declared pest, S22(2) (C3); WoNS
Cactaceae	* <i>Cylindropuntia imbricata</i> (Devil's Rope)	Declared pest, S22(2) (C3); WoNS
Cactaceae	* <i>Cylindropuntia kleini</i> (Candle Cholla)	Declared pest, S22(2) (C3); WoNS
Cactaceae	* <i>Opuntia elata</i> (Riverina Pear)	Declared pest, S22(2) (C3); WoNS
Cactaceae	* <i>Opuntia ficus-indica</i> (Prickly Pear)	Declared pest, S22(2) (C3); WoNS
Fabaceae	* <i>Alhagi maurorum</i> (Camelthorn)	Declared pest, S22(2) (C3)
Solanaceae	* <i>Lycium ferocissimum</i> (African boxthorn)	WoNS
Tamariaceae	* <i>Tamarix aphylla</i>	Declared pest, S12 (C1)
Tamariaceae	* <i>Tamarix chinensis</i>	Declared pest, S12 (C1)


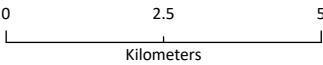
5.1.4 Vegetation associations

Regional scale pre-European vegetation mapping for Western Australia (Beard *et al.* 2013; DPIRD 2018) identifies 2 vegetation associations mapped in the study area (Table 5-3; Figure 5-2). The remaining extent of both vegetation associations at the Statewide scale exceeds 98% and they are therefore considered of Least Concern (Table 5-3). Each of the associations have over 95% remaining at both, the bioregional and subregional scales (Government of Western Australia 2019).

Table 5-3 Statewide extent of Pre-European vegetation associations present in the study area (Government of Western Australia 2019)

Vegetation association	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Current extent in DBCA lands (%)	% of study area
20, Low woodland; mulga mixed with <i>Allocasuarina cristata</i> & <i>Eucalyptus</i> sp.	1,295,103.39	1,292,474.58	99.8	19.42	68.98
468, Medium woodland; salmon gum & goldfields blackbutt	592,022.32	583,902.76	98.63	23.15	31.02



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Project No	1631	
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


-  Study area
- Vegetaion association, description**
-  20, Low woodland; mulga mixed with *Allocasuarina cristata* & *Eucalyptus sp.*
-  468, Medium woodland; salmon gum & goldfields blackbutt

Figure 5-2
Vegetation associations of the study area

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5.1.5 Significant vegetation

No Commonwealth or State listed TECs intersect the study area. The DBCA Threatened and Priority Ecological Communities database search identified the presence of one PEC within the desktop search extent (Figure 5-1; Table 5-4). However, the community does not intersect the study area.

Phoenix (2022a) identified 14 vegetation types that may be considered locally significant as habitat for the Priority flora *Eremophila praecox* but also noted that the species was recorded in disturbed areas and in rehabilitation.

Table 5-4 TECs and PECs identified in the desktop review

Community name	Status	Proximity to study area	Description
Emu Land System	Priority 3	15.6 km	<p>Characterised by rounded rocky rises and low hills with a mixture of shallow stony soils and texture contrast soils. All have coarse grained surfaces which are marginally fertile and are highly erodible.</p> <p>The Emu Land System faces several threats, including:</p> <ul style="list-style-type: none"> • Soil Erosion: Due to the highly erodible nature of the soils, wind and water erosion can significantly degrade the land. • Overgrazing: Livestock can overgraze the vegetation, leading to soil compaction and further erosion. • Invasive Species: Non-native plants and animals can disrupt the natural ecosystem balance. • Climate Change: Changes in temperature and precipitation patterns can affect the health and sustainability of the land system. • Human Activities: Land clearing, mining, and other development activities can lead to habitat destruction and soil degradation.

5.2 FIELD SURVEY

5.2.1 Flora and vegetation

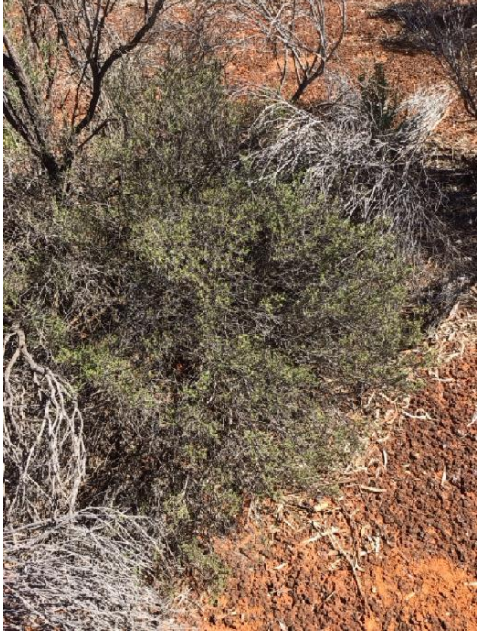
5.2.1.1 Flora assemblage

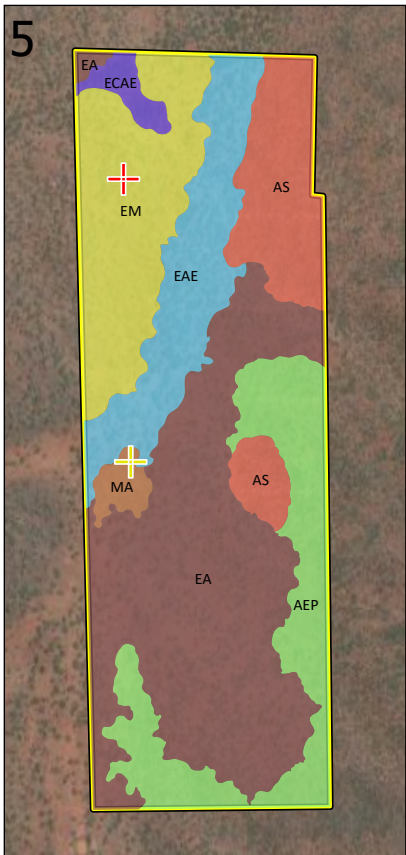
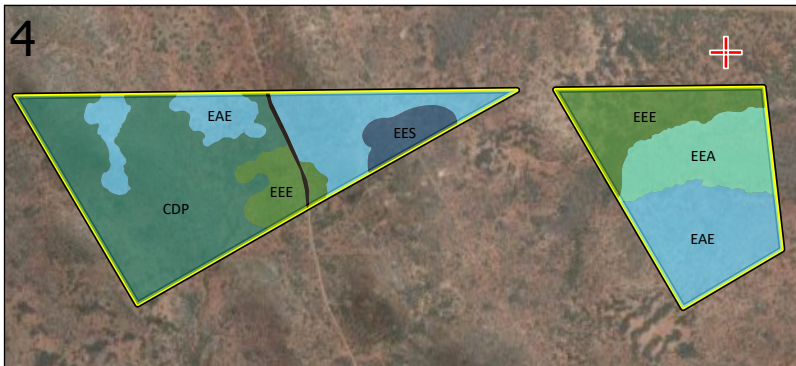
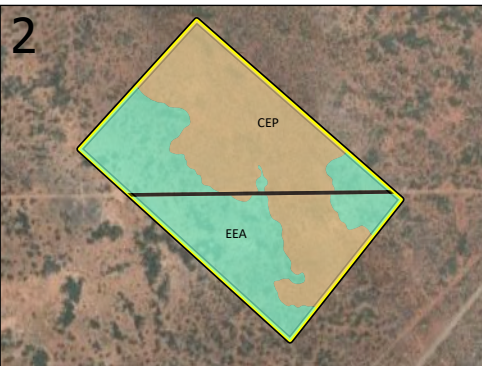
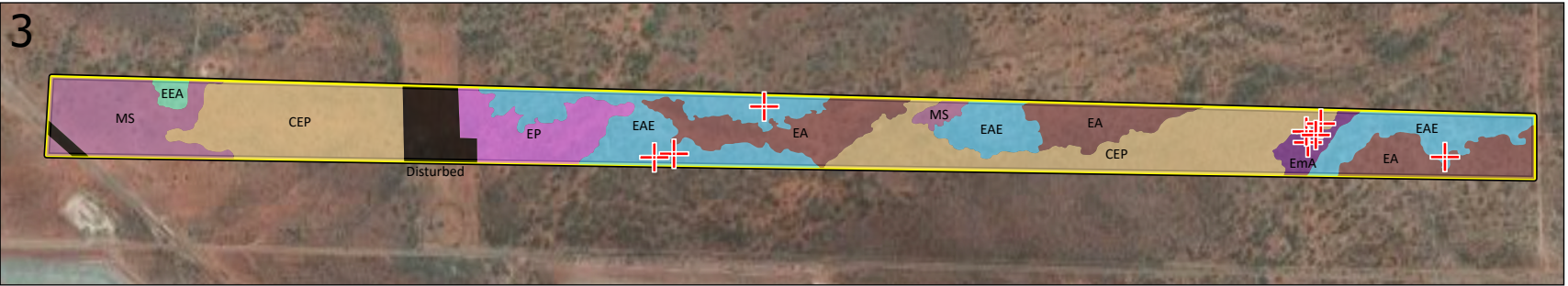
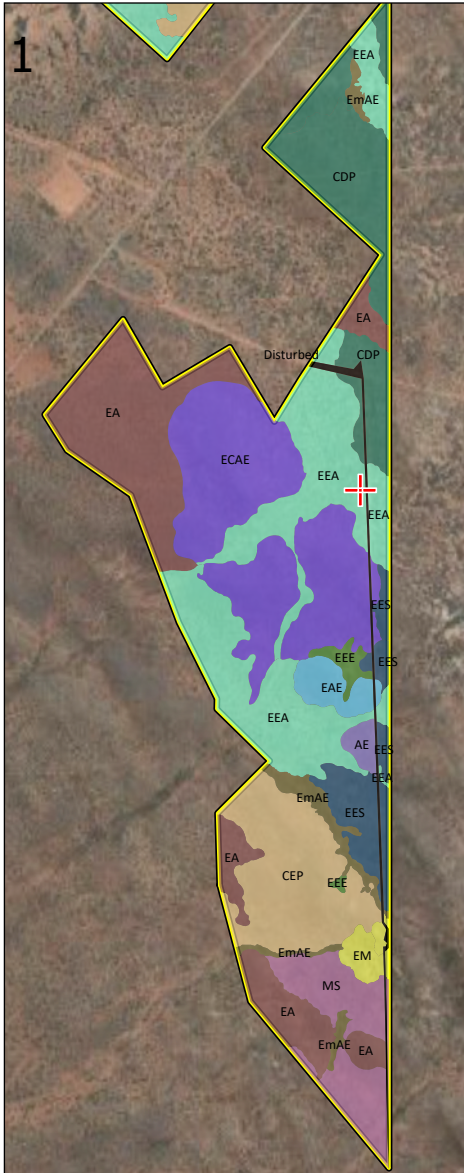
A total of 102 flora taxa representing 25 families and 51 genera were recorded in the study area during the field surveys (Appendix 5). (Appendix 2). The assemblage included 99 native species and 3 introduced species, including 95 perennial species, and 7 annual or short-lived species. The most prominent families recorded were Scrophulariaceae (19 spp.), Chenopodiaceae (15 spp.), Fabaceae (13 spp.) and Myrtaceae (10 spp.).

5.2.1.2 Significant flora

No Threatened flora and 2 Priority flora were recorded during the field survey, *Eremophila praecox* (P2) and *Notisia intonsa* (P3) (Table 5-5; Figure 5-3). *Eremophila praecox* was found at 13 locations in 4 vegetation types, 2 *Eucalyptus* woodlands: *Eucalyptus* woodland over tall *Acacia* shrubland over *Eremophila* and *Senna* shrubland (EAE) and *Eucalyptus* woodland over *Eremophila* and *Atriplex* shrubland (EEA), the *Casuarina* woodland over *Eremophila* and *Senna* shrubland with isolated *Ptilotus* shrubs (CEP), and the *Eucalyptus* mallee woodland over *Maireana* and *Atriplex* shrubland (EmA). *Notisia intonsa* was found at one location only in *Maireana* shrubland over Asteraceae forbland (MA).

Table 5-5 Details of significant flora recorded during the field survey

Species	Status	Distribution and ecology	Survey records	Photograph
<i>Eremophila praecox</i>	P2 (DBCA list)	Occurs in the Coolgardie, Murchison, and Nullarbor bioregions from 37 records (WA Herbarium 1998). Population sizes for the FloraBase WA Herbarium (1998) records range from one to few plants	The species was recorded at several locations in the study area in <i>Eucalyptus</i> and <i>Casuarina</i> woodlands over mixed shrublands on flat plains in sandy loam soils. A total of 13 plants were recorded.	
<i>Notisia intonsa</i>	P3 (DBCA list)	Occurs in the Avon Wheatbelt, Coolgardie, Esperance Plains, Mallee and Murchison bioregions. Known from 28 records found on plains and damplands in clay to loam soils. (WA Herbarium 1998). Population sizes for the FloraBase WA Herbarium (1998) records range from one to 10 plants with the closest record located approximately 20 km east of the study area.	One individual of the species was recorded at one location in the study area in mid open <i>Maireana</i> shrubland over low Asteraceae forbland in sandy clay on flat plain (depression) near a waterway.	N/A



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- Study area
- AE
- AEP
- AS
- CDP
- CEP
- EA
- EAE
- ECAE
- EEA
- EEE
- EES
- EM
- EP
- EmA
- EmAE
- MA
- MS
- Disturbed

- Significant flora**
- + *Eremophila praecox* P2
 - + *Notisia intonsa* P3

Figure 5-3
Significant flora records from the field survey



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The likelihood of occurrence assessment for the remaining significant species identified in the desktop review (section 5.1.2) determined that the 2 species recorded in the study area were likely to occur elsewhere in the study area, 7 may possibly occur and 15 are unlikely to occur (Table 5-6).

Table 5-6 Likelihood of occurrence for significant flora identified in the desktop review

Species	Status	Likelihood of occurrence
<i>Tecticornia flabelliformis</i>	VU/P2 (EPBC Act; DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Acacia epedunculata</i>	P1 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Calandrinia lefroyensis</i>	P1 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Eremophila xantholaemus</i>	P1 (DBCA list)	Possible, there is suitable habitat in the study area and there is a record for the species less than 5 km away.
<i>Ptilotus procumbens</i>	P1 (DBCA list)	Possible, there is suitable habitat in the study area and there is a record for the species less than 5 km away.
<i>Ptilotus rigidus</i>	P1 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Ptilotus</i> sp. Kalgoorlie (J. Jackson & B. Moyle 260)	P1 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Elachanthus pusillus</i>	P2 (DBCA list)	Possible, there is suitable habitat in the study area and there is a record for the species less than 5 km away.
<i>Eremophila praecox</i>	P2 (DBCA list)	Recorded, desktop records occur in study area and new records for the species were record during the field survey.
<i>Goodenia salina</i>	P2 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>	P3 (DBCA list)	Possible, there is suitable habitat in the study area and Phoenix recorded the species nearby (Phoenix 2023).
<i>Alyxia tetanifolia</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Angianthus prostratus</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Austrostipa turbinata</i>	P3 (DBCA list)	Possible, there is suitable habitat in the study area.
<i>Cyathostemon verrucosus</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Eremophila arachnoides</i> subsp. <i>tenera</i>	P3 (DBCA list)	Possible there is suitable habitat in the study area.
<i>Isolepis australiensis</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Lepidium fasciculatum</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.
<i>Melaleuca coccinea</i>	P3 (DBCA list)	Unlikely, lack of suitable habitat in study area.

Species	Status	Likelihood of occurrence
<i>Notisia intonsa</i>	P3 (DBC list)	Recorded during the field survey.
<i>Eremophila caerulea</i> subsp. <i>merrallii</i>	P4 (DBC list)	Possible there is suitable habitat in the study area.
<i>Eucalyptus jutsonii</i> subsp. <i>jutsonii</i>	P4 (DBC list)	Unlikely, lack of suitable habitat in study area.
<i>Eucalyptus</i> x <i>brachyphylla</i>	P4 (DBC list)	Unlikely, lack of suitable habitat in study area.
<i>Frankenia glomerata</i>	P4 (DBC list)	Unlikely, lack of suitable habitat in study area.

5.2.1.3 Introduced flora

In total, 3 introduced flora species were recorded during the survey, of which one is a WoNS none are a Declared Pest (Table 5-7).

Table 5-7 Introduced flora recorded in the field survey

Family	Species	WoNS
Brassicaceae	* <i>Carrichtera annua</i>	
Solanaceae	* <i>Lycium ferocissimum</i>	yes
Lamiaceae	* <i>Salvia verbenaca</i>	

5.2.1.4 Unidentified flora



Two specimens, *Frankenia* sp. and *Eremophila* sp. collected during the survey could not be identified to species level, mainly as a result of insufficient taxonomic characters, as plants were sterile (lacking reproductive structures).



5.2.1.5 Vegetation types



A total of 17 vegetation types were defined for the study area comprised *Eucalyptus* and *Casuarina* woodlands, *Eucalyptus* mallee woodlands, tall *Acacia* shrublands, a tall *Eremophila* shrubland and 2 chenopod shrublands (Table 5-8; Figure 5-4). A small proportion (1.2%) of the study area was disturbed and mostly devoid of native vegetation and included cleared areas or major tracks. The *Eucalyptus* woodlands were the most extensive, accounting for 64% of the study area followed by the *Casuarina* woodlands (22%), the *Acacia* shrublands (6%), the chenopod shrublands (4.5%) and the *Eucalyptus* mallee woodlands (1.5%).



The *Eucalyptus* mallee woodland over mid open *Maireana* shrubland over low *Atriplex* shrubland was the most restricted vegetation type comprising just 0.15% of the study area followed by the *Maireana* shrubland over low Asteraceae forbland (0.3%), tall *Acacia* shrubland over isolated mid *Eremophila* shrubs (0.4%) and *Eremophila* shrubland over isolated low *Ptilotus* shrubs (0.6%). However, the study area was small and fragmented, and the vegetation types comprised mostly widespread species common to the area.



Table 5-8 Vegetation types, description and extent in the study area



Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
AE	KOR013	Tall <i>Acacia</i> shrubland over isolated mid <i>Eremophila</i> shrubs	7.43, 0.42%	
AEP	KOR028, KOR033	Tall <i>Acacia</i> shrubland over mid open <i>Eremophila</i> shrubland over isolated low <i>Ptilotus</i> shrubs	56.84, 3.20%	



Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
AS	KOR029, KOR035	Tall <i>Acacia</i> shrubland over mid open <i>Senna</i> shrubland	41.14, 2.32%	
CDP	KOR042	Isolated low <i>Casuarina</i> trees over mid <i>Dodonaea</i> and <i>Senna</i> shrubland over isolated low <i>Ptilotus</i> shrubs	185.07, 10.42%	

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
CEP	KOR002, KOR005, KOR019, KOR025	Low <i>Casuarina</i> woodland over mid to tall <i>Eremophila</i> and <i>Senna</i> shrubland over isolated low <i>Ptilotus</i> shrubs	211.70, 11.92%	
EA	01LF01, KOR004, KOR009, KOR016, KOR020, KOR027, KOR036, KOR024	Mid <i>Eucalyptus</i> woodland over mid open <i>Atriplex</i> and <i>Maireana</i> shrubland over isolated low shrubs	325.34, 18.31%	



Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EAE	01EP01, 01EP02, 01EP05, 03EP03, KOR023, KOR030, KOR039, KOR040, KOR043, KOR044	Mid <i>Eucalyptus</i> woodland over sparse tall <i>Acacia</i> shrubland over mid <i>Eremophila</i> and <i>Senna</i> shrubland	167.70, 9.44%	
ECAE	KOR011, KOR031	Low <i>Eucalyptus</i> and <i>Casuarina</i> woodland over <i>Acacia</i> and <i>Eremophila</i> shrubland	198.88, 11.19%	

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EEA	KOR003, KOR006, KOR010, KOR022, KOR026, KOR037, KOR038	Low open <i>Eucalyptus</i> woodland over mid open <i>Eremophila</i> shrubland over low sparse <i>Atriplex</i> shrubland	280.56, 15.79%	
EEE	KOR012, KOR018, KOR041, KOR045	Mid <i>Eucalyptus</i> woodland over mid sparse <i>Eremophila</i> and <i>Maireana</i> shrubland over isolated low <i>Eremophila</i> shrubs	42.51, 2.39%	


Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EES	KOR046	Low open <i>Eucalyptus</i> woodland over mid open <i>Eremophila</i> shrubland over isolated low <i>Scaevola</i> shrubs	51.24, 2.88%	
EM	KOR015, KOR032	Mid <i>Eucalyptus</i> woodland over tall open <i>Melaleuca</i> shrubland isolated clumps of low forbs	70.20, 3.95%	

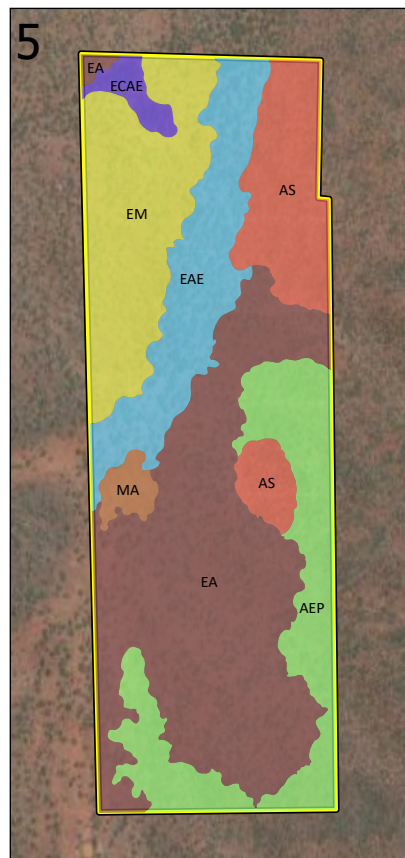
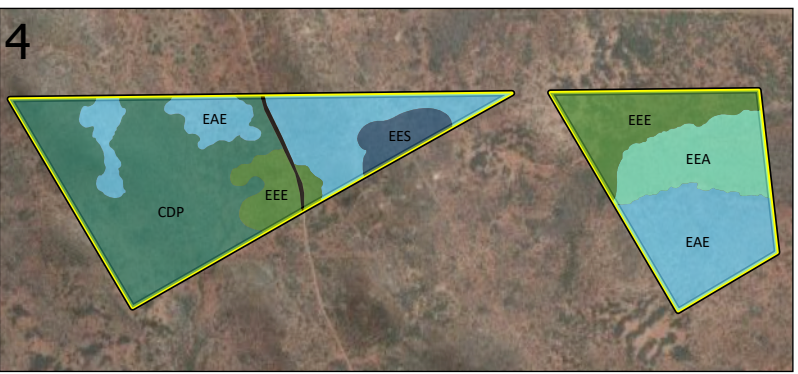
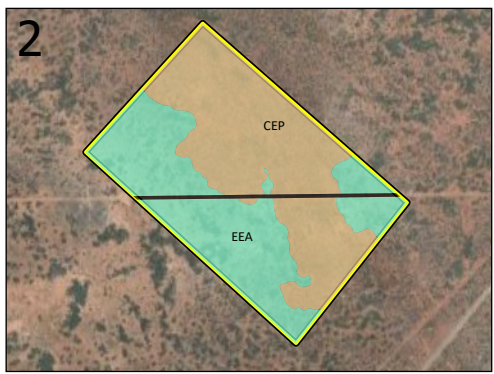
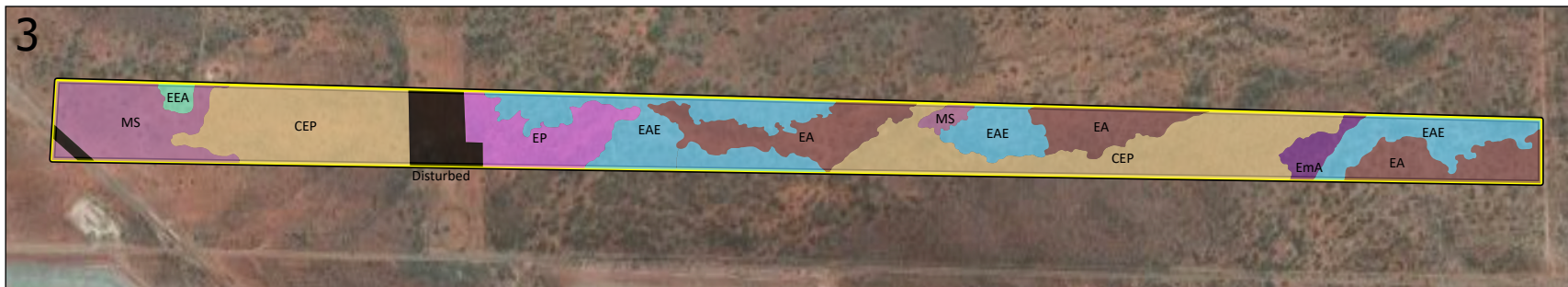
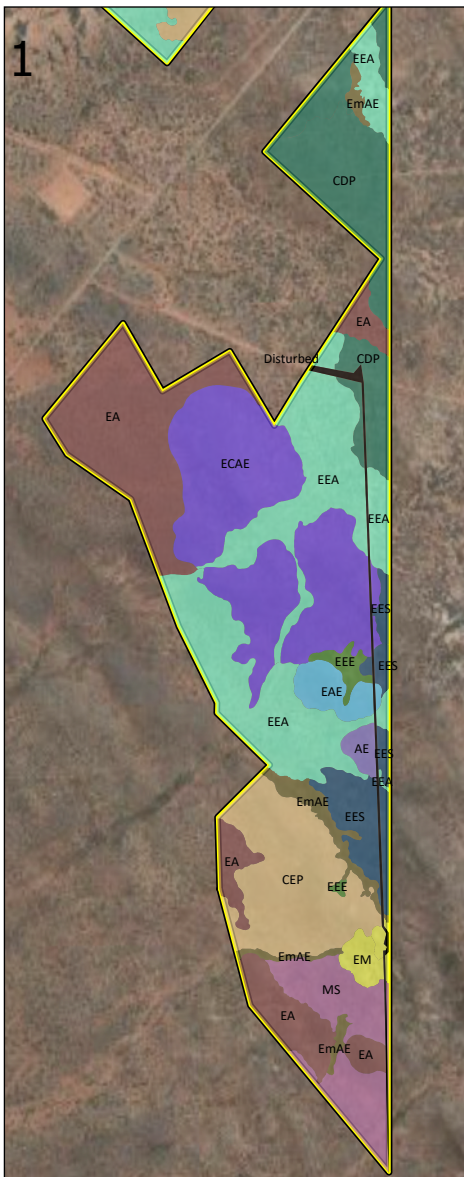
Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EmA	01EP06	Mid <i>Eucalyptus</i> mallee woodland over mid open <i>Maireana</i> shrubland over low <i>Atriplex</i> shrubland	2.72, 0.15%	
EmAE	KOR014	Mid <i>Eucalyptus</i> mallee woodland over tall <i>Acacia</i> shrubland over mid sparse <i>Eremophila</i> shrubland	23.65, 1.33%	

Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EP	KOR001	Tall <i>Eremophila</i> shrubland over isolated low <i>Ptilotus</i> shrubs	10.02, 0.56%	
MA	KOR034	Mid open <i>Maireana</i> shrubland over low Asteraceae forbland	5.52, 0.31%	

Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
MS	KOR017	<i>Maireana</i> and <i>Atriplex</i> shrubland over isolated low <i>Sclerolaena</i> forbs	74.26, 4.18%	
Disturbed		Cleared areas, major tracks mostly devoid of vegetation	21.76, 1.22%	



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Study area	CDP	EEA	EmA
Vegetation type	CEP	EEE	EmAE
AE	EA	EES	MA
AEP	EAE	EM	MS
AS	ECAE	EP	Disturbed

Figure 5-4
Vegetation types recorded in the field survey



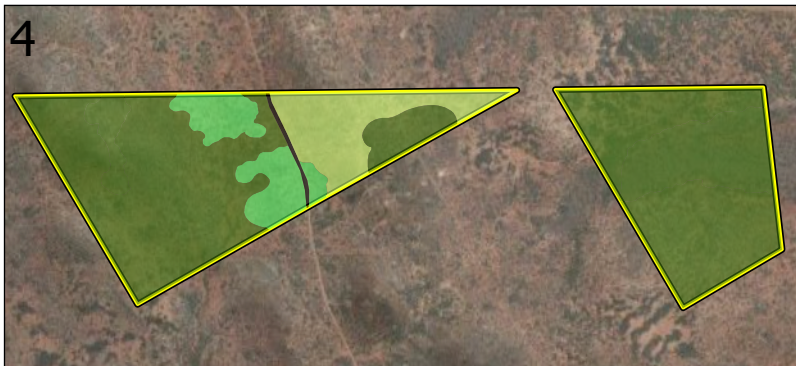
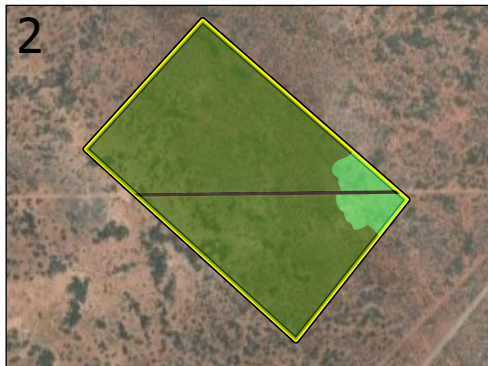
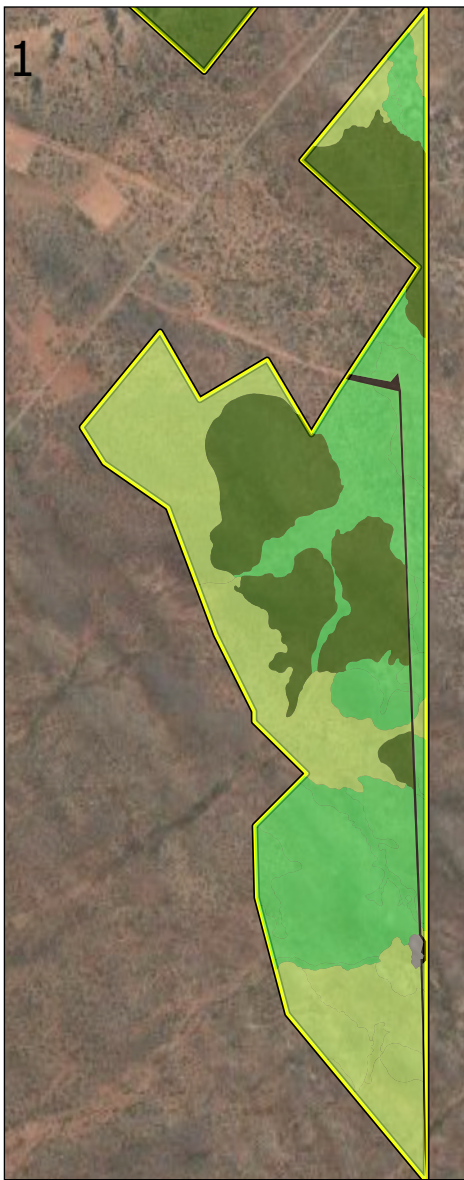
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5.2.1.6 Vegetation condition

Remnant vegetation in the study area was recorded to be in Excellent to Degraded condition (Figure 5-5) with the majority (72%) in Excellent to Very Good condition (Table 5-9) where disturbances were typically limited to evidence of minor historic clearing, vehicle tracks and the presence of a low number of weeds. In these areas, the vegetation structure was intact with no evidence of any recent disturbance. 27% of the area was recorded to be in Good to Degraded condition with multiple impacts including clearing, litter and the presence of weeds. Completely Degraded areas were mostly devoid of vegetation and included major tracks, some current clearing and infrastructure.

Table 5-9 Vegetation condition – extent of each condition rating in study area

Condition rating	Area (ha)	% of study area
Excellent	667.72	37.59%
Very Good	605.89	34.11%
Good	444.33	25.01%
Poor	20.19	1.14%
Degraded	16.62	0.94%
Completely Degraded	21.76	1.22%



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- Study area
- Vegetation condition**
- Excellent
- Very Good
- Good
- Poor
- Degraded
- Completely Degraded

Figure 5-5
Vegetation condition recorded in the field survey



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5.2.1.7 Significant vegetation

None of the vegetation types are considered regionally significant as they do not represent habitat for Federal or State listed Threatened flora or are representative of vegetation with less than 30% Pre-European extent remaining.

Four vegetation types accounted for less than 1% of the study area mainly due to the study area being small and fragmented. However, one restricted vegetation, the *Maireana* shrubland over Asteraceae forbland (MA) comprising just 0.3% maybe considered locally significant due to the presence of the Priority flora, *Notisia intonsa* (P3).

Four vegetation types, including the *Casuarina* woodland (CEP), *Eucalyptus* woodland over tall *Acacia* shrubland (EAE), *Eucalyptus* woodland over *Eremophila* and *Atriplex* shrubland (EEA), and the *Eucalyptus* mallee woodland over *Maireana* and *Atriplex* shrubland (EmA) may be considered locally significant due to their role as a refuge for the Priority flora *Eremophila praecox* (P2).

5.3 SURVEY LIMITATIONS

The limitations of the flora and vegetation survey have been considered in accordance with EPA (2016b, c) (Table 5-10).

Table 5-10 Consideration of potential survey limitations

Limitations	Comments
Availability of contextual information at a regional and local scale	There were numerous previous survey reports available and Phoenix have conducted several previous surveys from which a substantial amount of data was available.
Competency/experience of the team carrying out the survey	The survey team field lead has 20+ years experience in conducting flora and vegetation surveys in the Murchison and Coolgardie bioregions.
Scope and completeness	The scope of the survey was adequate to inform further survey requirements for the study area and the survey was satisfactorily completed.
Proportion of flora and fauna recorded and/or collected, any identification issues	All but 2 species collected were identified to species level, a satisfactory number of species to broadly describe the vegetation within the study area was collected.
Access within the study area	Access was sufficient for the purpose of the survey.
Timing, rainfall, season	The survey was conducted following some above average rainfall at a time of year consistent with recommended survey periods for the bioregions.
Disturbance that may have affected the results of the survey	There were no disturbances that would have affected the results of the survey.

6 DISCUSSION

6.1 FLORA AND VEGETATION

The flora assemblage recorded for the current survey reflects that of previous surveys in the area with the 5 most prominent families Chenopodiaceae, Fabaceae, Scrophulariaceae and Myrtaceae common. Fewer species were recorded in the current survey (103 spp.) than for the most recent reconnaissance flora and vegetation survey (136, Phoenix 2023) reflecting the smaller survey area.

6.1.1 Significant flora

Two significant flora, *Eremophila praecox* (P2) and *Notisia intonsa* (P3) recorded currently in the study area were previously either recorded in the study area or in the desktop study area.

Single *Eremophila praecox* plants were found at 13 locations with some of them spaced small distances apart. There are areas of suitable habitat for the species in the study area and it is highly likely further plants/populations are present in the surrounding areas. A recent survey for *Eremophila praecox* (Phoenix 2020) established that the species has a greater distribution than that currently recorded on FloraBase (WA Herbarium 1998) or NatureMap (DBCA 2021), and the known number of the species exceeded 452 plants. Following the completion of the Phoenix (2024) survey, more than 767 plants have been recorded (J Cameron KCGM 2024, pers. comm. 15 August) of which 155 plants have been found in DBCA managed land.

A single individual of *Notisia intonsa* (P3) was recorded in the study area in a land depression close to a creek. The actual population size and distribution in the study area has not been established and further intensive search should be conducted in Asteraceae forblands in sandy clay on flat plain near waterways.

A further 7 Priority flora identified in the desktop assessment that may possibly occur in the study area comprised of 2 Priority 1 species *Eremophila xantholaemus* and *Ptilotus procumbens*, one Priority 2 species *Elachanthus pusillus*, 3 Priority 3 species that included *Allocasuarina eriochlamys* subsp. *grossa* which Phoenix (2023) recorded in the study area, and one Priority 4 species *Eremophila caerulea* subsp. *merrallii* as suitable habitat exists in the study area.

It is considered highly unlikely that the unidentified taxa represent significant species because only one significant *Frankenia* species was identified in the desktop review, *Frankenia glomerata* (P4) and there is no suitable habitat in the study area for the species and the specimen collected had an erect habit rather than the prostrate habit of the Priority species. The specimen of *Eremophila* sp. did not resemble any of the significant *Eremophila* species identified in the desktop review.

6.1.2 Introduced flora

A single plant of the WoNS, **Lycium ferocissimum* (African boxthorn) was found in the study area. The species have also been recorded by (Phoenix 2020). The WoNS is a list of the most problematic plant species in Australia ranked based on invasiveness, impacts, potential for spread, and socioeconomic and environmental values. The Australian Government Department of Agriculture, Fisheries and Forestry published a National best practice manual for African boxthorn (*Lycium ferocissimum*) (Noble *et al.* 2022). African boxthorn is legally recognised (declared) as a weed under legislation in all Australian jurisdictions except Western Australia. It displaces native vegetation and degrades fauna habitat, as well as harbouring pest fauna including rabbits, foxes, feral pigs and starlings. With this plant's declaration as a WoNS in 2012, a National African Boxthorn Strategic Plan (2012–2017) was produced. The plan established the following 3 broad goals for management of African boxthorn in Australia, underpinned by strategic actions:

1. prevent new infestations from establishing
2. ensure existing infestations are under strategic management
3. increase stakeholder capability and willingness to manage African boxthorn.

In Western Australia, *Lycium ferocissimum* Miers is Permitted - s11 for the whole of State and is not assigned to any control category for a local government area at this time (DPIRD 2024).

6.1.3 Vegetation

None of the vegetation types defined for the study area are representative of any significant communities and represent mostly widespread species common to the area. The *Eucalyptus* and *Casuarina* woodlands recorded in the study area are representative of the vegetation associations 20 and 468 mapped by Shepherd *et al.* (2002).

A total of 5 vegetation types defined for the study area may be considered locally significant as a refuge for Priority flora, 4 of which were habitat for *Eremophila praecox* (P2). *Eremophila praecox* has been found to have a broad distribution and is typically found in low densities in *Eucalyptus* and/or *Casuarina* woodlands over a varied shrub layer frequently *Acacia*, *Eremophila*, *Senna* and *Maireana* species on flat to undulating plains in red clay loam soils (Phoenix 2019b). The vegetation types are widespread in the study area and in the surrounding landscape, and are a potential habitat for *Eremophila praecox*. One vegetation type, MA is a habitat for Priority 3 species, *Notisia intonsa* and is considered locally significant as habitat for this Priority flora.

6.2 CONCLUSION

The key botanical value of the study area is the presence of Priority flora and potential for further Priority flora to occur. Subsequently, future survey requirements are likely to require targeted searches for these significant species in areas proposed for development.

REFERENCES

- Australian Weeds Committee. 2007. *The Australian Weeds Strategy. A national strategy for weed management in Australia*. Natural Resource Management Ministerial Council, Australian Weeds Committee, Canberra, ACT. Available at: <http://www.environment.gov.au/biodiversity/invasive/weeds/publications/strategies/pubs/weed-strategy.pdf>
- Australian Weeds Committee. 2012. *Weeds of National Significance 2012*. Department of Agriculture, Fisheries and Forestry, Canberra, ACT.
- Beard, J. S., Beeston, G., Harvey, J., Hopkins, A. & Shepherd, D. 2013. *The vegetation of Western Australia at the 1:3,000,000 scale. Explanatory memoir. Second edition*. Department of Agriculture and Food Western Australia.
- BoM. 2024. *Climate statistics for Australian locations*. Commonwealth of Australia, Bureau of Meteorology. Available at: <http://www.bom.gov.au/climate/data>
- Botanica Consulting. 2014. *Tailings Storage Facility Expansion desktop flora assessment*. Botanica Consulting Pty Ltd, Boulder, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Botanica Consulting. 2015a. *Level 1 flora and vegetation survey for the Fimiston Waste Rock Dump Extension. Draft 1*. Botanica Consulting, WA, Boulder, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Botanica Consulting. 2015b. *Tailings Storage Facility Expansion. Level 2 flora and vegetation report, spring 2014 and autumn 2015*. Botanica Consulting Pty Ltd, Boulder, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Brown, A. & Davis, R. 2019. *Eremophila oldfieldii* subsp. *papula*, *E. sericea* and *E. xantholaema* (Scrophulariaceae), three new taxa from Western Australia. *Nuytsia* **30**: 25-31.
- Cowan, M. 2001a. Coolgardie 3 (COO3—Eastern Goldfields subregion). In: May, J. E. & McKenzie, N. L. (eds) *A biodiversity audit of Western Australia's 53 biogeographical subregions in 2002*. Department of Conservation and Land Management, Perth, W.A., pp. 156–169.
- Cowan, M. 2001b. Murchison 1 (MUR1—East Murchison subregion). In: May, J. E. & McKenzie, N. L. (eds) *A biodiversity audit of Western Australia's 53 biogeographical subregions in 2002*. Department of Conservation and Land Management, Perth, WA, pp. 466–479.
- DBCA. 2021. *NatureMap*. Department of Biodiversity, Conservation and Attractions. Available at: <https://naturemap.dpaw.wa.gov.au/default.aspx>
- DBCA. 2024a. *Dandjoo biodiversity data platform*. Department of Biodiversity, Conservation and Attractions, Perth, WA. Available at: <https://bio.wa.gov.au/dandjoo>
- DBCA. 2024b. *Threatened and Priority Ecological Communities database*. Department of Biodiversity, Conservation and Attractions, Kensington, WA.
- DBCA. 2024c. *Threatened and Priority flora database*. Department of Biodiversity, Conservation and Attractions, Kensington, WA.
- DCCEEW. 2024. *Protected Matters Search Tool*. Department of Climate Change, Energy, the Environment and Water, Canberra, ACT.
- DER. 2014. *A guide to the assessment of applications to clear native vegetation, under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environment Regulation, Perth, WA.
- DoEE. 2016. *Maps: Australia's bioregions (IBRA)*. Department of the Environment and Energy, Canberra, ACT. Available at: <http://www.environment.gov.au/topics/land/national-reserve-system/science-maps-and-data/australias-bioregions-ibra>
- DPIRD. 2018. *Pre-European Vegetation – Western Australia (NVIS Compliant version 20110715) in* Department of Primary Industry and Regional Development, ed, Kensington, WA.
- DPIRD. 2019. *Western Australian Organism List*. Department of Agriculture and Food, Government of Western Australia, South Perth, WA. Available at:

- <https://www.agric.wa.gov.au/bam/western-australian-organism-list-waol> (accessed 18 September 2019).
- DPIRD. 2024. *Declared Plant Requirements*. Department of Primary Industries and Regional Development, Kensington, WA. Available at: <https://www.agric.wa.gov.au/declared-plants/declared-plant-requirements>
- EPA. 2016a. *Environmental Factor Guideline: Flora and vegetation*. Environmental Protection Authority, Perth, WA. Available at: [http://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/Guideline-Flora-Vegetation-131216_4.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies%20and%20Guidance/Guideline-Flora-Vegetation-131216_4.pdf)
- EPA. 2016b. *Technical Guidance: Flora and vegetation surveys for Environmental Impact Assessment*. Environmental Protection Authority, Perth, WA. Available at: [http://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies%20and%20Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey%20Dec13.pdf)
- EPA. 2016c. *Technical Guidance: Terrestrial fauna surveys*. Environmental Protection Authority, Perth, WA. Available at: [http://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies%20and%20Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf)
- EPA. 2020. *Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment*. Environmental Protection Authority, Perth, WA. Available at: [https://epa.wa.gov.au/sites/default/files/Policies and Guidance/EPA-Technical-Guidance-Vertebrate-Fauna-Surveys.pdf](https://epa.wa.gov.au/sites/default/files/Policies%20and%20Guidance/EPA-Technical-Guidance-Vertebrate-Fauna-Surveys.pdf)
- ESCAVI. 2003. *Australian Vegetation Attribute Manual: National Vegetation Information System (Version 6.0)*. Department of Environment and Heritage, Canberra.
- Government of Western Australia. 2005. *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*. Government of Western Australia, Perth, Western Australia.
- Government of Western Australia. 2018a. *Wildlife Conservation Act 1950 Wildlife Conservation (Rare Flora) Notice 2018*. Government Gazette, WA. Government of Western Australia, Perth, WA.
- Government of Western Australia. 2018b. *Wildlife Conservation Act 1950, Wildlife Conservation (Specially Protected Fauna) Notice 2018*. Government Gazette, WA, Perth, WA.
- Government of Western Australia. 2019. *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. Department of Biodiversity, Conservation and Attractions, Perth, WA.
- Jims Seeds, W. T. 2004. *Flora survey. Fimiston III*. Jims Seeds, Weeds & Trees Pty Ltd, Boulder, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Jims Seeds, W. T. 2006. *Vegetation survey of three rehabilitated sites*. Jims Seeds, Weeds & Trees, Boulder, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Lally, T. R. 2009. New taxa of *Ptilotus* (Amaranthaceae) from Western Australia. *Nuytsia* **19**: 53-62.
- McKenzie, N. L. & Hall, N. J. 1992. The biological survey of the Eastern Goldfields of Western Australia. Part 8: Kurnalpi - Kalgoorlie study area. *Records of the Western Australian Museum Supplement No. 41*.
- Noble, M., Rose, M., Virtue, J. G. & Sheehan, M. R. 2022. *African boxthorn: National best practice manual for African boxthorn (Lycium ferocissimum) Second edition* in Department of Agriculture, F. a. F., ed. Australian Government, Canberra, Australian Capital Territory.
- Obbens, F. J. 2018. Three new perennial species of *Calandrinia* (Montiaceae) from southern Western Australia. *Nuytsia* **29**: 193-204.
- Payne, A. L. & Leighton, K. A. 2004. Land systems. In: van Vreeswyk, A. M. E., Payne, A. L., Leighton, K. A. & Hennig, P. (eds) *Technical Bulletin 9. An inventory and condition survey of the Pilbara region, Western Australia*. Department of Agriculture, Government of Western Australia, South Perth, WA, pp. 175–384.

- Phoenix. 2016. *Pilot flora and vegetation and aquatic biota survey of Hannan Lake*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2017. *Aquatic biota survey of Hannan Lake*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished draft report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2018a. *Flora and vegetation and terrestrial fauna survey of the Crossroads Tenement*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished draft report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2018b. *Regional flora and vegetation and terrestrial fauna survey for the Gidji Operations*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished draft report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2019a. *Gap analysis, biological survey and consolidation report for the Fimiston Gold Mine Operations*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2019b. *Regional survey for Eremophila praecox for the FIM IIE Project*. Phoenix Environmental Sciences, Balcatta, WA. Unpublished draft report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd.
- Phoenix. 2020. *Regional survey for Eremophila praecox for the FIM IIE Project*. Phoenix Environmental Sciences Pty Ltd, Osborne Park, W.A. Unpublished report prepared for Kalgoorlie Consolidated Mines Pty Ltd.
- Phoenix. 2022a. *Flora and vegetation assessments for the Fimiston Gold Mine Operations*. Phoenix Environmental Sciences Pty Ltd, Osborne Park, WA.
- Phoenix. 2022b. *Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project*. Phoenix Environmental Sciences Pty Ltd, Osborne Park, Western Australia. Unpublished report prepared for Northern Star Resources Limited.
- Phoenix. 2023. *Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project*. Phoenix Environmental Sciences Pty Ltd, Osborne Park, WA.
- Phoenix. 2024. *Regional targeted survey for Eremophila praecox (P2)*. Phoenix Environmental Sciences, Osborne Park, WA. Report prepared for Northern Star Resources Ltd.
- Sage, L. W. & Shepherd, K. A. 2007. Five new conservation-listed *Goodenia* (Goodeniaceae) from south Western Australia. *Nuytsia* **17**: 331-346.
- Schoknecht, N. R. & Payne, A. L. 2011. *Land systems of the Kimberley region, Western Australia*. Department of Agriculture and Food, Western Australia, Perth.
- Shepherd, D. P., Beeston, G. R. & Hopkins, A. J. M. 2002. *Native vegetation in Western Australia. Extent, type and status*. Department of Agriculture, South Perth, WA. Resource Management Technical Report 249.
- Trudgen, M. E. & Rye, B. L. 2014. An update to the taxonomy of some Western Australian genera of Myrtaceae tribe Chamelaucieae. 2. *Cyathostemon*. *Nuytsia* **24**.
- WA Herbarium. 1998. *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions. Available at: <http://florabase.dpaw.wa.gov.au/>
- Williams, A. R. 2022. *Austrostipa* (Poaceae) in Western Australia: new species, new records, keys, and character notes. *Nuytsia* **33**: 39-101.

Appendix 1 Flora survey site locations

Site name	Site type	Latitude	Longitude
01EP01	Relevé	-30.738	121.535
01EP02	Relevé	-30.738	121.535
01EP05	Relevé	-30.739	121.564
01EP06	Relevé	-30.738	121.559
01LF01	Relevé	-30.738	121.537
03EP03	Relevé	-30.737	121.539
KOR001	Relevé	-30.738	121.531
KOR002	Relevé	-30.739	121.552
KOR003	Relevé	-30.736	121.517
KOR004	Relevé	-30.739	121.561
KOR005	Relevé	-30.738	121.558
KOR006	Relevé	-30.660	121.567
KOR007	Relevé	-30.660	121.566
KOR008	Relevé	-30.662	121.564
KOR009	Relevé	-30.676	121.566
KOR010	Relevé	-30.687	121.566
KOR011	Relevé	-30.694	121.565
KOR012	Relevé	-30.699	121.565
KOR013	Relevé	-30.705	121.567
KOR014	Relevé	-30.712	121.564
KOR015	Relevé	-30.717	121.567
KOR016	Relevé	-30.725	121.562
KOR017	Relevé	-30.728	121.565
KOR018	Relevé	-30.714	121.564
KOR019	Relevé	-30.715	121.563
KOR020	Relevé	-30.712	121.556
KOR022	Relevé	-30.702	121.557
KOR023	Relevé	-30.700	121.564
KOR024	Relevé	-30.681	121.544
KOR025	Relevé	-30.649	121.548
KOR026	Relevé	-30.651	121.546
KOR027	Relevé	-30.732	121.644
KOR028	Relevé	-30.732	121.643
KOR029	Relevé	-30.712	121.650
KOR030	Relevé	-30.712	121.646
KOR031	Relevé	-30.707	121.642
KOR032	Relevé	-30.710	121.642
KOR033	Relevé	-30.719	121.650
KOR034	Relevé	-30.721	121.643
KOR035	Relevé	-30.723	121.649
KOR036	Relevé	-30.723	121.646

**Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd**

KOR037	Relevé	-30.750	121.622
KOR038	Relevé	-30.752	121.622
KOR039	Relevé	-30.755	121.623
KOR040	Relevé	-30.753	121.619
KOR041	Relevé	-30.749	121.616
KOR042	Relevé	-30.749	121.587
KOR043	Relevé	-30.750	121.589
KOR044	Relevé	-30.748	121.594
KOR045	Relevé	-30.752	121.600
KOR046	Relevé	-30.749	121.605

Appendix 2 Flora survey site descriptions

Site details			
Site	01EP01	Position (WGS84)	121.5345851716139, -30.7383578634415
Slope	negligible	Topography	plain
Soil colour	red-orange, white	Soil texture	sandy loam
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (25 Mar 2024)	
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Site description	Mid open <i>Eucalyptus salmonophloia</i> woodland over mid open <i>Eremophila scoparia</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Acacia hemiteles</i> shrubland over isolated low <i>Scaevola spinescens</i> , <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> and <i>Eremophila praecox</i> shrubs.
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Habitat	open woodland
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Disturbance	livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	30.0	Tree cover (%)	8.0
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Shrub cover (%)	25.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
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Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Natasha Rogers

Species (7)	Status	Cover (%)	Height (m)
<i>Eremophila scoparia</i>		10.0	1.3
<i>Eucalyptus salmonophloia</i>		8.0	12.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		5.0	1.6
<i>Acacia hemiteles</i>		2.0	1.7
<i>Scaevola spinescens</i>		2.0	0.5
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		1.0	0.4
<i>Eremophila praecox</i>	P2 (DBCA list)	0.1	0.7

Site details			
Site	01EP02	Position (WGS84)	121.5353257327000, -30.73824936824025
Slope	negligible	Topography	plain
Soil colour	orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (25 Mar 2024)

Site description	Open low <i>Eucalyptus salubris</i> woodland over open mid <i>Eremophila scoparia</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland.
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Habitat	shrubland
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Disturbance	exploration (drill pads and access tracks)
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Vegetation condition	Excellent	Fire age	not evident
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Total veg. cover (%)	20.0	Tree cover (%)	5.0
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Shrub cover (%)	15.0	Grass cover (%)	0.1
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Natasha Rogers

Species (4)	Status	Cover (%)	Height (m)
<i>Eremophila scoparia</i>		10.0	1.3
<i>Eucalyptus salubris</i>		5.0	8.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		5.0	1.4
<i>Eremophila praecox</i>	P2 (DBCA list)	0.1	0.8

Site details			
Site	01EP05	Position (WGS84)	121.5643160461215, -30.73867870529122
Slope	gentle	Topography	undulating plain
Soil colour	red-brown, whitish	Soil texture	sandy loam
Rock cover (%)	0	Rock type	calcrete, ferrous - ironstone

Observation details - visit 1 (25 Mar 2024)

Site description	Mid <i>Eucalyptus transcontinentalis</i> , <i>E. salmonophloia</i> and <i>E. salubris</i> woodland over isolated tall <i>Eremophila dempsteri</i> , <i>Santalum acuminatum</i> and <i>Acacia hemiteles</i> shrubs over open mid <i>Eremophila scoparia</i> , <i>Scaevola spinescens</i> and <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, grazing-low, historic clearing, litter, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	30.0	Tree cover (%)	15.0
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Shrub cover (%)	20.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (15)	Status	Cover (%)	Height (m)
<i>Eucalyptus transcontinentalis</i>		11.0	15.0
<i>Eremophila scoparia</i>		5.0	1.5
<i>Santalum acuminatum</i>		4.0	2.1
<i>Scaevola spinescens</i>		3.0	1.2
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		3.0	1.0
<i>Eucalyptus salmonophloia</i>		2.0	20.0
<i>Eucalyptus salubris</i>		2.0	11.0
<i>Acacia hemiteles</i>		1.0	2.5
<i>Eremophila dempsteri</i>		1.0	2.5
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.2
<i>Acacia erinacea</i>		1.0	1.2
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.1	1.4
<i>Maireana sedifolia</i>		0.1	1.3
<i>Eremophila oppositifolia</i> subsp. <i>oppositifolia</i>		0.1	1.2
<i>Eremophila praecox</i>	P2 (DBCA list)	0.1	1.0

Site details			
Site	01EP06	Position (WGS84)	121.5594718266780, -30.7379089552276
Slope	gentle	Topography	undulating plain
Soil colour	orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (25 Mar 2024)

Site description	Low <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> woodland over open tall <i>Santalum spicatum</i> , <i>Acacia hemiteles</i> and <i>Eremophila scoparia</i> shrubland over sparse low <i>Atriplex vesicaria</i> , <i>Maireana sedifolia</i> and <i>Cratystylis conocephala</i> shrubland.
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Habitat	woodland
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Disturbance	grazing-low, historic clearing, livestock tracks
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Vegetation condition	Very Good	Fire age	not evident
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Total veg. cover (%)	40.0	Tree cover (%)	10.0
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Shrub cover (%)	30.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary

Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (8)	Status	Cover (%)	Height (m)
<i>Eremophila scoparia</i>		15.0	2.1
<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>		10.0	8.0
<i>Acacia hemiteles</i>		5.0	2.1
<i>Atriplex vesicaria</i>		5.0	0.5
<i>Maireana sedifolia</i>		2.0	0.8
<i>Santalum spicatum</i>		1.0	2.5
<i>Cratystylis conocephala</i>		1.0	0.9
<i>Eremophila praecox</i>	P2 (DBCA list)	0.1	0.7

Site details			
Site	01LF01	Position (WGS84)	121.5373129748296, -30.7376683667465
Slope	negligible	Topography	plain
Soil colour	orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (25 Mar 2024)

Site description	Isolated mid <i>Eucalyptus salmonophloia</i> and <i>E. ravida</i> woodland over open mid <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Eremophila scoparia</i> and <i>Maireana pyramidata</i> shrubland over sparse low <i>Atriplex vesicaria</i> , <i>Ptilotus obovatus</i> and <i>Maireana</i> sp. shrubland.
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Habitat	shrubland
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Disturbance	grazing-low, historic clearing, livestock tracks, vehicle tracks, weed infestation
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Vegetation condition	Good	Fire age	not evident
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Total veg. cover (%)	30.0	Tree cover (%)	5.0
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Shrub cover (%)	25.0	Grass cover (%)	0.1
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Herb cover (%)	1.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Natasha Rogers

Species (11)	Status	Cover (%)	Height (m)
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		15.0	1.7
<i>Eucalyptus salmonophloia</i>		4.0	15.0
<i>Atriplex vesicaria</i>		3.0	0.4
<i>Eremophila scoparia</i>		2.0	1.5
<i>Ptilotus obovatus</i>		2.0	0.4
<i>Eucalyptus ravidia</i>		1.0	11.0
<i>Maireana pyramidata</i>		1.0	1.1
<i>Maireana</i> sp.		1.0	0.3
* <i>Salvia verbenaca</i>	Weed	1.0	0.1
* <i>Lycium ferocissimum</i>	WoNS, Weed	0.1	2.0
* <i>Carrichtera annua</i>	Weed	0.1	0.1

Site details			
Site	03EP03	Position (WGS84)	121.53874182774929 -30.73675025587595
Slope	negligible	Topography	plain
Soil colour	orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (25 Mar 2024)	
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Site description	Open mid <i>Eucalyptus salmonophloia</i> woodland over open mid <i>Eremophila scoparia</i> shrubland.
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Habitat	shrubland
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Disturbance	grazing-low, historic clearing, livestock tracks
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Vegetation condition	Very Good	Fire age	not evident
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Total veg. cover (%)	25.0	Tree cover (%)	6.0
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Shrub cover (%)	20.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Natasha Rogers

Species (3)	Status	Cover (%)	Height (m)
<i>Eremophila scoparia</i>		20.0	1.3
<i>Eucalyptus salmonophloia</i>		6.0	12.0
<i>Eremophila praecox</i>	P2 (DBCA list)	0.1	1.3

Site details			
Site	KOR001	Position (WGS84)	121.5310946310459, -30.73790868658633
Slope	negligible	Topography	drainage line
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (25 Mar 2024)

Site description	Isolated tall <i>Eucalyptus salmonophloia</i> trees over mid <i>Eremophila scoparia</i> , <i>Acacia hemiteles</i> and <i>Pimelea microcephala</i> subsp. <i>microcephala</i> shrubland over isolated low <i>Ptilotus obovatus</i> , <i>Eremophila decipiens</i> subsp. <i>decipiens</i> and <i>Enchylaena tomentosa</i> shrubs.		
Habitat	shrubland		
Disturbance	grazing-low, historic clearing, litter, livestock tracks, vehicle tracks, weed infestation		
Vegetation condition	Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	45.0	Tree cover (%)	2.0
Shrub cover (%)	46.0	Grass cover (%)	0.1
Herb cover (%)	1.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (12)	Status	Cover (%)	Height (m)
<i>Eremophila scoparia</i>		30.0	2.0
<i>Eucalyptus salmonophloia</i>		2.0	20.0
<i>Acacia hemiteles</i>		2.0	1.7
<i>Ptilotus obovatus</i>		2.0	0.5
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>		1.0	1.7
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		1.0	0.8
<i>Enchylaena tomentosa</i>		1.0	0.5
<i>Leichhardtia australis</i>		0.1	1.8
<i>Acacia nyssophylla</i>		0.1	0.5
<i>Maireana triptera</i>		0.1	0.3
* <i>Carrichtera annua</i>	Weed	0.1	0.1
* <i>Salvia verbenaca</i>	Weed	0.1	0.1

Site details			
Site	KOR002	Position (WGS84)	121.5519810451051, -30.738947747095
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz, sandstone

Observation details - visit 1 (25 Mar 2024)

Site description	Low open <i>Casuarina obesa</i> woodland over mid open <i>Acacia hemiteles</i> , <i>A. burkittii</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland over low sparse <i>Scaevola spinescens</i> , <i>Westringia rigida</i> and <i>Ptilotus obovatus</i> shrubland.		
Habitat	open woodland		
Disturbance	grazing-low, litter, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	8.0
Shrub cover (%)	30.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (14)	Status	Cover (%)	Height (m)
<i>Acacia hemiteles</i>		15.0	2.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		10.0	1.8
<i>Casuarina obesa</i>		8.0	10.0
<i>Acacia burkittii</i>		5.0	2.0
<i>Scaevola spinescens</i>		5.0	0.6
<i>Westringia rigida</i>		4.0	0.5
<i>Santalum acuminatum</i>		1.0	2.0
<i>Acacia tetragonophylla</i>		1.0	1.5
<i>Ptilotus obovatus</i>		0.5	0.5
<i>Grevillea nematophylla</i> subsp. <i>nematophylla</i>		0.1	3.0
<i>Acacia nyssophylla</i>		0.1	1.5
<i>Eremophila granitica</i>		0.1	1.5
<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>		0.1	1.2
<i>Vincetoxicum lineare</i>		0.1	1.2

Site details			
Site	KOR003	Position (WGS84)	121.5166800547315, -30.73594609368115
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (25 Mar 2024)

Site description	Low open <i>Eucalyptus salmonophloia</i> woodland over isolated tall <i>Eremophila alternifolia</i> and <i>E. oldfieldii</i> subsp. <i>angustifolia</i> shrubs over mid open <i>Acacia hemiteles</i> , <i>A. nyssophylla</i> and <i>Eremophila alternifolia</i> shrubland.
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Habitat	open woodland
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Disturbance	evidence of feral animals, grazing-low, historic clearing, large-scale clearing, litter, livestock tracks, vehicle tracks
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Vegetation condition	Degraded	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	20.0	Tree cover (%)	12.0
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Shrub cover (%)	10.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (17)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		12.0	12.0
<i>Eremophila alternifolia</i>		5.0	2.5
<i>Acacia hemiteles</i>		3.0	2.0
<i>Acacia nyssophylla</i>		2.0	2.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	2.2
<i>Leichhardtia australis</i>		0.1	1.5
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	1.2
<i>Maireana pyramidata</i>		0.1	1.2
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		0.1	1.2
<i>Maireana sedifolia</i>		0.1	1.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.1	1.0
<i>Scaevola spinescens</i>		0.1	0.5
<i>Atriplex stipitata</i>		0.1	0.5
<i>Enchylaena tomentosa</i>		0.1	0.4
<i>Maireana triptera</i>		0.1	0.3
<i>Olearia muelleri</i>		0.1	0.3
* <i>Carrichtera annua</i>	Weed	0.1	0.1

Site details			
Site	KOR004	Position (WGS84)	121.5613288527051, -30.738567846671952
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (25 Mar 2024)

Site description	Mid <i>Eucalyptus salmonophloia</i> and <i>E. transcontinentalis</i> woodland over open mid <i>Cratystylis conocephala</i> , <i>Maireana sedifolia</i> and <i>Scaevola spinescens</i> shrubland over open low <i>Atriplex vesicaria</i> , <i>Maireana triptera</i> and <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> shrubland.		
Habitat	woodland		
Disturbance	evidence of feral animals, livestock tracks, vehicle tracks		
Vegetation condition	Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	25.0	Tree cover (%)	20.0
Shrub cover (%)	25.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (17)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		15.0	15.0
<i>Cratystylis conocephala</i>		5.0	1.5
<i>Atriplex vesicaria</i>		4.0	0.5
<i>Scaevola spinescens</i>		3.0	1.1
<i>Maireana sedifolia</i>		2.0	1.2
<i>Maireana triptera</i>		2.0	0.3
<i>Eucalyptus transcontinentalis</i>		1.0	11.0
<i>Exocarpos aphyllus</i>		1.0	3.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.5
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		1.0	0.4
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.5	1.5
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>		0.5	1.0
<i>Eremophila longifolia</i>		0.1	1.7
<i>Acacia hemiteles</i>		0.1	1.4
<i>Abutilon cryptopetalum</i>		0.1	0.3
<i>Siemssenia capillaris</i>		0.1	0.2
<i>Sida fibulifera</i>		0.1	0.02

Site details			
Site	KOR005	Position (WGS84)	121.5578062543048, -30.737693100048595
Slope	gentle	Topography	undulating plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz, sandstone

Observation details - visit 1 (25 Mar 2024)

Site description	Low <i>Casuarina obesa</i> woodland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Acacia hemiteles</i> and <i>Eremophila oppositifolia</i> shrubland over isolated low <i>Atriplex nummularia</i> subsp. <i>spathulata</i> and <i>Maireana triptera</i> shrubs.		
Habitat	woodland		
Disturbance	historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	30.0	Tree cover (%)	10.0
Shrub cover (%)	20.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	25 Mar 2024	unbounded	Grant Wells

Species (9)	Status	Cover (%)	Height (m)
<i>Casuarina obesa</i>		10.0	7.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		10.0	1.7
<i>Eremophila oppositifolia</i> subsp. <i>oppositifolia</i>		3.0	1.8
<i>Scaevola spinescens</i>		3.0	1.0
<i>Acacia hemiteles</i>		2.0	1.5
<i>Exocarpos aphyllus</i>		0.5	1.7
<i>Acacia tetragonophylla</i>		0.1	1.5
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.1	0.5
<i>Maireana triptera</i>		0.1	0.3

Site details			
Site	KOR006	Position (WGS84)	121.567418992538, -30.66039693933951
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (26 Mar 2024)

Site description	Open low <i>Eucalyptus ravidia</i> forest over mid open <i>Eremophila pustulata</i> , <i>Maireana sedifolia</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland over isolated low <i>Atriplex vesicaria</i> , <i>Maireana triptera</i> and <i>Enchylaena tomentosa</i> shrubs.
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Habitat	woodland
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Disturbance	evidence of feral animals, historic clearing, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	50.0	Tree cover (%)	30.0
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Shrub cover (%)	25.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Eucalyptus ravida</i>		30.0	8.0
<i>Eremophila pustulata</i>		20.0	1.2
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		3.0	1.6
<i>Maireana sedifolia</i>		3.0	1.4
<i>Alyxia buxifolia</i>		0.1	2.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	1.5
<i>Acacia erinacea</i>		0.1	1.2
<i>Lycium australe</i>		0.1	1.0
<i>Enchylaena tomentosa</i>		0.1	0.5
<i>Atriplex vesicaria</i>		0.1	0.5
<i>Maireana triptera</i>		0.1	0.3

Site details			
Site	KOR007	Position (WGS84)	121.56551673014, -30.65989890585267
Slope	moderate	Topography	hill slope
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	calcrete, ferrous - ironstone

Observation details - visit 1 (26 Mar 2024)

Site description	Low open <i>Eucalyptus griffithsii</i> mallee woodland over isolated tall <i>Casuarina obesa</i> shrubs over mid open <i>Eremophila pustulata</i> , <i>Acacia densiflora</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland.		
Habitat	open woodland		
Disturbance	evidence of feral animals, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	8.0
Shrub cover (%)	30.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (10)	Status	Cover (%)	Height (m)
<i>Eremophila pustulata</i>		20.0	1.5
<i>Eucalyptus griffithsii</i>		8.0	7.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		3.0	1.8
<i>Casuarina obesa</i>		1.0	6.0
<i>Acacia densiflora</i>		1.0	1.5
<i>Westringia rigida</i>		0.2	0.5
<i>Exocarpos aphyllus</i>		0.1	2.0
<i>Acacia erinacea</i>		0.1	0.6
<i>Scaevola spinescens</i>		0.1	0.5
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.4

Site details			
Site	KOR008	Position (WGS84)	121.5637099378912, -30.662018898562987
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low open <i>Casuarina obesa</i> woodland over mid open <i>Acacia densiflora</i> , <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> and <i>Dodonaea lobulata</i> shrubland over isolated low <i>Scaevola spinescens</i> , <i>Ptilotus obovatus</i> and <i>Maireana triptera</i> shrubs.		
Habitat	open woodland		
Disturbance	evidence of feral animals		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	30.0	Tree cover (%)	5.0
Shrub cover (%)	30.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Casuarina obesa</i>		5.0	8.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		5.0	2.0
<i>Acacia densiflora</i>		5.0	1.2
<i>Dodonaea lobulata</i>		3.0	1.8
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		3.0	1.7
<i>Scaevola spinescens</i>		1.0	0.9
<i>Ptilotus obovatus</i>		0.5	0.4
<i>Maireana triptera</i>		0.5	0.3
<i>Santalum spicatum</i>		0.2	1.8
<i>Grevillea acuaria</i>		0.1	1.0
<i>Maireana sedifolia</i>		0.1	0.5

Site details			
Site	KOR009	Position (WGS84)	121.5661052297088, -30.676123985449177
Slope	gentle	Topography	undulating plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	calcrete, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Mid <i>Eucalyptus salmonophloia</i> woodland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> and <i>Santalum acuminatum</i> shrubland over sparse low <i>Maireana sedifolia</i> , <i>Atriplex vesicaria</i> and <i>Scaevola spinescens</i> shrubland.		
Habitat	woodland		
Disturbance	evidence of feral animals, historic clearing, litter, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	20.0	Tree cover (%)	15.0
Shrub cover (%)	10.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (12)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		15.0	15.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		3.0	1.5
<i>Atriplex vesicaria</i>		3.0	0.5
<i>Santalum acuminatum</i>		2.0	2.0
<i>Maireana sedifolia</i>		2.0	1.0
<i>Casuarina obesa</i>		1.0	5.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		1.0	2.0
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		1.0	1.0
<i>Scaevola spinescens</i>		1.0	1.0
<i>Acacia hemiteles</i>		0.2	1.5
<i>Eremophila georgei</i>		0.1	1.1
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.4

Site details			
Site	KOR010	Position (WGS84)	121.5662958158567, -30.687011247001802
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus ravida</i> woodland over mid open <i>Eremophila pustulata</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Maireana sedifolia</i> shrubland over low sparse <i>Atriplex vesicaria</i> , <i>Maireana triptera</i> and <i>Sclerolaena diacantha</i> shrubland.		
Habitat	woodland		
Disturbance	evidence of feral animals, historic clearing, litter, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	40.0	Tree cover (%)	20.0
Shrub cover (%)	25.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary

Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Eucalyptus ravidia</i>		20.0	8.0
<i>Eremophila pustulata</i>		10.0	1.4
<i>Maireana sedifolia</i>		4.0	1.1
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		2.0	1.8
<i>Atriplex vesicaria</i>		2.0	0.4
<i>Maireana triptera</i>		2.0	0.3
<i>Sclerolaena diacantha</i>		0.5	0.2
<i>Eremophila interstans</i> subsp. <i>interstans</i>		0.1	2.8
<i>Eremophila oppositifolia</i> subsp. <i>oppositifolia</i>		0.1	1.8
<i>Acacia erinacea</i>		0.1	1.0
<i>Eremophila glabra</i> subsp. <i>glabra</i>		0.1	0.8

Site details			
Site	KOR011	Position (WGS84)	121.5651491460381, -30.69425326775263
Slope	gentle	Topography	hill slope
Soil colour	red-orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone, granite - rocks

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus stricklandii</i> and <i>Casuarina obesa</i> woodland over tall open <i>Acacia burkittii</i> , <i>Santalum spicatum</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> shrubland over mid open <i>Acacia densiflora</i> , <i>Scaevola spinescens</i> and <i>Eremophila clarkei</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, livestock tracks
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Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	40.0	Tree cover (%)	15.0
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Shrub cover (%)	30.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (16)	Status	Cover (%)	Height (m)
<i>Eucalyptus stricklandii</i>		10.0	6.0
<i>Acacia burkittii</i>		7.0	3.0
<i>Casuarina obesa</i>		5.0	5.0
<i>Scaevola spinescens</i>		5.0	1.5
<i>Acacia densiflora</i>		4.0	1.2
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		3.0	3.4
<i>Santalum spicatum</i>		2.0	3.0
<i>Eremophila clarkei</i>		1.0	1.2
<i>Acacia tetragonophylla</i>		0.5	1.8
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.5	1.5
<i>Alyxia buxifolia</i>		0.2	2.0
<i>Dodonaea lobulata</i>		0.2	1.5
<i>Grevillea acuaria</i>		0.2	1.2
<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>		0.1	0.7
<i>Prostanthera grylloana</i>		0.1	0.6
<i>Westringia rigida</i>		0.1	0.5

Site details			
Site	KOR012	Position (WGS84)	121.5652575675250, -30.698727997633746
Slope	gentle	Topography	undulating plain
Soil colour	red-orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus stricklandii</i> , <i>E. celastroides</i> subsp. <i>celastroides</i> woodland with <i>E. salmonophloia</i> over mid open <i>Eremophila pustulata</i> , <i>Maireana sedifolia</i> and <i>Eremophila scoparia</i> shrubland over low isolated <i>Atriplex vesicaria</i> , <i>Maireana triptera</i> and <i>Olearia muelleri</i> shrubs.		
Habitat	woodland		
Disturbance	evidence of feral animals, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	20.0
Shrub cover (%)	20.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (15)	Status	Cover (%)	Height (m)
<i>Eucalyptus stricklandii</i>		10.0	8.0
<i>Eremophila pustulata</i>		10.0	1.3
<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>		7.0	5.0
<i>Eucalyptus salmonophloia</i>		3.0	12.0
<i>Maireana sedifolia</i>		3.0	1.2
<i>Atriplex vesicaria</i>		2.0	0.5
<i>Eremophila scoparia</i>		1.0	1.6
<i>Maireana triptera</i>		1.0	0.3
<i>Olearia muelleri</i>		0.5	0.3
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	1.9
<i>Exocarpos aphyllus</i>		0.1	1.7
<i>Eremophila oppositifolia</i> subsp. <i>oppositifolia</i>		0.1	1.5
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.1	1.4
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		0.1	1.0
<i>Rhagodia eremaea</i>		0.1	0.5

Site details			
Site	KOR013	Position (WGS84)	121.5665591912493, -30.704761720930353
Slope	gentle	Topography	hill slope
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	granite - rocks, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Tall <i>Acacia sibirica</i> , <i>Casuarina obesa</i> and <i>A. burkittii</i> shrubland over sparse mid <i>Eremophila granitica</i> , <i>Scaevola spinescens</i> and <i>Prostanthera grylloana</i> shrubland over isolated low <i>Dodonaea lobulata</i> , <i>Ptilotus obovatus</i> and <i>Westringia rigida</i> shrubs.		
Habitat	shrubland		
Disturbance	historic clearing, vehicle tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	45.0	Tree cover (%)	0.0
Shrub cover (%)	45.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (17)	Status	Cover (%)	Height (m)
<i>Acacia sibirica</i>		15.0	2.5
<i>Casuarina obesa</i>		7.0	3.0
<i>Acacia burkittii</i>		6.0	3.0
<i>Acacia tetragonophylla</i>		3.0	2.5
<i>Eremophila granitica</i>		3.0	1.5
<i>Scaevola spinescens</i>		2.0	1.3
<i>Prostanthera grylloana</i>		1.0	1.2
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	4.0
<i>Santalum spicatum</i>		0.1	3.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.1	1.2
<i>Acacia hemiteles</i>		0.1	1.0
<i>Dodonaea lobulata</i>		0.1	0.5
<i>Westringia rigida</i>		0.1	0.4
<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>		0.1	0.4
<i>Ptilotus obovatus</i>		0.1	0.4
<i>Triodia scariosa</i>		0.1	0.25
<i>Cheilanthes sieberi</i>		0.1	0.1

Site details			
Site	KOR014	Position (WGS84)	121.5643253129704, -30.711880136399483
Slope	gentle	Topography	drainage line
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz, sandstone

Observation details - visit 1 (26 Mar 2024)

Site description	Mid <i>Eucalyptus griffithsii</i> mallee woodland over tall <i>Casuarina obesa</i> , <i>Acacia burkittii</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> shrubland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Exocarpos aphyllus</i> and <i>Scaevola spinescens</i> shrubland.		
Habitat	woodland		
Disturbance	evidence of feral animals, excavation, grazing-low, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	45.0	Tree cover (%)	12.0
Shrub cover (%)	35.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary

Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (19)	Status	Cover (%)	Height (m)
<i>Eucalyptus griffithsii</i>		15.0	11.0
<i>Acacia burkittii</i>		15.0	3.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		6.0	1.5
<i>Casuarina obesa</i>		3.0	4.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		3.0	3.0
<i>Scaevola spinescens</i>		3.0	1.0
<i>Exocarpos aphyllus</i>		2.0	1.5
<i>Acacia oswaldii</i>		1.0	4.0
<i>Dodonaea lobulata</i>		0.5	1.5
<i>Alectryon oleifolius</i>		0.2	3.0
<i>Santalum spicatum</i>		0.2	2.0
<i>Eremophila alternifolia</i>		0.2	1.5
<i>Eremophila pustulata</i>		0.1	1.5
<i>Maireana sedifolia</i>		0.1	1.2
<i>Eremophila granitica</i>		0.1	1.0
<i>Eremophila</i> sp.		0.1	1.0
<i>Olearia pimeleoides</i>		0.1	1.0
<i>Ptilotus obovatus</i>		0.1	0.3
<i>Maireana triptera</i>		0.1	0.25

Site details			
Site	KOR015	Position (WGS84)	121.5672984441044, -30.717385209754504
Slope	moderate	Topography	hill slope
Soil colour	red-brown, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	calcrete, granite - rocks

Observation details - visit 1 (26 Mar 2024)

Site description	Low open <i>Eucalyptus lesouefii</i> woodland over tall open <i>Melaleuca sheathiana</i> shrubland over isolated low <i>Acacia erinacea</i> shrubs.
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Habitat	open woodland
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Disturbance	erosion channels, excavation, historic clearing, large-scale clearing, litter, vehicle tracks
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Vegetation condition	Degraded	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	15.0	Tree cover (%)	8.0
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Shrub cover (%)	10.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Melaleuca sheathiana</i>		10.0	3.0
<i>Eucalyptus lesouefii</i>		8.0	9.0
<i>Acacia erinacea</i>		0.2	0.5
<i>Cryptandra connata</i>		0.1	1.3
<i>Dodonaea stenozyga</i>		0.1	1.1
<i>Eremophila pustulata</i>		0.1	1.0
<i>Stenanthemum stipulosum</i>		0.1	1.0
<i>Eremophila</i> sp.		0.1	0.6
<i>Dodonaea lobulata</i>		0.1	0.5
<i>Maireana pentatropis</i>		0.1	0.4
<i>Olearia muelleri</i>		0.1	0.3

Site details			
Site	KOR016	Position (WGS84)	121.5616397929564, -30.725133711342927
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	calcrete, ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low open <i>Eucalyptus griffithsii</i> woodland over tall open <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubland over mid sparse <i>Acacia hemiteles</i> , <i>Atriplex nummularia</i> subsp. <i>spathulata</i> and <i>Maireana sedifolia</i> shrubland.		
Habitat	open woodland		
Disturbance	evidence of feral animals, historic clearing, large-scale clearing, litter, vehicle tracks		
Vegetation condition	Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	20.0	Tree cover (%)	7.0
Shrub cover (%)	15.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Eremophila interstans</i> subsp. <i>interstans</i>		10.0	3.5
<i>Eucalyptus griffithsii</i>		7.0	6.0
<i>Acacia hemiteles</i>		2.0	1.9
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		2.0	1.7
<i>Maireana sedifolia</i>		1.0	1.6
<i>Westringia rigida</i>		0.2	0.6
<i>Atriplex vesicaria</i>		0.2	0.4
<i>Dodonaea lobulata</i>		0.1	1.5
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.1	1.1
<i>Acacia erinacea</i>		0.1	1.0
<i>Scaevola spinescens</i>		0.1	1.0

Site details			
Site	KOR017	Position (WGS84)	121.5647420347567, -30.727778019794194
Slope	gentle	Topography	undulating plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Isolated low <i>Casuarina obesa</i> trees over isolated tall <i>Acacia oswaldii</i> , <i>Eremophila longifolia</i> and <i>E. oldfieldii</i> subsp. <i>angustifolia</i> shrubs over low open <i>Atriplex vesicaria</i> , <i>Scaevola spinescens</i> and <i>Maireana triptera</i> shrubland.
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Habitat	shrubland
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Disturbance	erosion channels, evidence of feral animals, grazing-medium, historic clearing, large-scale clearing, livestock tracks, vehicle tracks
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Vegetation condition	Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	3.0
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Shrub cover (%)	25.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (7)	Status	Cover (%)	Height (m)
<i>Atriplex vesicaria</i>		7.0	0.4
<i>Scaevola spinescens</i>		3.0	0.5
<i>Casuarina obesa</i>		2.0	5.0
<i>Acacia oswaldii</i>		2.0	3.0
<i>Eremophila longifolia</i>		2.0	2.1
<i>Maireana triptera</i>		2.0	0.3
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		1.0	2.1

Site details			
Site	KOR018	Position (WGS84)	121.5637293021347, -30.714099368098086
Slope	moderate	Topography	hill slope
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	granite - rocks, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus lesouefii</i> woodland over mid open <i>Eremophila pustulata</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland over isolated low <i>Scaevola spinescens</i> shrubs.
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Habitat	woodland
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Disturbance	exploration (drill pads and access tracks), historic clearing, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	30.0	Tree cover (%)	15.0
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Shrub cover (%)	20.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (7)	Status	Cover (%)	Height (m)
<i>Eucalyptus lesouefii</i>		15.0	8.0
<i>Eremophila pustulata</i>		15.0	1.2
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.4
<i>Scaevola spinescens</i>		1.0	0.5
<i>Acacia erinacea</i>		0.1	1.3
<i>Cryptandra connata</i>		0.1	1.0
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.1	1.0

Site details			
Site	KOR019	Position (WGS84)	121.5627045513714, -30.715372165127604
Slope	gentle	Topography	hill top
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low open <i>Eucalyptus stricklandii</i> and <i>Casuarina obesa</i> woodland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Scaevola spinescens</i> and <i>Acacia tetragonophylla</i> shrubland over isolated low <i>Dodonaea lobulata</i> , <i>Westringia rigida</i> and <i>Ptilotus obovatus</i> shrubs.
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Habitat	open woodland
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Disturbance	evidence of feral animals, excavation, exploration (drill pads and access tracks), historic clearing, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	7.0
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Shrub cover (%)	20.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (18)	Status	Cover (%)	Height (m)
<i>Eucalyptus stricklandii</i>		5.0	6.0
<i>Acacia tetragonophylla</i>		5.0	1.8
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		5.0	1.5
<i>Scaevola spinescens</i>		5.0	1.3
<i>Casuarina obesa</i>		2.0	5.0
<i>Cryptandra connata</i>		1.0	1.5
<i>Dodonaea lobulata</i>		0.2	1.0
<i>Westringia rigida</i>		0.2	0.4
<i>Hakea recurva</i> subsp. <i>recurva</i>		0.1	2.5
<i>Santalum spicatum</i>		0.1	2.0
<i>Alyxia buxifolia</i>		0.1	1.7
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	1.2
<i>Acacia erinacea</i>		0.1	1.0
<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>		0.1	0.8
<i>Eremophila granitica</i>		0.1	0.7
<i>Ptilotus obovatus</i>		0.1	0.3
<i>Cheilanthes lasiophylla</i>		0.1	0.1
<i>Euphorbia drummondii</i>		0.1	0.01

Site details			
Site	KOR020	Position (WGS84)	121.5558619473508, -30.71182049342356
Slope	negligible	Topography	plain
Soil colour	red-brown	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Mid <i>Eucalyptus lesouefii</i> and <i>E. salmonophloia</i> woodland over isolated tall <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubs over low open <i>Maireana sedifolia</i> , <i>Atriplex vesicaria</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland.
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Habitat	woodland
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Disturbance	exploration (drill pads and access tracks), historic clearing, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	15.0
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Shrub cover (%)	12.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (15)	Status	Cover (%)	Height (m)
<i>Eucalyptus lesouefii</i>		13.0	11.0
<i>Maireana sedifolia</i>		6.0	1.4
<i>Atriplex vesicaria</i>		3.0	0.6
<i>Eucalyptus salmonophloia</i>		2.0	15.0
<i>Eremophila interstans</i> subsp. <i>interstans</i>		1.0	2.5
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.2
<i>Scaevola spinescens</i>		0.2	0.5
<i>Casuarina obesa</i>		0.1	2.5
<i>Exocarpos aphyllus</i>		0.1	2.0
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		0.1	1.2
<i>Acacia erinacea</i>		0.1	1.0
<i>Eremophila</i> sp.		0.1	1.0
<i>Leichhardtia australis</i>		0.1	1.0
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.8
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	0.5

Site details			
Site	KOR022	Position (WGS84)	121.557131432753, -30.70206469594484
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus salmonophloia</i> and <i>E. stricklandii</i> woodland over isolated mid <i>Atriplex nummularia</i> subsp. <i>spathulata</i> , <i>Eremophila scoparia</i> and <i>E. oldfieldii</i> subsp. <i>angustifolia</i> shrubs over low open <i>Atriplex vesicaria</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, grazing-medium, historic clearing, litter, livestock tracks, vehicle tracks, weed infestation
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Vegetation condition	Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	12.0
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Shrub cover (%)	15.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (13)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		10.0	10.0
<i>Atriplex vesicaria</i>		10.0	0.5
<i>Eucalyptus stricklandii</i>		2.0	10.0
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		2.0	1.2
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		1.0	1.8
<i>Eremophila scoparia</i>		1.0	1.5
<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>		0.1	3.5
<i>Exocarpos aphyllus</i>		0.1	1.5
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.1	1.2
<i>Maireana pyramidata</i>		0.1	0.4
<i>Solanum lasiophyllum</i>		0.1	0.4
<i>Maireana triptera</i>		0.1	0.3
* <i>Carrichtera annua</i>	Weed	0.1	0.1

Site details			
Site	KOR023	Position (WGS84)	121.56379463, -30.69997077
Slope	moderate	Topography	hill top
Soil colour	orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus stricklandii</i> woodland over mid open <i>Acacia densiflora</i> and <i>A. hemiteles</i> shrubland over low sparse <i>Scaevola spinescens</i> and <i>Westringia rigida</i> shrubland.
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Habitat	woodland
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Disturbance	none evident
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Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	30.0	Tree cover (%)	15.0
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Shrub cover (%)	20.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (5)	Status	Cover (%)	Height (m)
<i>Eucalyptus stricklandii</i>		15.0	8.0
<i>Acacia densiflora</i>		10.0	1.8
<i>Acacia hemiteles</i>		5.0	1.2
<i>Scaevola spinescens</i>		5.0	0.5
<i>Westringia rigida</i>		1.0	0.6

Site details			
Site	KOR024	Position (WGS84)	121.5443627124138, -30.680636039049087
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Mid <i>Eucalyptus salmonophloia</i> and <i>E. ravidia</i> woodland over isolated mid <i>Eremophila scoparia</i> shrubs over low open <i>Atriplex vesicaria</i> , <i>Maireana pyramidata</i> and <i>M. triptera</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, historic clearing, large-scale clearing, litter, livestock tracks, vehicle tracks, weed infestation
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Vegetation condition	Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	20.0	Tree cover (%)	10.0
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Shrub cover (%)	10.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (13)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		9.0	15.0
<i>Atriplex vesicaria</i>		5.0	0.3
<i>Maireana pyramidata</i>		3.0	0.5
<i>Eucalyptus ravida</i>		1.0	10.0
<i>Maireana triptera</i>		1.0	0.3
<i>Eremophila scoparia</i>		0.1	1.2
<i>Acacia hemiteles</i>		0.1	1.0
<i>Cratystylis subspinescens</i>		0.1	1.0
<i>Lycium australe</i>		0.1	1.0
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>		0.1	1.0
<i>Maireana sedifolia</i>		0.1	0.4
<i>Enchylaena tomentosa</i>		0.1	0.3
<i>Minuria cunninghamii</i>		0.1	0.2

Site details			
Site	KOR025	Position (WGS84)	121.5476493640362, -30.648527242890793
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Casuarina obesa</i> woodland over mid <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>S. artemisioides</i> subsp. <i>x artemisioides</i> and <i>Maireana sedifolia</i> shrubland over isolated low <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> , <i>Scaevola spinescens</i> and <i>Maireana triptera</i> shrubs.		
Habitat	woodland		
Disturbance	livestock tracks, vehicle tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	10.0
Shrub cover (%)	30.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (8)	Status	Cover (%)	Height (m)
<i>Casuarina obesa</i>		10.0	7.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		7.0	1.5
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		5.0	1.7
<i>Maireana sedifolia</i>		2.0	1.5
<i>Scaevola spinescens</i>		2.0	0.8
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.5	0.4
<i>Maireana triptera</i>		0.5	0.3
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.1	1.0

Site details			
Site	KOR026	Position (WGS84)	121.5464704672877, -30.651485246434927
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (26 Mar 2024)

Site description	Low <i>Eucalyptus ravid</i> a woodland over mid open <i>Eremophila pustulata</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Maireana sedifolia</i> shrubland, over isolated low <i>Atriplex vesicaria</i> , <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> and <i>Maireana triptera</i> shrubs.		
Habitat	woodland		
Disturbance	grazing-low, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	20.0
Shrub cover (%)	20.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	26 Mar 2024	unbounded	Grant Wells

Species (12)	Status	Cover (%)	Height (m)
<i>Eucalyptus ravida</i>		20.0	6.0
<i>Eremophila pustulata</i>		15.0	1.3
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.5
<i>Maireana sedifolia</i>		0.1	1.2
<i>Acacia densiflora</i>		0.1	1.0
<i>Eremophila</i> sp.		0.1	1.0
<i>Acacia erinacea</i>		0.1	0.8
<i>Scaevola spinescens</i>		0.1	0.6
<i>Atriplex vesicaria</i>		0.1	0.3
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.3
<i>Maireana glomerifolia</i>		0.1	0.3
<i>Maireana triptera</i>		0.1	0.2

Site details			
Site	KOR027	Position (WGS84)	121.6443577783776, -30.731855336921715
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus salubris</i> woodland over isolated tall <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubs over mid open <i>Maireana sedifolia</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, historic clearing, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	20.0	Tree cover (%)	10.0
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Shrub cover (%)	15.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (12)	Status	Cover (%)	Height (m)
<i>Maireana sedifolia</i>		15.0	1.2
<i>Eucalyptus salubris</i>		10.0	7.0
<i>Eremophila interstans</i> subsp. <i>interstans</i>		1.0	2.5
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		0.1	1.3
<i>Eremophila scoparia</i>		0.1	1.2
<i>Atriplex vesicaria</i>		0.1	0.4
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.3
<i>Maireana triptera</i>		0.1	0.25
<i>Ptilotus obovatus</i>		0.1	0.2
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>		0.1	0.15
<i>Sclerolaena diacantha</i>		0.1	0.1
<i>Sida fibulifera</i>		0.1	0.02

Site details			
Site	KOR028	Position (WGS84)	121.6431267624715, -30.732481156851847
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Tall <i>Acacia burkittii</i> shrubland over isolated mid <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Santalum spicatum</i> and <i>Lycium australe</i> over low isolated <i>Enchylaena tomentosa</i> , <i>Senna cardiosperma</i> and <i>Ptilotus obovatus</i> shrubs.		
Habitat	shrubland		
Disturbance	evidence of feral animals, grazing-low, livestock tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	55.0	Tree cover (%)	0.0
Shrub cover (%)	55.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (16)	Status	Cover (%)	Height (m)
<i>Acacia burkittii</i>		40.0	3.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		1.0	1.8
<i>Santalum spicatum</i>		0.2	2.0
<i>Ptilotus obovatus</i>		0.2	0.3
<i>Eremophila longifolia</i>		0.1	1.8
<i>Lycium australe</i>		0.1	1.2
<i>Rhagodia drummondii</i>		0.1	1.2
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		0.1	1.0
<i>Vincetoxicum lineare</i>		0.1	1.0
<i>Senna cardiosperma</i>		0.1	1.0
<i>Amyema preissii</i>		0.1	0.7
<i>Enchylaena tomentosa</i>		0.1	0.5
<i>Maireana triptera</i>		0.1	0.2
<i>Siemssenia capillaris</i>		0.1	0.2
<i>Cheilanthes sieberi</i>		0.1	0.1
<i>Solanum lasiophyllum</i>		0.1	0.05

Site details			
Site	KOR029	Position (WGS84)	121.6500303459042, -30.711977377238604
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Tall open <i>Grevillea nematophylla</i> subsp. <i>nematophylla</i> , <i>Acacia burkittii</i> and <i>Alectryon oleifolius</i> shrubland over mid open <i>Acacia hemiteles</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Maireana pyramidata</i> shrubland over low isolated <i>Ptilotus obovatus</i> , <i>Maireana triptera</i> and <i>Enchylaena tomentosa</i> shrubs.
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Habitat	shrubland
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Disturbance	evidence of feral animals, exploration (drill pads and access tracks), historic clearing, litter, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	0.0
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Shrub cover (%)	25.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (14)	Status	Cover (%)	Height (m)
<i>Acacia burkittii</i>		8.0	3.5
<i>Grevillea nematophylla</i> subsp. <i>nematophylla</i>		4.0	5.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		3.0	1.2
<i>Acacia hemiteles</i>		2.0	1.5
<i>Maireana pyramidata</i>		2.0	1.0
<i>Alectryon oleifolius</i>		1.0	2.5
<i>Olearia pimeleoides</i>		0.5	1.1
<i>Ptilotus obovatus</i>		0.5	0.5
<i>Maireana triptera</i>		0.5	0.4
<i>Acacia tetragonophylla</i>		0.2	2.0
<i>Casuarina obesa</i>		0.1	2.5
<i>Eremophila granitica</i>		0.1	1.2
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		0.1	0.7
<i>Enchylaena tomentosa</i>		0.1	0.6

Site details			
Site	KOR030	Position (WGS84)	121.6459726278967, -30.71182569851286
Slope	gentle	Topography	drainage line
Soil colour	red-orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Mid <i>Eucalyptus salmonophloia</i> woodland with <i>E. salubris</i> and <i>E. celastroides</i> subsp. <i>celastroides</i> over isolated tall <i>Casuarina obesa</i> , <i>Eremophila alternifolia</i> and <i>Pittosporum angustifolium</i> shrubs over isolated mid <i>Acacia hemiteles</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila interstans</i> subsp. <i>virgata</i> shrubs.
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Habitat	woodland
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Disturbance	evidence of feral animals, exploration (drill pads and access tracks), grazing-low, historic clearing, large-scale clearing, litter, livestock tracks, vehicle tracks
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Vegetation condition	Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	25.0	Tree cover (%)	20.0
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Shrub cover (%)	7.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (16)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		15.0	20.0
<i>Eucalyptus salubris</i>		5.0	10.0
<i>Acacia hemiteles</i>		0.5	1.2
<i>Eremophila alternifolia</i>		0.2	2.0
<i>Acacia tetragonophylla</i>		0.2	1.9
<i>Eremophila interstans</i> subsp. <i>virgata</i>		0.2	1.7
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		0.2	1.5
<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>		0.1	6.0
<i>Casuarina obesa</i>		0.1	4.0
<i>Pittosporum angustifolium</i>		0.1	3.0
<i>Acacia burkittii</i>		0.1	1.8
<i>Eremophila ionantha</i>		0.1	1.2
<i>Eremophila</i> sp.		0.1	0.5
<i>Enchylaena tomentosa</i>		0.1	0.3
<i>Ptilotus obovatus</i>		0.1	0.3
<i>Paspalidium constrictum</i>		0.1	0.15

Site details			
Site	KOR031	Position (WGS84)	121.6419403317745, -30.706508589345425
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	quartz

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus salubris</i> and <i>Casuarina obesa</i> woodland over mid open <i>Acacia burkittii</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Maireana sedifolia</i> shrubland over isolated low <i>Ptilotus obovatus</i> and <i>Maireana triptera</i> shrubs.
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Habitat	woodland
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Disturbance	grazing-medium, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	moderate (5-10 years)
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Total veg. cover (%)	45.0	Tree cover (%)	15.0
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Shrub cover (%)	35.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (13)	Status	Cover (%)	Height (m)
<i>Eucalyptus salubris</i>		10.0	8.0
<i>Maireana sedifolia</i>		6.0	1.4
<i>Casuarina obesa</i>		5.0	7.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		5.0	1.8
<i>Acacia burkittii</i>		4.0	1.8
<i>Ptilotus obovatus</i>		2.0	0.4
<i>Eremophila interstans</i> subsp. <i>virgata</i>		1.0	1.8
<i>Eremophila ionantha</i>		1.0	1.7
<i>Eremophila</i> sp.		1.0	1.2
<i>Santalum spicatum</i>		0.5	2.0
<i>Maireana triptera</i>		0.5	0.4
<i>Cratystylis subspinescens</i>		0.1	1.3
<i>Exocarpos aphyllus</i>		0.1	1.0

Site details			
Site	KOR032	Position (WGS84)	121.642427606167, -30.710187065070564
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus salubris</i> woodland over isolated tall <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubs over low open <i>Maireana sedifolia</i> , <i>Templetonia ceracea</i> and <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> shrubland.		
Habitat	woodland		
Disturbance	evidence of feral animals, grazing-low, litter, livestock tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	25.0	Tree cover (%)	15.0
Shrub cover (%)	15.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (5)	Status	Cover (%)	Height (m)
<i>Eucalyptus salubris</i>		15.0	5.0
<i>Maireana sedifolia</i>		14.0	0.9
<i>Eremophila interstans</i> subsp. <i>interstans</i>		1.0	3.0
<i>Templetonia ceracea</i>		1.0	0.8
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.2	0.4

Site details			
Site	KOR033	Position (WGS84)	121.6495236857192, -30.71907750256225
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Isolated low <i>Eucalyptus salubris</i> trees over tall open <i>Acacia burkittii</i> , <i>Casuarina obesa</i> and <i>Santalum spicatum</i> shrubland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Eremophila scoparia</i> and <i>Acacia hemiteles</i> shrubland.		
Habitat	shrubland		
Disturbance	evidence of feral animals, excavation, exploration (drill pads and access tracks), grazing-low, historic clearing, litter, livestock tracks, vehicle tracks		
Vegetation condition	Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	25.0	Tree cover (%)	2.0
Shrub cover (%)	25.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (15)	Status	Cover (%)	Height (m)
<i>Acacia burkittii</i>		6.0	3.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		4.0	1.5
<i>Eremophila scoparia</i>		4.0	1.2
<i>Acacia hemiteles</i>		3.0	1.6
<i>Eucalyptus salubris</i>		2.0	4.0
<i>Casuarina obesa</i>		2.0	4.0
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		1.0	1.0
<i>Ptilotus obovatus</i>		1.0	0.4
<i>Eremophila</i> sp.		0.5	1.0
<i>Maireana triptera</i>		0.5	0.3
<i>Santalum spicatum</i>		0.2	2.0
<i>Eremophila interstans</i> subsp. <i>interstans</i>		0.2	2.0
<i>Rhagodia drummondii</i>		0.2	1.0
<i>Eremophila longifolia</i>		0.1	1.7
<i>Dissocarpus paradoxus</i>		0.1	0.15

Site details			
Site	KOR034	Position (WGS84)	121.6426862999073, -30.721464402794116
Slope	gentle	Topography	depression
Soil colour	red-orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (27 Mar 2024)

Site description	Isolated low <i>Pittosporum angustifolium</i> trees over mid open <i>Maireana pyramidata</i> , <i>Eremophila interstans</i> subsp. <i>virgata</i> and <i>Eremophila glabra</i> subsp. <i>glabra</i> shrubland over isolated low * <i>Salvia verbenaca</i> , * <i>Carrichtera annua</i> and <i>Minuria cunninghamii</i> forbs.
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Habitat	shrubland
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Disturbance	evidence of feral animals, grazing-medium, litter, livestock tracks, vehicle tracks, weed infestation
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Vegetation condition	Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	15.0	Tree cover (%)	0.0
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Shrub cover (%)	10.0	Grass cover (%)	0.0
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Herb cover (%)	5.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Maireana pyramidata</i>		4.0	1.0
<i>Eremophila interstans</i> subsp. <i>virgata</i>		3.0	1.2
* <i>Salvia verbenaca</i>	Weed	3.0	0.1
<i>Pittosporum angustifolium</i>		1.0	3.0
<i>Eremophila glabra</i> subsp. <i>glabra</i>		1.0	1.0
* <i>Carrichtera annua</i>	Weed	1.0	0.1
<i>Ptilotus obovatus</i>		0.2	0.3
<i>Minuria cunninghamii</i>		0.1	0.2
<i>Brachyscome ciliaris</i>		0.1	0.1
<i>Marsilea drummondii</i>		0.1	0.1
<i>Notisia intonsa</i>	P3 (DBCA list)	0.1	0.1

Site details			
Site	KOR035	Position (WGS84)	121.6486856836848, -30.72276121304264
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Isolated low <i>Eucalyptus salubris</i> trees over tall <i>Acacia burkittii</i> , <i>Grevillea nematophylla</i> subsp. <i>nematophylla</i> and <i>Casuarina obesa</i> shrubland over mid sparse <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland.
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Habitat	shrubland
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Disturbance	evidence of feral animals, excavation, exploration (drill pads and access tracks), grazing-low, historic clearing, litter, livestock tracks, vehicle tracks
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Vegetation condition	Good	Fire age	old (5-10 years)
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Total veg. cover (%)	35.0	Tree cover (%)	2.0
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Shrub cover (%)	35.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (5)	Status	Cover (%)	Height (m)
<i>Acacia burkittii</i>		25.0	2.5
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		6.0	1.2
<i>Grevillea nematophylla</i> subsp. <i>nematophylla</i>		4.0	3.0
<i>Casuarina obesa</i>		3.0	4.0
<i>Eucalyptus salubris</i>		2.0	9.0

Site details			
Site	KOR036	Position (WGS84)	121.6461210253145, -30.723241703617663
Slope	negligible	Topography	plain
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Mid <i>Eucalyptus salubris</i> woodland over isolated tall <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubs over mid sparse <i>Maireana sedifolia</i> and <i>M. pyramidata</i> shrubland.
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Habitat	woodland
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Disturbance	evidence of feral animals, grazing-low, historic clearing, livestock tracks, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	20.0	Tree cover (%)	15.0
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Shrub cover (%)	10.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (4)	Status	Cover (%)	Height (m)
<i>Eucalyptus salubris</i>		15.0	13.0
<i>Maireana sedifolia</i>		7.0	1.3
<i>Maireana pyramidata</i>		2.0	1.1
<i>Eremophila interstans</i> subsp. <i>interstans</i>		1.0	2.3

Site details			
Site	KOR037	Position (WGS84)	121.622228744883, -30.74987190506217
Slope	gentle	Topography	drainage line
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus salubris</i> and <i>E. celastroides</i> subsp. <i>celastroides</i> woodland over mid open <i>Eremophila interstans</i> subsp. <i>virgata</i> and <i>Templetonia ceracea</i> shrubland over low sparse <i>Atriplex vesicaria</i> and <i>Frankenia</i> sp. shrubland.		
Habitat	woodland		
Disturbance	historic clearing, livestock tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	25.0	Tree cover (%)	10.0
Shrub cover (%)	15.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (8)	Status	Cover (%)	Height (m)
<i>Eremophila interstans</i> subsp. <i>virgata</i>		10.0	1.8
<i>Eucalyptus salubris</i>		8.0	5.0
<i>Atriplex vesicaria</i>		4.0	0.3
<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>		2.0	4.0
<i>Frankenia</i> sp.		2.0	0.15
<i>Templetonia ceracea</i>		1.0	1.0
<i>Exocarpos aphyllus</i>		0.2	1.8
<i>Grevillea acuarria</i>		0.1	0.6

Site details			
Site	KOR038	Position (WGS84)	121.622295880293, -30.751537385820978
Slope	gentle	Topography	hill slope
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (27 Mar 2024)

Site description	Mid <i>Eucalyptus salubris</i> woodland with <i>E. transcontinentalis</i> over mid sparse <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubland over isolated low <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> shrubs.
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Habitat	woodland
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Disturbance	historic clearing, vehicle tracks
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Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	15.0	Tree cover (%)	12.0
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Shrub cover (%)	10.0	Grass cover (%)	0.1
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Herb cover (%)	0.1
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (10)	Status	Cover (%)	Height (m)
<i>Eucalyptus ravida</i>		10.0	11.0
<i>Eremophila interstans</i> subsp. <i>interstans</i>		8.0	1.9
<i>Eucalyptus transcontinentalis</i>		2.0	25.0
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		2.0	0.4
<i>Acacia erinacea</i>		0.2	1.0
<i>Santalum acuminatum</i>		0.1	1.6
<i>Acacia hemiteles</i>		0.1	1.0
<i>Grevillea acuaria</i>		0.1	0.6
<i>Scaevola spinescens</i>		0.1	0.3
<i>Sclerolaena fusiformis</i>		0.1	0.1

Site details			
Site	KOR039	Position (WGS84)	121.622612969506, -30.754569843644212
Slope	gentle	Topography	hill top
Soil colour	red-orange	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, granite - rocks

Observation details - visit 1 (27 Mar 2024)

Site description	Mid <i>Eucalyptus griffithsii</i> and <i>E. lesouefii</i> woodland over isolated tall <i>Santalum spicatum</i> shrubs over mid open <i>Acacia densiflora</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> shrubland.		
Habitat	woodland		
Disturbance	vehicle tracks		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	35.0	Tree cover (%)	15.0
Shrub cover (%)	25.0	Grass cover (%)	0.1
Herb cover (%)	0.1		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (13)	Status	Cover (%)	Height (m)
<i>Eucalyptus griffithsii</i>		10.0	12.0
<i>Acacia densiflora</i>		10.0	1.8
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		6.0	1.5
<i>Eucalyptus lesouefii</i>		5.0	15.0
<i>Santalum spicatum</i>		2.0	2.5
<i>Scaevola spinescens</i>		1.0	0.5
<i>Exocarpos aphyllus</i>		0.2	2.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		0.2	1.6
<i>Alyxia buxifolia</i>		0.2	1.3
<i>Leichhardtia australis</i>		0.1	2.0
<i>Grevillea acuaria</i>		0.1	1.0
<i>Acacia erinacea</i>		0.1	1.0
<i>Triodia scariosa</i>		0.1	0.25

Site details			
Site	KOR040	Position (WGS84)	121.6185246735307, -30.752533271875304
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Isolated mid <i>Eucalyptus griffithsii</i> and <i>E. oleosa</i> subsp. <i>oleosa</i> trees over tall <i>Acacia burkittii</i> shrubland over mid <i>Eremophila granitica</i> , <i>Scaevola spinescens</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland.		
Habitat	shrubland		
Disturbance	none evident		
Vegetation condition	Excellent	Fire age	old (5-10 years)
Total veg. cover (%)	60.0	Tree cover (%)	5.0
Shrub cover (%)	55.0	Grass cover (%)	0.0
Herb cover (%)	0.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (6)	Status	Cover (%)	Height (m)
<i>Acacia burkittii</i>		30.0	2.8
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		15.0	1.4
<i>Eremophila granitica</i>		10.0	1.5
<i>Scaevola spinescens</i>		10.0	1.2
<i>Eucalyptus griffithsii</i>		3.0	10.0
<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>		2.0	8.0

Site details			
Site	KOR041	Position (WGS84)	121.6155229100540, -30.748647024805937
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, whitish	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	none

Observation details - visit 1 (27 Mar 2024)

Site description	Mid <i>Eucalyptus ravida</i> and <i>E. salmonophloia</i> woodland over tall sparse <i>Eremophila interstans</i> subsp. <i>interstans</i> , <i>Melaleuca sheathiana</i> and <i>Eremophila dempsteri</i> shrubland over low <i>Eremophila pustulata</i> , <i>Atriplex vesicaria</i> and <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> shrubland.		
Habitat	woodland		
Disturbance	none evident		
Vegetation condition	Excellent	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	50.0	Tree cover (%)	30.0
Shrub cover (%)	30.0	Grass cover (%)	0.0
Herb cover (%)	0.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (11)	Status	Cover (%)	Height (m)
<i>Eucalyptus ravida</i>		20.0	15.0
<i>Eremophila pustulata</i>		20.0	0.8
<i>Eremophila interstans</i> subsp. <i>interstans</i>		7.0	2.5
<i>Eucalyptus salmonophloia</i>		5.0	15.0
<i>Melaleuca sheathiana</i>		2.0	3.0
<i>Eremophila dempsteri</i>		1.0	2.5
<i>Atriplex vesicaria</i>		0.3	0.5
<i>Exocarpos aphyllus</i>		0.1	1.5
<i>Lycium australe</i>		0.1	1.2
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		0.1	0.4
<i>Maireana triptera</i>		0.1	0.3

Site details			
Site	KOR042	Position (WGS84)	121.586734877605, -30.748548291221084
Slope	moderate	Topography	hill slope
Soil colour	red-brown	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Tall sparse <i>Casuarina obesa</i> shrubland over mid open <i>Acacia densiflora</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> shrubland over isolated low <i>Scaevola spinescens</i> , <i>Dodonaea lobulata</i> and <i>Alyxia buxifolia</i> shrubs.
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Habitat	shrubland
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Disturbance	litter, vehicle tracks
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Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	40.0	Tree cover (%)	0.0
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Shrub cover (%)	40.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (7)	Status	Cover (%)	Height (m)
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		10.0	1.2
<i>Casuarina obesa</i>		8.0	4.0
<i>Acacia densiflora</i>		7.0	1.5
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		3.0	1.7
<i>Scaevola spinescens</i>		2.0	0.7
<i>Dodonaea lobulata</i>		0.5	0.5
<i>Alyxia buxifolia</i>		0.2	0.7

Site details			
Site	KOR043	Position (WGS84)	121.58908372880, -30.74970358291648
Slope	moderate	Topography	hill slope
Soil colour	sandy clay	Soil texture	sandy clay
Rock cover (%)	0	Rock type	ferrous - ironstone

Observation details - visit 1 (27 Mar 2024)

Site description	Isolated mid <i>Eucalyptus stricklandii</i> trees over tall sparse <i>Casuarina obesa</i> and <i>Acacia mulganeura</i> shrubland over mid open <i>Acacia densiflora</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> shrubland over isolated low <i>Scaevola spinescens</i> , <i>Dodonaea lobulata</i> and <i>Alyxia buxifolia</i> shrubs.		
Habitat	shrubland		
Disturbance	erosion channels, exploration (drill pads and access tracks), vehicle tracks		
Vegetation condition	Very Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	40.0	Tree cover (%)	3.0
Shrub cover (%)	40.0	Grass cover (%)	0.0
Herb cover (%)	0.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (9)	Status	Cover (%)	Height (m)
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		15.0	1.4
<i>Casuarina obesa</i>		7.0	5.0
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		5.0	1.2
<i>Acacia densiflora</i>		4.0	1.3
<i>Eucalyptus stricklandii</i>		3.0	11.0
<i>Scaevola spinescens</i>		3.0	0.6
<i>Acacia mulganeura</i> (hybrid)		0.5	2.1
<i>Alyxia buxifolia</i>		0.2	0.8
<i>Dodonaea lobulata</i>		0.2	0.5

Site details			
Site	KOR044	Position (WGS84)	121.5935320600545, -30.747971555360337
Slope	gentle	Topography	undulating plain
Soil colour	red-orange, white	Soil texture	sandy clay, sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (27 Mar 2024)

Site description	Mid open <i>Eucalyptus salmonophloia</i> woodland over isolated tall <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubs over mid open <i>Eremophila scoparia</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Acacia hemiteles</i> shrubland over isolated <i>Atriplex vesicaria</i> , <i>Scaevola spinescens</i> and <i>Olearia muelleri</i> shrubs.		
Habitat	open woodland		
Disturbance	evidence of feral animals, grazing-low, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Good	Fire age	long-unburnt (>10 years)
Total veg. cover (%)	30.0	Tree cover (%)	15.0
Shrub cover (%)	20.0	Grass cover (%)	0.0
Herb cover (%)	0.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (8)	Status	Cover (%)	Height (m)
<i>Eucalyptus salmonophloia</i>		15.0	12.0
<i>Eremophila scoparia</i>		10.0	1.2
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		5.0	1.5
<i>Acacia hemiteles</i>		2.0	1.5
<i>Eremophila interstans</i> subsp. <i>interstans</i>		1.5	2.5
<i>Scaevola spinescens</i>		1.0	0.5
<i>Atriplex vesicaria</i>		1.0	0.4
<i>Olearia muelleri</i>		0.5	0.3

Site details			
Site	KOR045	Position (WGS84)	121.5998314185946, -30.75235432677144
Slope	gentle	Topography	hill top
Soil colour	red-orange, whitish	Soil texture	sandy clay
Rock cover (%)	0	Rock type	granite - rocks

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus griffithsii</i> and <i>E. lesouefii</i> woodland over tall sparse <i>Eremophila interstans</i> subsp. <i>interstans</i> shrubland over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Stenanthemum stipulosum</i> and <i>Atriplex nummularia</i> subsp. <i>spathulata</i> shrubland over low open <i>Westringia rigida</i> , <i>Scaevola spinescens</i> and <i>Dodonaea lobulata</i> shrubland.		
Habitat	woodland		
Disturbance	exploration (drill pads and access tracks), vehicle tracks		
Vegetation condition		Fire age	long-unburnt (>10 years)
Total veg. cover (%)	50.0	Tree cover (%)	20.0
Shrub cover (%)	30.0	Grass cover (%)	0.0
Herb cover (%)	0.0		



Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (9)	Status	Cover (%)	Height (m)
<i>Eucalyptus lesouefii</i>		10.0	9.0
<i>Eucalyptus griffithsii</i>		10.0	7.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		8.0	1.5
<i>Scaevola spinescens</i>		8.0	0.6
<i>Eremophila interstans</i> subsp. <i>interstans</i>		6.0	2.3
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		3.0	1.2
<i>Dodonaea lobulata</i>		2.0	0.6
<i>Westringia rigida</i>		0.5	0.5
<i>Stenanthemum stipulosum</i>		0.1	1.0

Site details			
Site	KOR046	Position (WGS84)	121.6045130319969, -30.7494589452858
Slope	moderate	Topography	hill slope
Soil colour	red-orange	Soil texture	sandy loam
Rock cover (%)	0	Rock type	ferrous - ironstone, quartz

Observation details - visit 1 (27 Mar 2024)

Site description	Low <i>Eucalyptus griffithsii</i> and <i>E. lesouefii</i> woodland over isolated tall <i>Casuarina obesa</i> shrubs over mid open <i>Senna artemisioides</i> subsp. <i>filifolia</i> shrubland over low <i>Eremophila parvifolia</i> subsp. <i>auricampi</i> , <i>Scaevola spinescens</i> and <i>Acacia erinacea</i> shrubland.
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Habitat	woodland
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Disturbance	exploration (drill pads and access tracks), vehicle tracks
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Vegetation condition		Fire age	long-unburnt (>10 years)
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Total veg. cover (%)	50.0	Tree cover (%)	30.0
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Shrub cover (%)	35.0	Grass cover (%)	0.0
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Herb cover (%)	0.0
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Sample and effort summary				
Sample method	Visit	Sample date	Dimensions	Observer
Relevé	1	27 Mar 2024	unbounded	Grant Wells

Species (7)	Status	Cover (%)	Height (m)
<i>Scaevola spinescens</i>		20.0	0.7
<i>Eucalyptus griffithsii</i>		15.0	9.0
<i>Eucalyptus lesouefii</i>		15.0	9.0
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		10.0	1.5
<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>		10.0	0.8
<i>Casuarina obesa</i>		2.0	4.0
<i>Acacia erinacea</i>		1.0	1.0

Appendix 3 NVIS hierarchy

Western Australia Current Practice			National Standard		
Hierarchy of terms	Brief description in WA	Indicative scale	NVIS Level	Description	NVIS structural/floristic components required
Vegetation formation	Structure and growth form – e.g. Forest, Woodland.	1:5 000 000	I	Class	Dominant growth form for the ecologically or structurally dominant stratum.
Vegetation sub-formation	Structural and dominant vegetation layer - Eucalypt Forest, <i>Banksia</i> Woodland.	1:2 500 000 I	II	Structural Formation	Dominant growth form, cover and height for the ecologically or structurally dominant stratum.
Vegetation association	Structural form and dominant species – e.g. Medium woodland; York gum (<i>Eucalyptus loxophleba</i>) & Wandoo.	1:1 000 000 to 1:250 000	III	Broad Floristic Formation	Dominant growth form, cover, height and dominant land cover genus for the uppermost or dominant stratum.
Vegetation complex	Structural and floristic description linked to geomorphology – e.g. Quindalup Complex.	1:250 000 to 1:100 000	IV	Sub-Formation	Dominant growth form, cover, height and dominant genus and Family for the 3 traditional strata. (i.e. Upper, Mid and Ground).
Vegetation type	Floristic definition by strata with structural detail. Often represented with a code and floristic description.	1:100 000 to 1:10 000	V	Association	Dominant growth form, height, cover and up to 3 species for the 3 traditional strata. (i.e. Upper, Mid and Ground).
Plant community	Basic unit of vegetation classification, site specific and highly localised with detailed floristics for each stratum.	1:10 000	VI	Sub-Association	Dominant growth form, height, cover and up to 5 species for all layers/ strata.
Floristic Community Type	Floristic composition definition; e.g. Northern banksia woodlands over herb rich shrublands on the Swan Coastal Plain.	No absolute scale			

Appendix 4 Introduced flora identified in the desktop review

Family	Name	Declared Pest/WoNS
Aizoaceae	* <i>Aizoon pubescens</i>	
Aizoaceae	* <i>Mesembryanthemum crystallinum</i>	
Aizoaceae	* <i>Mesembryanthemum nodiflorum</i>	
Amaranthaceae	* <i>Amaranthus viridis</i>	
Anacardiaceae	* <i>Schinus molle</i> var. <i>areira</i>	
Apocynaceae	* <i>Asclepias curassavica</i>	
Apocynaceae	* <i>Orbea variegata</i>	
Asparagaceae	* <i>Agave americana</i>	
Asteraceae	* <i>Arctotheca calendula</i>	
Asteraceae	* <i>Carduus tenuiflorus</i>	
Asteraceae	* <i>Carthamus lanatus</i>	
Asteraceae	* <i>Centaurea melitensis</i>	
Asteraceae	* <i>Cichorium intybus</i>	
Asteraceae	* <i>Erigeron bonariensis</i>	
Asteraceae	* <i>Gazania linearis</i>	
Asteraceae	* <i>Helianthus annuus</i>	
Asteraceae	* <i>Lactuca serriola</i> forma <i>serriola</i>	
Asteraceae	* <i>Leontodon rhagadioloides</i>	
Asteraceae	* <i>Monoculus monstrosus</i>	
Asteraceae	* <i>Oligocarpus calendulaceus</i>	
Asteraceae	* <i>Oncosiphon suffruticosum</i>	
Asteraceae	* <i>Sonchus oleraceus</i>	
Asteraceae	* <i>Symphotrichum squamatum</i>	
Asteraceae	* <i>Xanthium spinosum</i>	Declared pest, S22(2) (C2, C3)
Boraginaceae	* <i>Buglossoides arvensis</i>	
Boraginaceae	* <i>Echium plantagineum</i>	Declared pest, S22(2) (C3)
Boraginaceae	* <i>Heliotropium europaeum</i>	
Boraginaceae	* <i>Heliotropium supinum</i>	
Brassicaceae	* <i>Alyssum linifolium</i>	
Brassicaceae	* <i>Brassica tournefortii</i>	
Brassicaceae	* <i>Capsella bursa-pastoris</i>	
Brassicaceae	* <i>Carrichtera annua</i>	
Brassicaceae	* <i>Sisymbrium erysimoides</i>	
Brassicaceae	* <i>Sisymbrium irio</i>	
Brassicaceae	* <i>Sisymbrium orientale</i>	
Cactaceae	* <i>Cylindropuntia fulgida</i> var. <i>mamillata</i>	Declared pest, S22(2) (C3), WoNS
Cactaceae	* <i>Cylindropuntia imbricata</i>	Declared pest, S22(2) (C3), WoNS
Cactaceae	* <i>Cylindropuntia kleiniae</i>	Declared pest, S22(2) (C3), WoNS
Cactaceae	* <i>Opuntia elata</i>	Declared pest, S22(2) (C3), WoNS
Cactaceae	* <i>Opuntia ficus-indica</i>	Declared pest, S22(2) (C3), WoNS
Caryophyllaceae	* <i>Spergularia diandra</i>	

Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd

Chenopodiaceae	* <i>Chenopodium album</i>	
Chenopodiaceae	* <i>Chenopodium murale</i>	
Crassulaceae	* <i>Bryophyllum delagoense</i>	
Cucurbitaceae	* <i>Citrullus colocynthis</i>	
Cucurbitaceae	* <i>Cucumis myriocarpus</i> subsp. <i>myriocarpus</i>	
Didiereaceae	* <i>Portulacaria afra</i>	
Fabaceae	* <i>Alhagi maurorum</i>	Declared pest, S22(2) (C3)
Fabaceae	* <i>Erythrostemon gilliesii</i>	
Fabaceae	* <i>Medicago laciniata</i>	
Fabaceae	* <i>Medicago minima</i>	
Fabaceae	* <i>Medicago polymorpha</i>	
Geraniaceae	* <i>Erodium aureum</i>	
Geraniaceae	* <i>Erodium cicutarium</i>	
Lamiaceae	* <i>Marrubium vulgare</i>	
Lamiaceae	* <i>Salvia reflexa</i>	
Lamiaceae	* <i>Salvia verbenaca</i>	
Lythraceae	* <i>Lythrum hyssopifolia</i>	
Malvaceae	* <i>Malva parviflora</i>	
Martyniaceae	* <i>Proboscidea louisianica</i>	
Meliaceae	* <i>Melia azedarach</i>	
Oxalidaceae	* <i>Oxalis bowiei</i>	
Oxalidaceae	* <i>Oxalis pes-caprae</i>	
Papaveraceae	* <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	
Poaceae	* <i>Bromus catharticus</i>	
Poaceae	* <i>Bromus diandrus</i>	
Poaceae	* <i>Cenchrus ciliaris</i>	
Poaceae	* <i>Cenchrus setaceus</i>	
Poaceae	* <i>Ehrharta villosa</i>	
Poaceae	* <i>Eragrostis curvula</i>	
Poaceae	* <i>Hordeum glaucum</i>	
Poaceae	* <i>Hordeum leporinum</i>	
Poaceae	* <i>Pennisetum villosum</i>	
Poaceae	* <i>Phalaris paradoxa</i>	
Poaceae	* <i>Rostraria pumila</i>	
Poaceae	* <i>Schismus arabicus</i>	
Poaceae	* <i>Schismus barbatus</i>	
Poaceae	* <i>Sorghum halepense</i>	
Polygonaceae	* <i>Polygonum aviculare</i>	
Polygonaceae	* <i>Rumex vesicarius</i>	
Primulaceae	* <i>Lysimachia arvensis</i>	
Resedaceae	* <i>Reseda luteola</i>	
Solanaceae	* <i>Datura ferox</i>	

Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd

Solanaceae	* <i>Datura innoxia</i>	
Solanaceae	* <i>Lycium ferocissimum</i>	WoNS
Solanaceae	* <i>Solanum nigrum</i>	
Tamaricaceae	* <i>Tamarix aphylla</i>	Declared pest, S12 (C1)
Tamaricaceae	* <i>Tamarix chinensis</i>	Declared pest, S12 (C1)
Urticaceae	* <i>Urtica urens</i>	
Verbenaceae	* <i>Phyla canescens</i>	
Zygophyllaceae	* <i>Tribulus terrestris</i>	

Appendix 5 Flora species inventory

Family	Species	Status
Amaranthaceae	<i>Ptilotus obovatus</i>	
Apocynaceae	<i>Alyxia buxifolia</i> <i>Leichhardtia australis</i> <i>Vincetoxicum lineare</i>	
Asteraceae	<i>Brachyscome ciliaris</i> <i>Cratystylis conocephala</i> <i>Cratystylis subspinescens</i> <i>Minuria cunninghamii</i> <i>Notisia intonsa</i> <i>Olearia muelleri</i> <i>Olearia pimeleoides</i> <i>Siemssenia capillaris</i>	P3 (DBCA list),
Brassicaceae	* <i>Carrichtera annua</i>	Weed,
Casuarinaceae	<i>Casuarina obesa</i>	
Chenopodiaceae	<i>Atriplex nummularia</i> subsp. <i>spathulata</i> <i>Atriplex stipitata</i> <i>Atriplex vesicaria</i> <i>Dissocarpus paradoxus</i> <i>Enchylaena tomentosa</i> <i>Maireana glomerifolia</i> <i>Maireana pentatropis</i> <i>Maireana pyramidata</i> <i>Maireana sedifolia</i> <i>Maireana triptera</i> <i>Maireana tomentosa</i> subsp. <i>tomentosa</i> <i>Rhagodia drummondii</i> <i>Rhagodia eremaea</i> <i>Sclerolaena diacantha</i> <i>Sclerolaena fusiformis</i>	
Euphorbiaceae	<i>Euphorbia drummondii</i>	
Fabaceae	<i>Acacia burkittii</i> <i>Acacia densiflora</i> <i>Acacia erinacea</i> <i>Acacia hemiteles</i> <i>Acacia mulganeura</i> (hybrid) <i>Acacia nyssophylla</i> <i>Acacia oswaldii</i> <i>Acacia sibirica</i> <i>Acacia tetragonophylla</i> <i>Senna artemisioides</i> subsp. <i>filifolia</i> <i>Senna artemisioides</i> subsp. <i>x artemisioides</i> <i>Senna cardiosperma</i> <i>Templetonia ceracea</i>	
Frankeniaceae	<i>Frankenia</i> sp.	

**Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd**

Goodeniaceae	<i>Scaevola spinescens</i>	
Lamiaceae	* <i>Salvia verbenaca</i> <i>Prostanthera althoferi</i> subsp. <i>althoferi</i> <i>Prostanthera grylloana</i> <i>Westringia rigida</i>	Weed,
Loranthaceae	<i>Amyema preissii</i>	
Malvaceae	<i>Abutilon cryptopetalum</i> <i>Sida fibulifera</i>	
Marsileaceae	<i>Marsilea drummondii</i>	
Myrtaceae	<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> <i>Eucalyptus griffithsii</i> <i>Eucalyptus lesouefii</i> <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i> <i>Eucalyptus ravida</i> <i>Eucalyptus salmonophloia</i> <i>Eucalyptus salubris</i> <i>Eucalyptus stricklandii</i> <i>Eucalyptus transcontinentalis</i> <i>Melaleuca sheathiana</i>	
Pittosporaceae	<i>Pittosporum angustifolium</i>	
Poaceae	<i>Paspalidium constrictum</i> <i>Triodia scariosa</i>	
Proteaceae	<i>Grevillea acuaria</i> <i>Grevillea nematophylla</i> subsp. <i>nematophylla</i> <i>Hakea recurva</i> subsp. <i>recurva</i>	
Pteridaceae	<i>Cheilanthes lasiophylla</i> <i>Cheilanthes sieberi</i>	
Rhamnaceae	<i>Cryptandra connata</i> <i>Stenanthemum stipulosum</i>	
Santalaceae	<i>Exocarpos aphyllus</i> <i>Santalum acuminatum</i> <i>Santalum spicatum</i>	
Sapindaceae	<i>Alectryon oleifolius</i> <i>Dodonaea lobulata</i> <i>Dodonaea stenozyga</i>	
Scrophulariaceae	<i>Eremophila alternifolia</i> <i>Eremophila clarkei</i> <i>Eremophila decipiens</i> subsp. <i>decipiens</i> <i>Eremophila dempsteri</i> <i>Eremophila georgei</i> <i>Eremophila glabra</i> subsp. <i>glabra</i> <i>Eremophila granitica</i> <i>Eremophila interstans</i> subsp. <i>interstans</i> <i>Eremophila interstans</i> subsp. <i>virgata</i> <i>Eremophila ionantha</i> <i>Eremophila longifolia</i> <i>Eremophila maculata</i> subsp. <i>brevifolia</i>	P2 (DBCA list),

**Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project
Prepared for Northern Star Resources Ltd**

	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	
	<i>Eremophila oppositifolia</i> subsp. <i>oppositifolia</i>	
	<i>Eremophila parvifolia</i> subsp. <i>auricampa</i>	
	<i>Eremophila praecox</i>	
	<i>Eremophila pustulata</i>	
	<i>Eremophila scoparia</i>	
	<i>Eremophila</i> sp.	
Solanaceae	<i>Lycium australe</i>	
	* <i>Lycium ferocissimum</i>	Weed (WoNS),
	<i>Solanum lasiophyllum</i>	
Thymelaeaceae	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	

