



DETAILED FLORA AND VEGETATION ASSESSMENT

MOUNT GIBSON GOLD PROJECT

**TETRIS ENVIRONMENTAL PTY LTD
FOR CRIMSON METALS PTY LTD**

JULY 2023

This document and the information contained herein has been prepared by Focused Vision Consulting Pty Ltd under the terms and conditions of its contract with the client identified on the cover page and to the requirements of that client, and no representation is made to any third party. This report may not be distributed to any third party without the specific written permission of Focused Vision Consulting Pty Ltd. The information presented in this report is relevant at the time of production and its applicability is limited to the context of the scope of work to which it pertains. This report and its information may be cited for the purposes of scientific research or other fair use but except as permitted under the *Copyright Act 1968* (Cth), no part of or the whole of this document is permitted to be used, exploited, duplicated, reproduced, or copied by any process, electronic or otherwise, without the specific written permission of Focused Vision Consulting Pty Ltd.

Focused Vision Consulting Pty Ltd
ABN 25 605 804 500

Document History

Rev.	Author	Reviewed	Approved	Date
A	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kristen Bleby Senior Ecologist		06/04/2023
B	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kristen Bleby Senior Ecologist	Kellie Bauer-Simpson Principal Ecologist	14/04/2023
C	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kristen Bleby Senior Ecologist Kellie Bauer-Simpson Principal Ecologist	Kellie Bauer-Simpson Principal Ecologist	15/04/2023
0	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kellie Bauer-Simpson Principal Ecologist Olga Nazarova Botanist	Kellie Bauer-Simpson Principal Ecologist	20/06/2023
1	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kellie Bauer-Simpson Principal Ecologist	Kellie Bauer-Simpson Principal Ecologist	30/06/2023
2	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kellie Bauer-Simpson Principal Ecologist	Kellie Bauer-Simpson Principal Ecologist	03/07/2023
3	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kellie Bauer-Simpson Principal Ecologist	Kellie Bauer-Simpson Principal Ecologist	13/07/2023
4	Julie Fielder Senior Botanist Megan Gray Ecologist Lisa Chappell Senior Botanist/Environmental Scientist	Kellie Bauer-Simpson Principal Ecologist	Kellie Bauer-Simpson Principal Ecologist	25/07/2023

Table of Contents

Executive Summary.....	vi
1 Introduction.....	1
1.1 Background.....	1
1.2 Location.....	1
1.3 Scope of Work.....	1
2 Legislative Context.....	3
1.1 Threatened and Priority Flora.....	3
1.2 IUCN Red List Species.....	5
2.1 Threatened and Priority Ecological Communities.....	6
2.2 Vegetation Clearing, Extent and Status.....	6
2.3 Environmentally Sensitive Areas.....	6
2.4 Introduced Flora.....	7
2.4.1 Weeds of National Significance.....	7
2.4.2 Declared Pest Plants.....	7
2.4.3 Environmental Weeds.....	7
3 Existing Environment.....	8
3.1 Climate.....	8
3.2 IBRA Region.....	8
3.3 Land Systems.....	10
3.4 Geology and Soils.....	12
3.5 Vegetation.....	15
3.5.1 Pre-European Vegetation.....	15
3.6 Wetlands and Drainage.....	18
3.7 Environmentally Sensitive Areas.....	18
3.8 Conservation Areas.....	18
4 Methodology.....	20
4.1 Desktop Assessment.....	20
4.1.1 Literature Review.....	20
4.1.2 Database Searches.....	21
4.2 Field Assessment.....	22
4.2.1 Sample Sites.....	24
4.2.2 Traverses.....	35
4.2.3 Targeted Significant Flora Surveys.....	35
4.2.4 Weeds.....	37
4.2.5 Flora Inventory.....	37
4.2.6 Vegetation Unit and Condition Mapping.....	37
4.2.7 Wheatbelt Woodlands Mapping.....	37
4.3 Data Processing and Reporting.....	38
4.3.1 Sampling Adequacy.....	38
4.4 Survey Limitations.....	39
5 Results.....	41
5.1 Desktop Assessment.....	41
5.1.1 Previous Flora and Vegetation Surveys.....	41
5.1.2 Threatened and Priority Flora.....	46

5.1.3	Threatened and Priority Ecological Communities.....	62
5.2	Field Assessment	64
5.2.1	Flora	64
5.2.2	Vegetation.....	74
5.2.3	Threatened and Priority Ecological Communities.....	101
6	Discussion.....	107
6.1	Flora.....	107
6.1.1	Floral Composition.....	107
6.1.2	Threatened and Priority Flora	108
6.1.3	Flora of Interest	130
6.1.4	Undescribed Flora	130
6.1.5	Range Extensions.....	130
6.1.6	Introduced Flora.....	131
6.2	Vegetation.....	132
6.2.1	Vegetation Units	132
6.2.2	Vegetation Condition.....	132
6.2.3	Threatened and Priority Ecological Communities.....	133
6.2.4	Significant Vegetation	134
7	Conclusions.....	135
8	List of Participants.....	137
9	References.....	139
	Appendix A - DBCA NatureMap Search Report.....	A1
	Appendix B - EPBC Protected Matters Search Report	B1
	Appendix C – List of Recorded Vascular Plants.....	C1
	Appendix D – Flora Species Recorded within Vegetation Units	D1
	Appendix E – Vegetation Quadrat Data	E1
	Appendix F – Wheatbelt Woodlands Key and Associated Canopy Species (TSSC 2015).....	F1

Tables

Table 1 - Definitions of Threatened and Priority Flora Species	4
Table 2 - Categories of EPBC Act Threatened Flora Species.....	5
Table 3 – Summary of Land Systems within the Survey Area.....	10
Table 4 – Geology of the Survey Area	12
Table 5 - Geology of the Mount Gibson Survey Area (Jones <i>et al.</i> 1997).....	13
Table 6 - Pre-European Vegetation of the Survey Area	16
Table 7 – Reserves and Conservation Areas within the Study Area (DCCEEW 2020; DBCA 2022b)	18
Table 8 - Likelihood of Occurrence Criteria.....	21
Table 9 – Relevant Surveys Conducted within or Adjacent to the 2023 Survey Area	23
Table 10 - Study Limitations	39
Table 11– Summary of Literature Review of Previous Surveys Near the Survey Area	41
Table 12 - Threatened and Priority Flora with the Potential to Occur within the Survey Area.....	47
Table 13 – Threatened and Priority Ecological Communities Known to Occur within 40 km of the Survey Area (DAWE 2021c).....	62
Table 14 – Recorded Threatened and Priority Flora.....	66

Table 15 – Recorded Undescribed Taxa	69
Table 16 – Recorded Range-Extending Flora	70
Table 17 – Recorded Introduced Flora	73
Table 18 – Summary of Recorded Vegetation Units.....	77
Table 19 - Vegetation Condition	91
Table 20 - Wheatbelt Woodlands Characterisation of Vegetation Units within the Survey Area	102
Table 21 - Condition Thresholds for Patches of Wheatbelt Woodlands.....	104
Table 22 - Patch Assessment Against Condition Thresholds for the Wheatbelt Woodlands	105
Table 24 – FVC Project Team	137
Table 25 – Other Contributors.....	138

Figures

Figure 1 – Survey Area.....	2
Figure 2 - Climate Data for Paynes Find (007139).....	8
Figure 3 - IBRA Subregions.....	9
Figure 4 - Land Systems.....	11
Figure 5 – Geology.....	14
Figure 6 - Pre-European Vegetation	17
Figure 7 – Environmentally Sensitive Areas and Conservation Areas.....	19
Figure 8 – Quadrat Locations.....	25
Figure 9 - Targeted Flora Search Traverses.....	36
Figure 10 - Threatened and Priority Flora (DBCAs 2021a).....	60
Figure 11 – Threatened and Priority Ecological Communities	63
Figure 12 - Species Accumulation Curves and Estimates	64
Figure 13 – Recorded Conservation-Significant Flora Locations	71
Figure 14 – Floristic Analysis Results.....	74
Figure 15 - Vegetation Units.....	82
Figure 16 – Vegetation Condition and Additional Recorded Weed Locations.....	92
Figure 17 - Wheatbelt Woodlands Characteristic Vegetation within and Adjacent to the Survey Area.....	103
Figure 18 – Eligible Wheatbelt Woodlands Patches	106
Figure 19 – <i>Acacia synoria</i> Known Distribution	110
Figure 20 – <i>Allocasuarina tessellata</i> Known Distribution	112
Figure 21 – <i>Alyxia tetanifolia</i> Known Distribution.....	113
Figure 22 – <i>Eremophila viscida</i> Known Distribution	117
Figure 23 – <i>Grevillea scabrida</i> Known Distribution.....	119
Figure 24 – <i>Hibbertia cockertoniana</i> Known Distribution.....	121
Figure 25 – <i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468) Known Distribution.....	122
Figure 26 – <i>Melichrus</i> sp. Bungalbin (F.H. & M.P. Mollemans 3069) Known Distribution.....	124
Figure 27 – <i>Persoonia pentasticha</i> Known Distribution.....	126
Figure 28 - <i>Philothea nutans</i> Known Distribution.....	128

EXECUTIVE SUMMARY

Tetris Environmental Pty Ltd (Tetris Environmental) are assisting Crimson Metals Pty Ltd (Crimson Metals) with progressing the recommissioning of the Mt Gibson Gold Project. The Mt Gibson Gold Project was operational between 1986 and 1999 and is currently in care and maintenance. To progress with recommissioning of the mine, flora and vegetation surveys are required to inform the environmental impact assessment and approvals process for the proposal.

The Mt Gibson Gold Project (the survey area) is within the Shire of Yalgoo, between the townsites of Wubin and Paynes Find, approximately 270 km north-east of Perth, Western Australia.

The survey area is 5 km east of the Great Northern Highway and consists of a northern and a southern survey area, which are less than 5 km apart. The survey area covers a total area of 4,150.026 ha, of which the southern section makes up 97.92% (4,063.84 ha) and the northern section covers the remaining 2.08% (86.19 ha).

On behalf of Crimson Metals, Tetris Environmental commissioned Focused Vision Consulting Pty Ltd (FVC) to undertake detailed and targeted flora and vegetation assessments, in accordance with Western Australian (WA) Environmental Protection Authority (EPA) Technical Guidance (EPA 2016a), during spring 2021 and spring 2022. Principal Botanist, Jenny Borger (JB Botanical Consulting) was also engaged to undertake and contribute to supplementary detailed and targeted flora and vegetation assessments in the survey area.

The key findings and conclusions arising from the flora and vegetation assessments within the survey area are as follows:

- The timing of the field assessments are considered to have been optimal based on volumes of rainfall in some of the months preceding the field assessments, the variety and abundance of annual flora and flowering observed and conditions observed on site.
- A total of 491 flora taxa were recorded during the field survey, 472 (96.13%) of which are native and 19 (3.87%) are introduced (weeds) (none of which are listed as Declared Pest (DP) plants or Weeds of National Significance (WoNS), with Myrtaceae, Asteraceae and Fabaceae found to be the dominant families.
- The following 11 Threatened or Priority flora species were recorded within the survey area:
 - *Eremophila viscida* (Threatened: *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); Endangered, *Biodiversity Conservation Act 2016* (BC Act); Endangered); two individuals recorded from vegetation unit 19
 - *Lepidosperma*?sp. Blue Hills (A. Markey & S. Dillon 3468) (likely Priority 1); 36 individuals recorded from two locations within vegetation units 11 and 24
 - *Philotheca nutans* (Priority 1); 8,216 individual plants recorded within the survey area (and 658 outside the survey area) across nine vegetation units and rehabilitation areas
 - *Acacia synoria* (Priority 2); 7,317 individuals recorded from four vegetation units within the survey area
 - *Alyxia tetanifolia* (Priority 3); two individuals recorded from vegetation units 5 and 17
 - *Allocasuarina tessellata* (Priority 3); 144 individuals recorded within the survey area (and 43 outside the survey area) from seven vegetation units
 - *Hibbertia cockertoniana* (Priority 3); 9,893 individuals recorded from 8 vegetation units
 - *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (Priority 3); 57 individuals recorded within the survey area (and 17 outside the survey area) from vegetation unit 22
 - *Grevillea scabrida* (Priority 3); 22 individuals recorded within the survey area (and 6,696 outside the survey area) from vegetation units 1, 19 and 27

- *Persoonia pentasticha* (Priority 3); 518 individuals recorded within the survey area (and 425 outside the survey area) from nine vegetation units and rehabilitation areas.
- Several individuals of *Santalum spicatum* (International Union for the Conservation of Nature (IUCN) Red List (Vulnerable) species) were recorded throughout much of the survey area.
- The following 11 undescribed taxa were recorded:
 - *Olearia* sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)
 - *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)
 - *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468)
 - *Drosera* sp. Branched styles (S.C. Coffey 193)
 - *Leucopogon* sp. Clyde Hill (M.A. Burgman 1207)
 - *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)
 - *Mirbelia* sp. Bursarioides (T.R. Lally 760)
 - *Senna* sp. Austin (A. Strid 20210)
 - *Microcorys* sp. Mt Gibson (S. Patrick 2098)
 - *Calytrix* sp. Paynes Find (F. & J. Hort 1188)
 - *Eremophila latrobei* subsp. warty leaves (M. Officer 230).
- Twenty-two species were found to be exhibiting an extension beyond their current documented range, with one of these one species, *Microcorys tenuifolia*, also a Priority (P) species (P3).
- Thirty-three vegetation units were described and mapped across the surveys, 29 of which occur within the survey area, determined from the analysis of floristic data from 85 quadrats and 14 relevés, and from field observations and aerial imagery.
- The high diversity of vegetation units defined and mapped reflects the complex local geology, although the majority of the vegetation units of the survey area are expected to be represented in the broader region.
- Vegetation condition was found to range from 'Excellent' to 'Completely Degraded', with some areas of 'Cleared' or 'Revegetation' status, 83.28% in 'Good' or better condition, and the majority (67.33%) considered to be in 'Excellent' condition, not having previously been subject to disturbance from mining operations or other impacts.
- Vegetation units 12 and 13, both broadly described as *Eucalyptus* woodlands (collectively occupying 474.96 ha (11.44%) of the survey area), support vegetation that is characteristic of the Wheatbelt woodlands ecological community, a Commonwealth-listed Threatened Ecological Community (TEC) and a State-listed Priority Ecological Community (PEC) (Priority 3), and within these areas, 21 patches occupying 468.71 ha (11.29% of the survey area) are of sufficient size and condition to be considered eligible for protection under the EPBC Act.
- In addition to vegetation units confirmed or suspected to represent significant ecological communities, vegetation units can also be considered to be of significance if they are restricted in their regional extent and/or distribution, or are limited in their remaining extent in comparison to their pre-European extent. The vegetation units that may be considered to be of significance due to relevant factors are:
 - vegetation units 12 and 13, due to representing a Commonwealth-listed TEC and a State-listed PEC (Wheatbelt woodlands)
 - vegetation units 12 and 20, due to occurring within a regional vegetation association that is under-represented, with less than 30% of its pre-European extent remaining.

1 INTRODUCTION

1.1 BACKGROUND

Tetris Environmental Pty Ltd (Tetris Environmental) are assisting Crimson Metals Pty Ltd (Crimson Metals) with progressing the recommissioning of the Mt Gibson Gold Project. The Mt Gibson Gold Project was operational between 1986 and 1999 and is currently in care and maintenance. To progress with recommissioning of the mine, flora and vegetation surveys are required to inform the environmental impact assessment and approvals process for this project. On behalf of Crimson Metals, Tetris Environmental commissioned Focused Vision Consulting Pty Ltd (FVC) to undertake a detailed flora and vegetation assessment during spring 2021 and spring 2022. Additional targeted surveys were conducted in 2022 and 2023 within and outside the survey area.

1.2 LOCATION

The Mt Gibson Gold Project (the survey area) is within the Shire of Yalgoo, between the townsites of Wubin and Paynes Find, approximately 270 km north-east of Perth, Western Australia.

The survey area is 5 km east of the Great Northern Highway and consists of a northern and a southern survey area, which are less than 5 km apart. The survey area covers a total area of 4,150.03 ha, of which the southern section makes up 97.92% (4,063.84 ha) and the northern section covers the remaining 2.08% (86.19 ha) (**Figure 1**). The area within a 40 km buffer of the survey area is referred to as the 'study area', which was addressed in the desktop assessment.

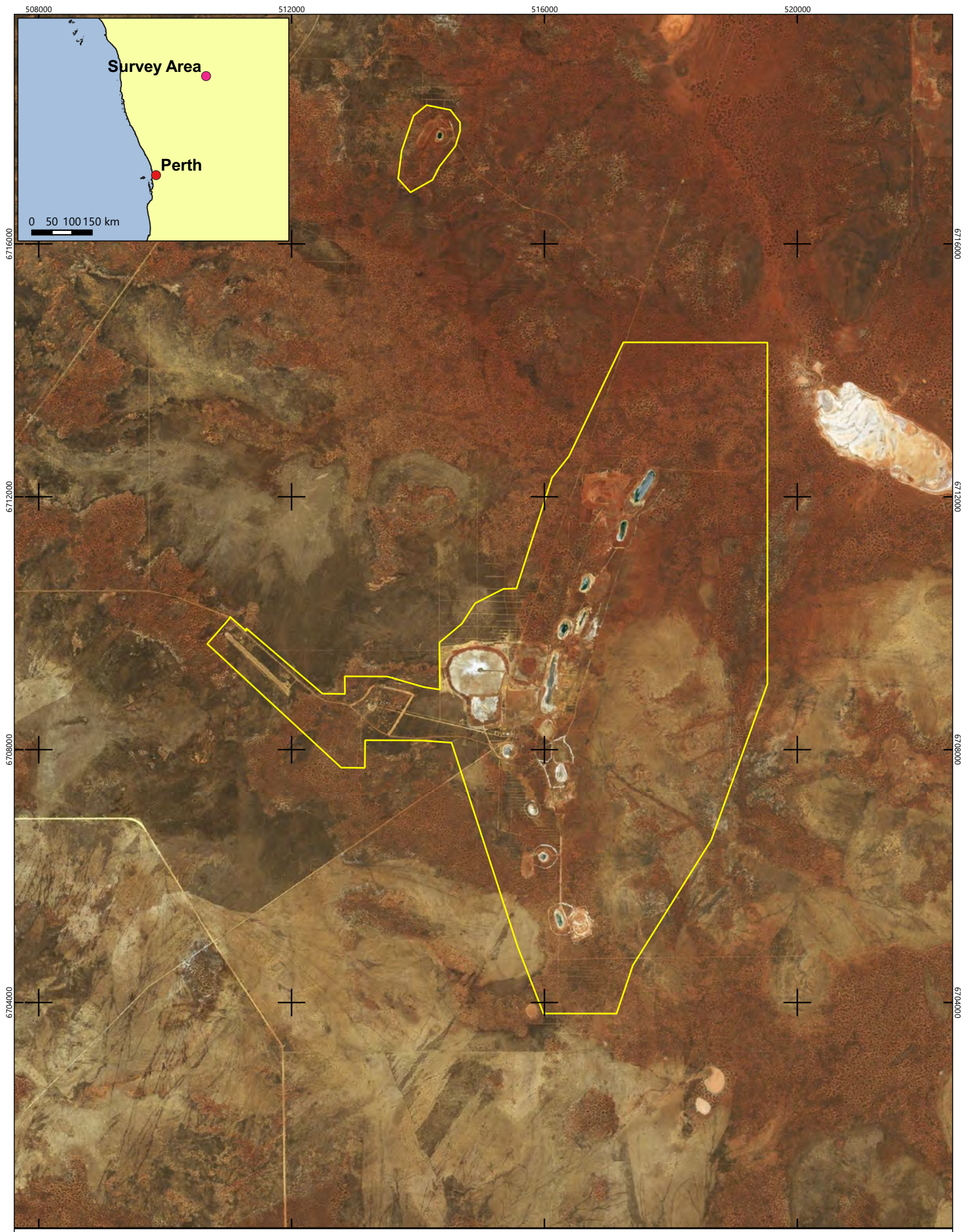
1.3 SCOPE OF WORK

Surveying followed the guidelines for Flora and Vegetation assessments in Western Australia as described in:

- **Environmental Factor Guideline - Flora and Vegetation** (EPA 2016a)
- **Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment** (EPA 2016b).

This detailed flora and vegetation assessment included:

- **Desktop Assessment.** As described in section 3 of EPA's Technical Guidance - *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).
- **Detailed Field Assessment** (two phases). As described in section 4.3 of EPA's Technical Guidance - *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).
- **Targeted Field Surveys** (multiple events). As described in section 4.2 of Technical Guidance - *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b), with specific focus on:
 - Targeted searches for conservation significant vegetation communities, either based on previous records or where a combination of factors suggest there is a high likelihood of occurrence. If vegetation representative of significant vegetation were identified, their extent was delineated. This included targeting the Eucalypt woodlands of the Western Australian Wheatbelt, assessed in accordance with methodologies provided in the Conservation Advice (Department of the Environment 2015))
 - Targeted searches for weed species. Populations of weeds were quantified as far as practicable. For instance, it may have been more appropriate to map infestations of introduced grasses, rather than individual plants.
- Preparation of a comprehensive flora, vegetation and targeted assessment report and associated spatial data in accordance with Section 10 of EPA's Technical Guidance - *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).



Legend
Survey Area



Figure 1 - Survey Area

2 LEGISLATIVE CONTEXT

Flora and vegetation assessments are required to be conducted in accordance with the following legislation:

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

The assessments complied with requirements for environmental survey and reporting in Western Australia, as outlined in:

- EPA (2008) *Guidance Statement No. 33: Environmental Guidance for Planning and Development*.
- EPA (2016a) *Environmental Factor Guideline – Flora and Vegetation*
- EPA (2016b) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*
- Department of the Environment (2015) *Approved Conservation Advice – Appendices for the Eucalyptus Woodlands of the Western Australian Wheatbelt*
- Department of Environment and Energy (2016) *Eucalyptus Woodlands of the Western Australian Wheatbelt: a nationally protected ecologically community*.

1.1 THREATENED AND PRIORITY FLORA

The Department of Biodiversity, Conservation and Attractions (DBCA) assigns conservation status to endemic plant species that are geographically restricted to few known populations or threatened by local processes. Allocating conservation status to plant species assists in protecting populations and conserving species from potential threats.

Species that may potentially be threatened species but do not meet the requirements for listing under the BC Act due to insufficient survey effort or data deficiency are added to the Priority Flora lists under Priorities 1, 2 or 3. These priorities are ranked in order of prioritisation for survey and assessment of conservation status so they can be considered for potential listing. Priority 4 category is used for species that are adequately known, meet the criteria for near threatened, or rare but not threatened, or that have been recently removed from threatened species or conservation dependent lists. These species require regular monitoring. Priority status is based on the Western Australian distribution for the species unless the population is contiguous across state borders and then is defined by the distribution of known locations (DBCA 2020).

The BC Act provides a statutory basis for the listing of threatened species, specially protected species, Threatened Ecological Communities (TECs), critical habitat and key threatening processes (DBCA 2022a). Although not awarded any statutory protection, DBCA also maintains the Priority flora list, for species of conservation interest. Priority flora are given consideration in environmental impact assessments (EIAs) and in the assessment of clearing permit applications, in accordance with the ten clearing principles (DER 2014). Therefore, both Threatened and Priority flora are important focuses of surveys conducted to inform the EIA process, and their definitions are presented in **Table 1**.

Table 1 - Definitions of Threatened and Priority Flora Species

Conservation Code	Category
T	<p>Threatened Species</p> <p>Listed by order of the Minister as Threatened in the category of critically endangered, endangered, or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the BC Act.</p> <p>Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
P1	<p>Priority 1 – Poorly Known Species</p> <p>Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.</p>
P2	<p>Priority 2 – Poorly Known Species</p> <p>Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.</p>
P3	<p>Priority 3 – Poorly Known Species</p> <p>Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species require further survey.</p>
P4	<p>Priority 4 – Rare, Near Threatened and other species in need of monitoring</p> <p>(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance (MNES) require approval from the Federal Minister for the Environment (Department of the Environment 2013).

Species at risk of extinction are recognised as Threatened at a Commonwealth level and are categorised according to the EPBC Act as summarised in **Table 2**.

Table 2 - Categories of EPBC Act Threatened Flora Species

Conservation Code	Category
EX	<p>Extinct</p> <p>Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).</p>
EW	<p>Extinct in the Wild</p> <p>Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).</p> <p>Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.</p>
CR	<p>Critically Endangered</p> <p>Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for critically endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for critically endangered flora.</p>
EN	<p>Endangered</p> <p>Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.</p>
VU	<p>Vulnerable</p> <p>Threatened species considered to be “facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.</p>

Any species listed in State and Commonwealth legislation as being of conservation significance is broadly considered to be a significant species. This incorporates species that are endangered, vulnerable and rare or covered by international conventions. Significant species also includes those of local significance and species showing significant range extensions or species at the edge of their known range (EPA 2016b).

1.2 IUCN RED LIST SPECIES

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species, also known as the IUCN Red List, founded in 1964, is an inventory of the global conservation status and extinction risk of biological species. It divides species into nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct (International Union for Conservation of Nature 2023).

2.1 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

Threatened Ecological Communities (TECs) are naturally occurring biological assemblages that occur in a particular type of habitat, which are subject to processes that threaten to destroy or significantly modify the assemblage across its range (DEC 2007).

The Minister may list an ecological community as a TEC in one of the following categories: Presumed Totally Destroyed (PD), Critically Endangered (CR), Endangered (EN) or Vulnerable (VU). The categories and the criteria for defining TECs have been described by English and Blyth (1997). A publicly available database listing TECs within Western Australia (WA) is maintained by DBCA.

TECs in WA are protected under the State BC Act and some are also protected under the Commonwealth EPBC Act. The TECs on the Commonwealth register are also listed on the Department of Climate Change, Energy, the Environment and Water (DCCEE) website, and in the Protected Matters Database (DCCEE 2023a; b).

Additional to TECs, ecological communities that are considered potentially of conservation significance that do not currently meet survey criteria or that are not adequately defined, are rare but not threatened, have been recently removed from the TEC list or require regular monitoring, are considered to be Priority Ecological Communities (PECs) (Department of Environment and Conservation 2013) and are required to be taken into consideration during environmental impact assessments.

2.2 VEGETATION CLEARING, EXTENT AND STATUS

Clearing of native vegetation is regulated in WA under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Any clearing of native vegetation is an offence, unless carried out under a clearing permit or if the clearing is for an exempt purpose (DER 2015). A clearing permit may be required under Part V of the EP Act, whereby permit applications to clear native vegetation must be assessed against the '10 Clearing Principles' as outlined in the regulations (DER 2014).

Where clearing of native vegetation is proposed to occur, there are several key criteria applied to the assessment of clearing permit applications, in the interests of biodiversity conservation (DER 2014).

The objective of the EPA in relation to flora and vegetation is 'to protect flora and vegetation so that biological diversity and ecological integrity are maintained' (EPA 2016b). This objective is documented in the EPA Factor Guideline - Flora and Vegetation (EPA 2016a). The EPA considers it is important that ecological communities are maintained above the threshold level of 30% of the original pre-clearing extent of the community in unconstrained areas and 10% within 'constrained' areas (EPA 2008).

2.3 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas (ESAs) are areas that require special protection due to aspects such as landscape, fauna or historical value and are generally considered to be areas of high conservation value. ESAs are declared in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, which was gazetted on 8 April 2005 (Government of Western Australia 2005).

There are several types of ESAs relating to flora and vegetation, declared under Part V of the EP Act, which include:

- a defined wetland and the area within 50 m of that wetland
- the area covered by vegetation within 50 m of rare (Threatened) flora, to the extent where the vegetation is continuous with the vegetation in which the rare (Threatened) flora is located
- the area covered by a TEC
- Bush Forever sites.

2.4 INTRODUCED FLORA

Over 1,200 introduced (weed) species have been recognised to occur within Western Australia (EPA 2007). Weeds are plants that are not indigenous to an area and have been introduced either directly or indirectly through human activity. They establish in natural ecosystems and adversely modify natural processes, have the potential to dominate and simplify the ecosystems and thus decrease habitat value provided for native fauna. Weeds pose a threat to many native flora species due to their ability to rapidly grow and out-compete for available water, space, sunlight, and nutrients (EPA 2007).

2.4.1 Weeds of National Significance

Under the National Weed Strategy, there are currently 32 weed species listed as Weeds of National Significance (WoNS) (Centre for Invasive Species Solutions 2022). Each weed listed was considered for inclusion based on the following criteria:

- invasive tendencies
- impacts
- potential for spread
- socioeconomic and environmental values.

2.4.2 Declared Pest Plants

The Western Australian Organism List (WAOL) details organisms listed as Declared Pests (DPs), including pest plants, under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) (Department of Primary Industries and Regional Development 2022). Under the BAM Act, DP plants are listed under one of the following categories:

- **C1 (exclusion)**, that applies to pests not established in Western Australia; control measures are to be taken to prevent their entry and establishment.
- **C2 (eradication)**, that applies to pests that are present in Western Australia but in low numbers or in limited areas where eradication is still a possibility.
- **C3 (management)**, that applies to established pests where it is not feasible or desirable to manage them in order to limit their damage.

2.4.3 Environmental Weeds

Introduced species have also been ranked by several attributes including invasiveness, distribution, and environmental impacts in the various regions in the *Environmental Weed Strategy* (Department of Conservation and Land Management 1999). To advance the above categorisation, the Invasive Plant Prioritisation Process for DBCA was developed in 2008 (Department of Parks and Wildlife 2013).

3 EXISTING ENVIRONMENT

3.1 CLIMATE

The survey area is situated in the Mid-West Region of Western Australia, within the Avon Wheatbelt (AVW) bioregion. The region has a semi-arid (dry) warm Mediterranean climate experiencing hot, dry summers with mild, wet winters (Beecham 2001). The Bureau of Meteorology Paynes Find weather station (site 007139) is closest to the survey area, operating since 1919. The average annual long-term rainfall recorded at the station is 282.9 mm (BoM 2023). The total annual rainfall for the 12 months preceding the spring 2021 field survey was 418.8 mm, 135.9 mm higher than the annual average. Similarly, the rainfall recorded in the 12 months preceding the spring 2022 survey was higher than the annual average, with 445.7 mm recorded. During 2021, the rainfall recorded was above average in February, March, May, July, October and November and below average for the remaining six months. Rainfall recorded during 2022 was well above average in February, March, August, and September and well below average in January, May and December (**Figure 2**).

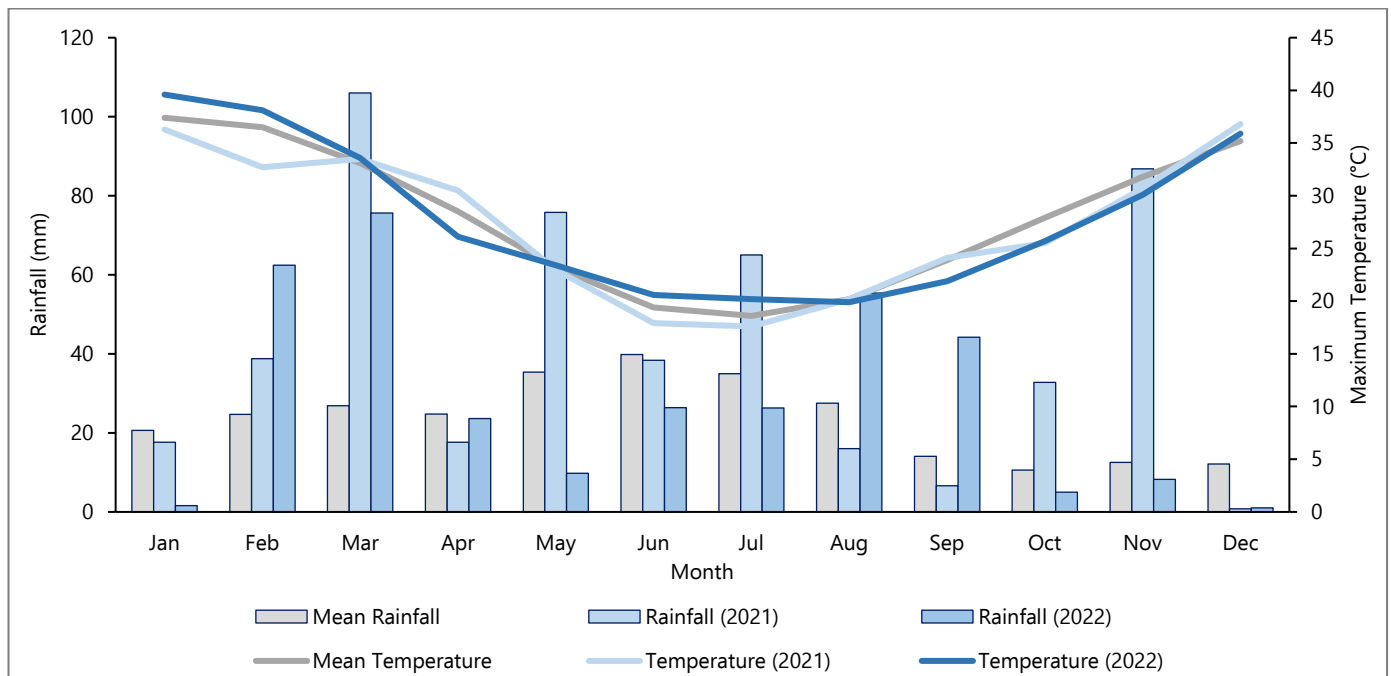
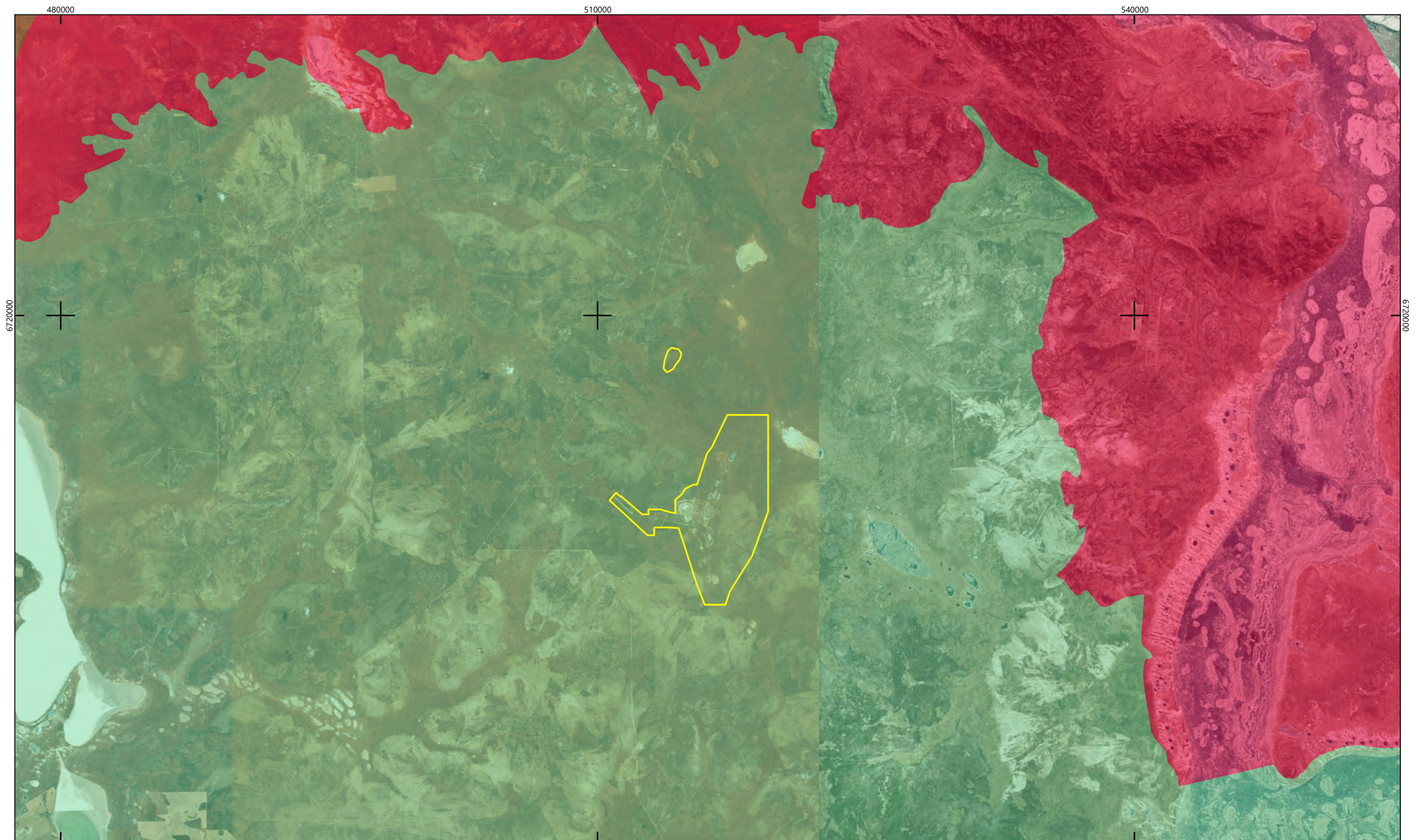


Figure 2 - Climate Data for Paynes Find (007139)

3.2 IBRA REGION

There are 89 recognised Interim Biogeographic Regionalisation for Australia (IBRA) regions across Australia that have been defined based on climate, geology, landforms and characteristic vegetation and fauna (DCCEE 2022). The survey area lies within the Avon Wheatbelt IBRA region, and at a finer scale, within the Ancient Drainage or Merredin IBRA subregion (AVW01); in proximity to the border of the Tallering IBRA subregion (YAL02) within the Yalgoo IBRA region to the north (**Figure 3**). The Merredin subregion is geologically characterised as a gently undulating landscape with a low relief ancient peneplain. The lateritic upland and sand derived sandplains support the rich endemic proteaceous scrub associated with this subregion (Beecham 2001).



0 4 8 12 16 km
GDA 2020 / MGA Zone 50

- Legend**
- Survey Area
 - Merredin
 - Tallering

Figure 3 - IBRA Subregions



3.3 LAND SYSTEMS

Land systems are composed of repeating forms of topography, soils and vegetation, which are described as a series of land units (Christian and Stewart 1953). Land system mapping for the region supporting the study area has been prepared by the Department of Agriculture Western Australia (Mitchell *et al.* 1988). The survey area intersects five land systems, four within the southern section and only the Moriarty Land System found within the northern section (**Table 3, Figure 4**).

Table 3 – Summary of Land Systems within the Survey Area

Section	Symbol	Land System	Description
North	270Mo	Moriarty Land System	Low greenstone rises and stony plains supporting chenopod shrublands with patchy Eucalypt overstoreys.
South	258Do	Doney Land System	Calcareous alluvial plains with Eucalypt woodlands adjacent to salt lake systems.
	258Eu	Euchre Land System	Low granite breakaways with alluvial plains and sandy tracts supporting Eucalypt woodlands and Acacia shrublands.
	258Jo	Joseph Land System	Undulating yellow sandplain supporting dense mixed shrublands with patchy mallees.
	258Pd	Pindar Land System	Loamy plains surrounded by sandplain supporting York gum woodlands and Acacia shrublands.

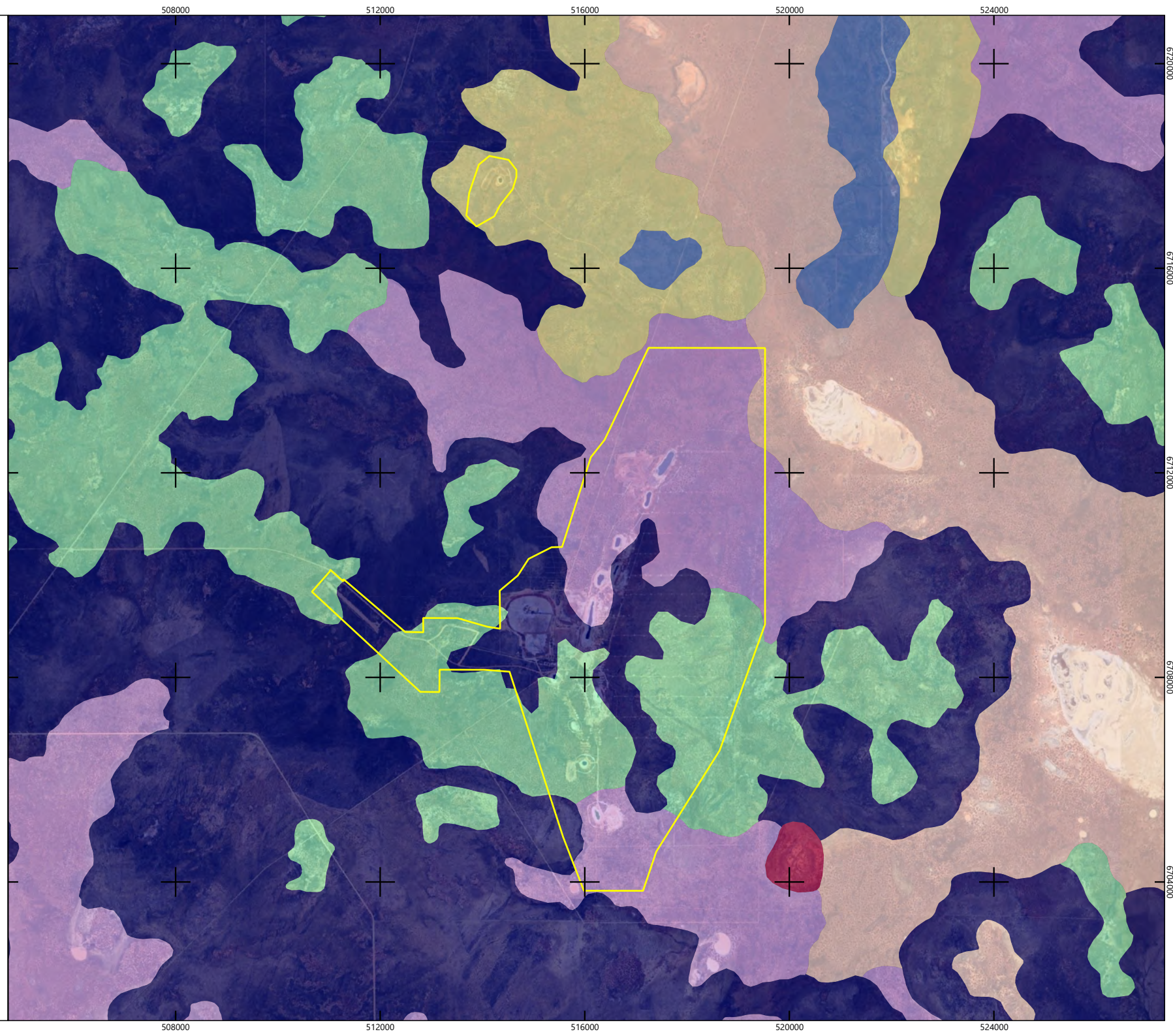
Legend

-  Survey Area
-  Bandy System
-  Doney System
-  Euchre System
-  Gabanintha System
-  Joseph System
-  Moriarty System
-  Pindar A System

Figure 4 - Land System




GDA 2020 / MGA Zone 50

3.4 GEOLOGY AND SOILS

The Avon Wheatbelt region contains active drainage part of a Tertiary plateau in Yilgarn Craton, with gently undulating geology and low relief forming an ancient peneplain. With no connected drainage, wet years revive ancient drainage systems to support functioning salt lakes, while yellow sandplains dominate the lateritic uplands (Beecham 2001). The survey area encompasses nine geological units, summarised in **Table 4** and presented in **Figure 5**. These units were mapped at a scale of 1: 250,000 by the Geological Survey of WA (1984; 1986). Two geologies are present within the northern section (mafic intrusion rocks and sand plain), of which the majority is made up of mafic intrusive rocks to the east. The southern section supports eight geologies including the sand plain found within the northern section (**Figure 5**). The most southern area of the southern section contains a combination of geologies grouped together, including quartz, alluvium and felsic intrusives (**Figure 5**), where the northern portion of the south section is a combination of colluvium, amphibolite, and lake deposits.

Table 4 – Geology of the Survey Area

Section	Symbol	Unit Name	Description
North	Ady	mafic intrusive rocks 74270	Mafic intrusive rocks, medium to coarse-grained; layered mafic to ultramafic intrusions; metadolerite. Medium to coarse-grained metagabbro, dolerite and granophyre, local ultramafic bases.
	Czs	sand plain 38499	Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, aeolian sand.
South	Ag	felsic intrusives 74292	Undifferentiated felsic intrusive rocks, including monzogranite, granodiorite, granite, tonalite, quartz monzonite, syenogranite, diorite, monzodiorite, pegmatite. Locally metamorphosed, foliated, gneissic. Local abundant mafic and ultramafic inclusions.
	Aty	amphibolite 74334	Amphibolite, mafic schist, mafic rock intercalated with granite, para-amphibolite; metabasalt, metagabbro, metapyroxenite and metadolerite; Youanmi Terrane.
	Azy	quartz-muscovite schist 74485	Quartz-muscovite schist in contact zones next to granites.
	Czl	ferruginous duricrust 38498	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.
	Czs	sand plain 38499	Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, aeolian sand.
	Qa	alluvium 38485	Channel and flood plain alluvium; gravel, sand, silt, clay, locally calcreted.
	Qrc	colluvium 38491	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.

The survey area and surrounds are situated on a gently undulating lateritic sandplain, with low relief, broken by greenstone hills, granite mounds and low breakaways (Anand and Smith 2005). The Mount Gibson gold deposits occur on the southern tip of the Retaliation belt within the southern portion of the Murchison Province, on the tip of the Archean Yalgoo-Singleton greenstone belt (Yeats and Groves 1998). Much of the mineralisation for the deposit is hosted within a meta basalt sequence which has been metamorphosed to amphibolite facies conditions. The Mount Gibson gold mine area has an Archean basement predominantly comprised of metavolcanic and intrusive felsic rocks and their sheared equivalents, which have been metamorphosed to mid-amphibolite facies condition.

The basement lithostratigraphy is divided into five volcanic sequences listed from west to east across the survey area (Yeats and Groves 1998):

- Tholeiitic metabasalt sequence
- Magnesian metabasalts with komatiitic components
- A mixed mine sequence which hosts the gold mineralisation from Mount Gibson. It is dominated by differentiated tholeiitic metabasalts and metadolerites, with lesser magnesium metabasalts and quartz-feldspar porphyries
- A sequence of magnetic quartz-andesites and minor interflow metasedimentary rocks
- A thick monotonous sequence of quartzphyric, felsic metavolcanic rocks.

The survey area occurs on the Mount Gibson shear zone, which is a broad north to north-north east striking shear network that has undergone three stages of deformation, meaning the geology of the survey area is highly complex and variable along the shear zone (Jones *et al.* 1997; Yeats and Groves 1998).

Although highly complex, the geology of the survey area, presents very little exposed bedrock. Over much of the survey area, laterites and colluvium form crusts up to 10 m thick over the heavily weathered bedrock. As a result, much of the geological mapping has relied on drillholes and pit mapping as well as magnetic surveys (Yeats and Groves 1998).

Regolith within the survey area was mapped in detail by Jones *et al.* (1997), and although clear mapping is not available, the relevant units, interpreted at a desktop level to intersect the survey area, are listed in **Table 5**, which demonstrates the high variability of geology underlying the survey area

Table 5 - Geology of the Mount Gibson Survey Area (Jones *et al.* 1997)

Section	Unit Name
North	Maghemite/BIF rich drainage channel
	Metabasalt 2 – minor BIF / magnetic cherts
	Mount Gibson Iron formations
South	Amphibolite – High Magnesian and Tholeiitic Basalts
	Amphibolite / high grade greenstone xenolith
	Banded cherts
	Banded Iron formations
	Conglomerates
	External granite
	Gold Lode horizons
	High Magnesian Metabasalt / Amphibolite
	Intermediate to felsic volcanics /Volcaniclastic
	Intermediate volcanic rocks
	Intermediate volcanic rocks: Andesitic fragmentals with thin magnetic chert layers
	Internal granite
	Metabasalt 2 – minor BIF / magnetic cherts
	Metabasalt 3 – non-magnetic
	Metabasalt 4 / amphibolite
	Metagabbro
	Metakomatitie
	Mt Gibson felsic metasedimentary rocks
	Porphyry intrusions
Proterozoic dykes	
Thrust fault	

Legend
















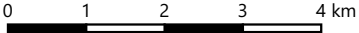

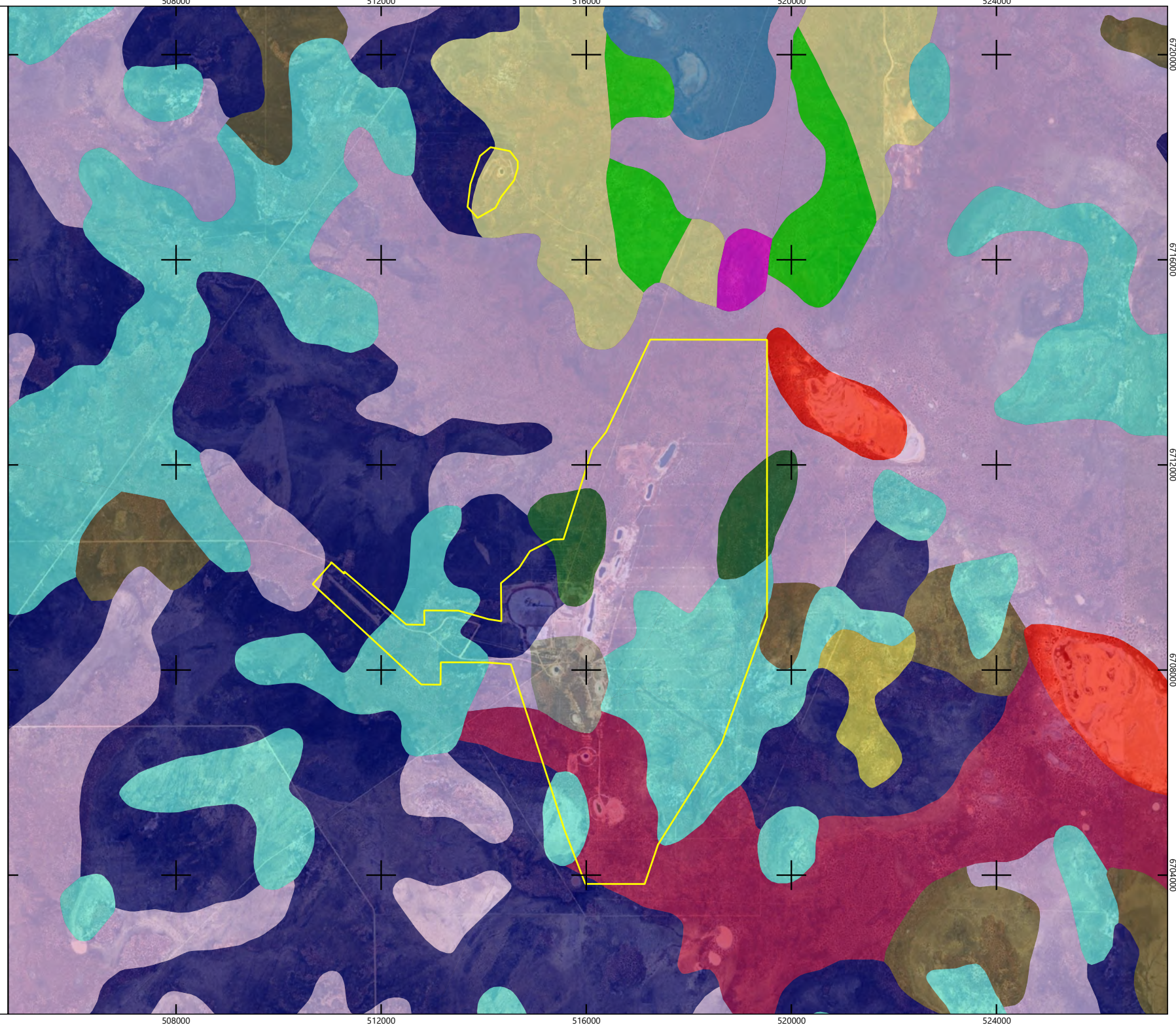
-  Survey Area
-  Alluvium 38485
-  Amphibolite 74334
-  Colluvium 38491
-  Felsic intrusives 74292
-  Ferruginous duricrust 38498
-  Hi-Ca granite 74296
-  Lake deposits 38492
-  Lunette dunes 72955
-  Mafic extrusive rocks 74255
-  Mafic intrusive rocks 74270
-  Metamorphosed ultramafic rocks 74286
-  Quartz-muscovite schist 74485
-  Sand plain 38499

Figure 5 - Geology

GDA 2020 / MGA Zone 50

3.5 VEGETATION

EPA objectives in relation to flora and vegetation are to protect flora and vegetation so that biological diversity and ecological integrity are maintained (2016b EPA). The EPA considers it is important that ecological communities are maintained above a threshold level of 30% of the original pre-clearing extent of each community (EPA 2008). Additionally, the National Objectives and Targets for Biodiversity Conservation 2001-2005 (Commonwealth of Australia 2001) recognise that the retention of at least 30% of the pre-clearing extent of each vegetation association is necessary for Australia’s biological diversity to be protected (DER 2014). Species loss appears to accelerate exponentially at an ecosystem level when current extent falls below 30% of pre-clearing extent (EPA 2008).

When only 10% or less of the original extent of a vegetation association remains, it is regarded as Endangered (EPA 2008), and any impacts or increased threats to these vegetation associations should be avoided, including clearing.

3.5.1 Pre-European Vegetation

Pre-European vegetation in Western Australia has been broadly characterised by Beard (1975, 1990). The vegetation is described in three categories (from broad to finer scale) as systems, associations (can occur in multiple systems), or system – association (combined system and vegetation association). These vegetation categories have been described and mapped at a scale of 1:1,000,000, and has since been converted into a digital form (Shepherd *et al.* 2002).

Three Beard (1990) vegetation associations, 141, 352 and 437, are represented within the survey area. Their remaining extent across a range of contexts is presented in **Table 6**, and their pre-European regional extent in the vicinity of the survey area is presented in **Figure 6**. Two vegetation associations are present within both the northern and southern survey areas, with the “Medium woodland; York gum, salmon gum & gimlet” (141) covering just over half (58.71%) of the combined survey area, while the “Shrublands; Mixed acacia thicket on sandplain” (437) covers 40.95%. The third vegetation association “Medium woodland; York gum” (352) is present only within the southern survey area and accounts for a small proportion of the combined survey area (0.34%) (**Figure 6**).









Of the three pre-European vegetation associations present within the survey area, only two (141 and 437) exceed the 30% retention threshold in State, regional and local contexts; and therefore, meet the EPA objective of retention for the purpose of biodiversity conservation. Vegetation association 352 does not meet the 30% retention threshold in a State, regional or subregional context (represented by 19.61% 17.27% and 24.8% of pre-European extent, respectively) (**Table 6**).

Table 6 - Pre-European Vegetation of the Survey Area

Context	Vegetation Association	Pre-European Extent (ha)	Pre-European Proportion (%)	Current Extent (ha)	Extent Remaining (%)
Western Australia	141	1,158,760.28	0.46	960,755.60	82.91
	352	724,268.73	0.29	142,012.22	19.61
	437	505,364.86	0.20	475,077.96	94.01
Avon Wheatbelt (AVW) IBRA Region	141	250,614.98	2.63	77,320.43	30.85
	352	630,577.61	6.63	108,887.52	17.27
	437	174,686.49	1.84	144,425.94	82.68
Merredin (AVW01) IBRA Subregion	141	250,614.98	3.84	77,320.43	30.85
	352	292,705.87	4.49	72,591.94	24.8
	437	174,686.49	2.68	144,425.94	82.68
Shire of Yalgoo	141	35,459.91	1.27	35,101.67	98.99
	352	12,445.63	0.45	12,421.05	99.8
	437	25,811.73	0.92	25,143.58	97.41

*Cells highlighted grey indicate vegetation association with less than 30% of pre-European extent remaining

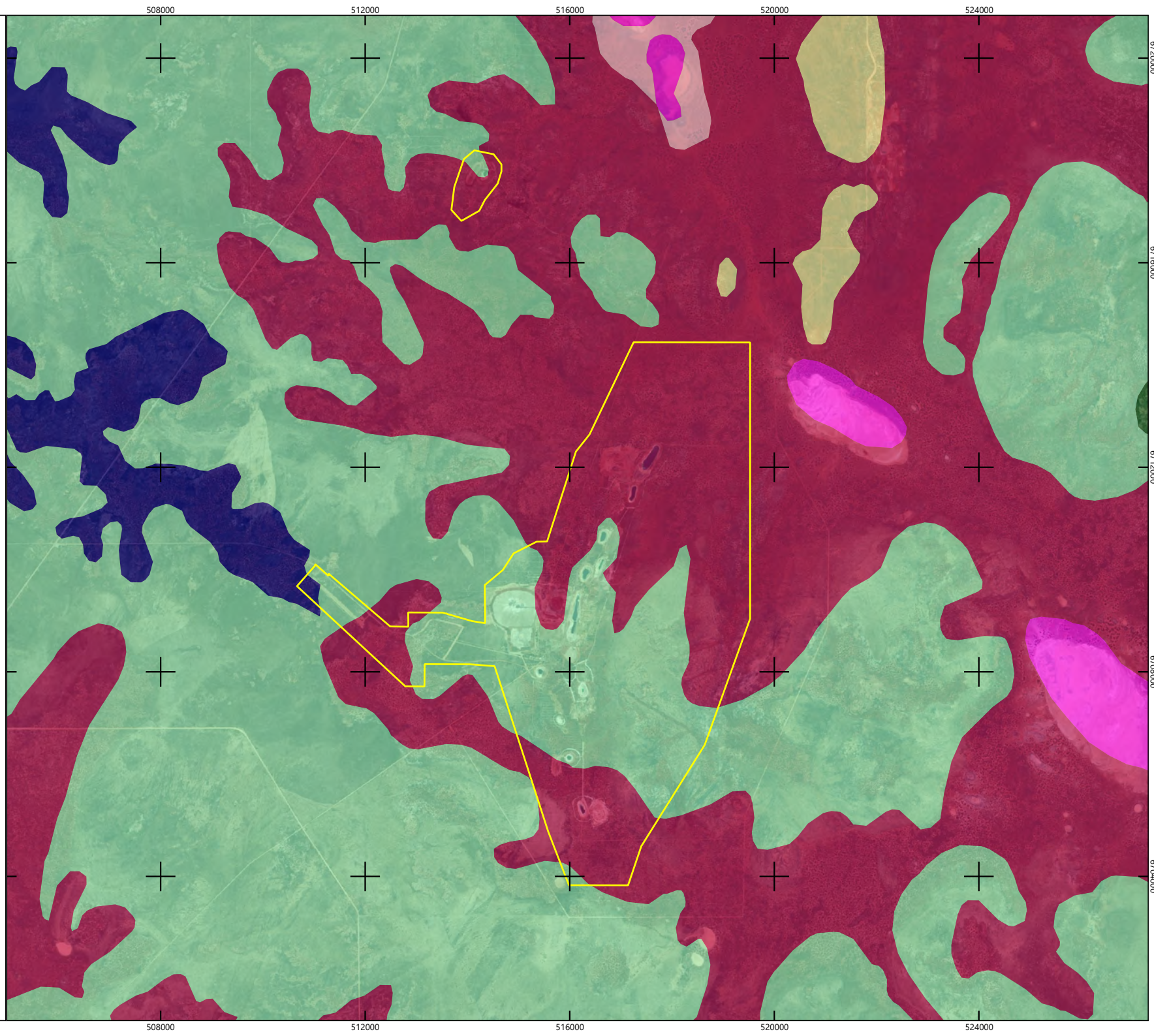
Legend

-  Survey Area
-  125
-  128
-  141
-  352
-  356
-  437
-  552

**Figure 6 - Pre-European
Vegetation**



0 1 2 3 4 km
GDA 2020 / MGA Zone 50



3.6 WETLANDS AND DRAINAGE

The survey area does not directly intersect any wetlands including Ramsar sites or significant drainage lines or hydrological feature of significance (DCCEEW 2023c).

3.7 ENVIRONMENTALLY SENSITIVE AREAS

No ESAs intersect the survey area; however, 34 ESAs are found within the study area, totalling 35,939.53 ha. The closest ESAs to the survey area are found 2.9 km north and 3.4 km south-east of the survey area. The latter being the largest (35,913.92 ha) of the ESAs in the study area, intersecting with a large portion of a proposed Unclassified Conservation Park (FNA15045), under the Yamatji Nation Indigenous Land Use Agreement (DMIRS 2018).

3.8 CONSERVATION AREAS

The World Database on Protected Areas (WDPA) managed by the United Nations Environment Program World Conservation Monitoring Centre and International Union for Conservation of Nature (ICUN) (2022) lists both terrestrial and marine protected areas under the relevant management categories (Dudley 2008; Belle *et al.* 2018). The following eight terrestrial protected areas occur within the study area:

- Biluny Wells, Nature Reserve (listed under the *Conservation and Land Management Act 1984* (CALM Act))
- Carlyarn, Nature Reserve (listed under CALM Act)
- Goodlands, Nature Reserve (listed under CALM Act)
- Jibberding, Nature Reserve (listed under CALM Act)
- Mt Gibson, Private Nature Reserve
- Charles Darwin, Conservation Reserve
- Ningham, Indigenous Protected Area
- NTWA Bushland covenant (0110), Conservation Covenant.

The Biluny Wells, Carlyarn, Goodlands and Jibberding Nature Reserves are also listed as DBCA Legislated and Managed Lands listed under the CALM Act (DCCEEW 2020; DBCA 2022b) (**Table 7, Figure 7**), although none intersect with the survey area.

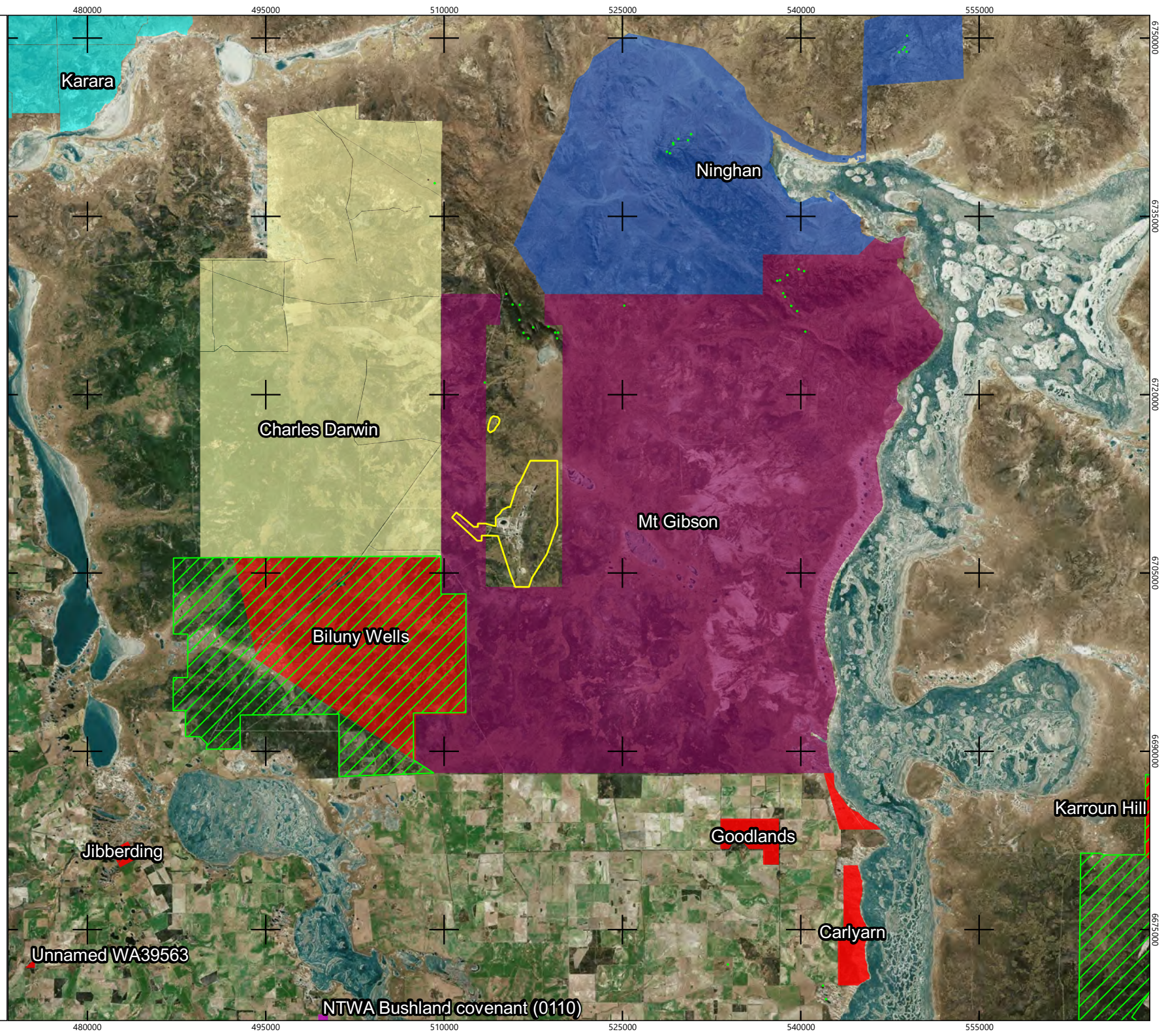
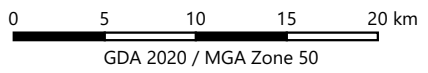
One reserve, Mt Gibson Private Nature Reserve (Mt Gibson Wildlife Sanctuary), managed by the Australian Wildlife Conservancy (AWC), intersects 255.28 ha (6.15%) of the west portion of the survey area. The Mt Gibson Wildlife Sanctuary supports an area of high diversity, with 664 out of an estimated 700-800 flora species confirmed within the sanctuary (AWC 2022).

Table 7 – Reserves and Conservation Areas within the Study Area (DCCEEW 2020; DBCA 2022b)

Name	Type	ICUN Category	DBCA Legislated and Managed Lands	Proximity to Survey Area
Biluny Wells	Nature Reserve	Ia	Nature Reserve	approximately 4 km south-east
Carlyarn	Nature Reserve	Ia	Nature Reserve	approximately 29 km north-east
Goodlands	Nature Reserve	Ia	Nature Reserve	approximately 25 km south-east
Jibberding	Nature Reserve	Ia	Nature Reserve	approximately 30 km south-west
Mt Gibson	Private Nature Reserve	II	-	Intersects the western section of the survey area and also present to the south and east
Charles Darwin	Conservation Reserve	II	-	approximately 1 km west
Ningham	Indigenous Protected Area	III, VI	-	approximately 14 km north
NTWA Bushland covenant (0110)	Conservation Covenant	NAS	-	approximately 39.5 km south

- Legend**
- Survey Area
 - Environmentally Sensitive Areas
 - Conservation Covenant
 - Conservation Reserve
 - Indigenous Protected Area
 - Nature Reserve
 - NRS Addition - Gazettal in Progress
 - Private Nature Reserve

Figure 7 - Environmentally Sensitive Areas and Conservation Areas



4 METHODOLOGY

The flora and vegetation assessments were conducted in accordance with the following:

- EPA (2016a) *Environmental Factor Guideline – Flora and Vegetation*
- EPA (2016b) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*
- Department of the Environment (2015) *Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt*
- Department of Environment and Energy (2016) *Eucalyptus Woodlands of the Western Australian Wheatbelt: a nationally protected ecologically community.*

4.1 DESKTOP ASSESSMENT

4.1.1 Literature Review

Previous botanical surveys within the vicinity of the survey area were evaluated as part of the desktop assessment. These surveys are listed below and have also been summarised in **Section 5.1.1 (Table 11)**:

- Umwelt (Australia) Pty Limited (2022) *Flora, vegetation and fauna impact assessment, Karara Project expansion*, unpublished report for Karara Mining Limited
- Eco Logical Australia (ELA) (2020) *Mount Gibson Gold Exploration Drill Program Targeted Flora and Fauna Survey*
- Maia Environmental Consultancy (2020) *EMR Golden Grove: Detailed Flora and Vegetation Assessment and Stylidium scintillans census*, unpublished report for EMR Golden Grove
- Spectrum Ecology Pty Limited (2020) *Mount Mulgine Flora & Vegetation Assessment*
- FI Joint Venture (2019) *Yogi Magnetite Project Flora and Vegetation*
- Animal Plant Mineral Pty Ltd (2018) *Mt Mulgine Project Biological Survey. Rothsay, WA*, unpublished report for Tungsten Mining NL
- Eco Logical Australia (2016) *Mount Gibson Level 2 Flora and Vegetation Survey*, unpublished report for Mount Gibson Mining Limited
- Ecologia Environment (2016) *Mount Gibson Mining Iron Hill Flora and Vegetation Assessment based on regional and local floristic analysis*, unpublished report for Mount Gibson Mining Limited
- Jennifer Borger Botanical Consultant (2014) *Vegetation and Flora Survey of the Legend Airstrip Proposed Extension Area*, unpublished report for Extension Hill Pty Ltd
- EnviroWorks Consulting (2013) *Level 2 Flora and Vegetation Survey - Mummaloo*, report for Top Iron Pty Ltd
- Macfarlane *et. al.* (2010) *Bush Blitz on Karara, Lochada and Kadji Kadji Pastoral Leases and Charles Darwin Reserve, Western Australia*, report to Australia Biological Resources Study, Department of the Environment, Water, Heritage and the Arts
- Coffey Environments (2009) *Flora and vegetation assessment proposed Three Springs to Mount Gibson Ranges 330 kV transmission line V3*, unpublished report for Extension Hill Pty Ltd
- Macfarlane, T.D. (2009) *Biodiversity survey pilot project at Charles Darwin Reserve, Western Australia Vascular Plants*, report to the Australian Biological Resources Study, Department of the Environment, Water, Heritage and the Arts, Canberra
- Meissner & Caruso (2008) *Flora and vegetation of the banded iron formations of the Yilgarn Craton: Mount Gibson and surrounding area*
- ATA Environmental (2007) *Flora, vegetation and fauna assessment - Proposed haul road along Wanarra road and Perenjori Rothsay road*, unpublished report for Mount Gibson Mining Limited

- ATA Environmental (2006) *Flora and vegetation assessment - Proposed slurry pipeline Mount Gibson to Geraldton Port*, unpublished report for Mount Gibson Mining Limited
- Gibson, N. *et al.* (2004) *Terrestrial flora and vegetation of the Western Australian Wheatbelt*
- Paul Armstrong and Associates (2004) *Vegetation assessment and rare flora search between Perenjori and Mt Gibson*, unpublished report for Mt Gibson Iron Limited
- Bennett Environmental Consulting Pty Ltd (2000) *Flora and Vegetation of Mt Gibson*, unpublished report for Mt Gibson Iron Limited.

The information collected as part of the literature review, combined with data from studies within and near the survey area prior to spring 2022 contributed to the study planning for the spring 2022 field survey effort.

4.1.2 Database Searches

A desktop assessment for Threatened and Priority flora and Threatened and Priority Ecological Communities potentially occurring within the study area was undertaken prior to the phase 1 field survey in spring 2021. This assessment was revised in 2022 prior to the phase 2 spring field survey. The desktop assessment refers to NatureMap (DBCA 2023a) (**Appendix A**), DBCA Threatened and Priority flora (DBCA ref: 21-0421FL) and ecological communities databases (DBCA ref: 31-0421EC) and the Commonwealth Protected Matters Search Tool (PMST) for MNES (DCCEEW 2023b) (**Appendix B**). All database searches were performed for the study area, which is the survey area boundary plus 40 km buffer. The relevant values of the existing environment presented in **Section 3** also address the study area, which is a 40 km buffer surrounding the survey area.

The likelihood of occurrence (flora and vegetation) of each potential significant species/community within the study area was evaluated prior to field assessments and was based on four criteria: the presence of suitable habitat within the survey area, age of previous records, proximity of previous records to the survey area, and current condition of the survey area (**Table 8**).

Table 8 - Likelihood of Occurrence Criteria

Criteria	Explanation
Suitable habitat	The likelihood of suitable habitat being present within the survey area was based on known habitat information gathered from DBCA database information, FloraBase (Western Australian Herbarium 1998-) and literature sourced from the Species Profile and Threats Database (SPRAT) (DCCEEW 2023a) (e.g., recovery plans, conservation advice).
Age of previous records	The age of previous records for significant species resulting from the desktop assessment was evaluated to determine how likely the species was to still occur in the survey area (i.e., habitat of species recorded decades ago may no longer occur or a species may be locally extinct).
Proximity of previous records	The proximity of previous significant flora and vegetation results in relation to the survey area contributed to the likelihood of occurrence conclusions, with those previously recorded close by considered more likely to occur. It is noted that species identified from the PMST have not necessarily been recorded within proximity to the survey area and may have resulted due to habitat possibly being present.
Current condition of survey area	The survey area is largely unmodified, although is degraded in some areas from adjacent mining activities, and completely degraded where legacy mine pits, access roads and other clearing disturbances remain. In highly modified and degraded environments, there is usually a lower likelihood of the occurrence of significant flora, whilst intact remnants are known to harbour significant species and communities that may have otherwise been cleared or impacted throughout their range.

4.2 FIELD ASSESSMENT

This report presents data collected within the current survey area (**Figure 1**), from a range of surveys conducted within and nearby the current survey area between 2021 and 2023, as detailed in **Table 9**. The qualifications and experience of the various participants of the field surveys are listed in **Table 24** and **Table 25**.

Field preparations included field health, safety and environment (HSE) planning, and the development of detailed study plans for each mobilisation, inclusive of planned quadrat locations and areas for targeted flora and community searching and mapping. Field guides for target species and communities, inclusive of photographs and detailed descriptions, were prepared based on the desktop assessment results, which were revised prior to each phase of the detailed spring field surveys.

Field team meetings were held prior to each mobilisation to address HSE matters, logistics, field survey techniques, the study plan and target species and communities, and field personnel readied field maps, other references, equipment and electronic devices for field data capture in forms tailored to each study.

Field data were collected in accordance with EPA (2016b) Technical Guidance, using electronic tablet devices with customised data forms and mobile spatial mapping capability, within the software program, Mappt™ (Takor Group 2021).

Flora specimens were collected, labelled, and processed (pressed, dried and fumigated), in accordance with the requirements of the WA Herbarium. All specimens were collected under and in accordance with licences issued by DBCA, as listed in **Tables 24**.

Table 9 – Relevant Surveys Conducted within or Adjacent to the 2023 Survey Area

Year	Date	Survey Area	Survey Scope	Survey Effort	Personnel (Company)	Person Days
2021	September 27 – 30 (3 days)	2021 phase 1 survey Area	Detailed flora and vegetation survey (phase 1)	- 31 quadrats - Targeted traverses	Natalie Krawczyk (FVC) Daniel Roberts (FVC) Megan Gray (FVC)	9
2022	February 23 – 24 (2 days)	Northern hydrogeological survey lines, southern drill targets	Targeted TEC/PEC survey	- Targeted traverses	Daniel Roberts (FVC) James Hesford (Tetris Environmental)	4
	May 15 – 20 (5 days)	Sterilisation drill lines	Targeted CS flora and TEC/PEC survey	- Targeted traverses	Jenny Borger (JB Botanical Consulting)* Amelia Shepherdson (Ecotec (WA))*	10
	June 13 – 16 (3 days)	Sterilisation drill lines, Northern RD drilling	Targeted CS flora and TEC/PEC survey	- Targeted traverses	Jenny Borger (JB Environmental) Kurt Bowden (Capricorn Metals)	6
	June 14 - 17 (3 days)	Sterilisation drill lines	Sterilisation Lines, North RD Drilling targeted CS and TEC/PEC survey	- Targeted traverses	Megan Gray (FVC) Olga Nazarova (FVC) Kelly Hopkinson (FVC) James Hesford (Tetris Environmental) (2 days)	11
	July 25-29 (4 days)	Regional	Regional targeted <i>Philothea nutans</i> and TEC/PEC survey	- Targeted traverses	Jenny Borger (JB Botanical Consulting)* Jacob Jones (Tetris Environmental)	8
	September 12-17 (5 days)	2022 phase 2 survey area, Sterilisation drill lines	Detailed flora and vegetation survey (phase 2), Targeted CS flora and TEC/PEC survey	- 31 quadrats, 3 relevés - Targeted traverses	Kellie Bauer-Simpson (FVC) (3 days) Julie Fielder (FVC) Daniel Roberts (FVC) Megan Gray (FVC) Olga Nazarova (FVC) Kelly Hopkinson (FVC) James Hesford (Tetris Environmental) (3 days) Jacob Jones (Tetris Environmental)	38
	November 18-22 (5 days)	2022 phase 2 survey area	Detailed flora and vegetation survey (supplementary)	- 23 quadrats, 11 relevés	Jenny Borger (JB Botanical Consulting) Jacob Jones (Tetris Environmental)	10
2023	March 13 – 16 (4 days)	2022 phase 2 survey area	Targeted <i>Eremophila viscida</i> and <i>Acacia synoria</i> survey	- Targeted traverses	Jenny Borger (JB Botanical Consulting)* James Hesford (Tetris Environmental) Jacob Jones (Tetris Environmental)	9
TOTAL						105

*Engaged separately by Tetris Environmental to acquire field data and provide to FVC for this report

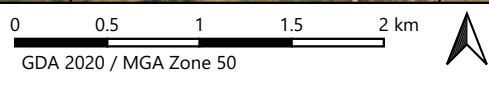
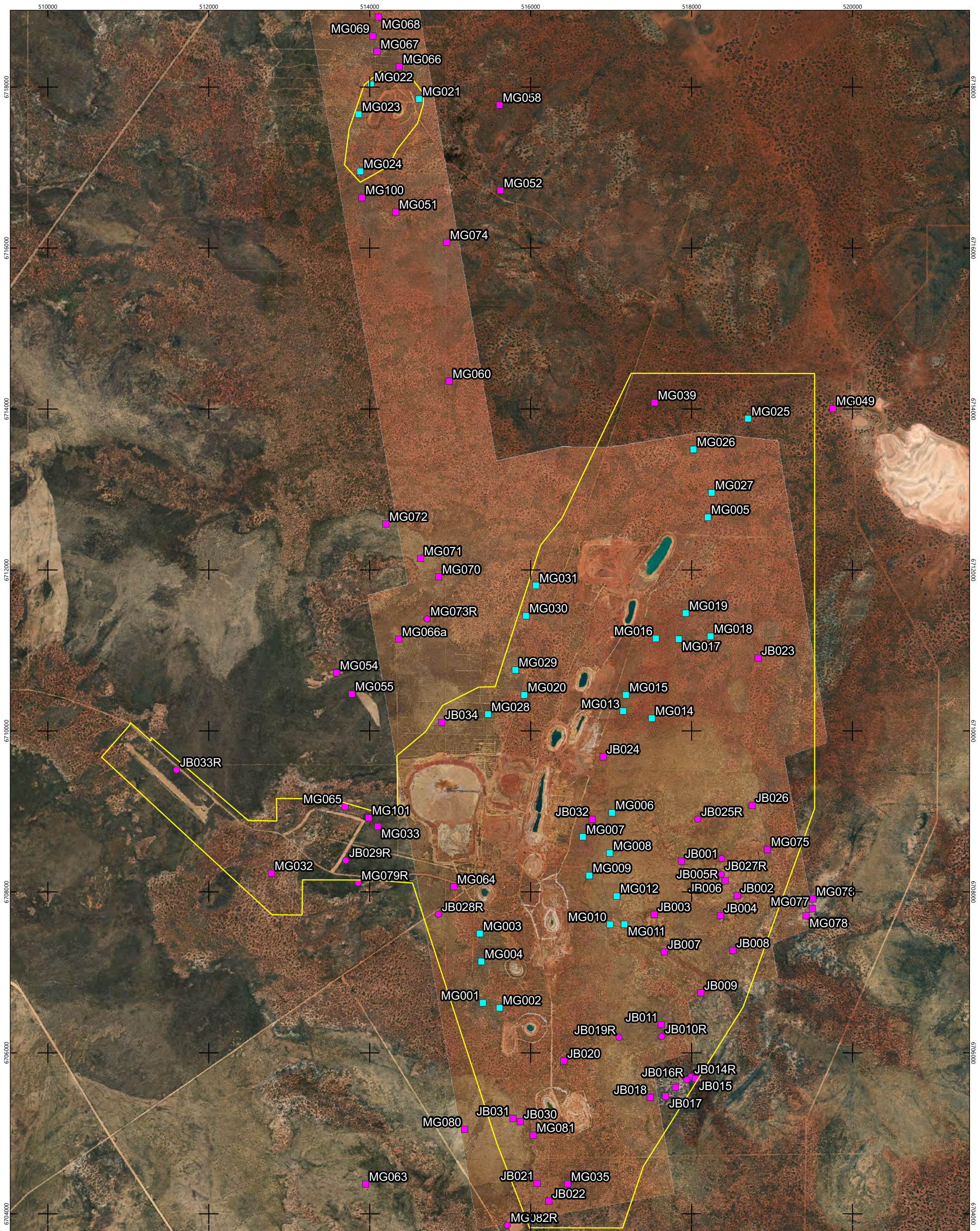
4.2.1 Sample Sites

Collectively, a total of 85 quadrats and 14 relevés were recorded between 2021 and 2022 across all surveys within the survey area in accordance with the *Technical Guidance* (EPA 2016b).

Sites were selected using project-specific, high-resolution aerial imagery acquired by Crimson Metals prior to the field surveys, and adjusted in the field where appropriate, with additional quadrats and/or relevés established if new vegetation communities were encountered.

Consistent with EPA guidance for the Avon Wheatbelt bioregion, quadrats measured 20 m x 20 m (EPA 2016b). Each quadrat was photographed from the north-west corner and surveyed in accordance with EPA (2016b) guidelines. The locations of sampled sites are presented in **Figure 8** series, and the following information was collected at each quadrat:

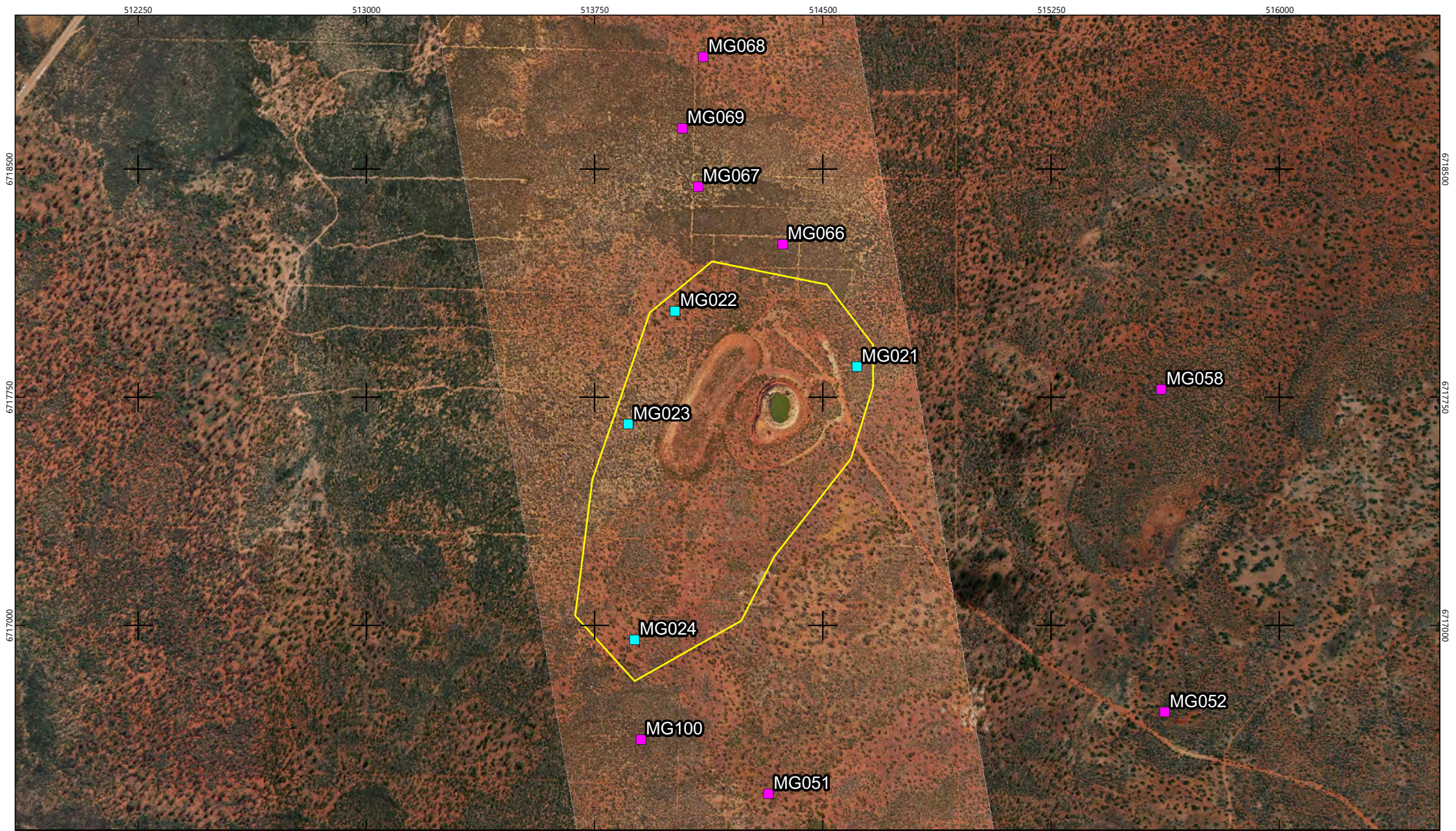
- recorder
- date
- quadrat/site code
- location (MGA94)
- representative photograph from the north-west corner
- landform and soil description
- topography/slope
- time since fire
- comprehensive list of flora species observed (including weeds), average height and estimated projected foliage cover of dominant species within each stratum
- vegetation degradation/disturbances (e.g. grazing, weed invasion, fire)
- vegetation condition, assessed against the currently accepted scale; an adaptation of the Keighery (1994) and Trudgen (1991) condition scales.



- Legend**
- Survey Area
 - Quadrat - Spring 2021
 - Quadrat - Spring 2022
 - Relevé - Spring 2022

Figure 8 - Quadrat Locations





- Legend**
- Survey Area
 - Quadrat - Spring 2021
 - Quadrat - Spring 2022

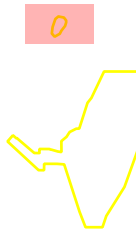
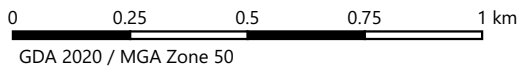
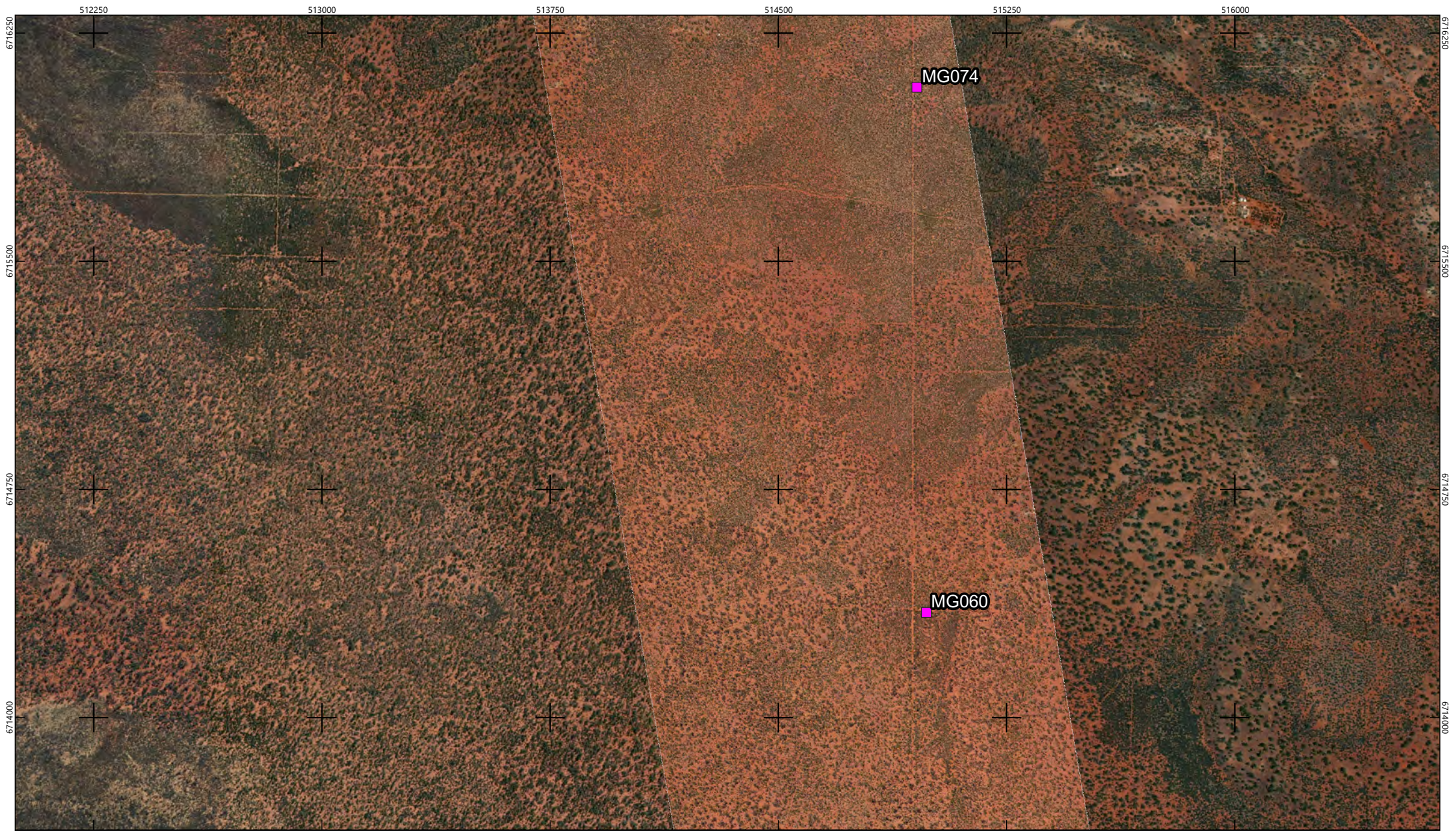


Figure 8a - Quadrat Locations



Legend

■ Quadrat - Spring 2022

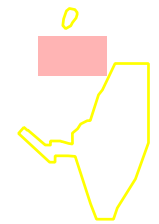
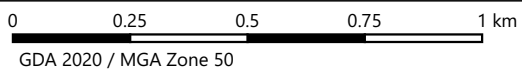
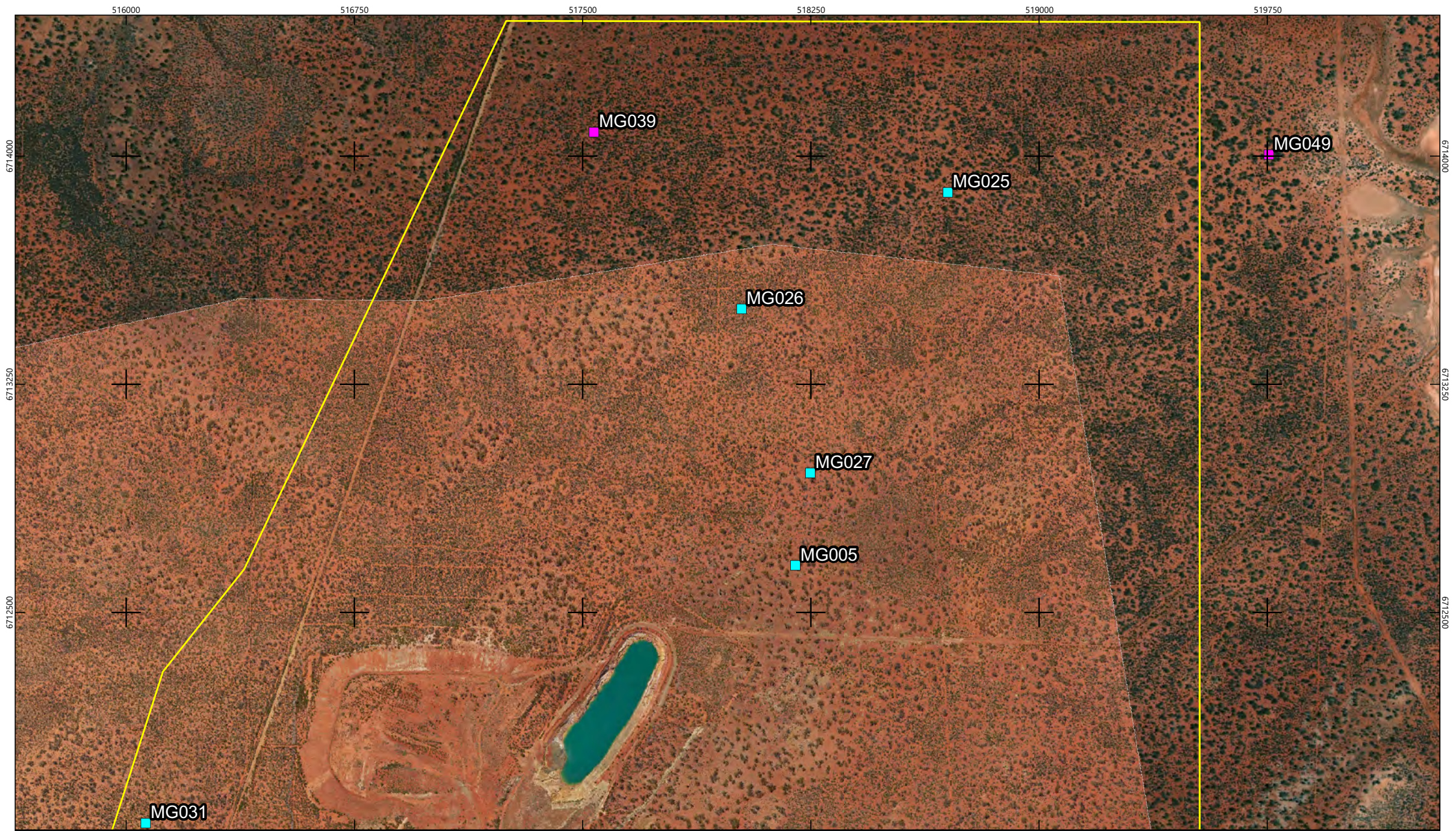


Figure 8b - Quadrat Locations



- Legend**
- Survey Area
 - Quadrat - Spring 2021
 - Quadrat - Spring 2022

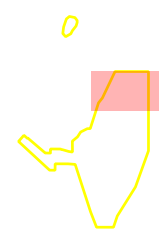
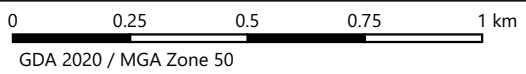
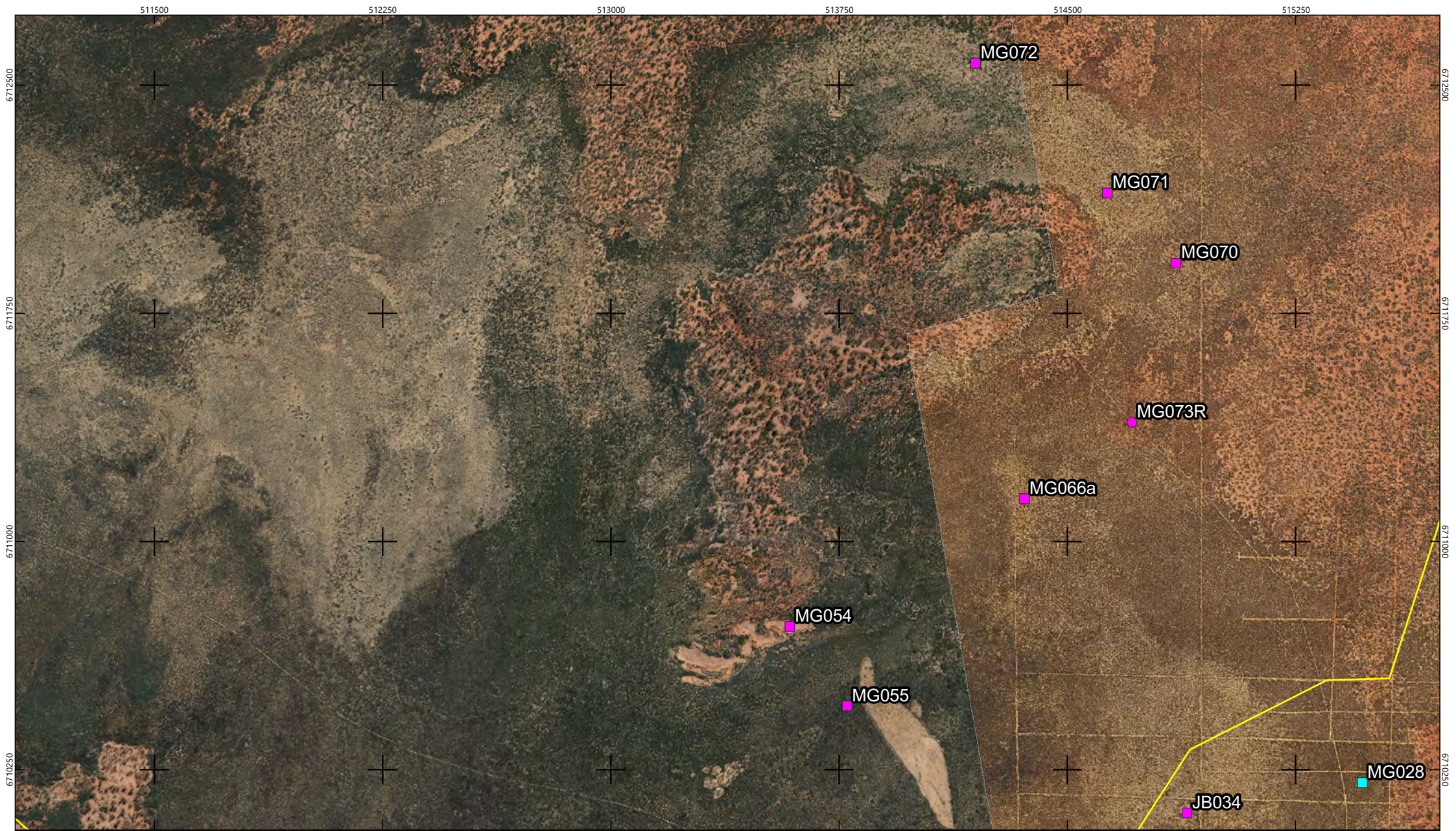






Figure 8c - Quadrat Locations



Legend

-  Survey Area
-  Quadrat - Spring 2021
-  Quadrat - Spring 2022
-  Relevé - Spring 2022

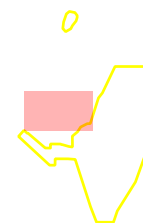
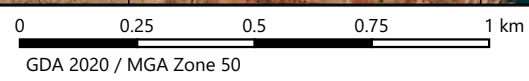
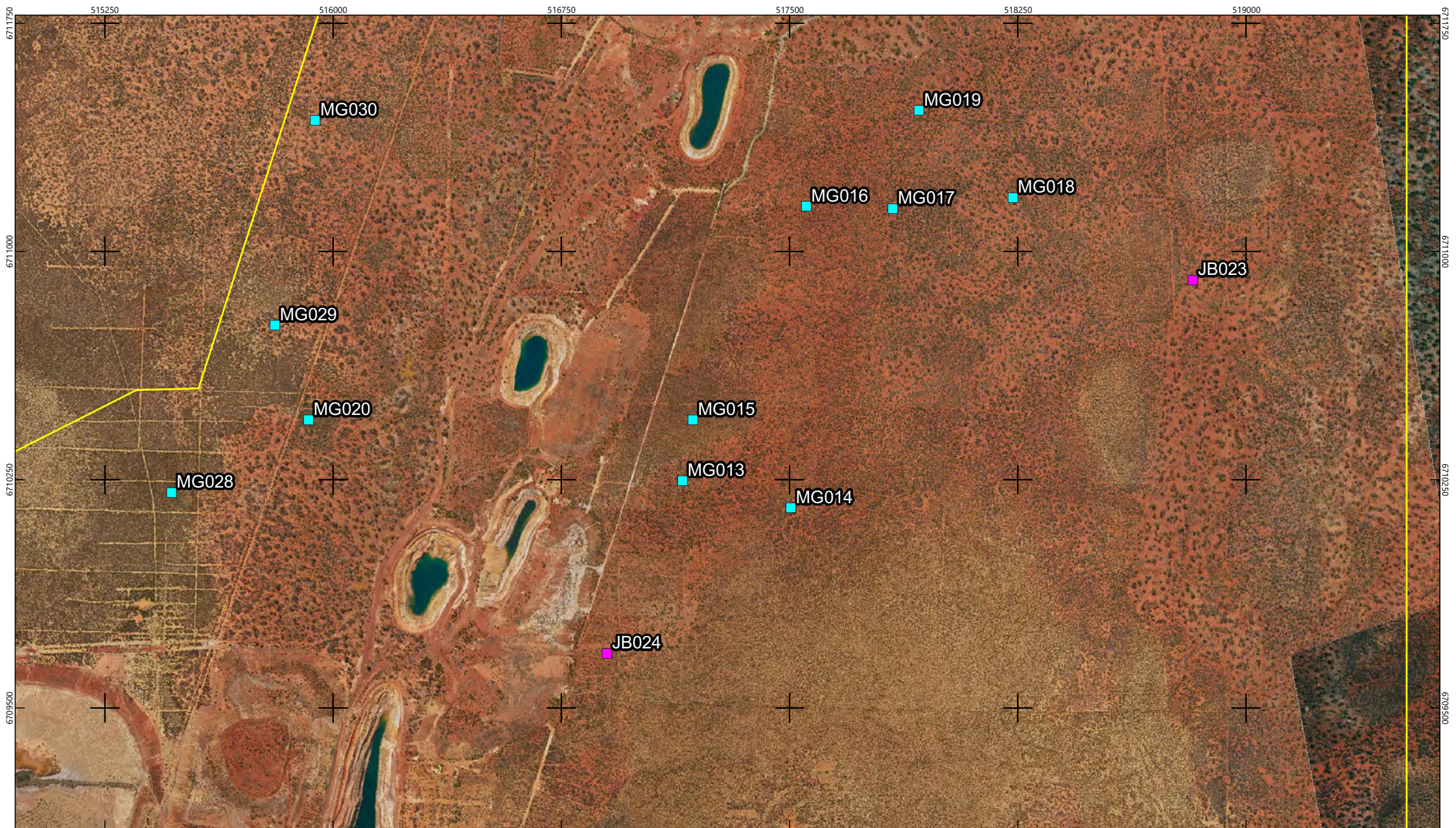


Figure 8d - Quadrat Locations



- Legend**
- Survey Area
 - Quadrat - Spring 2021
 - Quadrat - Spring 2022

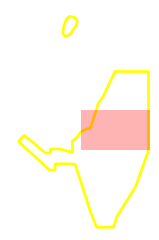
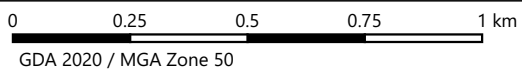


Figure 8e - Quadrat Locations



- Legend**
- Survey Area
 - Quadrat - Spring 2022
 - Relevé - Spring 2022

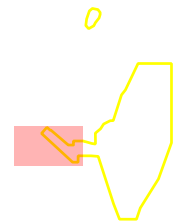
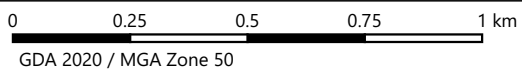
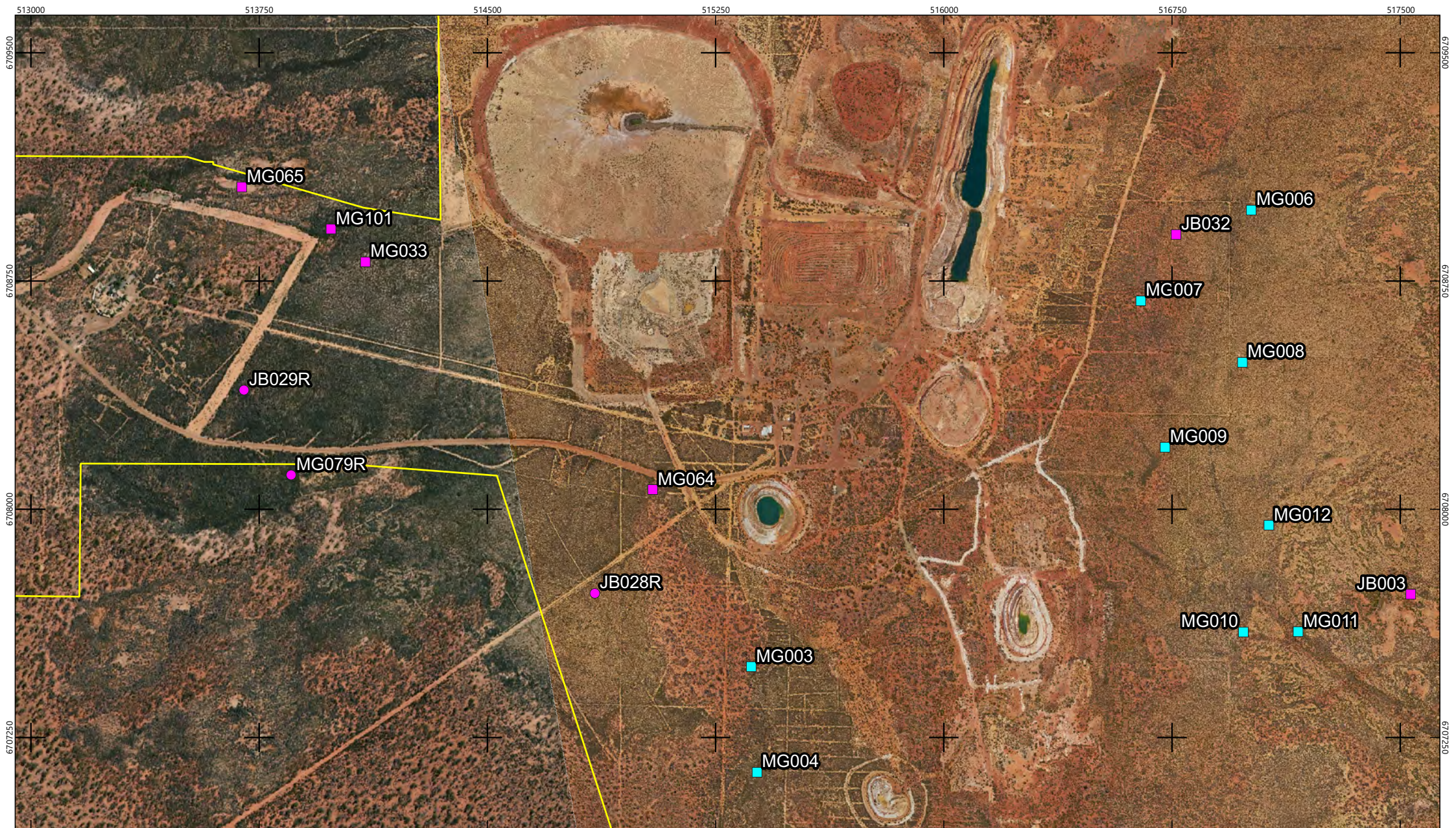


Figure 8f - Quadrat Locations



- Legend**
- Survey Area
 - Quadrat - Spring 2021
 - Quadrat - Spring 2022
 - Relevé - Spring 2022

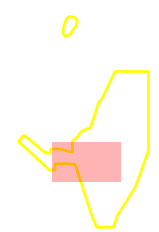
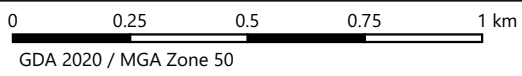
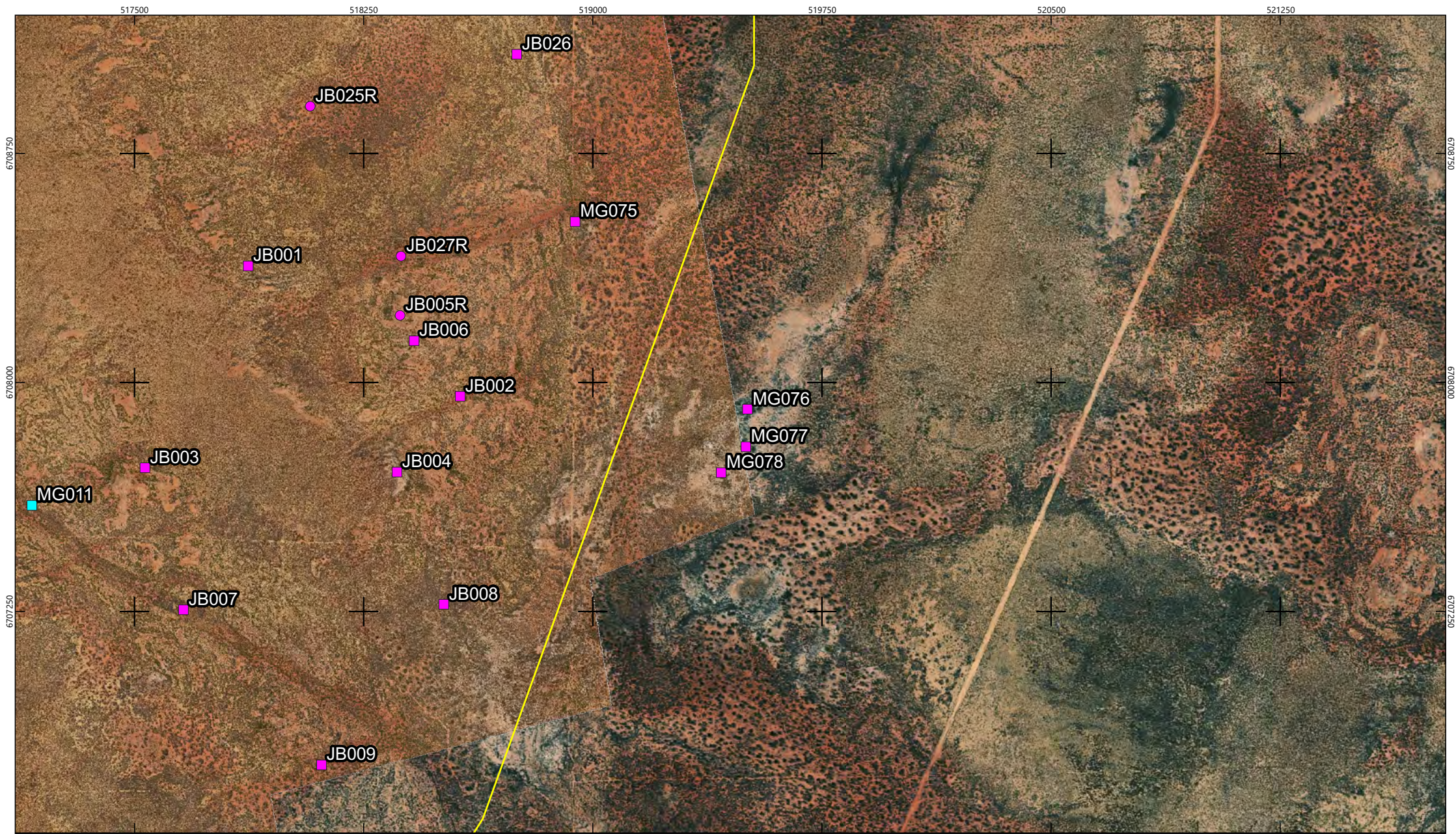


Figure 8g - Quadrat Locations



Legend

- Survey Area
- Quadrat - Spring 2021
- Quadrat - Spring 2022
- Relevé - Spring 2022

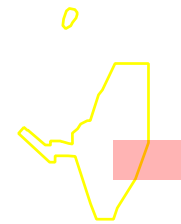
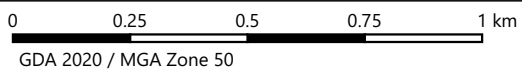
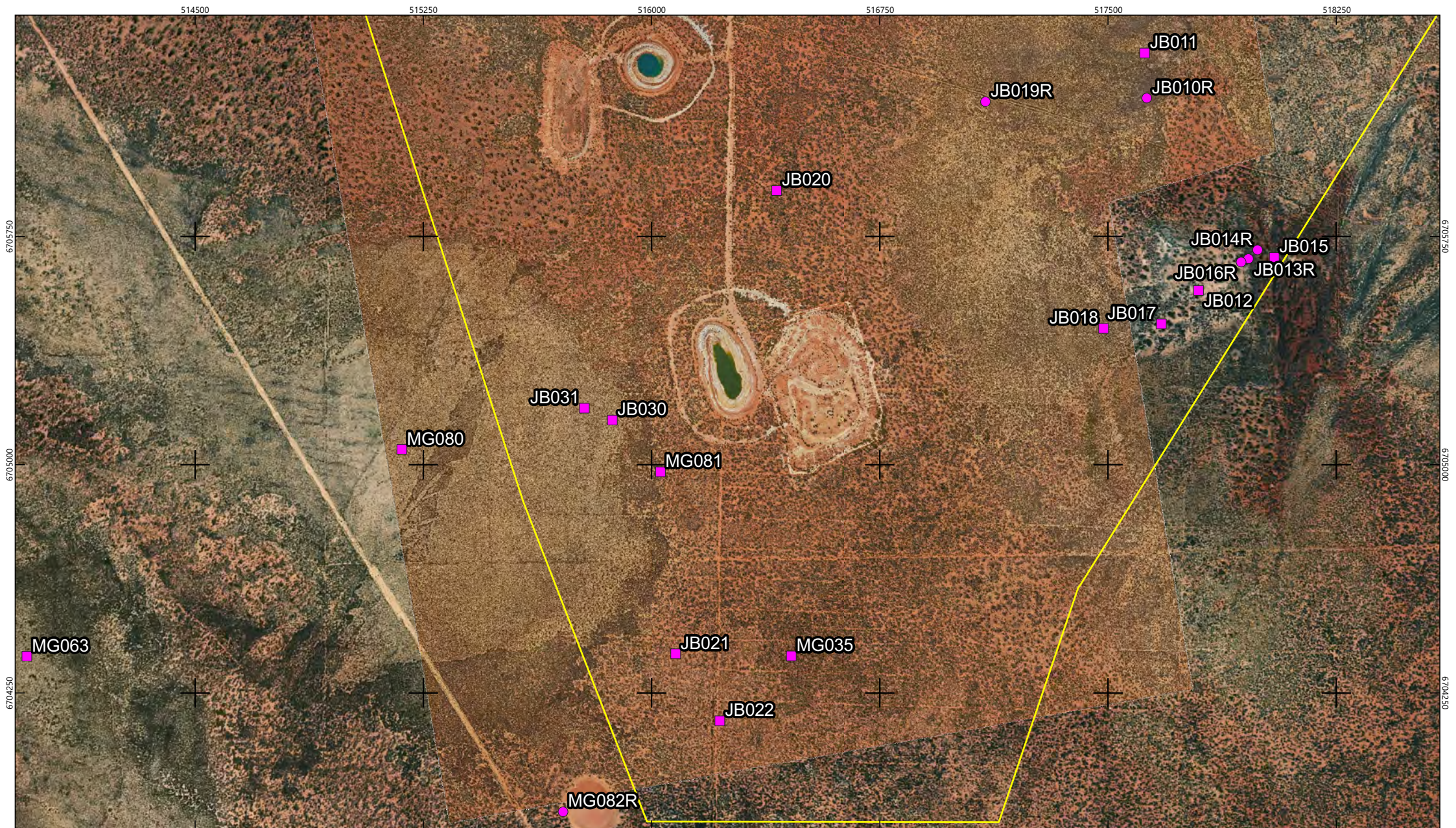


Figure 8h - Quadrat Locations



- Legend**
- Survey Area
 - Quadrat - Spring 2022
 - Relevé - Spring 2022

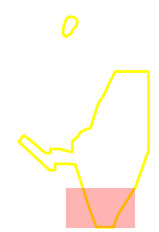


Figure 8i - Quadrat Locations

4.2.2 Traverses

The flora and vegetation values of the survey area were also recorded along walked and driven traverses. A traverse is an unmarked route along which data is collected. Traverses gather information for the general characterisation of flora and vegetation, such as identifying the boundaries of vegetation units, selecting sites for the detailed survey, and targeting significant flora or vegetation. The information recorded along a traverse was dependent on observations made, which was usually recorded as opportunistic data recorded spatially in point or polygon format, to assist with mapping and other results. The extent of traverses is shown in **Figure 9**.

4.2.3 Targeted Significant Flora Surveys

Prior to the field survey, the locations of all Threatened and Priority flora retrieved from the various database searches and literature reviews were collated. Optimal flowering times vary for the species identified in the desktop assessment and the timing of the field assessment attempted to capture the optimal flowering period for most target species.

A proportion of the field assessment time was dedicated to selected targeted searches for relevant flora, in suitable habitats, particularly for those recorded within or in proximity to the survey area. The targeted flora assessment comprised of targeted traverses and opportunistic sampling for significant flora within selected habitats in the survey area and other areas likely to support Threatened or Priority flora (**Figure 9**).

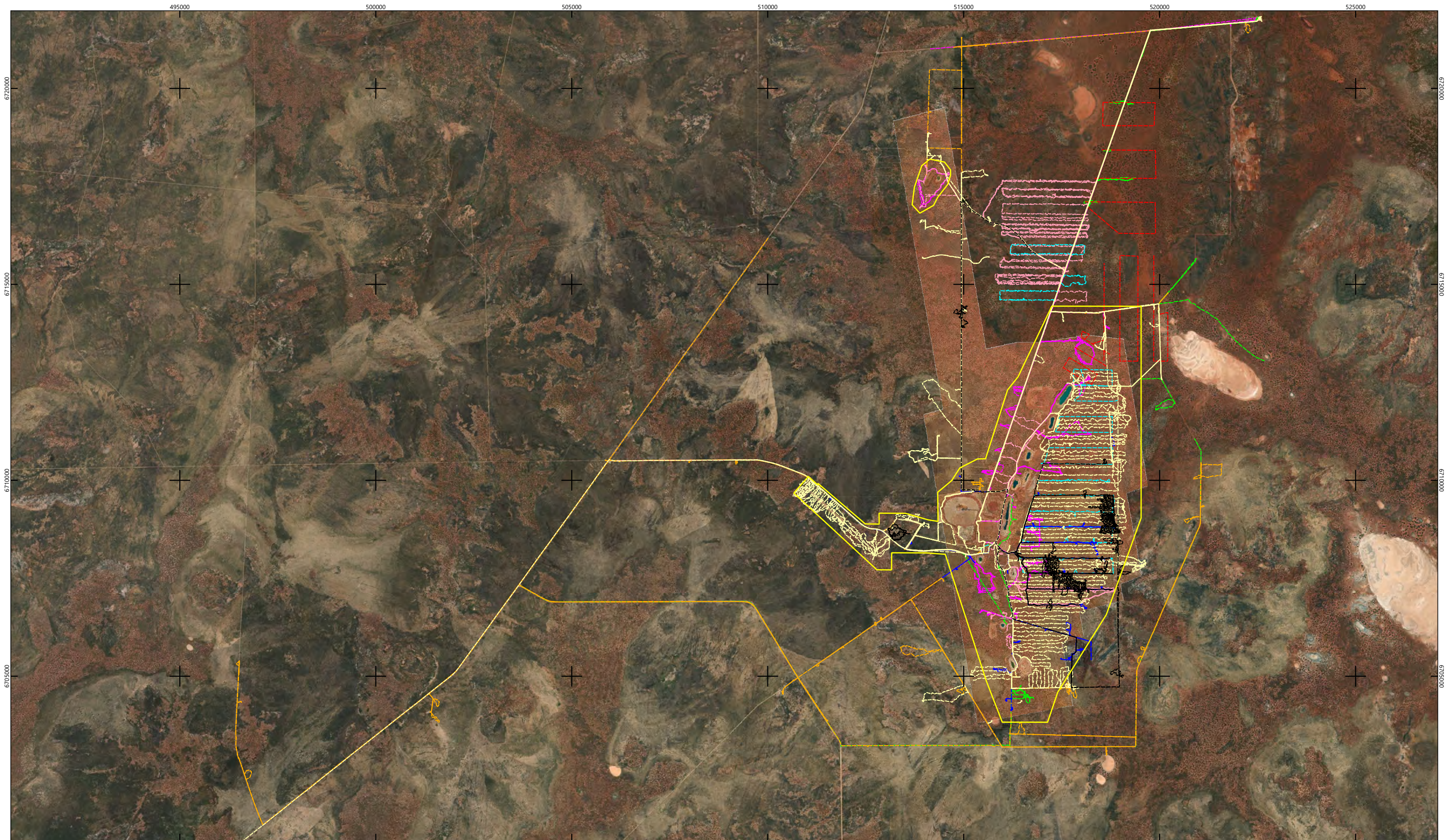
Targeted traverses dedicated to searching for conservation-significant flora, and to map the extent of the Wheatbelt woodlands TEC/PEC, were carried out as a series of parallel transects, spaced between 20 m to 200 m apart, in selected areas of the survey area and surrounding region (to obtain population context). Areas were selected for targeting where the desktop assessment suggested the potential for conservation-significant flora and/or the TEC/PEC (significant features) to occur. Some areas were also targeted to confirm that significant features were not present. The spacing of transects varied dependent on:

- the likelihood of significant features occurring (closer spacing in areas of higher likelihood)
- where significant features had been previously recorded or were recorded during the survey (adjusting the study plan whilst on site)
- if significant numbers of significant flora were consistently being recorded and the volume of data collected could contribute to population size estimates via extrapolation (i.e. where large numbers of individual plants had been consistently recorded across a habitat, and the extent of that habitat was well-defined); enabling allocation of survey effort to a greater distribution across the survey area and nearby region.

Where suspected Threatened or Priority flora were observed and collected, the following data were recorded:

- species or suspected species name/field name and collection code
- GPS location of each individual plant allowing an inventory of the plants/population size
- vegetation unit and condition at the recorded location
- condition of plants
- reproductive status
- photograph.

Across the multiple surveys conducted between September 2021 and March 2023, a total length of 1,949 km of targeted search (including walked and driven) traverses were completed within and surrounding the survey area. To calculate the area addressed by targeted surveys, the traversed lines (polylines) were buffered to 10 m in GIS, based on the average width of visibility in the field. This also allowed determination of the extent of targeted survey, which totalled 484 ha within the survey area and 880 ha for both the survey area and surrounds.



- Legend**
- Survey Area
 - 2021 Sep - 27 to 30
 - 2022 Feb - 23 to 24
 - 2022 May - 15 to 20
 - 2022 June - 13 to 16
 - 2022 June - 14 to 17
 - 2022 July - 25 to 29
 - 2022 Sep - 12 to 17
 - 2022 Nov - 18 to 22
 - 2023 March - 13 to 16

Figure 9 - Targeted Flora Search Traverses



4.2.4 Weeds

Targeted searches for significant introduced flora (weeds), particularly DP plants and WoNS, was carried out in the field assessment (Centre for Invasive Species Solutions 2022). The locations of significant weed species or significant infestations of any weeds observed were recorded.

4.2.5 Flora Inventory

The flora and vegetation data collected from the combination of quadrats, traverses and continuous opportunistic observations contributed to the flora inventory for the survey, including weeds (**Appendix C**).

4.2.6 Vegetation Unit and Condition Mapping

Information collected from quadrats, relevés, traverses and continuous opportunistic observations was used to delineate boundaries between the different vegetation units present within the survey area. This mapping was refined following return from the field, using GIS mapping software.

Flora taxa data from quadrats and relevés were grouped via floristic (PATN analysis, described in more detail in **Section 4.3**) and vegetation units were classified and described based on the dominant species and vegetation structure. The structural vegetation classifications used were in accordance with NVIS Level V (association) vegetation descriptions (NVIS Technical Working Group 2017).

Vegetation condition was recorded at quadrats and relevés and during opportunistic observations, and interpreted from the aerial imagery, or where it was observed that vegetation was rehabilitated (based on upper storey maturity, species composition and apparent historic ground disturbances, such as mining, and clearing for various purposes). The vegetation condition was mapped across the survey area at the same scale as the vegetation mapping. Vegetation condition ratings are in accordance with the scale of EPA (2016b) using the Keighery (1994) condition scale.

4.2.7 Wheatbelt Woodlands Mapping

The broader study area is known to support occurrences of the *Eucalypt woodlands of the Western Australian Wheatbelt Threatened Ecological Community* TEC; also a State-listed P3 Priority Ecological Community (PEC), referred to from herein as the 'Wheatbelt woodlands'. Vegetation of the survey areas has been characterised as representative of the Wheatbelt woodlands and the extent of this community has been assessed in reference to the Conservation Advice (Department of the Environment 2015) and was mapped using high-resolution aerial imagery and multiple, targeted on-ground observations made during field surveys (**Table 9**).

As part of the quadrat-focused assessment, field data in Eucalypt-dominated vegetation, in particular, areas dominated by *Eucalyptus salubris*, *Eucalyptus salmonophloia* and *Eucalyptus capillosa*, as key species that characterise the community, was also gathered to enable reliable interpretation of the Wheatbelt woodlands in the survey area at a desktop level, utilising aerial photography coupled with on-ground observations from numerous targeted surveys, many of which were carried out at fine-scale (tightly spaced transects). Mapping the visible extent of the Wheatbelt woodlands involved using spatial data attributed with field notes and geolocated photographs of dominant tree species collected across the broader study area, and verifying this spatial data with the colour signatures and visual patterns evident in high-resolution aerial imagery in GIS software.

4.3 DATA PROCESSING AND REPORTING

Flora identifications for the phase-one assessment were carried out by botanical taxonomists, Dr Margaret Collins and Kathyayini Tippur, with specialist taxonomists consulted where required.

Flora identifications for the subsequent phase of the survey were carried out by Dr Margaret Collins, Shibi Chandran, Jenny Borger and Olga Nazarova, with specialist taxonomic support, including that of the WA Herbarium, where required.

Data was entered into a Microsoft Access database, and annual taxa were removed for the floristic analysis as per the Guidance Statement for the region (EPA 2016b).

Data analysis was conducted for all flora quadrat and relevé data to group the vegetation units defined across the survey area utilising PATN™ software, Version 3.12 (Belbin and Collins 2006). The floristic analysis included both ordination and cluster analysis. Ordination was carried out in PATN™ using semi-strong hybrid multidimensional scaling (SSH) and two-dimensions (x and y axes) to provide the Euclidean distance between the sites, via a series of regressive and reiterative comparison processes to find the best 'fit', with the degree of 'fit' being the 'stress'. The results are presented in an ordination plot. Cluster analysis was completed using the Bray-Curtis measure of distance in PATN™. Flexible unweighted pair group mean average (UPGMA) fusion was used to generate the site classification (beta = -0.1) and to group the quadrat data into clusters and therefore into separate vegetation units. PATN™ requires the operator to establish where the cut-off line occurs for the delineation of clusters by specifying a total number of groups. The cut-off line is selected where the number of super groups is considered to reflect the diversity of major floristic groups (broad vegetation) that are a reflection of landforms, geology/soils and hydrological conditions, and based on field observations, other data and experience of the botanist/s. The results of cluster analysis are presented in a dendrogram.

Principle component correlation (PCC) was performed to examine the dendrogram groups in relation to one another, and box and whisker plots based on Kruskal-Wallis values were used to estimate the contribution of plant to taxa to defining the vegetation units.

Vegetation units represented in the survey area were then determined based on floristic similarity, vegetation structure, and correlation to edaphic factors. Descriptions for each unit were prepared in accordance with NVIS Level V (Association) (The National Vegetation Information Technical Working Group 2017).

To delineate boundaries for the vegetation units, information was collected in the field from quadrats, relevés, traverses and continuous opportunistic observations combined with aerial photography interpretation, from available regolith mapping (Anand *et al.* 1998) and from geology information (Jones *et al.* 1997).

This report has been prepared in accordance with EPA (2016b) Technical Guidance Flora and Vegetation Surveys for Environmental Assessment, Government of Western Australia.

4.3.1 Sampling Adequacy

Assessment of sampling adequacy was carried out using Estimate S software (Colwell and Coddington 1994; Colwell *et al.* 2022), using the site by species matrix used for the vegetation community analysis. Chao2, Jackknife2 and Bootstrap curves (Sarmah 2017) were selected due to their appropriateness for vegetation data, widespread use and to demonstrate a range of estimates of species richness.

4.4 SURVEY LIMITATIONS

The flora and vegetation assessment was assessed against limitations imposed by many variables (**Table 10**) as outlined in the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).

Table 10 - Study Limitations

Aspect	Constraint	Explanation
Availability of regional data, previously available information	No	There is data, literature and other information available for areas in the Avon Wheatbelt bioregion, such as previous survey reports and the detailed DBCA database search results, which provide evidence of flora and vegetation records that exist for the survey area and surrounds.
Scope (detail)	No	The level of survey detail (two phase detailed and targeted flora and vegetation assessment) was considered appropriate for the assessment of floristic values within a 4,150.03 ha survey of typical floristic variability, impacted by previous periods of dry conditions and historic and ongoing mining and pastoral activity.
Competency/ Experience of personnel	No	The field studies were conducted by personnel working in a group of at least two people, with the team lead having at least nine years of biological survey experience across all of Western Australia. At all stages of the project, personnel with relevant qualifications and experience contributed to the various study tasks, such as flora identifications, floristic analysis, technical reporting and technical review.
Survey effort/ intensity	No	Detailed flora and vegetation and targeted conservation significant flora assessments were carried out in accordance with EPA Guidance (2016a). A total of 85 quadrats and 14 relevés were sampled to define 33 vegetation units. Due to the high diversity of vegetation, despite the significant effort (time) invested into field surveys, the expected (by EPA Technical Guidance) sampling of at least three quadrats per vegetation unit could not be achieved. Given the size of the survey area, a number of the vegetation units comprise of areas of less than 2% of the survey area. The majority of these vegetation units, that were sampled by only one sample site comprise less than 1% of the survey area, and the limited sampling (number of quadrats) reflects the small proportionate area that many of these vegetation units are represented by within the survey area. Although 18 of the 33 defined units are characterised by one (11 units) or two (seven units) sample sites, this is a reflection of the complexity and small proportionate area that such units occupy (as is acknowledged in EPA Guidance (2016a), rather than inadequate survey effort.
Seasonal timing and climatic conditions	No	The timing of the first phase assessment (late September 2021) was considered optimal for the identification of flowering flora and annual and ephemeral species, as most species within the sub-region flower in August and September or following summer or autumn rainfall. Rainfall in August and September 2021 was below average, however rainfall in March, May and July 2021 was above the average. The lower-than-average rainfall during August is considered unlikely to have resulted in a limitation for the survey area due to the exceptionally high rainfall received in the proceeding months. The phase 1 survey effort is considered to have been adequate. The second phase of the survey was carried out in mid-September 2022, in optimum flowering conditions, as August experienced above average rainfall in the region. Rainfall in May, June and July 2022 was below average, however this is considered unlikely that this would have presented a limitation to the 2022 spring survey, since flowering conditions were observed to be very good. The supplementary survey carried out in mid-November 2022, was conducted at a time when less annual species might typically be present, since it is late in the season, albeit within the season recommended by the Technical Guidance (EPA 2016b). However, specimen collections did not suggest constraints in this regard. Flowering timing and the presence of annual and ephemeral species varies across seasons depending on climatic variations from year to year, and the 2022

Aspect	Constraint	Explanation
		<p>spring season demonstrated optimal conditions in terms of flora for the purposes of the surveys, likely due to above average rainfall during 2021 and 2022. The supplementary survey provided additional survey effort to the phase 2 spring survey, and was to provide replication and geographic spread of quadrats for vegetation units assessed in the first and second phases. As the annuals were removed from the floristic analysis, this subset of later season sampling should not have affected the overall species assessment, nor the detection of perennial Priority flora.</p> <p>The seasonal timing of other surveys between and following the main quadrat-focused spring survey events is considered to have been appropriate for the scopes of work each survey addressed, since they were targeted surveys, and for the target community and many of the target taxa, seasonal timing was not constrained (i.e. the Wheatbelt woodlands and most target Priority flora taxa are able to be identified outside flowering season, particularly by field personnel who had become intimately familiar with their appearance from the numerous field surveys.</p> <p>Some specimens did not have adequate material present at the time of the respective field survey to allow for identification to species level, since not all species flower in the same season, or the same month, even if they flower in the same season.</p>
Access	No	<p>The survey area was mostly accessible across the range, with the eastern portion of the survey area being moderately accessible and required to be accessed on foot, adding to the traverse effort of the survey.</p>
Disturbances	No	<p>A large proportion of the survey area has existing roads, tracks, and mining, and the area has been subject to a moderate to high degree of disturbance from clearing. This is particularly true of the area adjacent to the existing mining pits and associated infrastructure. The impact of disturbance decreases outside of the main road that rings the mine site, essentially on the eastern side of the survey area. Historic and relatively recent fire impacts are also evident across much of the survey area, with some vegetation not currently suitable for floristic sampling due to fire effects. Pastoral activities are known to have historically been carried out in the region, although obvious degradation resulting from such activities is not evident in the survey area, it is likely that the current diversity and structure of the vegetation has been affected by this in comparison to that of the pre-European vegetation. The observed vegetation degradation did not impede the definition of biological values present within the areas of better-quality vegetation present but has impeded mapping of areas previously heavily disturbed.</p>

5 RESULTS

5.1 DESKTOP ASSESSMENT

5.1.1 Previous Flora and Vegetation Surveys

The key flora and vegetation results of the eight previous publicly available biological surveys that have been included in the literature review are summarised in **Table 11**.

Table 11– Summary of Literature Review of Previous Surveys Near the Survey Area

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
Jennifer Borger Botanical Consultant (2014) <i>Vegetation and Flora Survey of the Legend Airstrip Proposed Extension Area.</i>	Within the survey area	Vegetation and Flora Survey	May 2014	<ul style="list-style-type: none"> Total 93 native flora taxa recorded No introduced flora taxa recorded No threatened or priority flora taxa No TECs or PECs recorded.
EcoLogical Australia (2020) <i>Mount Gibson Gold Exploration Drill Program Targeted Flora and Fauna Survey.</i>	Intersects with the survey area	Targeted Flora and Fauna Survey	September 2019	<ul style="list-style-type: none"> 2 significant flora taxa: <ul style="list-style-type: none"> <i>Philotheca nutans</i> (P1) <i>Acacia imitians</i> (P4) (later determined to be a mis-identification)
Macfarlane <i>et. al.</i> (2010) <i>Bush Blitz on Karara, Lochada and Kadji Kadji Pastoral Leases and Charles Darwin Reserve, Western Australia</i> , report to Australia Biological Resources Study, Department of the Environment, Water, Heritage and the Arts.	<p>Charles Darwin Reserve – 1.5 km west</p> <p>Karara Reserve – 42 km north-west</p> <p>Lochada Reserve – 63 km north-west</p> <p>Kadji Kadji Reserve – 90 km north-west</p>	Biological Survey	September 2009	<ul style="list-style-type: none"> 1226 flora taxa recorded. 28 significant flora taxa: <ul style="list-style-type: none"> <i>Acacia woodmaniorum</i> (T) <i>Eremophila nivea</i> (T) <i>Eucalyptus synandra</i> (T) <i>Chamelaucium</i> sp. Warriedar (A.P. Brown & S. Patrick APB 1100) (P1) <i>Eucalyptus jutsonii</i> subsp. <i>kobela</i> (P1) <i>Gnephosis setifera</i> (P1) <i>Gunniopsis divisa</i> (P1) <i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468) (P1) <i>Millotia dimorpha</i> (P1) <i>Rhodanthe collina</i> (P1), now (P3) <i>Stylidium</i> sp. <i>Yalgoo</i> (D. Coultas et al. Opp 01) (P1), now <i>Stylidium scintillans</i> (T) <i>Tricoryne</i> sp. Morawa (G.J. Keighery & N. Gibson 6759) (P1), now <i>Tricoryne tuberosa</i> and delisted from Priority Species list <i>Acacia diallaga</i> (P2), now P1 <i>Acacia karinae</i> (P2), now P1 <i>Fitzwillia axilliflora</i> (P2) <i>Hydrocotyle coorowensis</i> (P2), now <i>Hydrocotyle spinulifera</i> (P3) <i>Persoonia kararae</i> (P2) <i>Stenanthemum poecilum</i> (P2), now P3 <i>Austrostipa blackii</i> (P3) (since delisted from Priority Species list) <i>Calotis</i> sp. Perrinvale Station (R.J. Cranfield 7096) (P3) <i>Drummondita fulva</i> (P3) <i>Grevillea globosa</i> (P3) <i>Grevillea granulosa</i> (P3) <i>Grevillea scabrida</i> (P3) <i>Gunniopsis rubra</i> (P3) (since delisted from Priority Species list)

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
				<ul style="list-style-type: none"> ○ <i>Lepidobolus densus</i> (P3), now P4 ○ <i>Melaleuca barlowii</i> (P3) ○ <i>Micromyrtus acuta</i> (P3) ○ <i>Micromyrtus trudgenii</i> (P3) ○ <i>Persoonia pentasticha</i> (P3) ○ <i>Petrophile pauciflora</i> (P3) ○ <i>Polianthion collinum</i> (P3) ○ <i>Psammomoya implexa</i> (P3) ○ <i>Spartothamnella</i> sp. Helena & Aurora Range (P.G. Armstrong 155-109) (P3), now <i>Teucrium disjunctum</i> and since delisted from Priority Species list ○ <i>Tecticornia fimbriata</i> (P3) ○ <i>Banksia benthamiana</i> (P4) ○ <i>Ptilotus halophilus</i> (P4) (since delisted from Priority Species list) ○ <i>Wurmbea murchisoniana</i> (P4).
Macfarlane TD (2009) <i>Biodiversity survey pilot project at Charles Darwin Reserve, Western Australia Vascular Plants. report to the Australian Biological Resources Study, Department of the Environment, Water, Heritage and the Arts, Canberra.</i>	1.5 km west	Biodiversity Survey	May 2009	<ul style="list-style-type: none"> • 372 flora taxa recorded. • 23 undescribed flora taxa recorded.
EnviroWorks Consulting (2013) <i>Level 2 Flora and Vegetation Survey – Mummaloo.</i>	4 km north-east	Detailed Flora and Vegetation Assessment. 151 quadrats sampled and 35 relevé	July and October 2011, August and October 2012, March 2013	<ul style="list-style-type: none"> • 176 native flora taxa recorded • 7 floristic communities recorded • 7 introduced flora taxa • No TECs or PECs recorded • 4 significant flora taxa <ul style="list-style-type: none"> ○ <i>Allocasuarina tessellata</i> (P1), now (P3) ○ <i>Grevillea scabrida</i> (P3) ○ <i>Grevillea subtiliflora</i> (P3) ○ <i>Persoonia pentasticha</i> (P3).
ATA Environmental (2007) <i>Flora, Vegetation and Fauna Assessment - Proposed haul road along Wanarra road and Perenjori Rothsay road. unpublished report for Mount Gibson Mining Limited.</i>	5 km north-west	Detailed Flora, Vegetation, and Fauna Assessment	January 2007	<ul style="list-style-type: none"> • 39 vegetation units recorded • No TECs or PECs were recorded • 144 flora taxa recorded • 4 introduced flora taxa recorded • 6 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Chamelaucium</i> ?sp. Yalgoo(P1) ○ <i>Cryptandra imbricata</i> (P3) ○ <i>Gnephosis setifera</i> (P1) ○ <i>Philotheca nutans</i> (P1) ○ <i>Podotrochea unisetata</i> (P3) ○ <i>Psammomoya implexa</i> (P3).
Gibson N, Keighery GJ, Lyons MN, Webb A (2004) <i>Terrestrial Flora and Vegetation of the Western Australian Wheatbelt.</i> Records of the Western Australian Museum, <i>Supplement 67, 139.</i>	Avon Wheatbelt	Terrestrial Flora and Vegetation Study. 682 quadrats sampled	October 1997 to September 2000	<ul style="list-style-type: none"> • 26 assemblages recorded • 2609 flora taxa recorded • 8 previously unrecognized taxa • 15 Declared Rare taxa • 161 priority flora taxa.

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
Ecologia Environment (2016) <i>Mount Gibson Mining Iron Hill Flora and Vegetation Assessment based on regional and local floristic analysis. unpublished report for Mount Gibson Mining.</i>	10 km north	Detailed Flora and Vegetation Assessment with 17 quadrats	April/May 2015	<ul style="list-style-type: none"> 6 Vegetation units recorded 156 flora taxa recorded 8 introduced flora taxa 1 significant flora taxa: <ul style="list-style-type: none"> <i>Darwinia masonii</i> (T)
EcoLogical Australia (2016) <i>Mount Gibson Level 2 Flora and Vegetation Survey.</i>	10 km north	Detailed Flora and Vegetation Survey and Targeted Search with 60 quadrats in three locations	October 2015 and February 2016	<ul style="list-style-type: none"> 22 floristic groups recorded 156 flora taxa recorded 5 significant flora taxa: <ul style="list-style-type: none"> <i>Eucalyptus synandra</i> (T/VU) <i>Darwinia masonii</i> (T/VU) <i>Lepidosperma gibsonii</i> (T/VU) <i>Philothea nutans</i> (P1) <i>Acacia cerastes</i> (P1).
Meissner & Caruso (2008) <i>Flora and vegetation of the banded iron formations of the Yilgarn Craton: Mount Gibson and surrounding area.</i>	10 km north	Level 2 Flora and Vegetation Survey with 50 permanent quadrats	September and October 2005	<ul style="list-style-type: none"> 7 vegetation units recorded. 243 flora taxa recorded. 8 significant flora taxa: <ul style="list-style-type: none"> <i>Acacia cerastes</i> (P1) <i>Austrostipa blackii</i> (P3) (since delisted from Priority Species list) <i>Darwinia masonii</i> (T) <i>Dodoniaea amplisemina</i> (P3) now P4 <i>Micromyrtus</i> sp. Warriedar (S. Patrick 1879A) (P1), now <i>Micromyrtus trudgenii</i> (P3) <i>Persoonia pentasticha</i> (P2), now p3 <i>Podothea unisetata</i> (P3) <i>Rhodanthe collina</i> (P1), now P3.
Bennett Environmental Consulting Pty Ltd (2000) <i>Flora and Vegetation of Mt Gibson. unpublished report for Mt Gibson Iron Limited.</i>	10 km north	Detailed Flora and Vegetation Assessment with 62 quadrats	September 2000	<ul style="list-style-type: none"> 24 vegetation units recorded 285 flora taxa recorded 21 introduced flora taxa recorded 4 significant flora taxa: <ul style="list-style-type: none"> <i>Darwinia masonii</i> (T) <i>Eucalyptus synandra</i> (T) <i>Acacia cerastes</i> (P1) <i>Acacia acanthoclada</i> subsp. <i>glaucescens</i> (P3) (since delisted from Priority Species list)
Paul Armstrong and Associates (2004) <i>Vegetation assessment and rare flora search between Perenjori and Mt Gibson.</i>	15-90 km north and north-west	Vegetation assessment and rare flora search	September and October 2003	<ul style="list-style-type: none"> 33 vegetation units recorded. 354 flora taxa recorded. 18 significant flora taxa: <ul style="list-style-type: none"> <i>Darwinia masonii</i> (T) <i>Eucalyptus synandra</i> (T) <i>Acacia cerastes</i> (P1) <i>Allocasuarina tessellate</i> (P1) <i>Chamelaucium</i> ?sp. Yalgoo (Y. Chadwick 1816) (P1) <i>Dodoniaea</i> sp. Ninghan (H. Demarz 5121) (P1) <i>Gnephosis setifera</i> (P1) <i>Leptospermum exsertum</i> (P1) <i>Philothea nutans</i> (P1) <i>Baeckea</i> sp. Perenjori (J.W. Green 1516) (P2) <i>Persoonia pentasticha</i> (P2)

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
				<ul style="list-style-type: none"> ○ <i>Acacia acanthoclada</i> subsp. <i>glaucescens</i> (P3) ○ <i>Cryptandra imbricata</i> (P3) ○ <i>Podotheca uniseta</i> (P3) ○ <i>Psammomoya implexa</i> (P3) ○ <i>Calothamnus</i> aff. <i>oldfieldii</i> ○ <i>Grevillea</i> aff. <i>Yorkkrakensis</i> ○ <i>Prostanthera</i> ?<i>serpyllifolia</i> subsp. <i>serpyllifolia</i>.
Coffey Environments (2009) <i>Flora and Vegetation Assessment proposed Three Springs to Mount Gibson Ranges 330kV transmission line V3. unpublished report for Extension Hill Pty Ltd.</i>	25 km north-west	Flora and Vegetation Assessment	November 2008	<ul style="list-style-type: none"> • 68 vegetation units recorded • 120 flora taxa recorded • 7 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Acacia cerastes</i> (P1) ○ <i>Chamelaucium</i> sp. Yalgoo (Y. Chadwick 1816) (P1) ○ <i>Gnephosis setifera</i> (P1) ○ <i>Grevillea granulosa</i> (P3) ○ <i>Philotheca nutans</i> (P1) ○ <i>Podotheca uniseta</i> (P3) ○ <i>Psammomoya implexa</i> (P3).
ATA Environmental (2006) <i>Flora and vegetation assessment - Proposed slurry pipeline Mount Gibson to Geraldton Port. unpublished report for Mount Gibson Mining Limited.</i>	25 km north-west	Detailed Flora, Vegetation, and Fauna Assessment	July and September 2005	<ul style="list-style-type: none"> • 82 vegetation units recorded • 217 flora taxa recorded • 15 introduced flora taxa recorded • 7 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Acacia acanthoclada</i> subsp. <i>glaucescens</i> (P3) (since delisted from Priority Species list) ○ <i>Chamelaucium</i> ?sp. Yalgoo (Y. Chadwick 1816) (P1) ○ <i>Cryptandra imbricata</i> (P3) (since delisted from Priority Species list) ○ <i>Gnephosis setifera</i> (P1) ○ <i>Philotheca nutans</i> (P2) now P1 ○ <i>Podotheca uniseta</i> (P3) ○ <i>Psammomoya implexa</i> (P3).
Spectrum Ecology Pty Limited (2020) <i>Mount Mulgine Flora & Vegetation Assessment.</i>	55 km north-west	Detailed Flora and Vegetation Assessment. 58 quadrats	September 2019, March 2020	<ul style="list-style-type: none"> • 270 native flora taxa recorded • 15 introduced flora taxa • 7 vegetation units recorded • No TECs or PECs recorded • 18 significant flora taxa recorded: <ul style="list-style-type: none"> ○ <i>Acacia diallaga</i> (P1) ○ <i>Acacia karina</i> (P1) ○ <i>Acacia sulcatacaulis</i> (P1) ○ <i>Allocasuarina tessellata</i> (P1) ○ <i>Chamelaucium</i> sp. <i>Warriedar</i> (A.P. Brown & S. Patrick APB 1100) (P1) ○ <i>Grevillea scabrida</i> (P1) ○ <i>Hemigenia tichbonii</i> (P1) ○ <i>Hydrocotyle dimorphocarpa</i> (P1) ○ <i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468) (P1) ○ <i>Prostanthera</i> sp. Karara (D. Coultas & K. Greenacre Opp 8) (P1) ○ <i>Drummondita fulva</i> (P3) ○ <i>Grevillea globosa</i> (P3) ○ <i>Grevillea subtiliflora</i> (P3) ○ <i>Micromyrtus acuta</i> (P3) ○ <i>Micromyrtus trudgenii</i> (P3) ○ <i>Persoonia pentasticha</i> (P3) ○ <i>Rhodanthe collina</i> (P3) ○ <i>Stenanthemum poicilum</i> (P3)

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
				<ul style="list-style-type: none"> ○ <i>Dodonaea amplisemina</i> (P4).
Animal Plant Mineral Pty Ltd (2018) <i>Mt Mulgine Project Biological Survey. Rothsay, WA. unpublished report for Tungsten Mining NL.</i>	64 km north west	Three-phase Detailed Flora and Vegetation Survey	November 2016, 2017, and 2018	<ul style="list-style-type: none"> • 10 vegetation units recorded • 117 flora taxa recorded • 9 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Acacia karinae</i> (P1) ○ <i>Acacia sulcicaulis</i> (P1) ○ <i>Allocasuarina tessellata</i> (P1) ○ <i>Drummondita fulva</i> (P3) ○ <i>Grevillea scabrida</i> (P1), now P3 ○ <i>Grevillea subtiliflora</i> (P3) ○ <i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468) (P1) ○ <i>Micromyrtus trudgenii</i> (P3) ○ <i>Persoonia pentasticha</i> (P3).
Umwelt (Australia) Pty Limited (2022) <i>Flora, Vegetation and Fauna Impact Assessment, Karara Project expansion.</i>	90 km north-west	Targeted and Detailed Flora and Vegetation Assessment. 853 quadrats sampled	Spring 2020	<ul style="list-style-type: none"> • 32 vegetation units recorded • 27 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Acacia woodmaniorum</i> (T) ○ <i>Stylidium scintillans</i> (T) ○ <i>Acacia karinae</i> (P1) ○ <i>Caesia</i> sp. Koolanooka Hills (R. Meissner & Y. Caruso 78) (P1) ○ <i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468) (P1) ○ <i>Millotia dimorpha</i> (P1) ○ <i>Prostanthera</i> sp. Karara (D. Coultas & K. Greenacre Opp 8) (P1) ○ <i>Swainsona</i> sp. Karara (C. Godden & J. Hruban 24-26) now <i>Swainsona picta</i> (P1) ○ <i>Calandrinia ?kalanniensis</i> (P2) ○ <i>Allocasuarina tessellata</i> (P3) ○ <i>Austrostipa blackii</i> (P3) (since delisted from Priority Species list) ○ <i>Calotis</i> sp. Perrinvale Station (R.J. Cranfield 7096) (P3) ○ <i>Drummondita fulva</i> (P3) ○ <i>Grevillea globosa</i> (P3) ○ <i>Grevillea scabrida</i> (P3) ○ <i>Grevillea subtiliflora</i> (P3) ○ <i>Gunniopsis divisa</i> (P3) ○ <i>Hibbertia cockertoniana</i> (P3) ○ <i>Melaleuca barlowii</i> (P3) ○ <i>Micromyrtus acuta</i> (P3) ○ <i>Micromyrtus trudgenii</i> (P3) ○ <i>Persoonia pentasticha</i> (P3) ○ <i>Petrophile pauciflora</i> (P3) ○ <i>Polianthion collinum</i> (P3) ○ <i>Rhodanthe collina</i> (P3) ○ <i>Stenanthemum poecilum</i> (P3).
Maia Environmental (2020) <i>EMR Golden Grove: Detailed Flora and Vegetation Assessment and Stylidium scintillans Census.</i>	110 km north	Detailed Flora and Vegetation Assessment	August and September 2019	<ul style="list-style-type: none"> • 13 vegetation units recorded • 241 flora taxa recorded • 5 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Stylidium scintillans</i> (T) ○ <i>Calotis</i> sp. Perrinvale Station (R.J. Cranfield 7096) (P3) ○ <i>Drummondita fulva</i> (P3) ○ <i>Grevillea globosa</i> (P3) ○ <i>Micromyrtus trudgenii</i> (P3).
FI Joint Venture (2019) <i>Yogi Magnetite Project Flora and Vegetation.</i>	170 km north	Detailed and Targeted Flora and	August to October 2018	<ul style="list-style-type: none"> • 9 vegetation units recorded • One PEC was identified within the survey, the <i>Yalgoo</i> (<i>Gnows Nest/Wolla Wolla</i> and

Report Title	Distance to Survey Area (km)	Survey Scope	Survey Timing	Significant Results
		Vegetation Assessment		<p><i>Woolgah-Wadgingarra</i> vegetation complexes (banded ironstone formation) (P1)</p> <ul style="list-style-type: none"> • 233 flora taxa recorded. • 3 significant flora taxa: <ul style="list-style-type: none"> ○ <i>Acacia subsessilis</i> (P3) ○ <i>Acacia speckii</i> (P4) ○ <i>Dodonaea amplisemina</i> (P4).

5.1.2 Threatened and Priority Flora

A review of data from DBCA database search [Ref: 16-0921FL] (DBCA pers coms 2021), NatureMap (DBCA 2023a) and the Protected Matters Search Tool (PMST) (DCCEEW 2023b) for the survey area plus a 40 km buffer (study area), identified 77 conservation-significant flora species that may occur within the survey area (**Table 12**). For each species their likelihood of occurrence within the survey area was assessed, considering proximity of known populations and if suitable habitat could occur within the survey area. Of the 77 Threatened and Priority flora taxa, five were considered likely to occur within the survey area and nine are known to occur. Of the remaining taxa, 410 may occur and 22 were considered unlikely to occur in the survey area. The location of known populations of conservation-significant flora in the study area resulting from DBCA database searches and previous surveys for the project are spatially displayed in **Figure 10** series.

Table 12 - Threatened and Priority Flora with the Potential to Occur within the Survey Area

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Gyrostemon reticulatus</i>	Critically Endangered	Critically Endangered	Perennial, erect, and compact shrub growing to 0.4 m high. Produces male (golden yellow) and female (white yellow) flowers.	Yellow wet sand plain.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	PMST
<i>Pigea cymulosa</i>	Critically Endangered	Critically Endangered	Perennial herb growing to 0.15 to 0.9 m high. Flowers blue-purple, May to July.	Clay, rocky loam clay.	Unlikely – suitable habitat is not known to be present within survey area. Nearest known location is 13.7 km from the survey area.	DBCA, NatureMap, PMST
<i>Eremophila nivea</i>	Endangered	Critically Endangered	Erect compact shrub growing 1 m tall and 1 m wide, with spreading branches. Branches and leaves covered with woolly silvery coloured hairs.	Moist grey-brown clay loam over granite boulders or drainage line with inclination.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Acacia woodmaniorum</i>	Endangered	Endangered	Sprawling and intricately branched, prickly, hard shrub growing 1-2 m high. Flowers are pentamerous. Pods flat, straight and curved, and glabrous. Continuous and decurrent phyllodes that form bifarious wings along the branches, with the free portion of the phyllodes bearing 2 or 3 prominent spines.	Grows in loam or silt on banded ironstone ridges of hematite and magnetite. Typically on slopes, side of the hills, crest of the ridges, ranges, and disturbed overburden of mine sites.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)
<i>Eremophila viscida</i>	Endangered	Endangered	Shrub growing 1.2 to 4 m high. Produces green, white, and yellow flowers between September and November.	Granitic soils, sandy loam. Stony gullies, sandplains.	Occurs within survey area – habitat present within survey area. Two individuals were recorded within the eastern portion of the survey area on sandy loam soil on granite.	FVC (2023), PMST
<i>Frankenia conferta</i>	Endangered	Vulnerable	Perennial compact shrub growing to 0.2 m high. Produces white flowers.	Salt Lake. Coarse white sand over clay.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	PMST

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Roycea pycnophylloides</i>	Endangered	Vulnerable	Perennial herb forming densely branched, silvery mats growing 1 m wide. Produces flowers in September.	Sandy soils, clay and saline flats.	Unlikely -suitable habitat is not known to be present within survey area. Survey area is outside known range.	PMST
<i>Acacia imitans</i>	Endangered	Priority 4	Low, dense, spreading, intricate and prickly shrub. Growing to 0.2 to 1 m high and 2 m wide. Produces yellow flowers between August and September.	Rocky red loam. Rocky hills.	May occur – suitable habitat may occur in the survey area. Nearest known location is 8 km from the northern section of the survey area.	DBCA, EcoLogical (2020), NatureMap, PMST
<i>Darwinia masonii</i>	Vulnerable	Critically Endangered	Erect shrub growing 1 to 2 metres (m) high. Produces red flowers between July to November.	Sandy soils over laterite, often soils. Hillsides, laterite outcrops.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	Bennett Environmental (2000), DBCA, Ecologia (2016), EcoLogical (2016), Meissner & Caruso (2008), NatureMap, Paul Armstrong and Associates (2004), PMST
<i>Eucalyptus synandra</i>	Vulnerable	Vulnerable	Mallee with smooth bark growing to 3.5 to 10 m high. Produces cream and pink flowers in August, December, or January to March.	Sandy and lateritic soils.	May occur - suitable habitat may occur in the survey area. Nearest known location is 2.8 km from the survey area.	Bennett Environmental (2000), DBCA, EcoLogical (2016), Macfarlane <i>et al.</i> (2010), NatureMap, Paul Armstrong and Associates (2004), PMST
<i>Lepidosperma gibsonii</i>	-	Endangered	Tufted rhizomatous and perennial herb (sedge). Leaves measuring to 0.35 to 0.45 m high, culms and leaves spirodistichous.	Shallow soil over massive, banded ironstone. Gullies and slopes.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	DBCA, EcoLogical (2016), NatureMap
<i>Stylidium scintillans</i>	-	Vulnerable	Ephemeral bulbous herb growing 0.4-0.8 m high. Corolla lobes paired vertically with white and red-pink throat markings, stained red-pink on reverse. Upper lobes are narrow and	Brown clay loam over granite outcrop.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Maia Environmental (2020), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
			falcate. Throat appendages sum to 6 comprising of white, bubble-like protrusions. Labellum is whitish pink with a long terminal appendage and short column which is yellow at the base, and reddish at bend and distal end.			
<i>Acacia ampliata</i>	-	Priority 1	Shrub or tree growing to 2 to 5 m high with longitudinally finely fissured bark. Produced yellow flowers in April to August, October or December.	Red/orange sand, sandy loam, loam. Sandplains, hillsides.	May occur - suitable habitat may occur in the survey area. Nearest known location is 16 km from the survey area.	DBCA
<i>Acacia cerastes</i>	-	Priority 1	Erect intricate and much-branched shrub growing to 1.5 m high. Produces yellow flowers yellow in August or November.	Skeletal soil. Rocky ironstone hillslopes.	Unlikely – suitable habitat is not known to be present within survey area. Nearest known location is 7 km from survey area.	Bennett Environmental (2000), Coffey Environment (2009), DBCA, EcoLogical (2016), Meissner & Caruso (2008), NatureMap, Paul Armstrong and Associates (2004)
<i>Acacia diallaga</i>	-	Priority 1	Dense spreading shrub growing up to 3 m high. Phyllodes are narrowly elliptic to oblong and slightly asymmetric. Flower spikes are 5-10 mm long and yellow in colour, occurring during September.	Slopes and crests of low rocky hills on skeletal soils. Associated with <i>Acacia</i> and <i>Allocasuarina</i> open shrublands.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Acacia karinae</i>	-	Priority 1	Openly branched shrub growing up to 3 m high. Phyllodes are continuous with branches, filiform, between 10-32 cm long and with eight longitudinal nerves. Flower spikes are 15-60 mm long and yellow in colour, occurring from May to July.	On a range of soils over banded ironstone formations or occasionally granite in shrubland vegetation.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 64 km north-west of the survey area.	Animal Plant Mineral (2018), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Acacia</i> sp. Goodlands (B.R. Maslin 7761)	-	Priority 1	Dense domed shrub growing to 0.3 to 0.6 m high. Phyllodes terete at 75 to 150 millimetres (mm) long, inflorescences simple, heads globular; pods 2 to 2.5 mm wide. Produces yellow flowers in September.	Brown/yellow sandy loam flats.	May occur - suitable habitat may occur in the survey area. Nearest known location is 23 km from the survey area.	DBCA
<i>Acacia</i> sp. Kalannie North (B.R. Maslin 7702)	-	Priority 1	Harsh erect shrub growing to 1 to 2 m high. Flat phyllodes at 8 to 10 mm long, glabrous; inflorescences simple, heads globular, pods 2 to 3 mm wide. Produces yellow flowers in July.	Low rise, weathered granite.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 22 km south-east of the survey area.	NatureMap
<i>Acacia sulcatacaulis</i>	-	Priority 1	Multistemmed obconic shrub growing up to 4 m high. Stems and branches are fluted with narrowly elliptic phyllodes. Flowers are yellow in colour with 3-7 mm long peduncles. Flowering period is in September.	Red silty loam soils with quartz on steep slopes, ridges and along rock creek courses. Typically found in shrubland typically with <i>Acacia burkittii</i> and <i>Allocasuarina acutivalvis</i> .	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 64 km north-west of the survey area.	Animal Plant Mineral (2018)
<i>Caesia</i> sp. Koolanooka Hills (R. Meissner & Y. Caruso 78)	-	Priority 1	Perennial herb that grows up to 0.3 m high. Flowering period is in November	Orange to red or brown soils on banded ironstone formations on steep to slight hill slopes and crests.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 90 km north-west of the survey area.	Umwelt (2022)
<i>Chamelaucium</i> sp. Warriedar (A.P. Brown & S. Patrick APB 1100)	-	Priority 1	Erect to spreading shrub grows to 1 m high. Flowers are yellow in colour.	Red clay loam on midslope or slope of basalt.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Chamelaucium</i> sp. Yalgoo (Y. Chadwick 1816)	-	Priority 1	Bushy, low shrub.	Granite outcrops.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	ATA Environmental (2006), ATA Environmental (2007), Coffey Environment (2009), DBCA, NatureMap, Paul

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
						Armstrong and Associates (2004)
<i>Eucalyptus jutsonii</i> subsp. <i>kobela</i>	-	Priority 1	Mallee growing to 8 m high with grey, stringy-fibrous bark, rough over most of the stems. Glossy green leaves. Buds are double conic.	Deep yellow to orange sand on broad and subdued rises high in the landscape.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Gnephosis setifera</i>	-	Priority 1	Prostrate herb spreading 0.6 m in diameter and up to 0.2 m in height. Producing yellow flowers in September.	Moist saline brown sand or clay on lake edges.	May occur - suitable habitat may occur in the north-east portion of the southern survey area. Nearest known location is approximately 10 km north of the survey area.	ATA Environmental (2006), ATA Environmental (2007), Coffey Environment (2009), Macfarlane <i>et al.</i> (2010), Paul Armstrong and Associates (2004)
<i>Hemigenia tichbonii</i>	-	Priority 1	Shrub growing to 1.5 m tall. Produces mauve, purple, lilac or violet flowers in August or October.	Red clay-loam, light brown sandy loam soils. Hillside, watercourse, rangelands.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	DBCA
<i>Lepidosperma</i> sp. Blue Hills (A. Markey & S. Dillon 3468)	-	Priority 1	Erect sedge growing to 0.6 to 0.7 m high.	Granite hill. Brown sand-loam.	Likely - habitat occurs within the survey area. 31 individuals potentially representing this taxa were recorded within the south-east portion of the southern survey area on granite and sandy loam soil. Additionally, one DBCA occurrence is located 4.6 km north-west of the northern survey area.	Animal Plant Mineral (2018), DBCA, FVC (2023), Macfarlane <i>et al.</i> (2010), NatureMap, Umwelt (2022)
<i>Leptospermum exsertum</i>	-	Priority 1	Open shrub growing 0.3-0.6 m high and 0.8 m wide. Produces white flowers from August to September.	Sandy soil on flat sandplains.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 25 km north-west of the survey area.	Paul Armstrong and Associates (2004)
<i>Millotia dimorpha</i>	-	Priority 1	Erect or ascending annual herb growing to 0.11 m high. Produces yellow to white flowers in September.	Rocky banded ironstone outcrop with red-brown loamy soil.	May occur - suitable habitat may occur within the survey area. Nearest	Macfarlane <i>et al.</i> (2010), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
					known location is approximately 42 km north-west of the survey area.	
<i>Philotheca nutans</i>	-	Priority 1	Upright shrub growing to 0.3 to 0.9 m high. Produces green/cream/yellow or red/pink flowers in April, June to July or September.	Sandy soils. Low plains, undulating rises, edges of salt lakes.	Occurs within survey area – habitat occurs in the survey area. 8235 individuals were recorded within the middle portion of the southern survey area on a plain of red sandy loam soil. Additionally, one DBCA occurrence is recorded within the southern section of the survey area.	ATA Environmental (2006), ATA Environmental (2007), Coffey Environment (2009), DBCA, EcoLogical (2016), EcoLogical (2020), FVC (2023), NatureMap, Paul Armstrong and Associates (2004)
<i>Prostanthera</i> sp. Karara (D. Coultas & K. Greenacre Opp 8)	-	Priority 1	Small shrub growing to 0.5 m producing flowers in September.	Red silty clay loam on banded ironstone formations on lower slope.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 90 km north-west of the survey area.	Umwelt (2022)
<i>Swainsona picta</i>	-	Priority 1	Erect to ascending annual herb growing to 0.15 m high with opposite leaves. Produces pink to purple flowers with hairy spotted pods.	Sandy brown loam occurring on rocky, gently inclined granite slope.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 90 km north-west of the survey area.	Umwelt (2022)
<i>Acacia subrigida</i>	-	Priority 2	Erect shrub growing 1 to 3 m high. Produces yellow flowers in August to October.	Yellow or red sand. Plains.	May occur - suitable habitat may occur in the survey area. Nearest known location is 10 km from the survey area.	DBCA
<i>Acacia synoria</i>	-	Priority 2	Multi-stemmed shrub or tree growing 1.5 to 5 m high. Produces yellow flowers yellow in December.	Red sandy clay, brown sandy loam. Near granite outcrops, near gravel pits, creek lines.	Occurs within survey area – habitat occurs in the survey area. 7,317 individuals were recorded within the south-east portion of the southern area on sandy loam soil over granite.	DBCA, FVC (2023)
<i>Baeckea</i> sp. Perenjori (J.W. Green 1516)	-	Priority 2	Rounded shrub growing to 0.5 m high and 1 m wide. Produces pink flowers in August.	Loam, clay.	May occur - suitable habitat may occur in the survey area. Nearest known location is 9 km from the survey area.	DBCA, NatureMap, Paul Armstrong and Associates (2004)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Calandrinia kalanniensis</i>	-	Priority 2	Semi erect to erect tuberous, perennial herb that grow up to 0.09 m high. Flowers are pink to white in colour and occur from November to January.	hallow brown clay and often gritty soil derived from eroded granite on rock outcrops and herb fields.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 90 km north-west of the survey area.	Umwelt (2022)
<i>Comesperma griffinii</i>	-	Priority 2	Annual or perennial, herb growing to 0.15 m high. Produces white flowers in October.	Yellow or grey sand and plains.	May occur - suitable habitat may occur in the survey area. Nearest known location is 8 km from the survey area.	DBCA
<i>Fitzwillia axilliflora</i>	-	Priority 2	Ascending to erect semi-succulent annual herb growing to 0.135 m high. Flowers are white-yellow in colour and occur from September to November.	Sandy clayey loam soils on the margins of salt lakes, saline flats.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 90 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Persoonia kararae</i>	-	Priority 2	Erect spreading shrub growing 1-5 m high. Flowers yellow and occur from September to November. Fruit is spherical in shape.	Red clay loam on sandplains with gentle inclination.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Psammomoya grandiflora</i>	-	Priority 2	Erect, spreading shrub\ growing to 0.8 m high. Produces white flowers from August to October.	Red loam, sand, jasperlite. Sandplains, rocky country.	May occur - suitable habitat may occur in the survey area. Nearest known location is 7 km from the survey area.	DBCA, NatureMap
<i>Acacia formidabilis</i>	-	Priority 3	Diffuse, pungent shrub growing to 0.2 to 0.6 m high. Produces yellow flowers from August to September.	Yellow or red/brown sand. Undulating plains, hillsides.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	DBCA
<i>Acacia subsessilis</i>	-	Priority 3	Rounded, straggly, and pungent shrub, growing from 1 to 2 m high. Produces yellow flowers from July to August.	Red sand or stony gravel over ironstone. Rocky hills.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 46 km north of the survey area.	FI Joint Venture (2019)
<i>Allocasuarina tessellata</i>	-	Priority 3	Dioecious shrub or tree growing 3 to 5 m high.	Loam, sand. Greenstone and dolerite boulders.	Occurs within survey area - habitat occurs in the survey area. 144 individuals were recorded within the survey and 46 individuals within 1.5	Animal Plant Mineral (2018), DBCA, EnviroWorks (2012), FVC (2023),

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
					km of the survey area. Additionally, the nearest DBCA occurrence was recorded 0.2 km north-east of the southern survey area.	NatureMap, Paul Armstrong and Associates (2004), Umwelt (2022)
<i>Alyxia tetanifolia</i>	-	Priority 3	Erect, pungent shrub growing 1-2m high. Produces white-cream flowers from May to June.	Sandy clay loam or concretionary gravel in drainage lines and near lakes.	Occurs within survey area – suitable habitat occurs in the survey area. Two individuals were recorded in the north-east portion of both survey areas on red clay loam soil.	DBCA, FVC (2023)
<i>Bossiaea</i> sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)	-	Priority 3	Erect and spindly shrub (broom-like) that produces flowers in March, May, July and September.	Red sandy loam soil.	May occur - suitable habitat may occur in the survey area. Nearest known location is 18 km from the survey area.	DBCA
<i>Calotis</i> sp. Perrinvale Station (R.J. Cranfield 7096)	-	Priority 3	Small annual daisy growing to 0.3 m high. Leaves have widely spaced teeth on margins and scattered hairs. Flowers are red in colour and occur from September to November followed by spiked fruit. Seeds have two spikes on the upper surface.	Red clay soils over laterite or granite, occasionally on banded ironstone formations and gentle slopes.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Maia Environmental (2020), Umwelt (2022)
<i>Calytrix plumulosa</i>	-	Priority 3	Shrub growing 0.15 to 0.4 m high. Produces pink-violet flowers from October to November.	Yellow sand with lateritic gravel, red loam.	Likely - suitable habitat is likely to occur in the survey area. Nearest known location is 3.8 km from the survey area.	DBCA, NatureMap
<i>Drummondita fulva</i>	-	Priority 3	Erect to branching shrub growing to 0.5-1.5 m high. Flowers are red in colour.	Soil orange-red or red-brown sandy loams and clayey silts. Footslopes below granite breakaway, lower to upper slopes and hillcrests.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Animal Plant Mineral (2018), Macfarlane <i>et al.</i> (2010), Maia Environmental (2020), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Euryomyrtus recurva</i>	-	Priority 3	Shrub growing 0.3 to 1 m high. Produces white and pink flowers from July to September.	Yellow/red sand, brown/yellow sandy clay. Gravel pits, catchment slopes.	May occur - suitable habitat may be present on granite in the eastern portion of the southern survey area. Nearest known location is approximately 8 km west of the survey area.	DBCA, NatureMap
<i>Goodenia perryi</i>	-	Priority 3	Herb or shrub growing 0.15 to 0.3 m high. Produces blue flowers from October to November.	Yellow sand.	Likely - suitable habitat is likely to occur in the survey area. Nearest known location is 3.2 km survey area.	DBCA, NatureMap
<i>Grevillea asparagoides</i>	-	Priority 3	Dense prickly shrub growing 0.5 to 2 m high. Produces red flowers from July to October or December.	Gravelly loam, white or yellow sand.	May occur - suitable habitat may occur in the survey area. Nearest known location is 19 km from survey area.	DBCA
<i>Grevillea globosa</i>	-	Priority 3	Spreading, non-lignotuberous shrub growing 1-3 m high. Flowers range from cream-white green and red-brown in colour and occur in January or June or November.	Red loam and yellow sand occurring on lower slope or red-orange plateau.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Maia Environmental (2020), Umwelt (2022)
<i>Grevillea granulosa</i>	-	Priority 3	Compact shrub, growing up to 4 m high. Flowers are red in colour and occur from July to October.	Gravelly sand, moist brown loam or rocky clay. Occur on sandplains or slope to low hill.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Coffey Environment (2009), Macfarlane <i>et al.</i> (2010)
<i>Grevillea obliquistigma</i> subsp. <i>cullenii</i>	-	Priority 3	Spreading shrub growing 0.3 to 0.7 m high. Produces cream flowers in March.	Red sand.	May occur - suitable habitat may occur in the survey area. Nearest known location is 9.2 km from survey area.	DBCA, NatureMap
<i>Grevillea scabrida</i>	-	Priority 3	Dense and irregularly branched shrub growing 0.6 to 1.5 m high. Produces green/white or green/yellow flowers in July.	Red clay loam, stony loam.	Occurs within survey area - habitat is present within survey area. 22 individuals recorded within the southern survey area on loamy soil on granite and red loamy soil. 669 individuals were recorded within 7.5 km north of the survey area. Additionally, the nearest DBCA record	Animal Plant Mineral (2018), DBCA, EnviroWorks (2012), FVC (2023), Macfarlane <i>et al.</i> (2010), NatureMap, Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
					is located 1.8 km north-east of the southern survey area.	
<i>Grevillea subtiliflora</i>	-	Priority 3	Erect spreading shrub growing 1 to 2.5 m high. Produces white flowers in April or from July to September.	Red-brown loam.	Likely - suitable habitat is likely to occur in the survey area. Nearest known location is 2.5 km from the survey area.	Animal Plant Mineral (2018), DBCA, EnviroWorks (2012), NatureMap, Umwelt (2022)
<i>Gunniopsis divisa</i>	-	Priority 3	Annual herb growing from 0.05 to 0.1 m high. Produces white flowers in August.	Loam, quartz along roadsides.	May occur - suitable habitat may occur within the survey area particularly where road disturbance occurs. Nearest known location is approximately 42 km north west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)
<i>Hibbertia cockertoniana</i>	-	Priority 3	Shrub growing to 1 m which produces a solid dark yellow flower.	Moderately inclined mid-slope of banded ironstone. Very slightly rocky banded ironstone and/or granite with orange/brown soils.	Occurs within survey area – habitat is present within survey area. 9890 individuals were recorded within the eastern portion of the southern survey area on granite with sandy loam soil.	DBCA, FVC (2023), NatureMap, Umwelt (2022)
<i>Hydrocotyle spinulifera</i>	-	Priority 3	Erect to decumbent annual herbs growing 0.2-0.4 m high and 0.2-0.5 m wide. Leaves are trilobed to palmatifid in shape. Produces flowers in simple umbels from August to November.	Gravelly brown sandy loam occurring on salt lakes.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 90 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Melaleuca barlowii</i>	-	Priority 3	Erect shrub growing 1.5-1.8 m high with glaucescent leaves and grey, fibrous to slightly papery bark. Flowering in April.	Yellow-brown sand or red-brown clay loam on gentle slopes and roadside reserves.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)
<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	-	Priority 3	Spreading shrub growing to 0.5 m. Produces tiny pink flowers which pale at the petals. Leaves are tiny, simple and of a dull grey/green colour.	Pale orange sandplain.	Occurs within survey area - habitat is present within the survey area. One individual was recorded within the southern portion of the southern survey area on pale sandy soil. The next nearest known location	DBCA, FVC (2023)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
					comprises two DBCA records 17.5 km north-east of the survey area.	
<i>Microcorys tenuifolia</i>	-	Priority 3	Shrub growing 0.5 to 1.8 m high. Producing white/blue/purple flowers from October to December or March to April.	Red/brown sand, lateritic gravelly soils. Undulating plains.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	NatureMap
<i>Micromyrtus acuta</i>	-	Priority 3	Erect shrub growing to 2 m high and produces white flowers.	Grey-tan silty fine to coarse sand. Gently inclined crest of banded ironstone and basalt, with red brown loamy clay.	May occur - suitable habitat may occur within the survey area. Nearest known location is within the Charles Darwin Reserve west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)
<i>Micromyrtus trudgenii</i>	-	Priority 3	Erect, open shrub growing 1 to 2 m high.	Red-brown loamy clay, yellow-brown soils, gravel, siltstone, quartz, basalt, banded ironstone, dolerite. Tops and slopes of hills and ridges.	Unlikely - suitable habitat limited if present. Nearest known location is 42 km north-west of the survey area.	Animal Plant Mineral (2018), Macfarlane <i>et al.</i> (2010), Maia Environmental (2020), Meissner & Caruso (2008), NatureMap, Umwelt (2022)
<i>Persoonia pentasticha</i>	-	Priority 3	Erect, spreading shrub growing 0.4 to 1.8 m high. Produces yellow flowers from August to November.	Sand, loam. Base of granite outcrops.	Occurs within survey area - habitat present in the survey area. 519 individuals were recorded within the norther survey area and the northern portion of the of the southern survey area on a range of soils. 422 additional individuals were also recorded within 7.5 km of the survey areas. Additionally, one DBCA occurrence was recorded within the southern survey area.	Animal Plant Mineral (2018), DBCA, EnviroWorks (2012), FVC (2023), Macfarlane <i>et al.</i> (2010), Meissner & Caruso (2008), NatureMap, Paul Armstrong and Associates (2004), Umwelt (2022)
<i>Petrophile pauciflora</i>	-	Priority 3	Shrub growing to 1 m high. Produces yellow flowers in September.	Decaying and dissected granite breakaways.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Podotheca uniseta</i>	-	Priority 3	Ascending to erect, succulent annual herb growing to 0.05 to 0.25 m high. Produces yellow flowers from September to December.	White/grey sand, sandy loam. Samphire flats.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	ATA Environmental (2006), ATA Environmental (2007), Coffey Environment (2009), DBCA, Meissner & Caruso (2008), NatureMap, Paul Armstrong and Associates (2004)
<i>Polianthion collinum</i>	-	Priority 3	Rounded shrub growing up to 1.25 m high. Flowers white-cream in colour and occur from May to July.	Red clay loam on blocks of banded ironstone on low hills and slopes.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010), Umwelt (2022)
<i>Psammomoya implexa</i>	-	Priority 3	Large, spreading, much-branched shrub growing to 1 m high. Produced white flowers from August to October.	Stony rises.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is within the Karara Reerve approximately 42 km north-east of the survey area.	ATA Environmental (2006), ATA Environmental (2007), Coffey Environment (2009), DBCA, Macfarlane <i>et al.</i> (2010), Paul Armstrong and Associates (2004)
<i>Rhodanthe collina</i>	-	Priority 3	Erect, bushy annual herb growing 0.1 to 0.25 m high. Produces white and yellow flowers from August to October.	Loam. Rocky hills.	Unlikely - suitable habitat limited if present. Nearest known location is within the Karara Reserve approximately 42 km north-west of the survey area.	DBCA, Macfarlane <i>et al.</i> (2010), Meissner & Caruso (2008), NatureMap, Umwelt (2022)
<i>Stenanthemum poicilum</i>	-	Priority 3	Erect or decumbent shrub growing 0.15 to 0.5 m high. Produces white flowers from May to June or September to November.	Red clay or sandy clay, loam.	May occur - suitable habitat may occur in the survey area. Nearest known location is 17 km from the survey area.	DBCA, Macfarlane <i>et al.</i> (2010), Umwelt (2022)

Species	EPBC Act Cons. Status	BC Act Cons. Status	Description	Preferred Habitat	Likelihood of Occurrence	Source of Record
<i>Tecticornia fimbriata</i>	-	Priority 3	Erect shrub growing 0.25-1 m high.	Soil cream-brown, clay loam occurring on gypsum lakes and flat floodplain.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 90 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Verticordia venusta</i>	-	Priority 3	Erect, spreading shrub growing to 2 m high. Produces pink/purple or red/brown flowers from September to January.	Sandplains with yellow sand and sandy gravel.	Unlikely - suitable habitat is not known to be present within survey area. Survey area is outside known range.	DBCA, NatureMap
<i>Acacia speckii</i>	-	Priority 4	Bushy rounded shrub or tree growing from 1.5 to 3 m high.	Rocky soils over granite, basalt, or dolerite. Rocky hills or rises.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 110 km north-west of the survey area.	FI Joint Venture (2019)
<i>Banksia benthamiana</i>	-	Priority 4	Non-lignotuberous shrub growing 1.8-4 m high. Produces yellow-orange to orange-brown flowers from November to January.	Sandy clay-loam, gravelly yellow sand occurring upland.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 63 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Dodonaea amplisemina</i>	-	Priority 4	Dioecious, multi-stemmed shrub growing 0.3 to 1 m high.	Red-brown sandy clay on basalt and gabbro and banded ironstone or on dolerite and quartzite. Rocky hills.	Likely - suitable habitat is likely to occur in the survey area. Nearest known location is 1 km from the survey area.	DBCA, FI Joint Venture (2019), Meissner & Caruso (2008), NatureMap, Paul Armstrong and Associates (2004)
<i>Lepidobolus densus</i>	-	Priority 4	Rhizomatous, caespitose perennial sedge growing to 0.4 m high.	Sand, sometimes with lateritic gravel. Flats, slopes, and sandplains.	May occur - suitable habitat may occur within the survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)
<i>Wurmbea murchisoniana</i>	-	Priority 4	Perennial, hermaphrodite, bulbous herb growing 0.1-0.26 m high. Produces white flowers occurring from July to September.	Clay sandy loam, seasonally inundated clay hollows, rock pools.	Unlikely - suitable habitat is not known to be present within survey area. Nearest known location is approximately 42 km north-west of the survey area.	Macfarlane <i>et al.</i> (2010)

Legend

Survey Area

Threatened

- ★ *Acacia imitans*
- ★ *Acacia unguicula*
- ★ *Caladenia drakeoides*
- ★ *Darwinia masonii*
- ★ *Dasymalla axillaris*
- ★ *Eucalyptus synandra*
- ★ *Frankenia conferta*
- ★ *Hybanthus cymulosus*
- ★ *Lepidosperma gibsonii*

Priority 1

- ▲ *Acacia ampliata*
- ▲ *Acacia cerastes*
- ▲ *Acacia inceana* subsp. *latifolia*
- ▲ *Acacia karina*
- ▲ *Acacia nigripilosa* subsp. *latifolia*
- ▲ *Acacia* sp. Goodlands (B.R. Maslin 7761)
- ▲ *Acacia* sp. Kalannie North (B.R. Maslin 7702)
- ▲ *Acacia* sp. Kalannie North East (B.R. Maslin 7519)
- ▲ *Acacia stanleyi*
- ▲ *Chamaelaucium* sp. Yalgoo (Y. Chadwick 1816)
- ▲ *Gnephosis setifera*
- ▲ *Hemigenia tichbonii*
- ▲ *Hydrocotyle dimorphocarpa*
- ▲ *Korthalsella leucothrix*
- ▲ *Lepidosperma* sp. Blue Hills (A. Markey & S. Dillon 3468)
- ▲ *Micromyrtus mucronulata*
- ▲ *Micromyrtus ninghanensis*
- ▲ *Philotheca nutans*
- ▲ *Philotheca* sp. Latham (F. Keast L4B 043)

Priority 2

- ◆ *Acacia subrigida*
- ◆ *Acacia synoria*
- ◆ *Amanita inculta*
- ◆ *Baeckea* sp. *Perenjori* (J.W. Green 1516)
- ◆ *Comesperma griffinii*
- ◆ *Eremophila sargentii*
- ◆ *Grevillea nana* subsp. *abbreviata*
- ◆ *Psammomoya grandiflora*

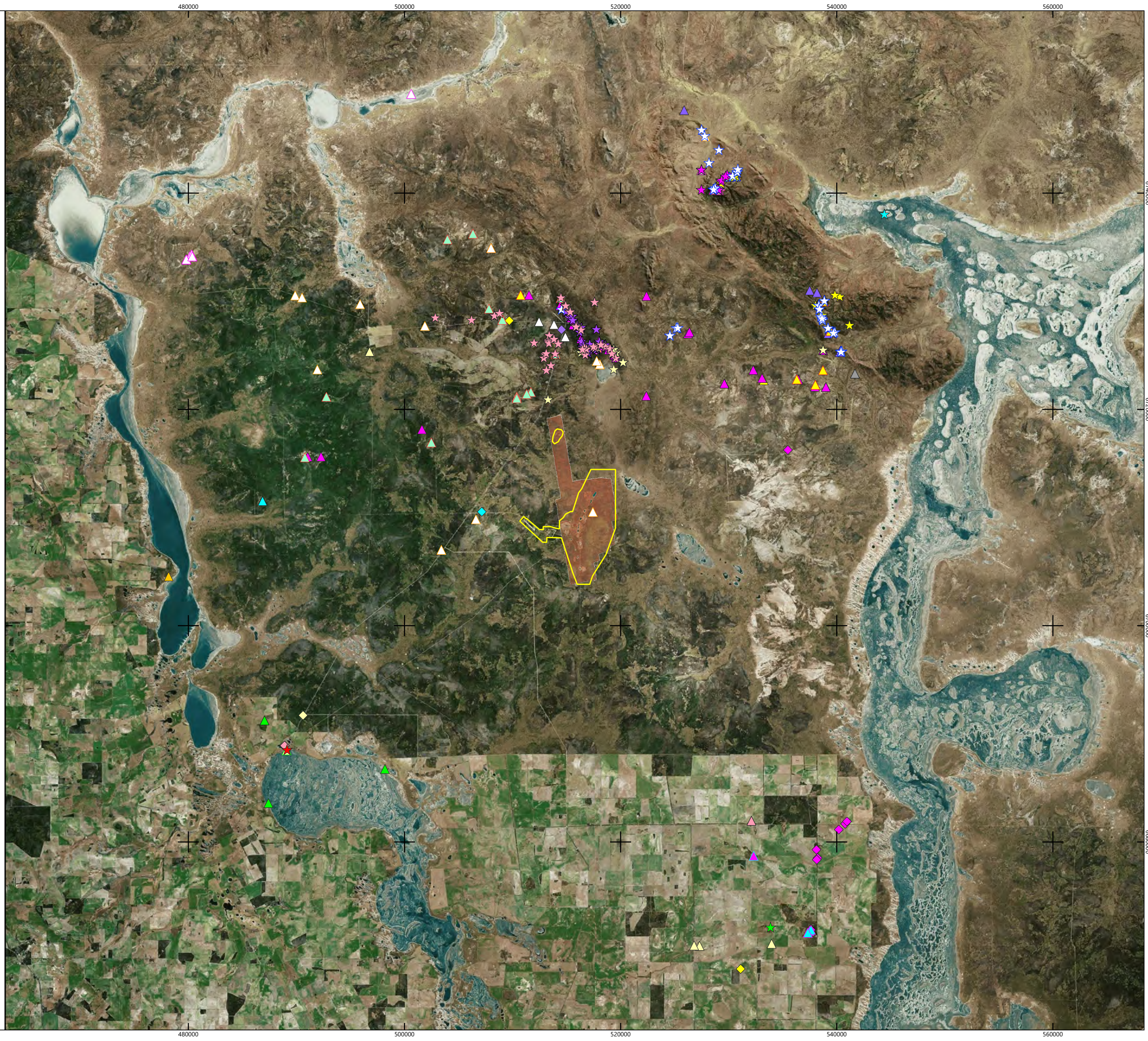


Figure 10a - Threatened and Priority Flora



0 5 10 15 20 km
GDA 2020 / MGA Zone 50



- Legend**
- Survey Area
- Priority 3**
- Acacia cylindrica
 - Acacia formidabilis
 - Allocasuarina tessellata
 - Angianthus micropodioides
 - Austrostipa blackii
 - Bossiaea sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)
 - Calotis sp. Perrinvale Station (R.J. Cranfield 7096)
 - Calytrix plumulosa
 - Cryptandra subtilis
 - Elatine macrocalyx
 - Euryomyrtus recurva
 - Goodenia perryi
 - Grevillea asparagoides
 - Grevillea granulosa
 - Grevillea obliquistigma subsp. cullenii
 - Grevillea scabrada
 - Grevillea subtiliflora
 - Grevillea tenuiloba
 - Hibbertia cockertoniana
 - Lepidium genistoides
 - Melaleuca barlowii
 - Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)
 - Micromyrtus acuta
 - Persoonia pentasticha
 - Phebalium brachycalyx
 - Podotheca pritzelii
 - Podotheca uniseta
 - Psammomoya implexa
 - Rhodanthe collina
 - Stenanthemum poecilum
 - Thryptomene sp. Wandana (M.E. Trudgen MET 22016)
 - Triglochin protuberans
 - Urodon capitatus
 - Verticordia mitchelliana subsp. mitchelliana
 - Verticordia venusta
- Priority 4**
- Dodonaea amplisemina
 - Lepidobolus densus
 - Wurmbea murchisoniana

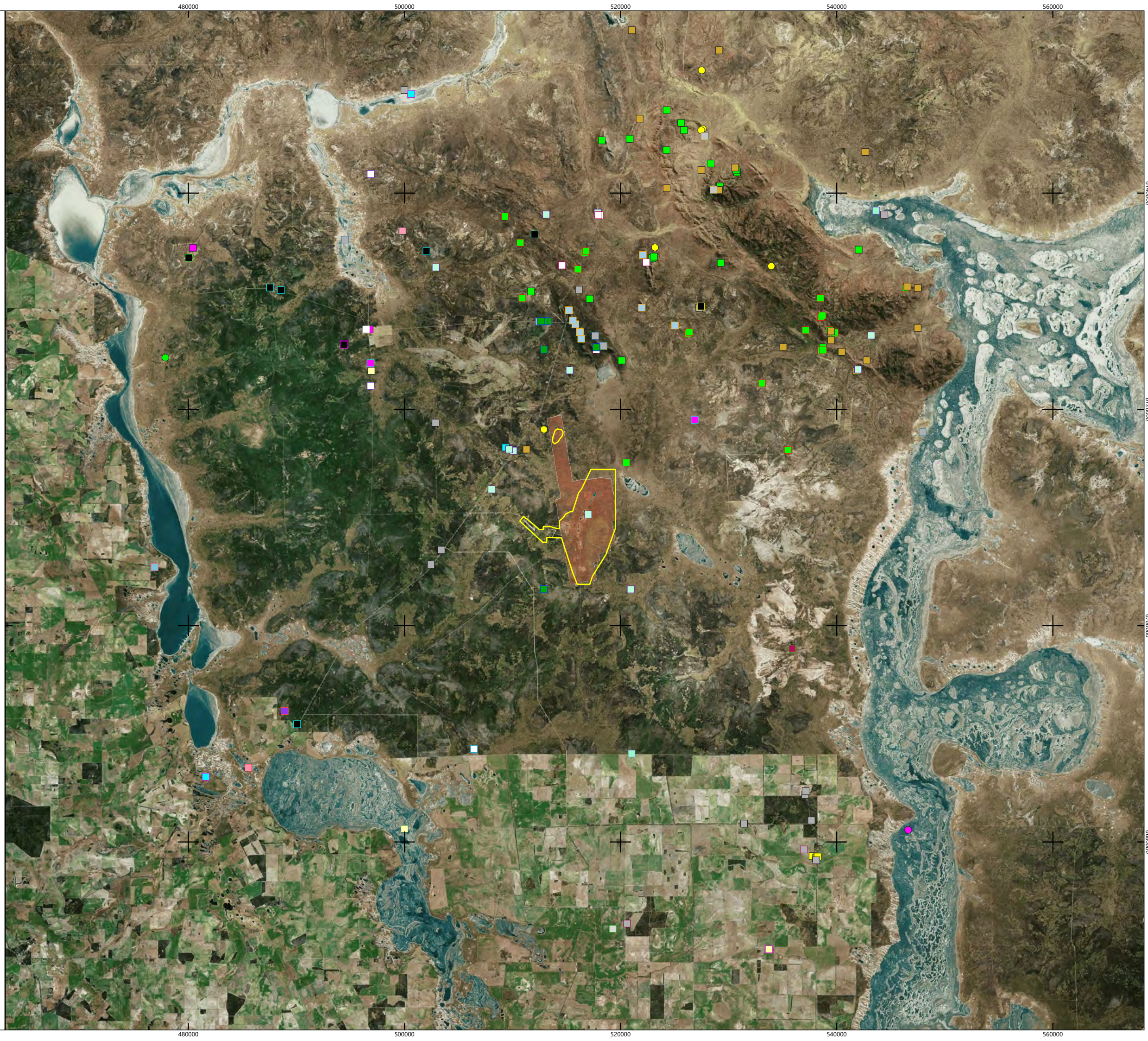
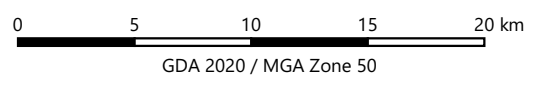


Figure 10b - Threatened and Priority Flora



5.1.3 Threatened and Priority Ecological Communities

A review of the DBCA Threatened and Priority Ecological Communities (TECs and PECs) database (DBCA ref: 31-0421EC) and the Commonwealth PMST (DCCEEW 2023b) identified six conservation-significant ecological communities that are known to occur within 40 km of the survey area. Of these, four are of relevance to flora and vegetation (with two of relevance to important fauna habitats, therefore not addressed in this report). All four significant ecological communities relevant to the study are State-listed PECs, and two are also Commonwealth-listed TECs (**Table 13**). Of these ecological communities, two are known to occur within 20 km of the survey area, as presented in **Figure 11**.

One Threatened and Priority Ecological Community is known to occur within the survey area, the Commonwealth-listed Critically Endangered and State-listed Priority 3 *Eucalyptus woodlands of the Western Australian Wheatbelt* (Wheatbelt woodlands) (**Table 13**).

The desktop assessment revealed that the State-listed Priority 1 *Mount Gibson Range vegetation complexes (banded ironstone formation)* (Mount Gibson BIF) is not known to occur within the survey area. The closest known occurrence of this PEC is approximately 6 km north of the survey area. Regolith mapping for the general region of the survey area (Jones and Southern Geoscience Consultants Pty Ltd. 1997) suggests that the associated geology may be present within small sections of the edges of the survey area (**Table 5**). However, extensive foot traverses over these areas verified differing geologies in these locations, with no BIF observed.

Table 13 – Threatened and Priority Ecological Communities Known to Occur within 40 km of the Survey Area (DAWE 2021c)

Abbreviation	Community Name	EPBC Act Cons. Status	BC Act Cons. Status	Location/s in Relation to the Survey Area
Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Critically Endangered	Priority 3	Covering similar footprint as vegetation association 141, approximately 69.30% (2,875.77 ha) of the survey area is mapped by DBCA as this community.
Salmon Gum Woodlands	Salmon Gum Woodlands of the wheatbelt	Critically Endangered	Priority 3	Two occurrences of this community occur 30 km south and 31 km south-west of the survey area.
Mount Gibson BIF	Mount Gibson Range vegetation complexes (banded ironstone formation)	-	Priority 1	Six occurrences of this PEC are clustered between 6 and 21 km north of the survey area.
Gimlet Woodlands	Gimlet Woodlands of the wheatbelt	-	Priority 3	Two occurrences of this PEC occur 27 km south and 44 km south-east of the survey area.

- Legend**
- Survey Area
 - Priority 1**
 - Mount Gibson BIF
 - Priority 3**
 - Gimlet Woodlands
 - Salmon Gum Woodlands
 - Wheatbelt Woodlands

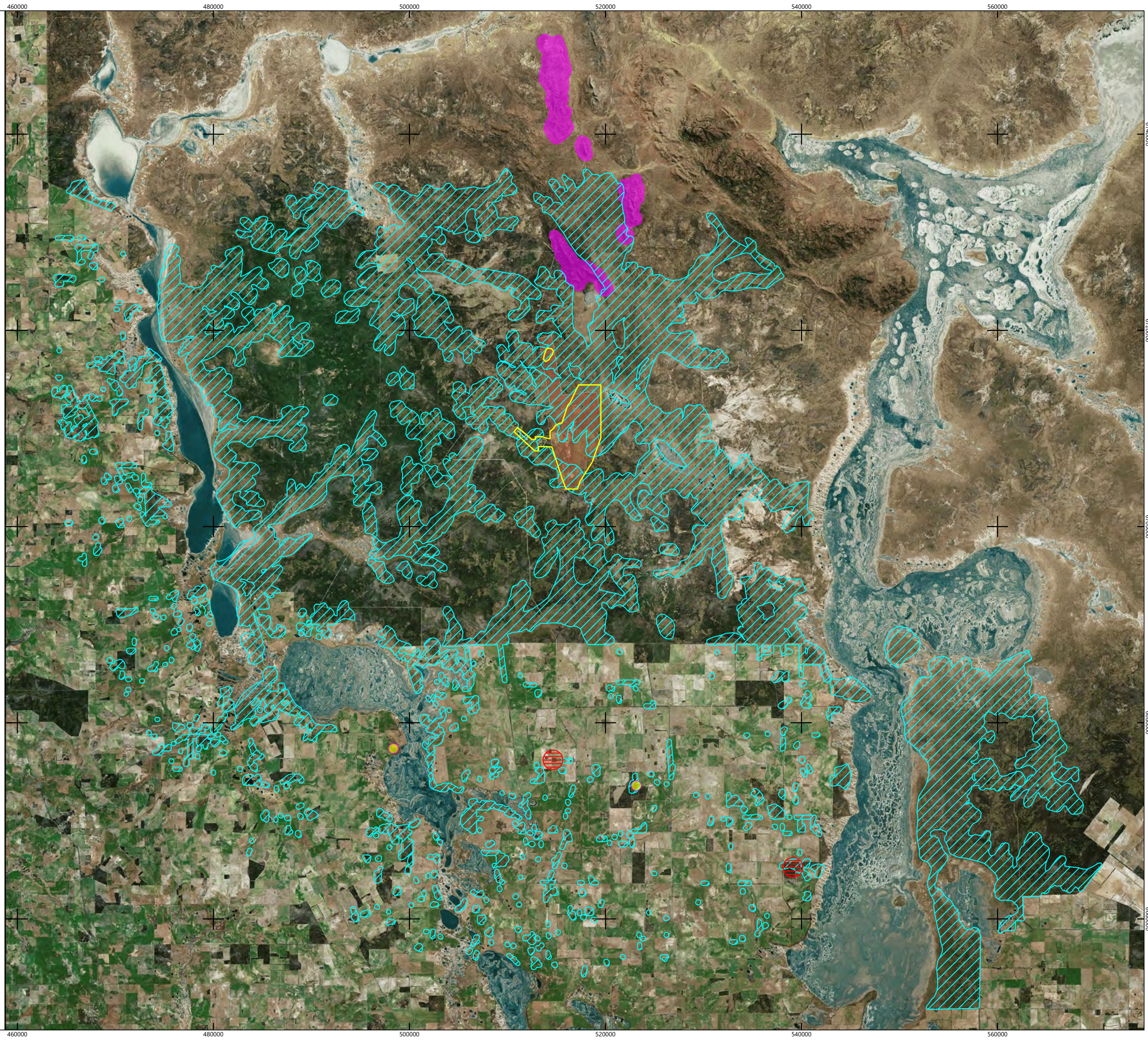
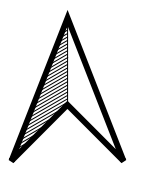


Figure 11 - Threatened and Priority Ecological Communities



0 5 10 15 20 km
GDA 2020 / MGA Zone 50



5.2 FIELD ASSESSMENT

5.2.1 Flora

A total of 491 flora taxa from 57 families and 185 genera were recorded during the field survey, of these, 96.13% are native taxa (472 species). This constitutes exceptionally high plant diversity for an area the size of the survey area.

The dominant families were Asteraceae (Daisy family – 63 taxa), Myrtaceae (Myrtle family – 66 taxa), Fabaceae (Pea family – 50 taxa), Chenopodiaceae (Chenopod family – 29 taxa), Poaceae (Grass family – 24) and Proteaceae (Protea family - 22 taxa). Genera represented by more than ten taxa include *Acacia* (34 taxa), *Eremophila* (16 taxa), *Eucalyptus* (25 taxa), *Grevillea* (12 taxa), *Melaleuca* (14 taxa), and *Philothea* (10 taxa).

Of the 1,190 flora specimens collected, 69 were unable to be identified with certainty to species level as a result of lack of sufficient material present to allow confident identification of species. However, besides *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) (likely Priority 1), none are suspected to represent any of the targeted conservation-significant flora and it is likely that many represent taxa positively identified from other collections. A full list of recorded vascular flora is presented in **Appendix C**. Species recorded within each vegetation unit are presented in **Appendix D** and individual quadrat data is presented in **Appendix E**.

Species accumulation curves were produced to demonstrate the adequacy of sampling within the survey area (**Figure 12**). Total number of taxa collected within the 14 relevés and 85 quadrats was 472, with additional taxa collected opportunistically. Of the accumulation curves, the Chao2 estimator begins to plateau, with an estimate of 602 species, Jackknife2 estimates 692 species and Bootstrap estimates 536 species for 99 samples.

Species richness in quadrats varied from nine species (MG064) to 49 species (MG049). A total of 492 taxa were identified within the 85 established quadrats, identifying a mean species richness of 17.58 species per quadrat. Opportunistically-recorded flora and data collected from relevés were excluded from the species richness analysis.

The total number of species recorded within each vegetation unit, ranged from seven species in vegetation unit 32 (*Melaleuca* shrubland) to 139 species within vegetation unit 11 (*Eucalyptus loxophleba* woodland).

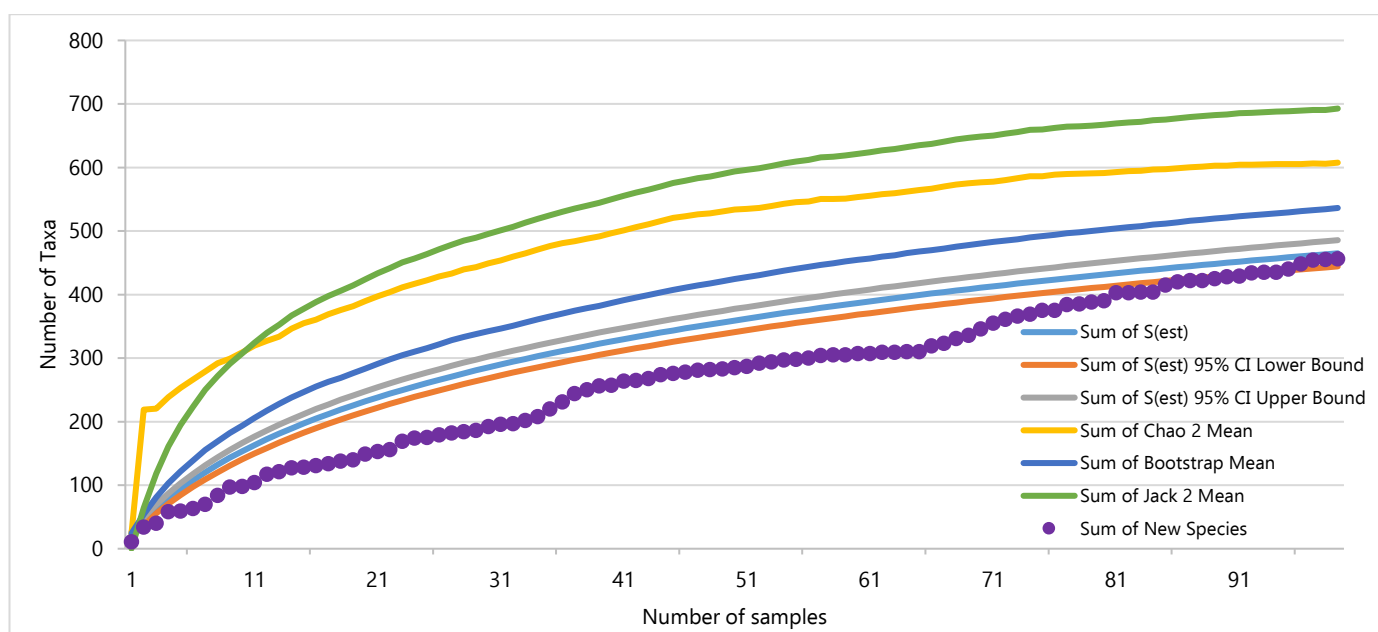


Figure 12 - Species Accumulation Curves and Estimates

5.2.1.1 Threatened and Priority Flora

Ten Threatened or Priority flora taxa were recorded within the survey area during the field assessment; *Eremophila viscida* (T), *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) (likely P1), *Philotheca nutans* (P1), *Acacia synoria* (P2), *Allocasuarina tessellata* (P3), *Alyxia tetanifolia* (P3), *Grevillea scabrida* (P3), *Hibbertia cockertoniana* (P3), *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) and *Persoonia pentasticha* (P3). The desktop assessment identified a further five Threatened or Priority species that are considered likely to occur within the survey area boundary based on previous records and suitable habitat known to be present.

The following Priority flora have also been recorded as part of collective survey efforts, but were only recorded outside the survey area; *Enekbatus longistylus* (P3), *Euryomyrtus recurva* (P3), *Calytrix plumuolsa* (P3), *Microcorys tenuifolia* (P3) and *Verticordia venusta* (P3).

A total of 25,980 individual conservation-significant flora plants were recorded within the survey area across all vegetation units, including two individuals of the Threatened species *Eremophila viscida* and one State-listed Priority 1 flora species, *Philotheca nutans*, and one likely to represent a State-listed Priority 1 flora taxa, *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) (**Table 14**). The locations of Threatened and Priority flora found within the survey area is spatially presented in the **Figure 13** series.

Table 14 – Recorded Threatened and Priority Flora

Family	Species	EPBC Act Conservation Code	BC Act Conservation Code	Vegetation Unit	Minimum No. Individuals Recorded within Survey Area	Total Minimum No. Individuals Recorded within Survey Area	No. Individuals Recorded Outside Survey Area
Scrophulariaceae	<i>Eremophila viscida</i>	Endangered	Endangered	19	2	2	0
Cyperaceae	<i>Lepidosperma</i> ?sp. Blue Hills (A. Markey & S. Dillon 3468)	-	Likely Priority 1	24	35	35	0
Rutaceae	<i>Philotheca nutans</i>	-	Priority 1	1	520	8,178	669
				3	356		
				7	3,343		
				8	65		
				11	287		
				12	3		
				17	1,982		
				19	127		
				26	1,405		
	Rehabilitation	90					
Fabaceae	<i>Acacia synoria</i>	-	Priority 2	18	270	7,317	0
				19	2,419		
				26	2,990		
				27	1,638		
Casuarinaceae	<i>Allocasuarina tessellata</i>	-	Priority 3	2	1	138	277
				3	2		
				19	81		
				26	51		
				27	3		
Apocynaceae	<i>Alyxia tetanifolia</i>	-	Priority 3	5	1	2	0
				17	1		
Dilleniaceae	<i>Hibbertia cockertoniana</i>	-	Priority 3	3	30	9,859	0
				9	4		
				11	70		
				18	3		
				19	150		
				24	205		

Family	Species	EPBC Act Conservation Code	BC Act Conservation Code	Vegetation Unit	Minimum No. Individuals Recorded within Survey Area	Total Minimum No. Individuals Recorded within Survey Area	No. Individuals Recorded Outside Survey Area
				26	85		
				27	9,312		
Ericaceae	<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	-	Priority 3	22	52	52	17
Lamiaceae	<i>Microcorys tenuifolia</i>	-	Priority 3	15	0	0	2
Myrtaceae	<i>Calytrix plumulosa</i>	-	Priority 3	25	0	0	1
	<i>Enekbatus longistylus</i>	-	Priority 3	15	0	0	21
	<i>Euryomyrtus recurva</i>	-	Priority 3	9	0	0	5
				15	0		
				22	0		
				25	0		
<i>Verticordia venusta</i>	-	Priority 3	9	0	0	1	
Proteaceae	<i>Grevillea scabrada</i>	-	Priority 3	1	7	16	6,532
				27	9		
	<i>Persoonia pentasticha</i>	-	Priority 3	1	261	381	376
				3	1		
				4	6		
				7	13		
				8	3		
				11	38		
				12	1		
				17	46		
Rehabilitation	12						
TOTAL						25,980	7,901
TOTAL						33,881	

5.2.1.2 Undescribed Flora

Eleven of the recorded flora are undescribed (phrase name) taxa in accordance with records of the Western Australian Herbarium; with one suspected to be representative of State-listed Priority 1 flora (*Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468)) and one a State-listed Priority 3 flora (*Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)). A total of 464 plants of undescribed taxa were recorded across 11 different vegetation units, as summarised in **Table 15**.

Table 15 – Recorded Undescribed Taxa

Family	Species	Conservation Code	Vegetation Unit	Sample Site	Minimum No. Individuals Recorded	Total No. Individuals Recorded
Asteraceae	<i>Olearia</i> sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)	-	3	JB020	1	5
			4	JB021, JB022, JB025r	3	
			15	MG070	1	
Chenopodiaceae	<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)	-	1	MG017, MG019, MG026	3	11
			4	MG018, MG030	2	
			12	MG002, MG005, MG022, MG024	4	
			17	MG016, MG025	2	
Cyperaceae	<i>Lepidosperma</i> ?sp. Blue Hills (A. Markey & S. Dillon 3468)	Priority 1	24	JB004	35	35
Droseraceae	<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)	-	23	MG074	1	3
			24	MG052	1	
			29	MG101	1	
Ericaceae	<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)	-	23	MG074, MG100	2	2
	<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	Priority 3	22	JB030, Opportunistic	52	69
			-	Opportunistic	17	
Fabaceae	<i>Mirbelia</i> sp. Bursarioides (T.R. Lally 760)	-	24	JB004, MG078	2	3
			-	Opportunistic	1	
	<i>Senna</i> sp. Austin (A. Strid 20210)	-	31	JB012	1	1
Lamiaceae	<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)	-	3	JB020, MG031	2	10
			4	JB022, JB025r	2	
			7	JB024, MG009	2	
			12	JB023, MG027	2	
			16	MG081	1	
			-	Opportunistic	1	
Myrtaceae	<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)	-	3	Opportunistic	70	324
			4	MG030, Opportunistic	100	
			11	Opportunistic	100	
			-	Opportunistic	53	
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. warty leaves (M. Officer 230)	-	24	JB004	1	1
					TOTAL	464

5.2.1.3 Range-Extending Flora


Twenty-two recorded species are considered to be exhibiting an extension beyond their currently documented range of occurrence, in accordance with records of the Western Australian Herbarium (WAH) (DBCA 2020e) (**Table 16**); including four exhibiting a range extension greater than 100 km. Of the 22 species, two (**Mesembryanthemum crystallinum* and **Carrichtera annua*) are introduced species and one is a State-listed Priority species (*Microcorys tenuifolia* (P3)). The presence of all these species within the survey area extends their known range from 58 to 238 km (WAH 1998).

Table 16 – Recorded Range-Extending Flora


Family	Species	Conservation Code	Vegetation Unit	Minimum No. Individuals Recorded	Closest Known Record (km) (WAH 1998-)
Aizoaceae	<i>*Mesembryanthemum crystallinum</i>	-	31	2	76
Apiaceae	<i>Platysace trachymenioides</i>	-	19	2	66
			27	1	
Brassicaceae	<i>*Carrichtera annua</i>	-	-	1	77
Chenopodiaceae	<i>Atriplex nummularia</i>	-	-	1	147
	<i>Atriplex stipitata</i>	-	12	1	154
Cyperaceae	<i>Lepidosperma sanguinolentum</i>	-	15	1	84
Dilleniaceae	<i>Hibbertia gracilipes</i>	-	23	1	93
			28	1	
			-	24	
Droseraceae	<i>Drosera menziesii</i>	-	5	1	117
			8	1	
			11	1	
			21	2	
			26	2	
	<i>Drosera subhirtella</i>	-	24	1	87
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>	-	18	1	63
	<i>Acacia saligna</i>	-	11	1	66
			12	1	
Goodeniaceae	<i>Goodenia glabrata</i>	-	23	3	238
			34	1	
Lamiaceae	<i>Microcorys tenuifolia</i>	Priority 3	15	1	89
Lauraceae	<i>Cassytha glabella</i>	-	-	1	65
Malvaceae	<i>Sida petrophila</i>	-	12	1	72
Myrtaceae	<i>Eucalyptus ?ceratocorys</i>	-	5	1	75
			21	1	
	<i>Eucalyptus capillosa</i>	-	4	2	75
			6	1	
	<i>Melaleuca lanceolata</i>	-	11	1	81
			29	1	
Phyllanthaceae	<i>Poranthera leiosperma</i>	-	3	1	67
			4	1	
			5	1	
			8	1	
			26	1	
Poaceae	<i>Amphipogon strictus</i>	-	23	1	73
	<i>Neurachne alopecuroidea</i>	-	25	1	58
Proteaceae	<i>Hakea scoparia</i>	-	7	1	59
			20	1	

*Introduced species


Legend


 Survey Area

Threatened


 *Eremophila viscida*

Priority 1

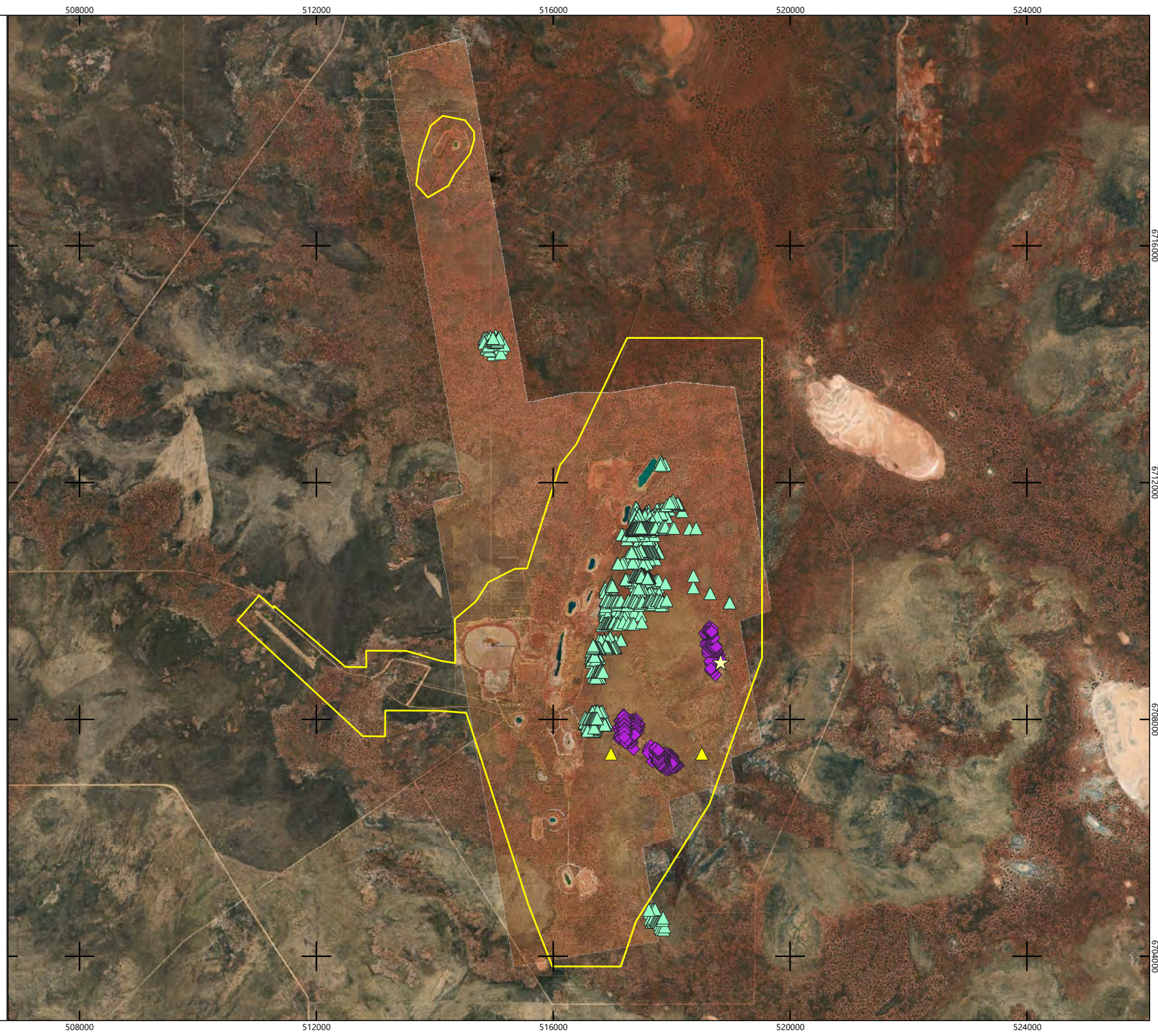
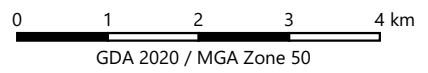
 *Lepidosperma* ?sp. Blue Hills
(A. Markey & S. Dillon 3468)

 *Philotheca nutans*

Priority 2

 *Acacia synoria*

**Figure 13a - Recorded
Conservation-Significant Flora
Locations**



508000

512000

516000

520000

524000

508000

512000

516000

520000

524000

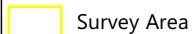
6716000

6712000

6708000

6704000

Legend

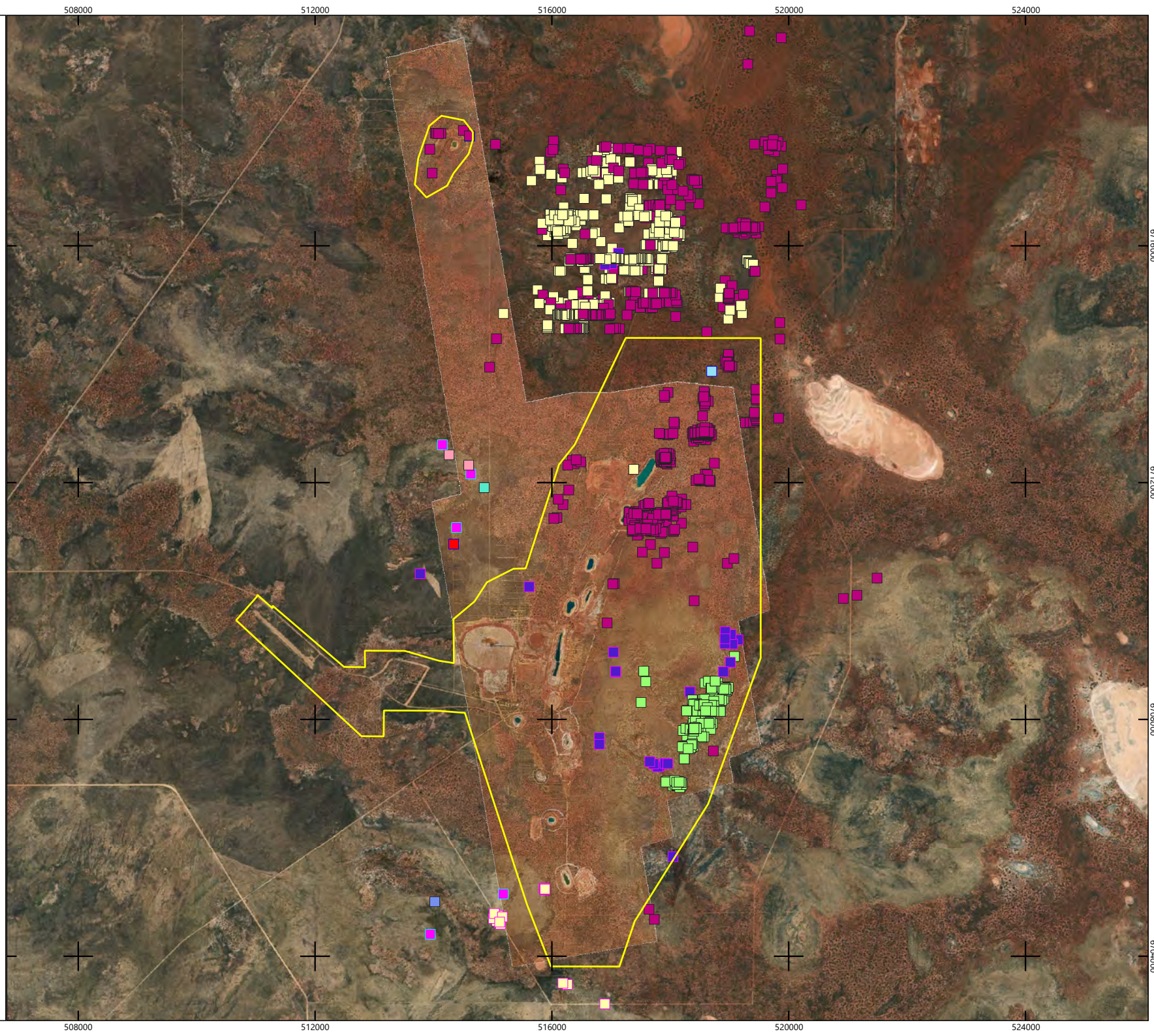


Survey Area

Priority 3

- Allocasuarina tessellata*
- Alyxia tetanifolia*
- Calytrix plumulosa*
- Enekbatus longistylus*
- Euryomyrtus recurva*
- Grevillea scabrida*
- Hibbertia cockertoniana*
- Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)
- Microcorys tenuifolia*
- Persoonia pentasticha*
- Verticordia venusta*

Figure 13b - Recorded Conservation-Significant Flora Locations



5.2.1.4 Introduced Flora

Nineteen weed species were recorded within quadrats, relevés and opportunistically across the survey area (**Table 17**). Weed species comprised 3.87% of the total diversity of flora taxa encountered in the survey area. No DP plants or WoNS were recorded within the survey area (Centre for Invasive Species Solutions 2022; DPIRD 2022). The additional opportunistically recorded locations (not within quadrats) of a significant weed species (**Rumex vesicarius*) are shown in the **Figure 16** series.

Table 17 – Recorded Introduced Flora

Family	Taxa	Vegetation Unit	Quadrat
Aizoaceae	<i>*Cleretum papulosum</i>	1	MG019, Opportunistic
		12	MG005, MG022, MG024, Opportunistic
		13	JB016r, JB017, Opportunistic
		24	MG075, MG078, Opportunistic
		34	MG082r
	<i>*Mesembryanthemum crystallinum</i>	31	JB012, Opportunistic
	<i>*Mesembryanthemum nodiflorum</i>	12	MG005, MG051, Opportunistic
Asteraceae	<i>*Centaurea melitensis</i>	-	Opportunistic
	<i>*Hypochaeris glabra</i>	12	MG049
	<i>*Sonchus oleraceus</i>	12	MG049
Brassicaceae	<i>*Alyssum linifolium</i>	12	MG051
	<i>*Brassica tournefortii</i>	8	MG007, Opportunistic
	<i>*Carrichtera annua</i>	-	Opportunistic
	<i>*Sisymbrium erysimoides</i>	12	MG051
Caryophyllaceae	<i>*Spergula pentandra</i>	8	Opportunistic
		34	MG082r
Geraniaceae	<i>*Erodium ?moschatum</i>	1	MG026, Opportunistic
	<i>*Erodium moschatum</i>	1	MG039, Opportunistic
		12	MG051
		12	MG049
Poaceae	<i>*Bromus madritensis</i>	-	Opportunistic
	<i>*Bromus rubens</i>	Rehabilitation	Opportunistic
	<i>*Pentameris airoides</i>	1	Opportunistic
		3	JB020
		4	JB022, Opportunistic
		24	JB004, Opportunistic
		27	JB006, JB027r, Opportunistic
	<i>*Pentameris airoides</i> subsp. <i>airoides</i>	4	MG030, Opportunistic
		12	JB023, MG022, MG032, Opportunistic
		12	MG049
		16	MG081, Opportunistic
17		MG025, Opportunistic	
24		MG075, MG076, MG077, Opportunistic	
	<i>*Rostraria pumila</i>	12	MG051
Polygonaceae	<i>*Rumex vesicarius</i>	11	Opportunistic

5.2.2 Vegetation

5.2.2.1 Vegetation Units

Floristic analysis of the quadrat data using ordination and multivariate cluster analysis of species presence/absence in PATN™ was carried out to detect the similarity of the species composition between sample sites, and to group sample sites of similar species composition, respectively (**Figure 14** series). The results of the ordination (**Figure 14a**), using a cut-point association value of 0.9, show the similarity between the flora species composition of the sample sites, which reveals some significant outliers (e.g. MG082r, MG005, JB027r and MG055). A stress value lower than 0.3198 was not achievable, which indicates overall high dissimilarity between the sites, since stress values less than 0.1 are considered a 'good fit' and over 0.3 not a good fit (Belbin and Collins 2006).

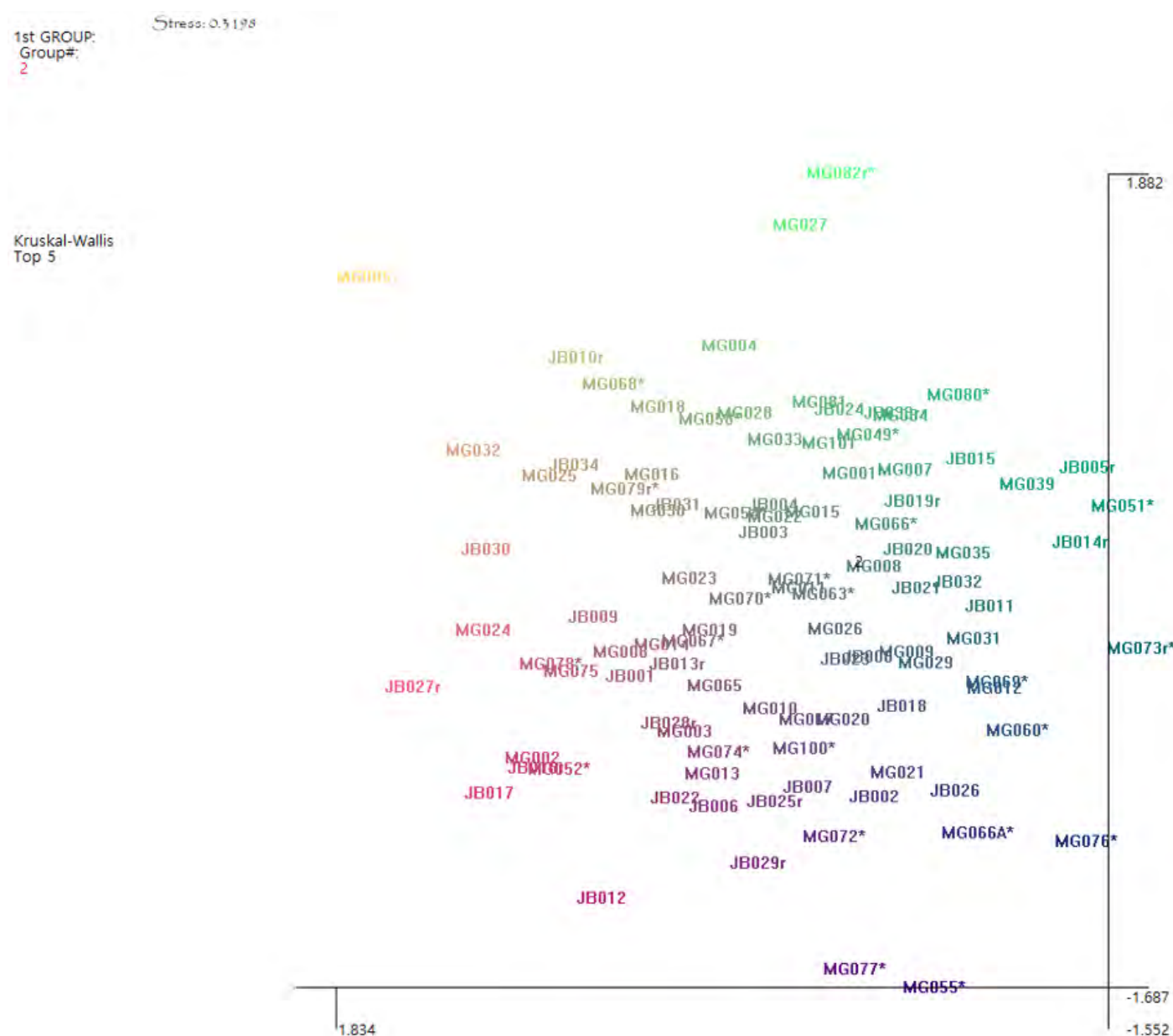


Figure 14 – Floristic Analysis Results (Ordination Plot)

Vegetation consolidation was based on species composition, vegetation structure, high-resolution aerial imagery, underlying geology and regolith mapping. Eighteen vegetation units were only represented by one or two sampling sites (quadrats or relevés) and do not meet the sampling expectation of three quadrats per vegetation unit (EPA 2016b). The majority of the vegetation units defined by less than three sampling sites have limited extent (area) within the current survey area. The ordination stress value on the non-metric multi-dimensional scaling analysis for the cluster analysis was moderate (stress: 0.6962), where 0 indicates that the quadrats are identical, and 1 indicating no species in common.

Some quadrats and relevés that clustered together on the dendrogram were moved or combined upon inspection of the aerial photography, species composition, vegetation structure and detailed vegetation descriptions.

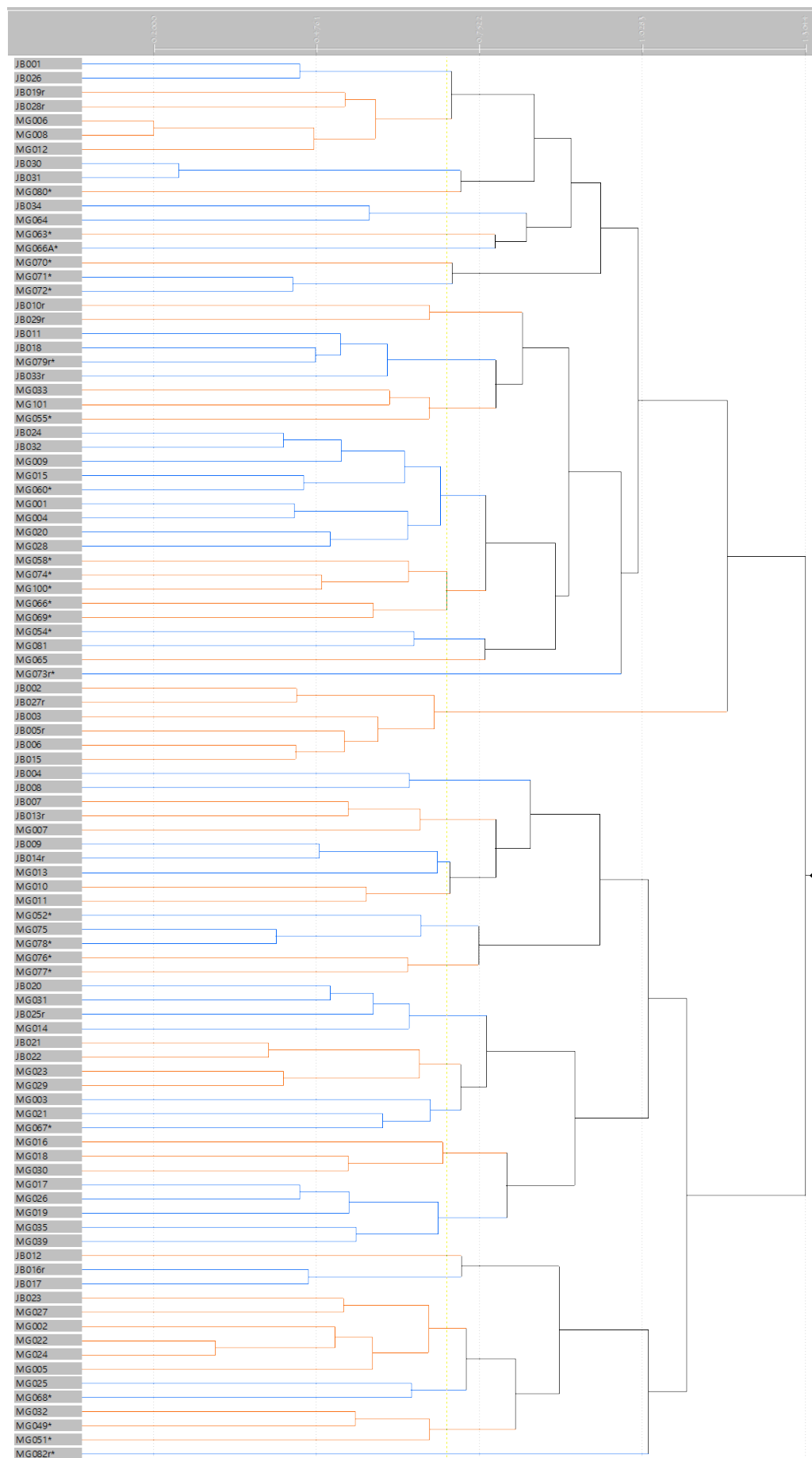


Figure 14b – Floristic Analysis Results (Dendrogram)

At the time of the survey, a larger area than reported on within this document was surveyed, with a total of 33 vegetation units defined across the two-phase detailed and targeted spring flora assessment. Analysis was conducted utilising data from all sampled quadrats (2021 and 2022), including those which now fall outside of the current survey area.

Thirty-three vegetation units were defined from statistical analysis of recorded quadrat or relevé data, upon completion of the field assessment. Two additional categories; 'cleared' and 'rehabilitation', were also delineated. Of the 33 defined vegetation units, four (15, 25, 32 and 34) occur beyond the bounds of the current survey area extent, and are not spatially delineated, since they do not occur within the survey. Hence, not all defined vegetation units have been mapped within the survey area (**Figure 15** series), despite the data for these quadrats and relevés being included in the analysis.

The vegetation units recorded are considered typical for the region, aligning with pre-European vegetation mapping (Beard 1990). The vegetation units described and mapped within the survey area are described in **Table 18**.

Table 18 – Summary of Recorded Vegetation Units

Vegetation Unit Code	Broad Vegetation Unit	Vegetation Description	Representative Quadrats and Relevés	Extent of Survey Area (ha)	Extent of Survey Area (%)
1	<i>Callitris</i> Woodland	<i>Callitris columellaris</i> low woodland over <i>Acacia acuminata</i> and <i>Acacia obtecta</i> tall sparse shrubland over <i>Olearia pimeleoides</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low isolated tussock grasses	MG017, MG019, MG026, MG035, MG039	487.7820	11.7538
2	<i>Eucalyptus</i> / <i>Acacia</i> Shrubland	<i>Eucalyptus horistes</i> mallee woodland over <i>Acacia effusifolia</i> , <i>Acacia longisperma</i> and <i>Acacia prainii</i> tall closed shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low sparse grassland	MG020, MG028	47.5484	1.1458
3	<i>Eucalyptus</i> / <i>Callitris</i> Woodland	<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> and <i>Callitris columellaris</i> open woodland over <i>Acacia acuminata</i> and <i>Santalum acuminatum</i> tall open shrubland over <i>Microcorys</i> sp. Mt Gibson (S. Patrick), <i>Alyxia buxifolia</i> and <i>Olearia muellerii</i> open shrubland over <i>Austrostipa</i> spp. and <i>Monochather paradoxus</i> sparse grassland	JB020, MG014, MG031	97.6034	2.3519
4	<i>Eucalyptus</i> / <i>Callitris</i> Woodland	<i>Eucalyptus kochii</i> , <i>Eucalyptus capillosa</i> , <i>Eucalyptus horistes</i> and <i>Callitris columellaris</i> woodland over <i>Melaleuca stereophloia</i> and <i>Alyxia buxifolia</i> tall shrubland over <i>Monochather paradoxus</i> , <i>Amphipogon caricinus</i> var. <i>caricinus</i> and <i>Austrostipa elegantissima</i> sparse grassland	JB021, JB022, JB025r, MG023, MG018, MG029, MG030	208.0218	5.0126
5	<i>Eucalyptus</i> / <i>Callitris</i> Woodland	<i>Callitris columellaris</i> , <i>Eucalyptus ?kochii</i> and <i>Eucalyptus ?ceratocorys</i> woodland over <i>Acacia effusifolia</i> and <i>Alyxia buxifolia</i> tall open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low sparse tussock grassland	MG003, MG021, MG067*	2.5856	0.0624
6	<i>Eucalyptus capillosa</i> Woodland	<i>Eucalyptus capillosa</i> low mallee woodland over <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Hakea francisiana</i> and <i>Acacia coolgardiensis</i> tall shrubland over <i>Phebalium canaliculatum</i> and <i>Hibbertia arcuata</i> low sparse shrubland over <i>Dianella revoluta</i> var. <i>divaricata</i> rushland	JB029r	55.0746	1.3271

Vegetation Unit Code	Broad Vegetation Unit	Vegetation Description	Representative Quadrats and Relevés	Extent of Survey Area (ha)	Extent of Survey Area (%)
7	<i>Eucalyptus ewartiana</i> Woodland	<i>Eucalyptus subangusta</i> and <i>Eucalyptus ewartiana</i> open mallee woodland over <i>Acacia anthochaera</i> and <i>Acacia effusifolia</i> shrubland over <i>Melaleuca leiocarpa</i> , <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098), <i>Philotheca nutans</i> and <i>Hakea scoparia</i> low open shrubland over <i>Amphipogon caricinus</i> isolated tussock grassland	JB024, JB032, MG009, MG015, MG060*	162.6091	3.9183
8	<i>Eucalyptus kochii</i> Woodland	<i>Eucalyptus kochii</i> open mallee woodland over <i>Melaleuca stereophloia</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> and <i>Acacia acuminata</i> tall shrubland over <i>Philotheca brucei</i> low sparse shrubland over <i>Austrostipa trichophylla</i> and <i>Dianella revoluta</i> var. <i>divaricata</i> isolated sedges and grasses and <i>Waitzia acuminata</i> sparse herbland	JB007, MG007	13.4867	0.3250
9	<i>Eucalyptus leptopoda</i> Woodland	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> mallee woodland over <i>Allocasuarina corniculata</i> , <i>Acacia effusifolia</i> and <i>Melaleuca hamata</i> tall open shrubland over <i>Acacia longispinea</i> , <i>Hakea invaginata</i> and <i>Hysterobaeckea setifera</i> open shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> open rushland	JB034, MG064, MG066a*	86.1778	2.0766
10	<i>Eucalyptus leptopoda</i> Woodland	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> isolated mallee trees over <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland	JB010r	13.7235	0.3307
11	<i>Eucalyptus loxophleba</i> Woodland	<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Acacia acuminata</i> , <i>Eremophila oldfieldii</i> and <i>Acacia tetragonophylla</i> tall open shrubland over <i>Olearia muelleri</i> , <i>Ptilotus obovatus</i> and <i>Scaevola spinescens</i> low open shrubland over <i>Waitzia acuminata</i> low isolated forbs	JB009, JB014r, MG010, MG011, MG013, MG068*	690.1913	16.6311
12	<i>Eucalyptus salubris</i> / <i>Eucalyptus salmonophloia</i> Woodland	<i>Eucalyptus salubris</i> or <i>E. salmonophloia</i> woodland to tall woodland over <i>Acacia</i> spp., <i>Eremophila</i> spp. tall sparse shrubland over <i>Olearia muelleri</i> , <i>Maireana</i> spp., <i>Sclerolaena</i> spp., <i>Ptilotus</i> spp. low open shrubland over <i>Austrostipa</i> spp. isolated tussock grassland	JB023, MG005, MG027, MG022, MG002, MG024, MG032, MG049*, MG051*	460.6730	11.1005
13	<i>Eucalyptus salubris</i> Woodland	<i>Eucalyptus salubris</i> woodland over <i>Exocarpos aphyllus</i> and <i>Eremophila</i> spp. isolated shrubs over <i>Tecticornia disarticulata</i> , <i>Frankenia setosa</i> and <i>Maireana</i> spp. low shrubland	JB016r, JB017	14.2851	0.3443
15*	<i>Eucalyptus subangusta</i> Woodland	<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i> low open woodland over <i>Melaleuca eleuterostachya</i> , <i>Acacia kalgoorliensis</i> , <i>Acacia</i> sp. 4 tall open shrub land over <i>Cryptandra apetala</i> var. <i>apetala</i> , <i>Microcorys tenuifolia</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> and <i>Triodia rigidissima</i> open rushland	MG070*, MG071*, MG072*	-	-

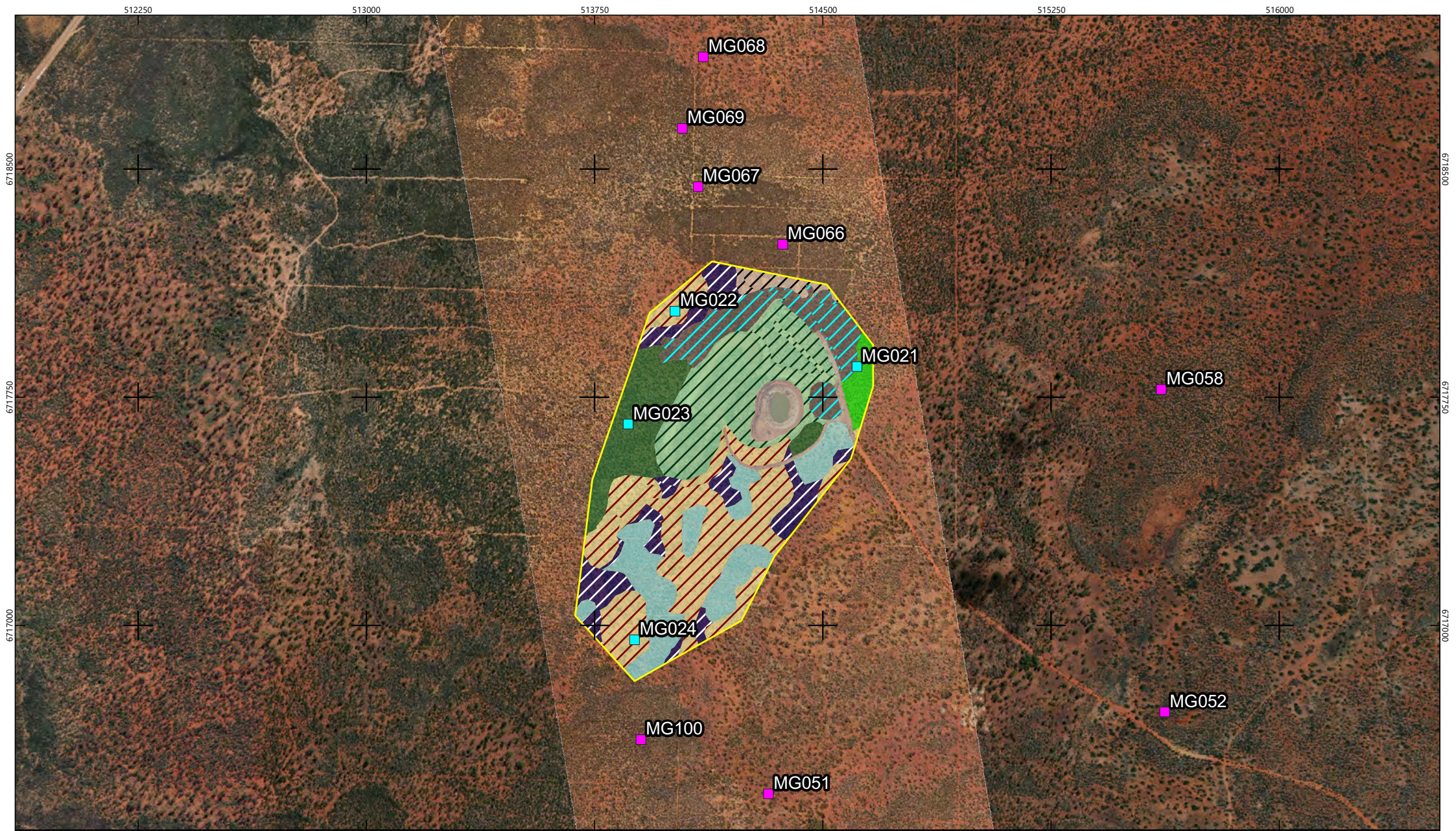
Vegetation Unit Code	Broad Vegetation Unit	Vegetation Description	Representative Quadrats and Relevés	Extent of Survey Area (ha)	Extent of Survey Area (%)
16	<i>Eucalyptus</i> Woodland	<i>Eucalyptus</i> sp. open mallee woodland over <i>Acacia resinimarginea</i> tall sparse shrubland over <i>Melaleuca stereophloia</i> , <i>Acacia effusifolia</i> and <i>Daviesia benthamii</i> open shrubland over <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098) low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland	MG081	21.2869	0.5130
17	<i>Eucalyptus</i> Woodland	<i>Eucalyptus horistes</i> open mallee woodland over <i>Acacia acuminata</i> and <i>Acacia effusifolia</i> tall shrubland over <i>Philotheca nutans</i> and <i>Olearia muelleri</i> sparse shrubland	MG016, MG025	60.9146	1.47679
18	<i>Eucalyptus stowardii</i> Woodland	<i>Eucalyptus stowardii</i> low open mallee woodland over <i>Allocasuarina acutivalvis</i> , <i>Acacia assimilis</i> subsp. <i>assimilis</i> and <i>Acacia burkittii</i> tall shrubland over <i>Dodonaea inaequifolia</i> and <i>Melaleuca nematophylla</i> shrubland over <i>Hibbertia arcuata</i> and <i>Hemigenia ciliata</i> low sparse shrubland over <i>Xanthosia kochii</i> open herbland	JB008	22.9311	0.5526
19	<i>Acacia / Allocasuarina</i> Shrubland	<i>Acacia burkittii</i> , <i>Acacia duriuscula</i> and <i>Allocasuarina acutivalvis</i> tall shrubland over <i>Grevillea levis</i> and <i>Acacia synoria</i> sparse shrubland over <i>Hemigenia ciliata</i> and <i>Hibbertia glomerata</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> , <i>Dianella revoluta</i> var. <i>divaricata</i> , <i>Amphipogon caricinus</i> and <i>Borya sphaerocephala</i> sparse grassland	JB001, JB026	111.0737	2.6765
20	<i>Acacia / Allocasuarina</i> Shrubland	<i>Allocasuarina acutivalvis</i> , <i>Acacia effusifolia</i> and <i>Acacia longispinea</i> tall shrubland over <i>Calothamnus gilesii</i> and <i>Aluta aspera</i> low isolated shrubs over <i>Amphipogon caricinus</i> sparse tussock grassland	JB011, JB018, JB033r, MG079r*	104.7987	2.5253
21	<i>Acacia / Allocasuarina</i> Shrubland	<i>Acacia effusifolia</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland over <i>Enekbatus stowardii</i> , <i>Philotheca deserti</i> subsp. <i>deserti</i> low open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland	MG001, MG004	50.0364	1.2057
22	<i>Acacia / Baeckea</i> Shrubland	<i>Acacia sibina</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> and <i>Hakea invaginata</i> open shrubland over <i>Baeckea elderiana</i> , <i>Grevillea yorkkrainensis</i> and <i>Grevillea acacioides</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> , <i>Borya sphaerocephala</i> and <i>Stylidium limbatum</i> open rushland	JB030, JB031, MG080*	38.0720	0.9174
23	<i>Acacia / Enekbatus</i> Shrubland	<i>Acacia effusifolia</i> and <i>Acacia longispinea</i> tall closed shrubland over <i>Enekbatus stowardii</i> , <i>Olearia humilis</i> and <i>Gilberta tenuifolia</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland	MG058*, MG066*, MG069*, MG074*, MG100*	12.5609	0.3027

Vegetation Unit Code	Broad Vegetation Unit	Vegetation Description	Representative Quadrats and Relevés	Extent of Survey Area (ha)	Extent of Survey Area (%)
24	Mosaic Mixed Shrubland	<i>Acacia acuminata</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> and <i>Melaleuca atroviridis</i> tall shrubland over <i>Dodonaea inaequifolia</i> low sparse shrubland over <i>Austrostipa elegantissima</i> isolated tussock grasses	JB004, JB013r, MG052, MG075, MG076*, MG077*, MG078*	34.9732	0.8428
25*	<i>Acacia / Grevillea Shrubland</i>	<i>Grevillea eriostachya</i> and <i>Acacia resinimarginea</i> tall sparse shrubland over <i>Acacia</i> sp. 1 and <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i> open shrubland over <i>Philotheca</i> sp., <i>Hakea invaginata</i> and <i>Euryomyrtus recurva</i> low open shrubland	MG063*	-	-
26	<i>Acacia / Hemigenia Shrubland</i>	<i>Acacia effusifolia</i> , <i>Acacia resinimarginea</i> and <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> shrubland over <i>Hemigenia ciliata</i> low sparse shrubland over <i>Ecdiocollea monostachya</i> and <i>Dianella revoluta</i> var. <i>divaricata</i> sparse rushland	JB019r, JB028r, MG006, MG008, MG012	401.2630	9.6690
27	<i>Acacia / Mallestemon Shrubland</i>	<i>Acacia duriuscula</i> , <i>Acacia acuminata</i> and <i>Melaleuca hamata</i> tall shrubland over <i>Mallestemon tuberculatus</i> and <i>Calycopeplus pauciflorus</i> open shrubland over <i>Hemigenia ciliata</i> low sparse shrubland over <i>Borya sphaerocephala</i> and <i>Dianella revoluta</i> sparse rushland	JB002, JB003, JB005r, JB006, JB015, JB027r	192.8396	4.6468
28	<i>Acacia / Melaleuca Shrubland</i>	<i>Melaleuca nematophylla</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> tall closed shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland	MG033	35.2304	0.8490
29	<i>Acacia / Melaleuca Shrubland</i>	<i>Acacia effusifolia</i> , <i>Melaleuca</i> sp. 1 and <i>Melaleuca leiocarpa</i> tall closed shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland	MG101	27.7920	0.6697
30	<i>Acacia / Melaleuca Shrubland</i>	<i>Melaleuca hamata</i> , <i>Acacia resinimarginea</i> and <i>Allocasuarina tessellata</i> tall closed shrubland over <i>Phebalium tuberculatum</i> and <i>Hibbertia arcuata</i> low open shrubland over mixed species sparse herbland	MG055*	6.2772	0.1513
31	<i>Eremophila / Frankenia Shrubland</i>	<i>Exocarpos aphyllus</i> and <i>Eremophila</i> spp. isolated shrubs over <i>Tecticornia disarticulata</i> , <i>Frankenia setosa</i> and <i>Maireana</i> spp. low shrubland	JB12	2.1470	0.0518
32*	<i>Melaleuca Shrubland</i>	<i>Melaleuca eleuterostachya</i> and <i>Acacia resinimarginea</i> tall open shrubland over <i>Melaleuca stereophylla</i> , <i>Acacia colletioides</i> and <i>Acacia effusifolia</i> shrubland over mixed species herbland.	MG073r*	-	-
33	<i>Thryptomene Shrubland</i>	<i>Acacia effusifolia</i> and <i>Melaleuca hamata</i> tall sparse shrubland over <i>Thryptomene cuspidata</i> open shrubland over <i>Borya sphaerocephala</i> herbland	MG054*, MG065	13.0391	0.3142

Vegetation Unit Code	Broad Vegetation Unit	Vegetation Description	Representative Quadrats and Relevés	Extent of Survey Area (ha)	Extent of Survey Area (%)
34*	Aquatic Herbland	<i>Myriophyllum decussatum</i> , <i>Calandrinia granulifera</i> and <i>Pogonolepis muelleriana</i> sparse aquatic herbland	MG082r*	-	-
Cleared				195.7793	4.7176
Rehabilitation				479.2500	11.5482
Total				4,150.03	100.00

*Sample sites occurring outside the survey area

NB: 14 omitted from vegetation unit numbering sequence due to merging with another unit



0 0.25 0.5 0.75 1 km
 GDA 2020 / MGA Zone 50



- Survey Area
- Quadrat - Spring 2021
- Quadrat - Spring 2022

- Vegetation Units**
- 1
 - 11

- Legend**
- 12
 - 23
 - 4
 - Rehabilitation
 - 5
 - 8
 - Cleared

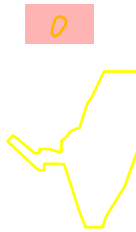
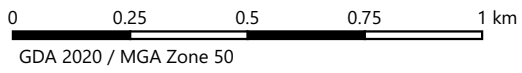
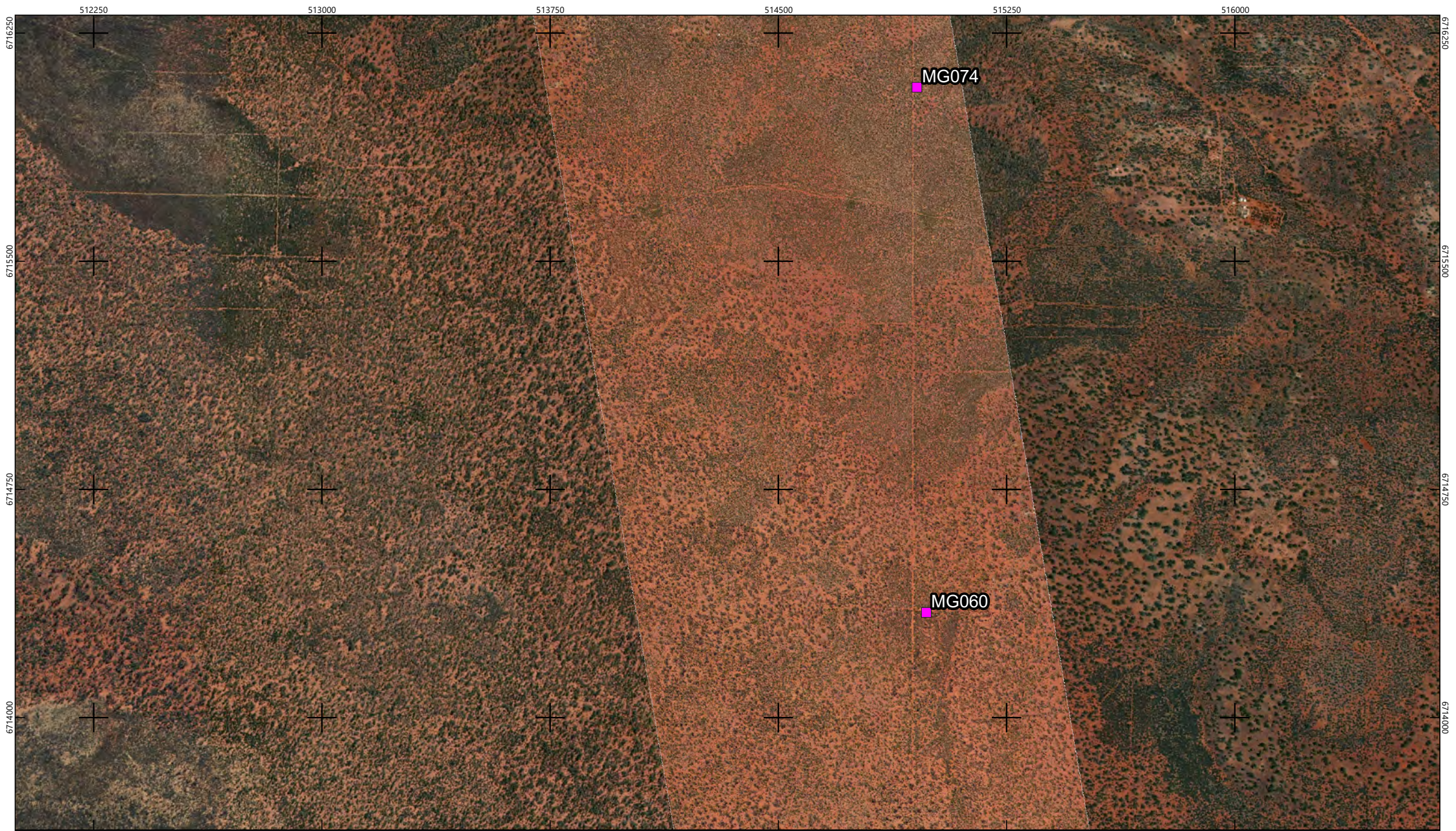


Figure 15a - Vegetation Units



Legend

■ Quadrat - Spring 2022

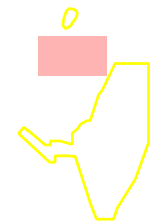
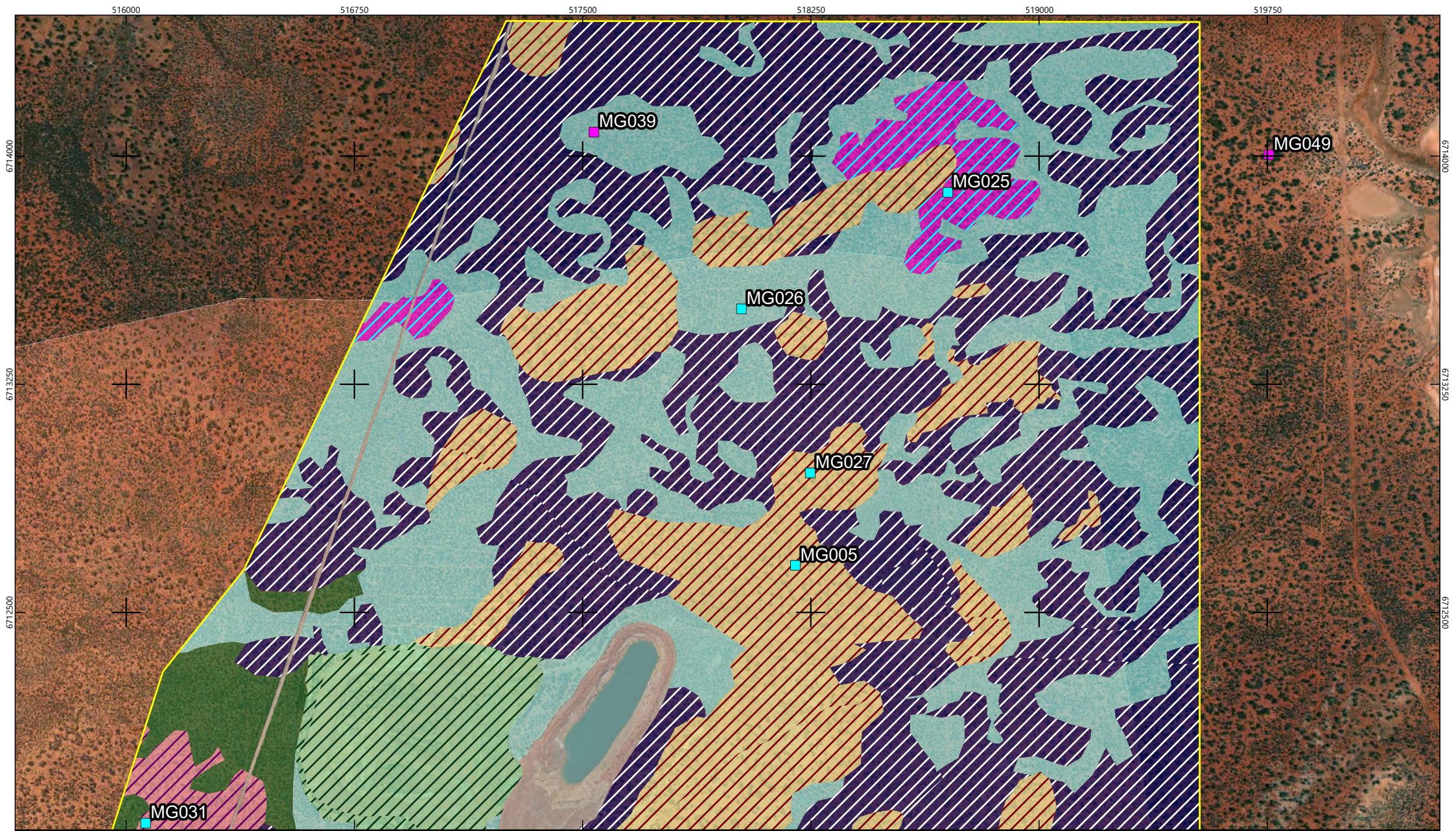


Figure 15b - Vegetation Units



0 0.25 0.5 0.75 1 km
 GDA 2020 / MGA Zone 50



Legend	
Survey Area	12
Quadrat - Spring 2021	17
Quadrat - Spring 2022	3
1	4
11	Cleared
	Rehabilitation

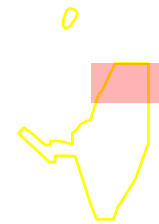


Figure 15c - Vegetation Units



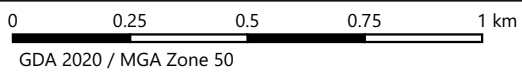
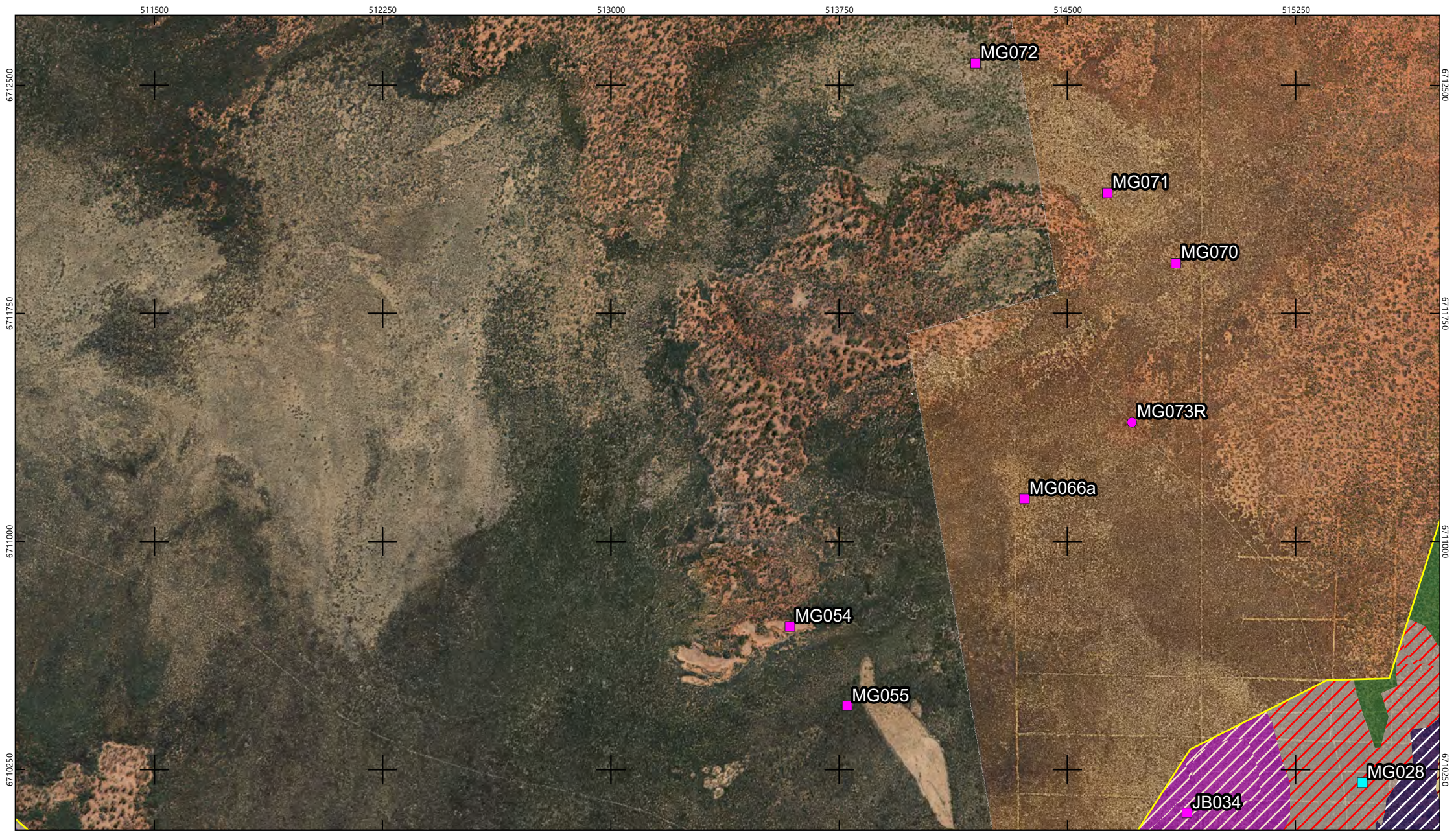
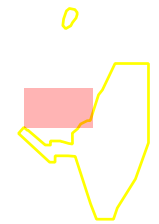


Figure 15d - Vegetation Units

Legend

Survey Area	Relevé - Spring 2022	12	4	Cleared
Quadrat - Spring 2021	Vegetation Units	2	9	
Quadrat - Spring 2022	11	20		



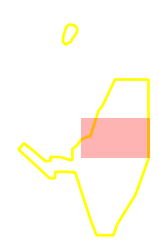
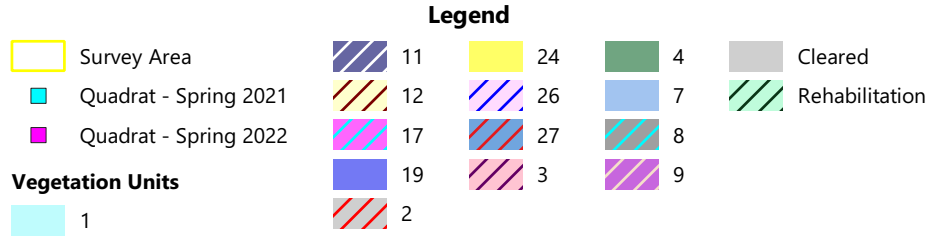
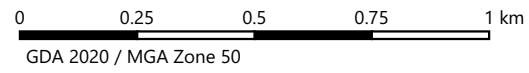
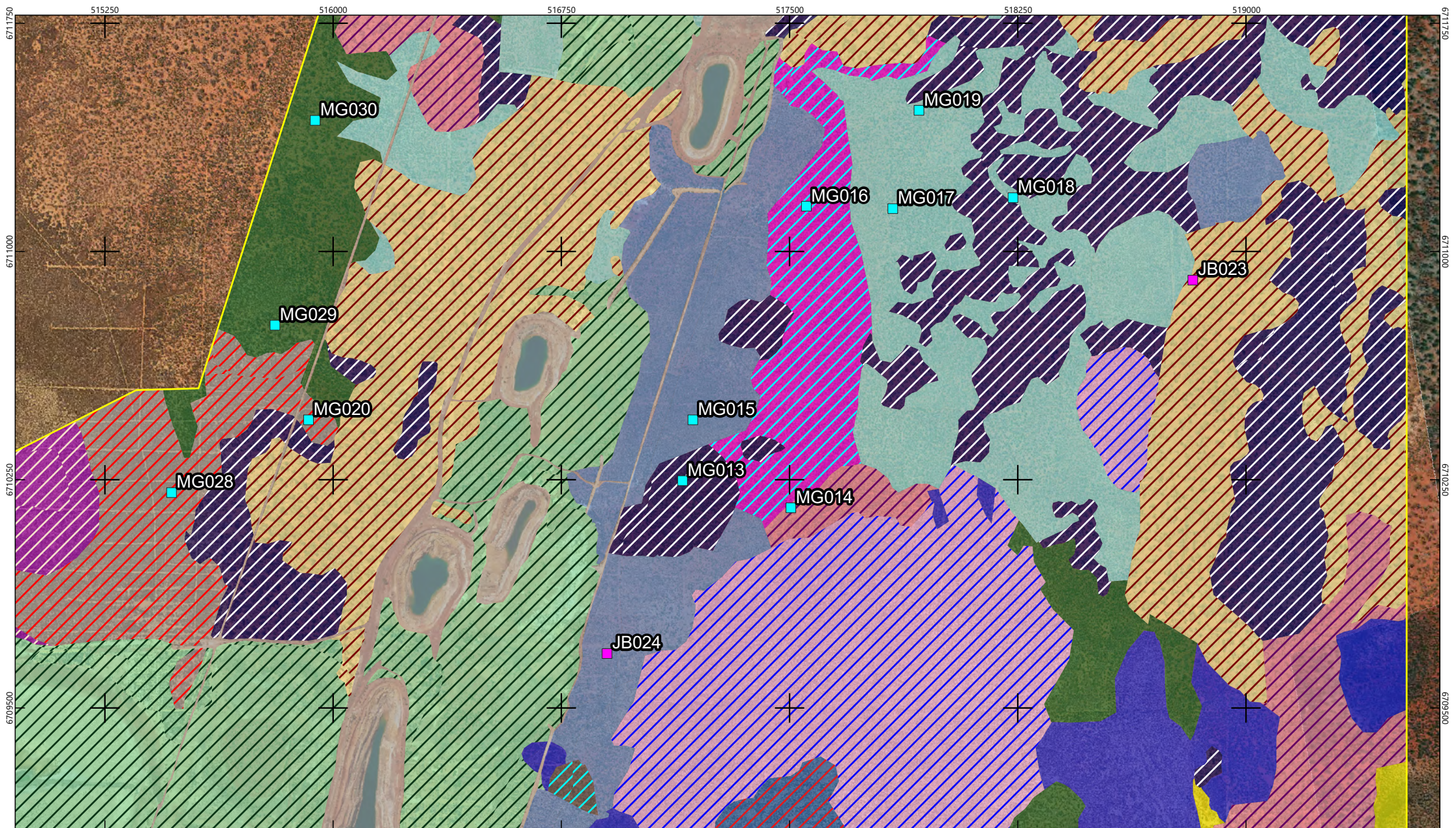


Figure 15e - Vegetation Units

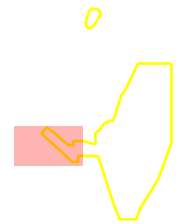
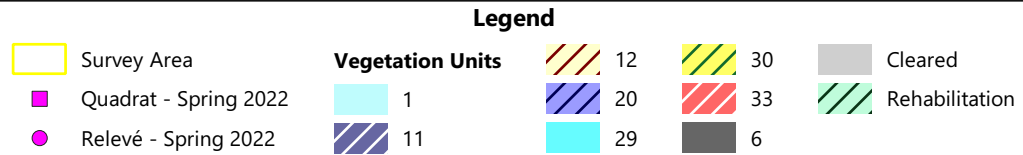
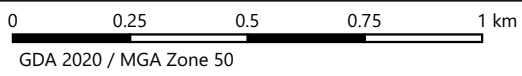
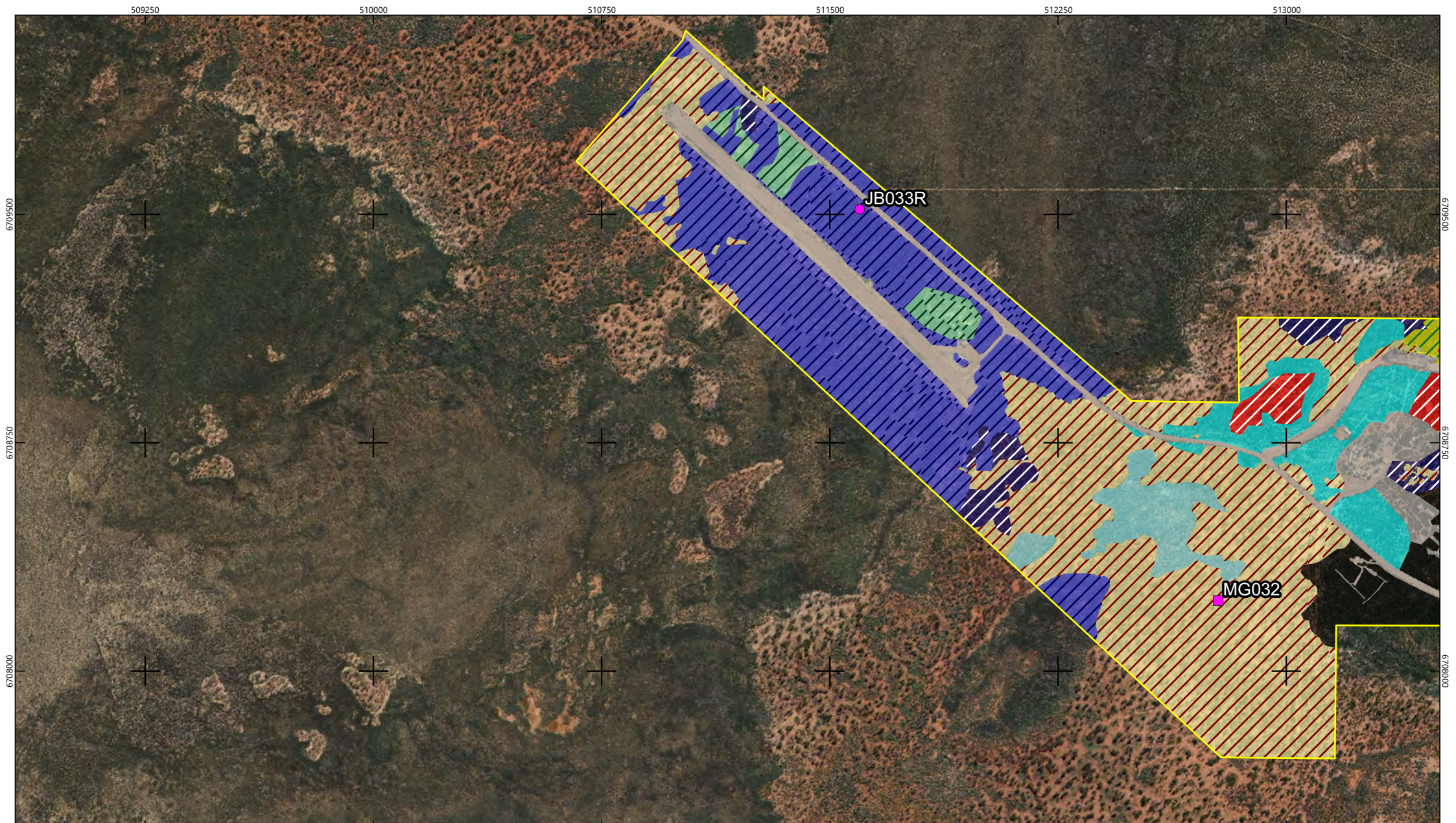


Figure 15f - Vegetation Units

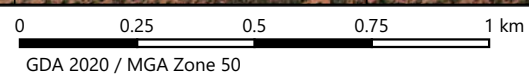
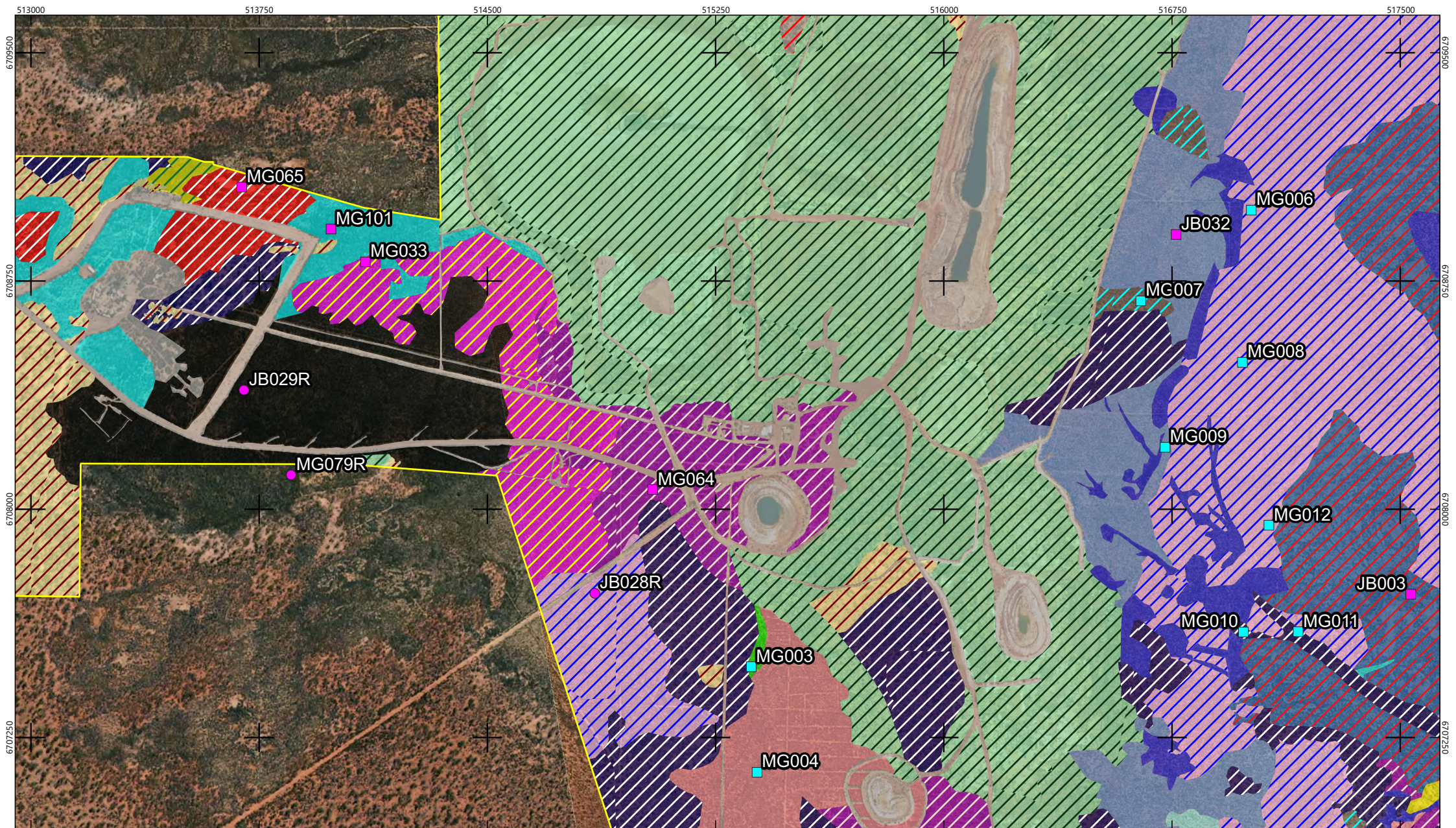
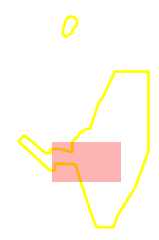
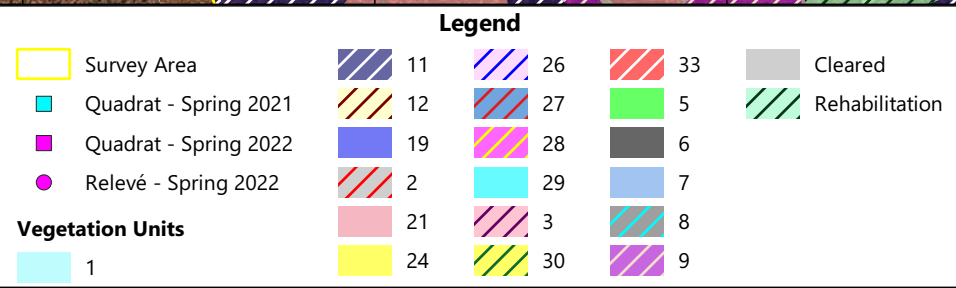
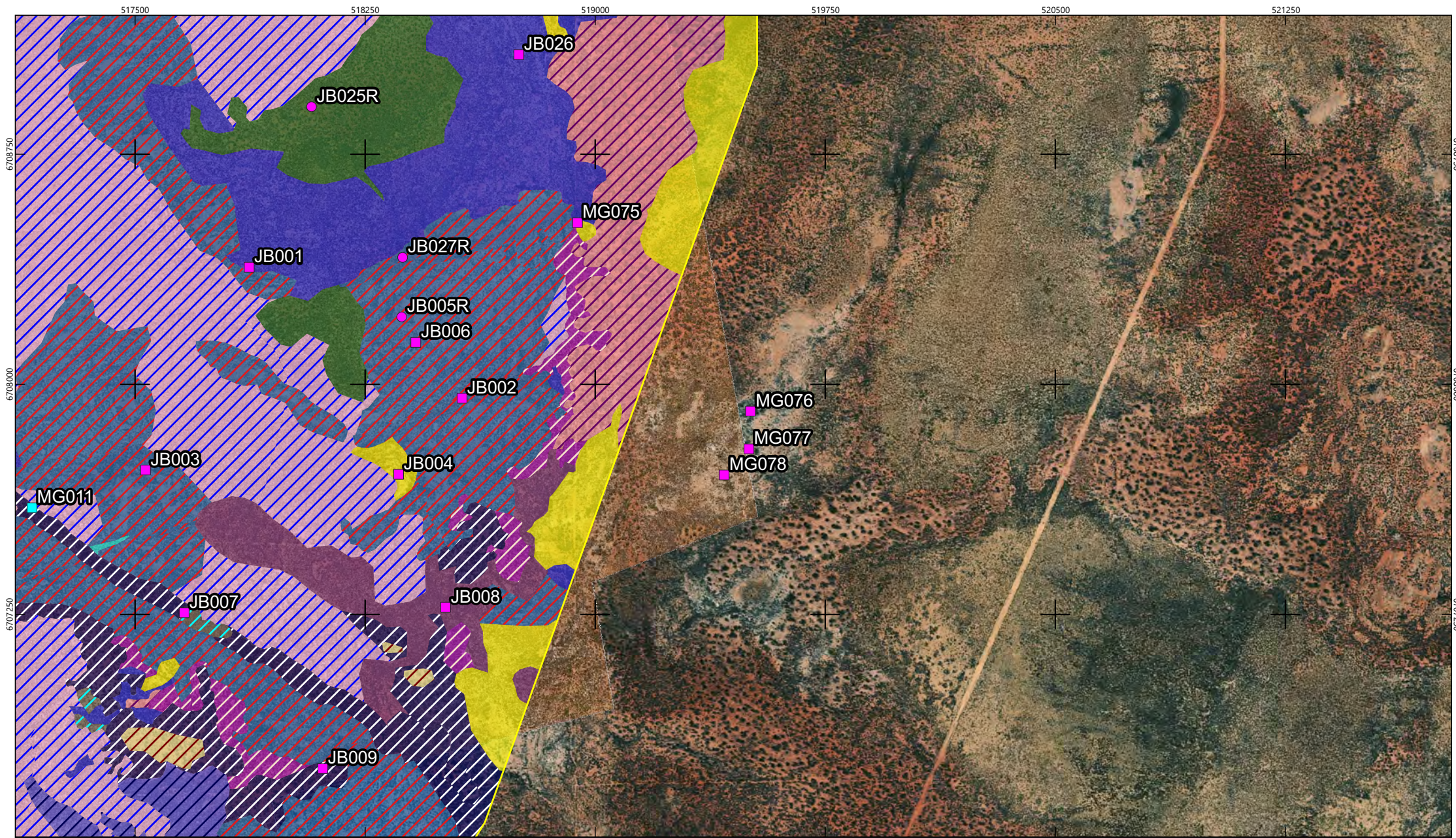


Figure 15g - Vegetation Units





0 0.25 0.5 0.75 1 km
 GDA 2020 / MGA Zone 50



Survey Area	19	27	8
Quadrat - Spring 2021	20	29	9
Relevé - Spring 2022	12	3	
	18	26	4

Legend

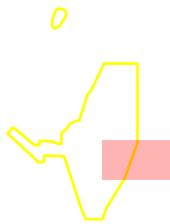


Figure 15h - Vegetation Units

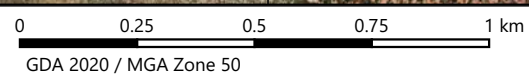
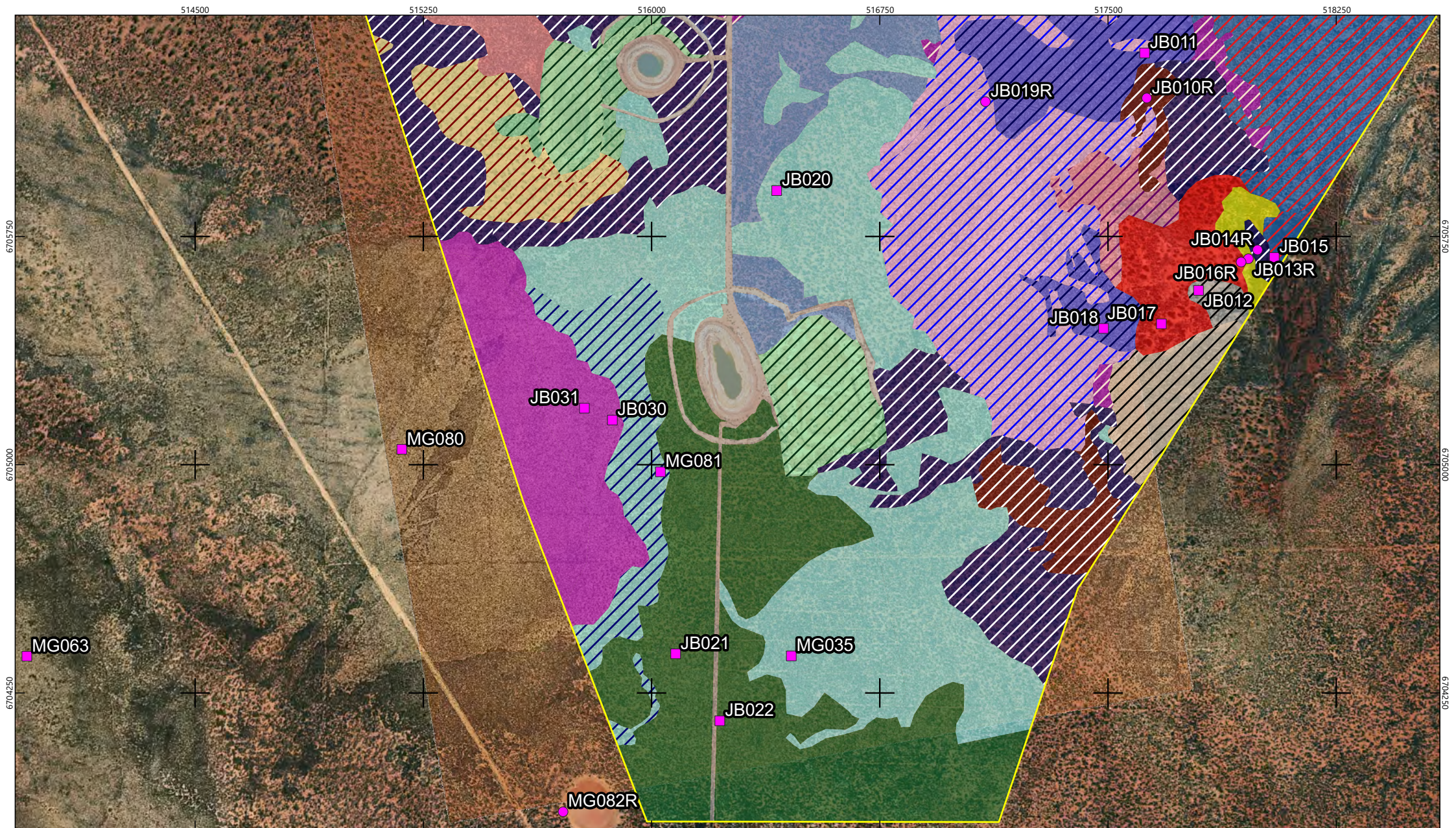
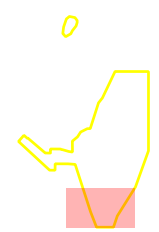
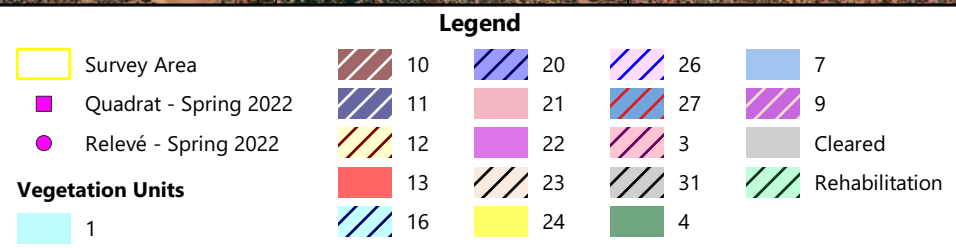


Figure 15i - Vegetation Units



5.2.2.2 Vegetation Condition

The vegetation condition of the survey area was found to range from 'Excellent' to 'Completely Degraded', with 83.28% (3456.30 ha) in 'Good' or better condition. Vegetation in 'Good' or condition has been subject to the least amount of human disturbance in the past; however, historic exploration tracks were observed throughout open vegetation of the survey area. There are some areas that have been historically and relatively recently burnt and some areas have also been impacted by historic pastoral activities.

The varying vegetation condition across the survey area is summarised in **Table 19** and the spatial extent of this is presented in **Figure 16** series.

Table 19 - Vegetation Condition

Vegetation Condition	Area (ha)	Area (%)
Excellent	2794.443	67.33
Very Good-Excellent	104.139	2.51
Very Good	180.446	4.35
Good-Very Good	132.626	3.20
Good	244.646	5.90
Poor-Good	29.561	0.71
Poor	62.686	1.51
Degraded-Poor	12.531	0.30
Degraded	70.153	1.69
Completely Degraded-Degraded	174.950	4.21
Completely Degraded	148.072	3.57
Cleared	195.773	4.72
Total	4,150.026	100.00

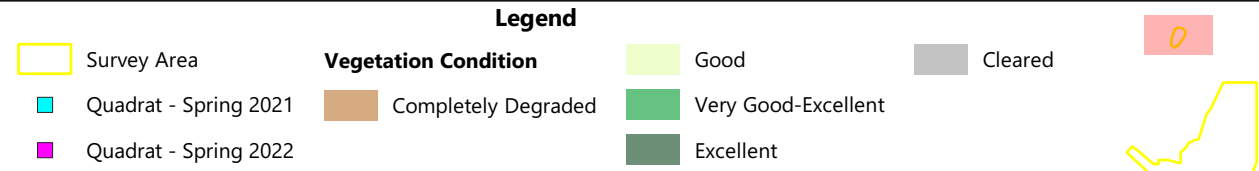
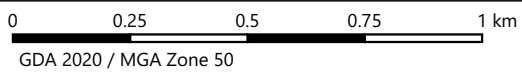
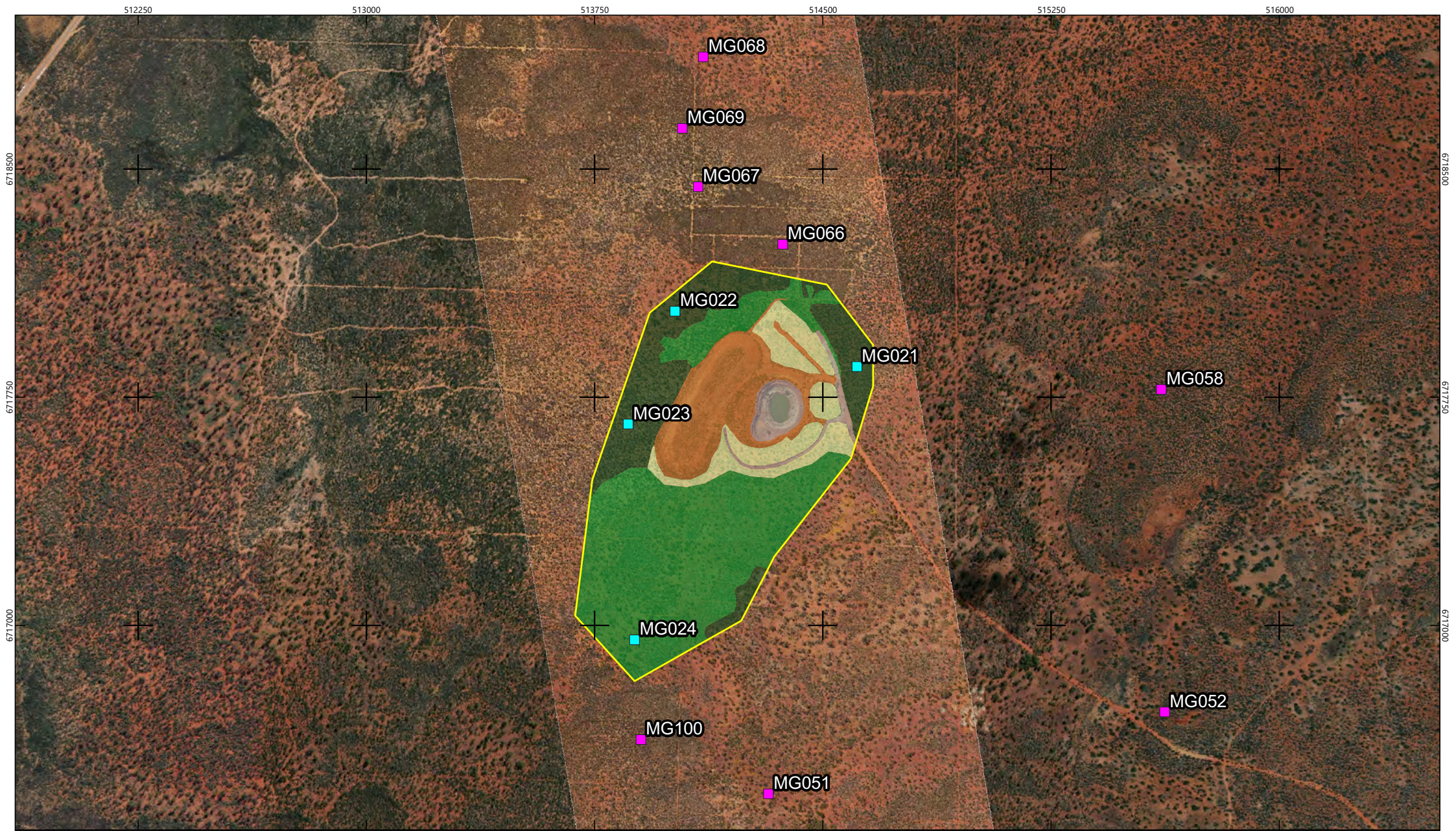
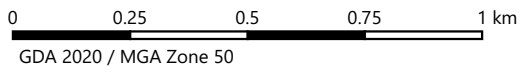
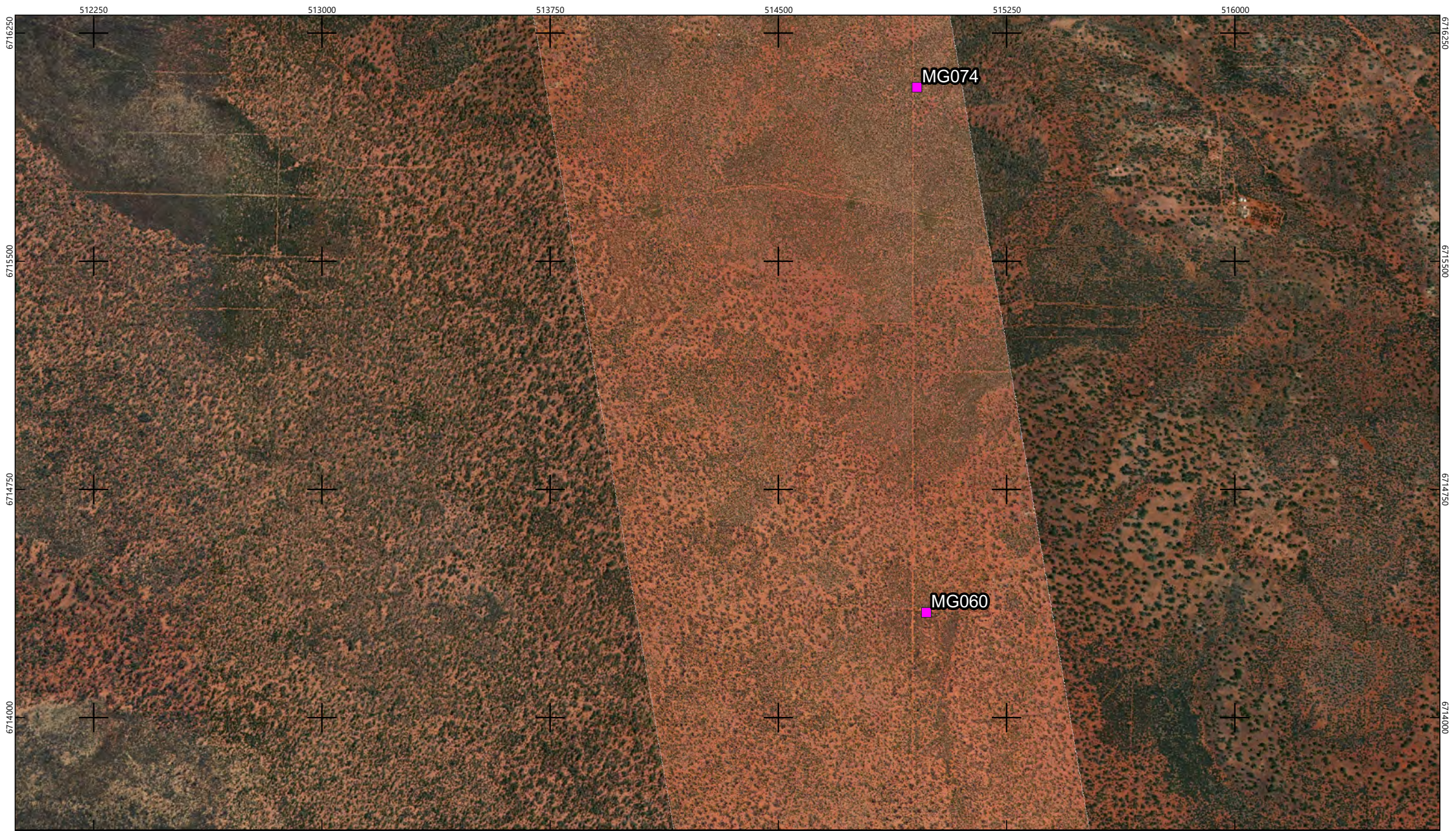


Figure 16a - Vegetation Condition and Additional Recorded Weed Locations





Legend

■ Quadrat - Spring 2022

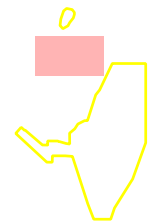


Figure 16b - Vegetation Condition and Additional Recorded Weed Locations



0 0.25 0.5 0.75 1 km
 GDA 2020 / MGA Zone 50



- Survey Area
- Quadrat - Spring 2021
- Quadrat - Spring 2022

- Vegetation Condition**
- Completely Degraded-Degraded
 - Degraded

- Poor
- Very Good
- Excellent

- Cleared
- Weed**
- Rumex vesicarius

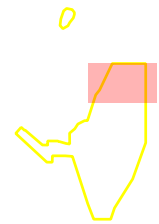
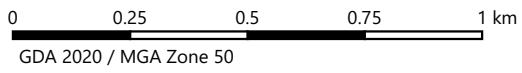
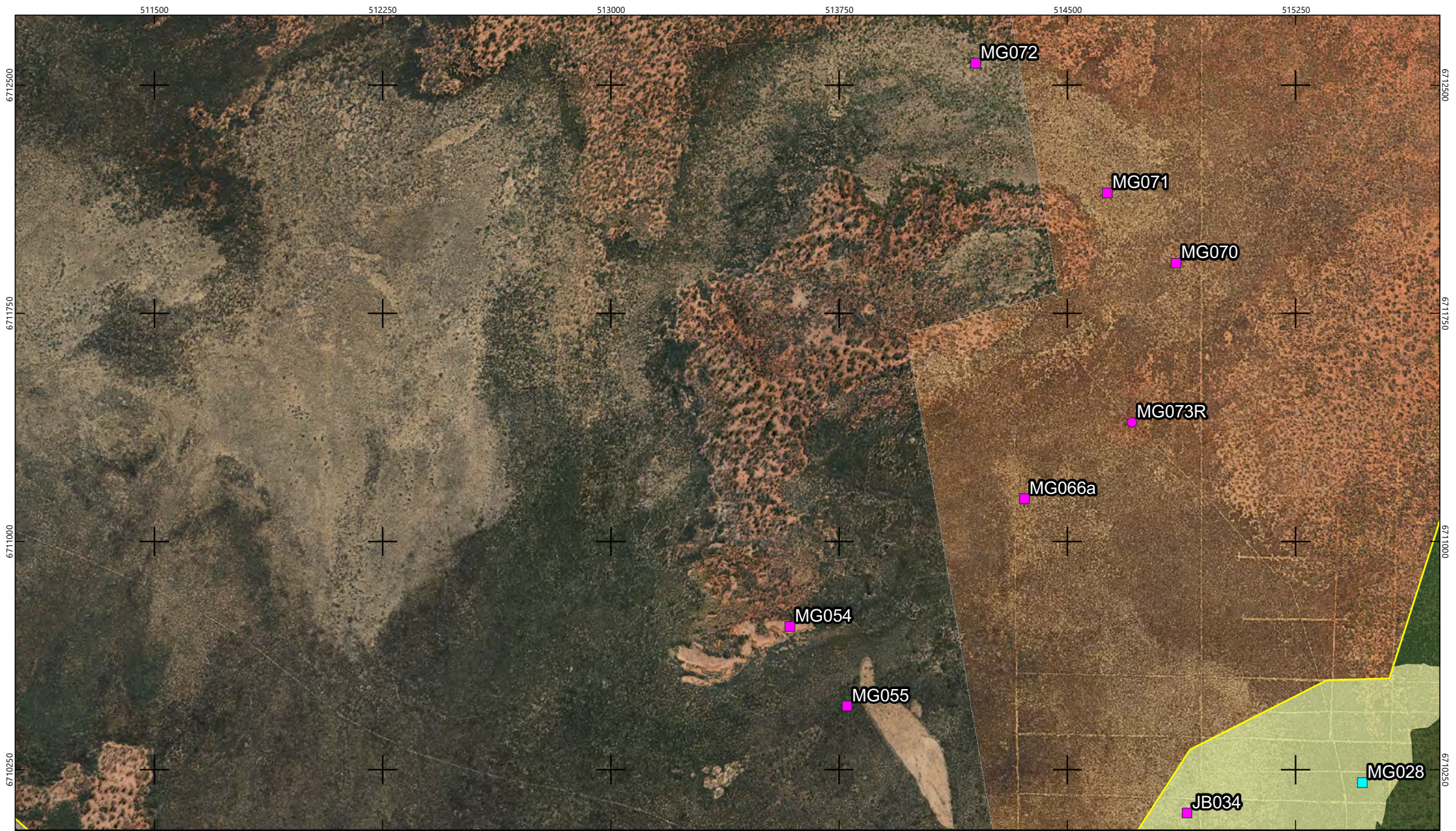


Figure 16c - Vegetation Condition and Additional Recorded Weed Locations



Legend

- Survey Area
- Quadrat - Spring 2021

- Quadrat - Spring 2022
- Relevé - Spring 2022

- Vegetation Condition**
- Good

- Excellent
- Cleared

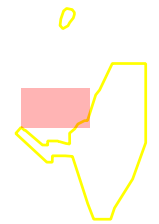


Figure 16d - Vegetation Condition and Additional Recorded Weed Locations

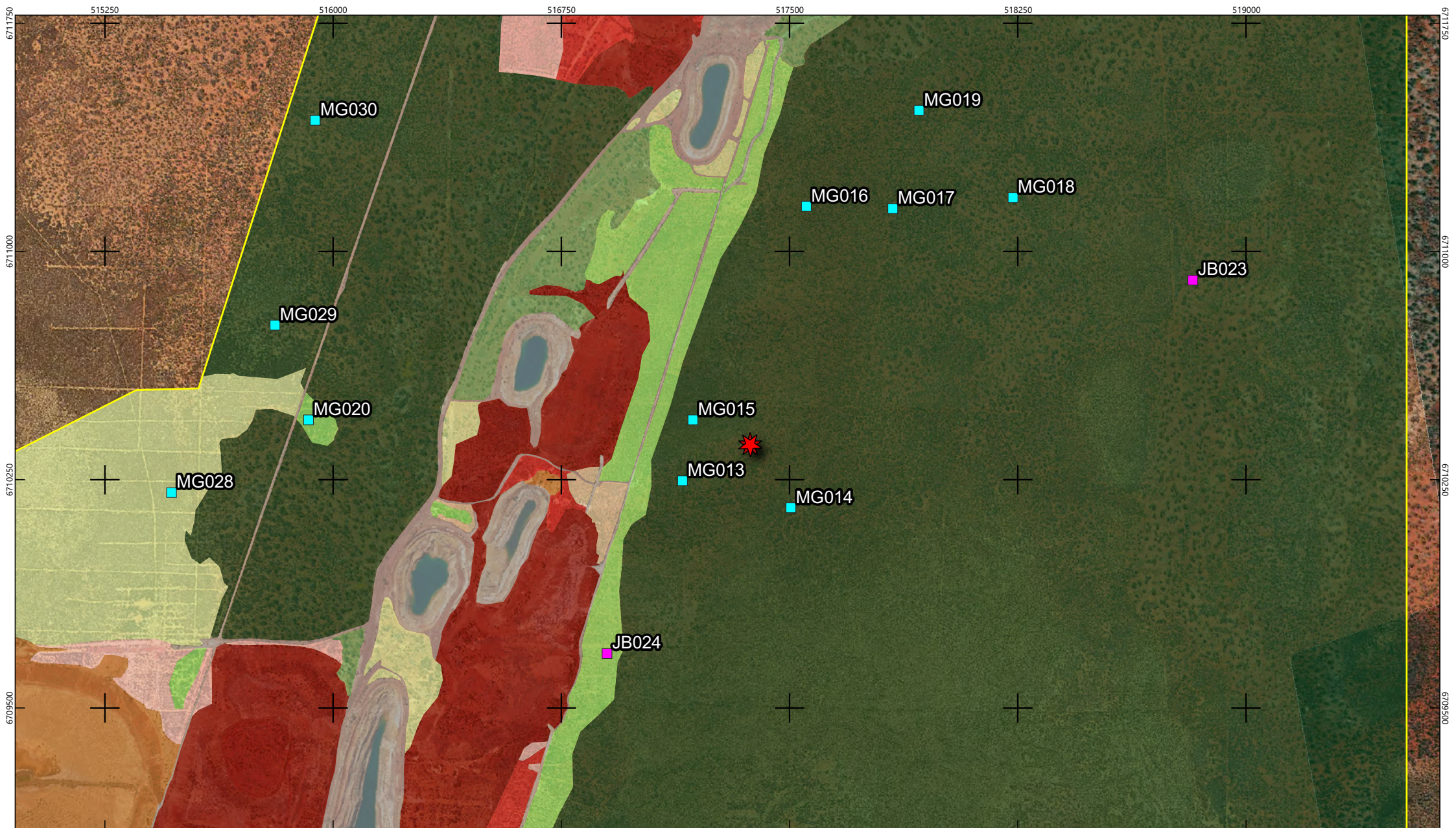


Figure 16e - Vegetation Condition and Additional Recorded Weed Locations

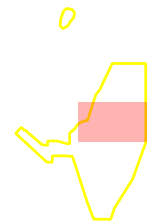
0 0.25 0.5 0.75 1 km
GDA 2020 / MGA Zone 50



- | | | |
|------------------------------|---------------------|----------------|
| Survey Area | Completely Degraded | Good-Very Good |
| Quadrat - Spring 2021 | Degraded | Very Good |
| Quadrat - Spring 2022 | Poor | Excellent |
| Vegetation Condition | | |
| Completely Degraded-Degraded | Poor-Good | Cleared |
| Good | | |

Legend

- Weed**
- Rumex vesicarius



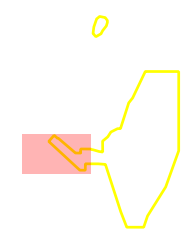
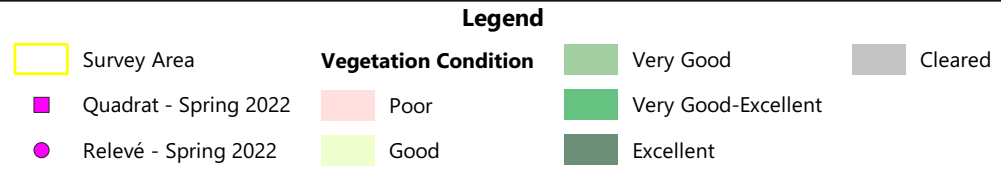
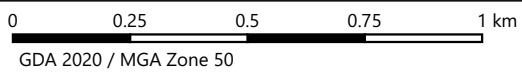
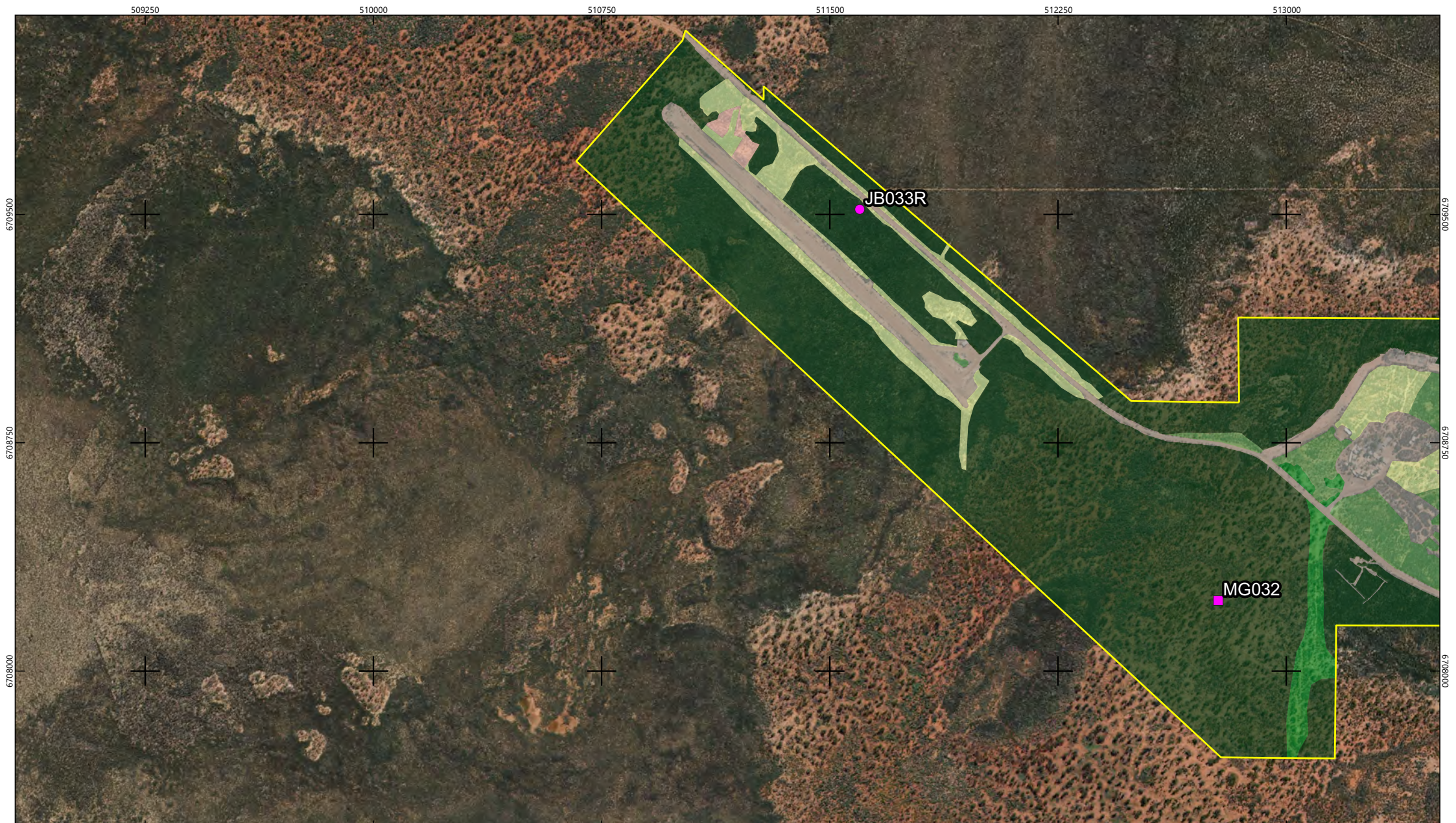
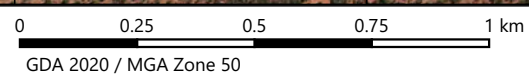
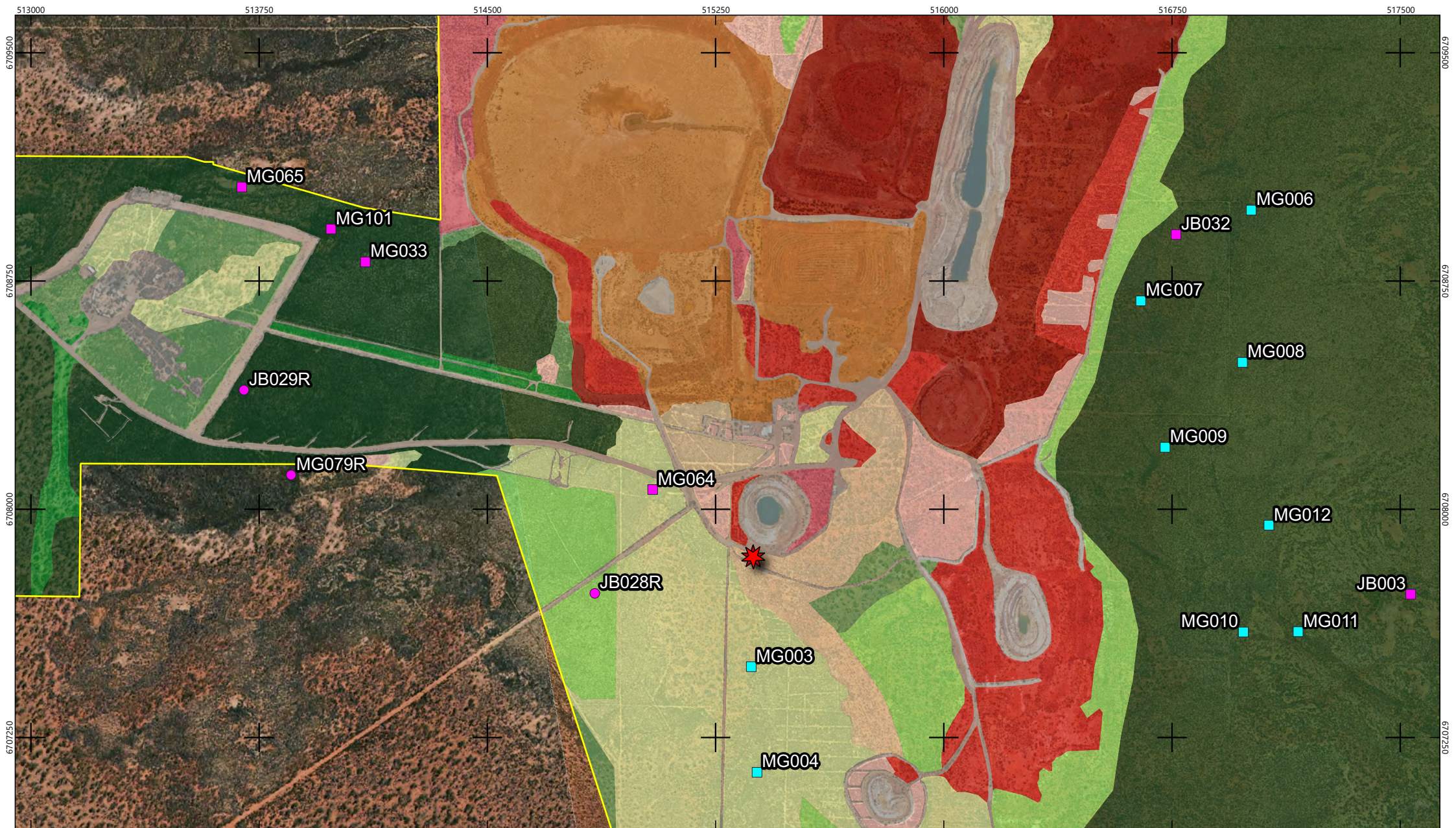


Figure 16f - Vegetation Condition and Additional Recorded Weed Locations



- Survey Area
- Quadrat - Spring 2021
- Quadrat - Spring 2022
- Relevé - Spring 2022

- Vegetation Condition**
- Completely Degraded-Degraded
 - Completely Degraded
 - Degraded
 - Degraded-Poor

- Vegetation Condition**
- Poor
 - Poor-Good
 - Good
 - Good-Very Good
 - Very Good

- Vegetation Condition**
- Very Good-Excellent
 - Excellent
 - Cleared

- Weed**
- ✱ Rumex vesicarius

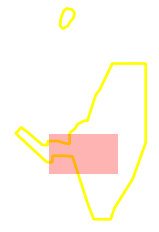
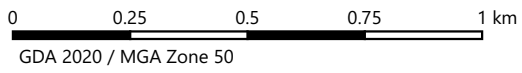
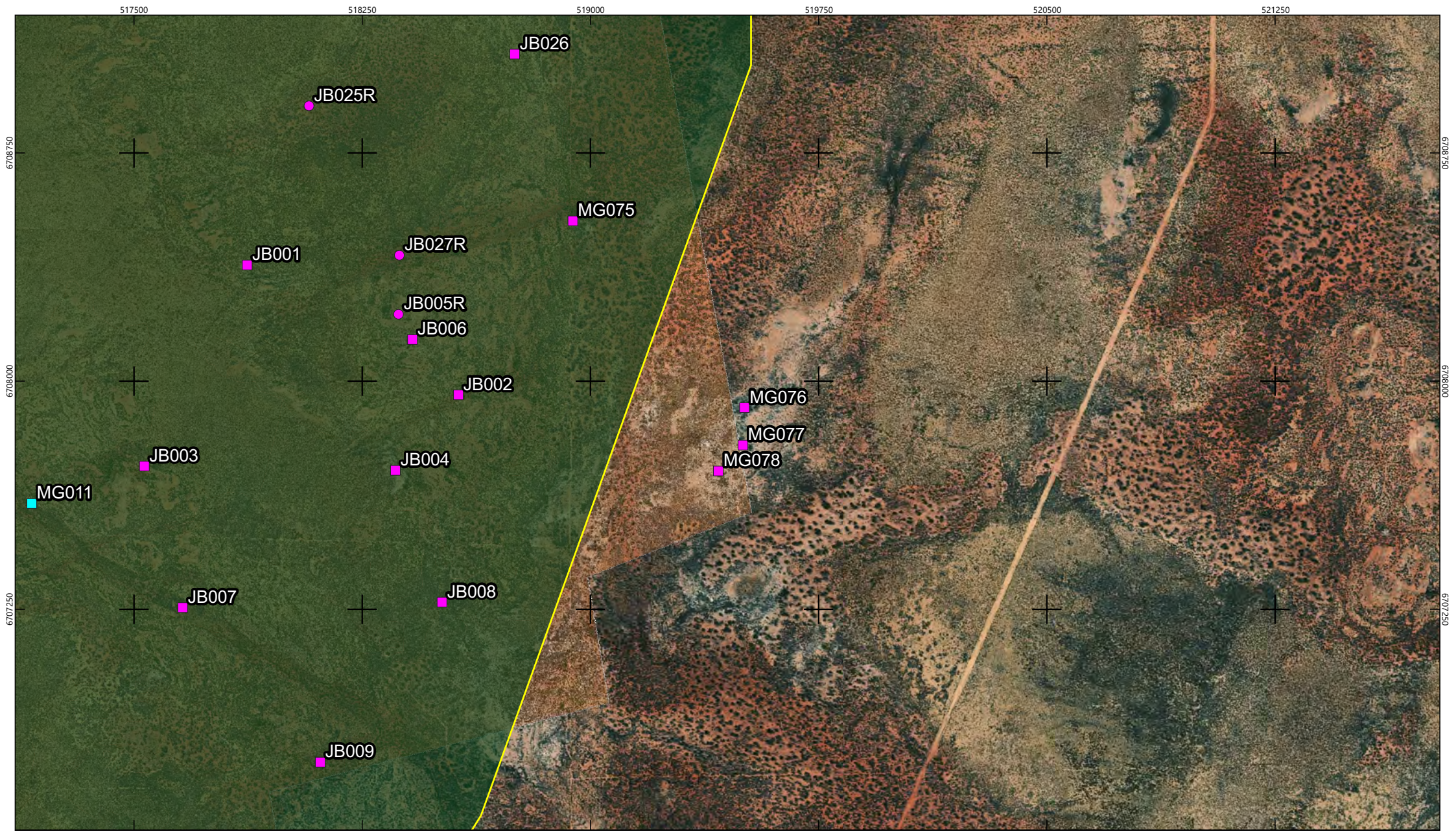


Figure 16g - Vegetation Condition and Additional Recorded Weed Locations



- Survey Area
- Quadrat - Spring 2021
- Quadrat - Spring 2022

Legend

- Relevé - Spring 2022

Vegetation Condition

- Excellent

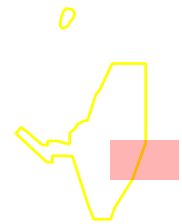


Figure 16h - Vegetation Condition and Additional Recorded Weed Locations

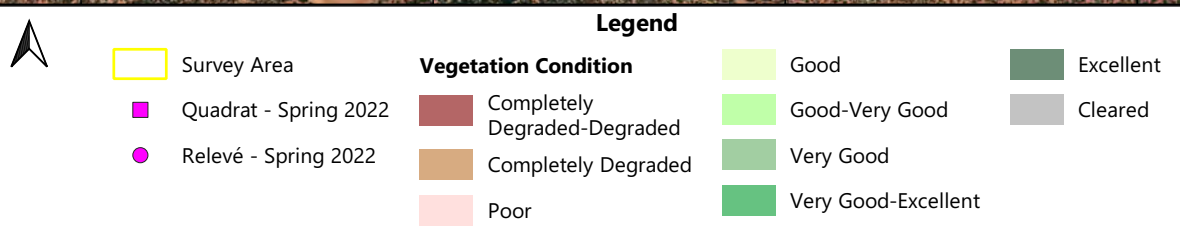
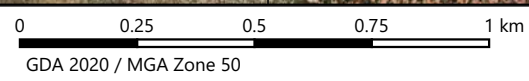
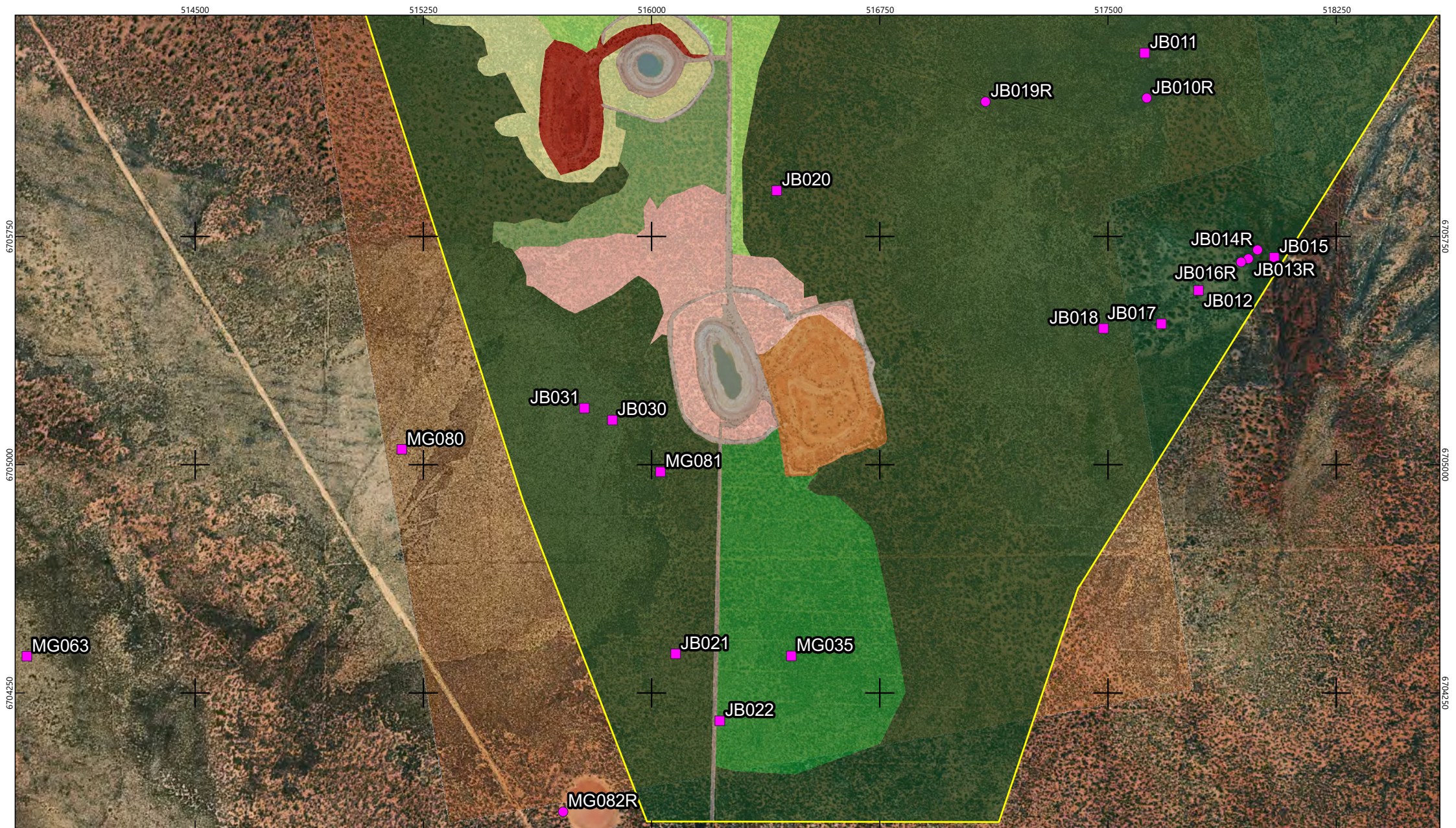


Figure 16i - Vegetation Condition and Additional Recorded Weed Locations

5.2.3 Threatened and Priority Ecological Communities

A review of the DBCA Threatened and Priority Ecological Communities (TECs and PECs) database and the Commonwealth PMST (DCCEEW 2023b) identified six (four relevant to vegetation) conservation-significant ecological communities that are known to occur within 40 km of the survey area (**Table 13**). Analysis of all field data and the vegetation units defined to occur within the survey area determined that one Critically Endangered, Commonwealth-listed TEC, the Wheatbelt woodlands, occurs within the survey area, as discussed further in the following sections.

The State-listed Priority 1 Mount Gibson BIF ecological community was identified from the desktop assessment as occurring in the study area (but not the survey area). Regolith mapping (Jones *et al.* 1997) indicates possible BIF geologies in some small sections of the survey area. However, extensive survey, including foot traverses across the survey area, including in the areas of potential BIF, confirmed other geologies in these locations and no BIF nor corresponding ecological community was observed.

5.2.3.1 Wheatbelt Woodlands

The broader study area is known to support occurrences of the Wheatbelt woodlands, a Commonwealth-listed TEC and a State-listed (Priority 3) PEC, which was confirmed to occur within the survey area. The field assessment confirmed the presence, extent and condition of the Wheatbelt Woodlands within the survey area.

Wheatbelt Woodlands Characterisation

In order to confirm the presence of the Wheatbelt woodlands, an assessment of each quadrat and relevé that contained key characteristic Eucalypt species (**Appendix F**) was assessed against the key diagnostic characteristics, as stipulated in the Conservation Advice (Department of the Environment 2015) (**Table 20**). This assessment determined that vegetation unit 13 (*Eucalyptus salubris* woodland over *Exocarpos aphyllus* isolated shrubs over *Sclerolaena dicantha*, *Tecticornia disarticulata*, *Frankenia setosa*, *Rhagodia drummondii* low shrubland over **Cleretum papulosum* open herbland) and vegetation unit 12 (*Eucalyptus salubris* or *E. salmonophloia* woodland to tall woodland over *Acacia* spp., *Eremophila* spp. tall sparse shrubland over *Olearia muellerii*, *Maireana* spp., *Sclerolaena* spp., *Ptilotus* spp. low open shrubland over *Austrostipa* spp. isolated tussock grasses) are characteristic of the Wheatbelt woodlands. Vegetation units 12 and 13 support vegetation structures of a mature woodland, generally with crown covers greater than 10%, meeting key diagnostic characteristics of the TEC. The species *Eucalyptus loxophleba* subsp. *supralaevis* dominates the canopy within vegetation unit 11 and is considered an 'associated' canopy species of the TEC. However, if no 'key' canopy species (as per **Appendix F**) are dominant, the key characteristics of the TEC are not considered to have been met.

Another key characteristic of the Wheatbelt woodlands is the diversity within the native understorey, specifically with a combination of particular species outlined by the Conservation Advice (Department of the Environment 2015). Quadrats representative of vegetation unit 12 recorded between seven and 16 of the characteristic understorey species in addition to others (**Table 20**) (Department of the Environment 2015). Quadrat JB021 (vegetation unit 4) and JB029r (vegetation unit 6) are considered to meet three of the four key diagnostic criteria (**Table 20**) and therefore, but were not found to support the diversity or relevant suite of understorey species and since the fourth criterion is not met, are not considered to be representative of the Wheatbelt woodlands TEC.

The DBCA-mapped extent of the Wheatbelt woodlands, presented in **Figure 11**, illustrates the significant representation of the ecological community in the region. A total of 180,122.35 ha (18.50%) of the Wheatbelt woodlands occurs within a 50 km buffer of the survey area. Based on the outcomes of the Wheatbelt woodlands character diagnosis (**Table 20**), all areas supported by vegetation units 12 and 13 (as presented in **Figure 17**) are considered to be characteristic of the ecological community. Vegetation characteristic of the Wheatbelt

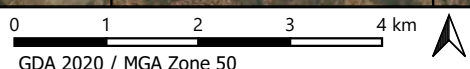
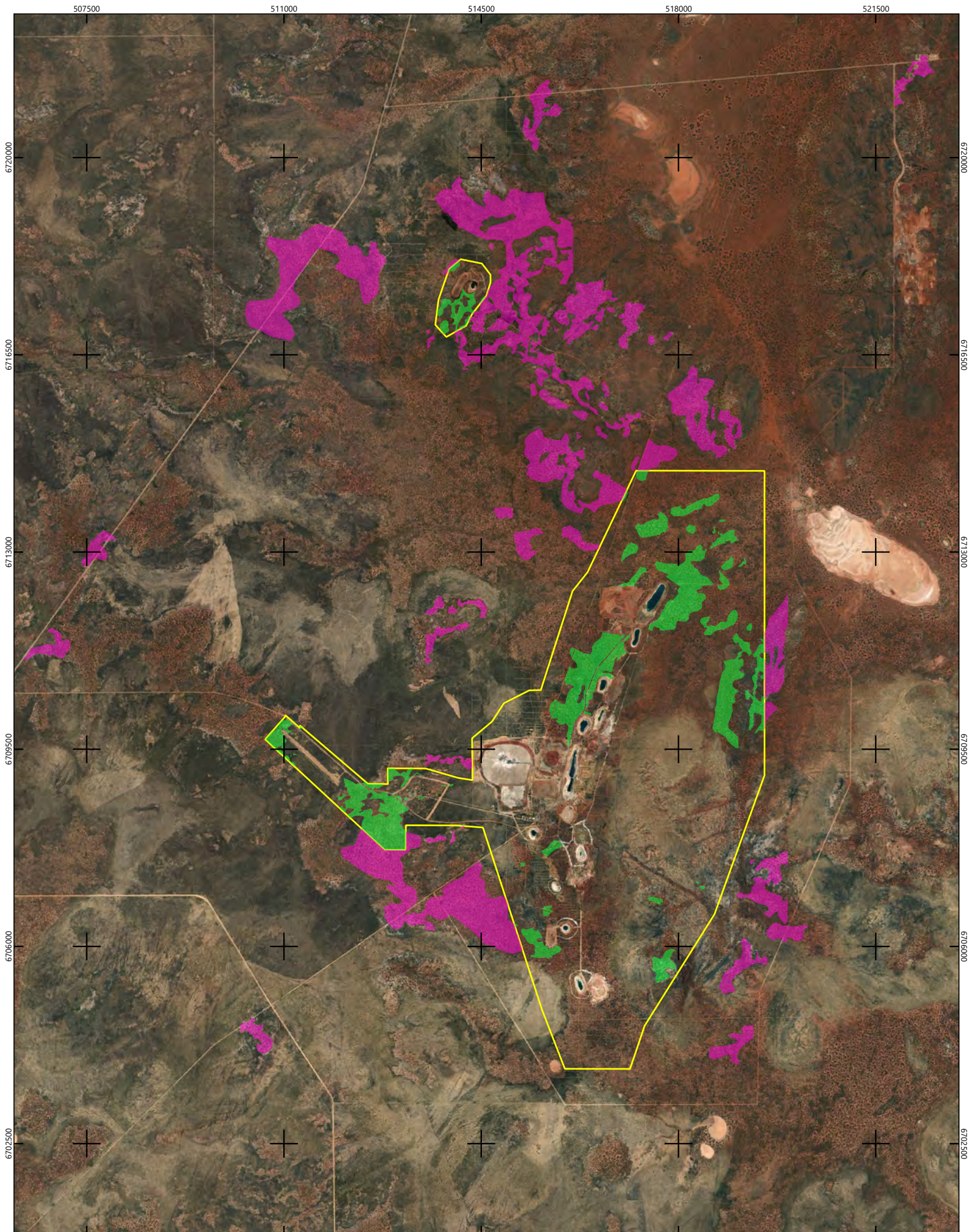
woodlands occupies 474.96 ha (11.44%) of the 4,150.03 ha survey area, and 468.71 ha of vegetation also determined to be characteristic of the community has been mapped in the broader area as part of associated recent studies. These areas are presented in **Figure 17**.

Table 20 - Wheatbelt Woodlands Characterisation of Vegetation Units within the Survey Area

Key Character (see key)	Quadrat Number (Vegetation Unit)												
	JB021 (4)	JB022 (4)	JB029r (6)	JB16r (13)	JB017 (13)	JB023 (12)	MG002 (12)	MG005 (12)	MG022 (12)	MG024 (12)	MG027 (12)	MG032 (12)	MG051* (12)
a)	+	+	+	+	+	+	+	+	+	+	+	+	+
b)	+		+	+	+	+	+	+	+	+	+	+	+
c)	+	+	+	+	+	+	+	+	+	+	+	+	+
d)				+	+	+	+	+	+	+	+	+	+
Meets Criteria	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Key to diagnostic criteria/key characters:

- Occurring in IBRA subregions Avon Wheatbelt AVW01 (Merredin), Avon Wheatbelt AVW02 (Katanning), Mallee MAL02 (Western Mallee), Jarrah Forest (eastern parts of the JAF01 Northern Jarrah and JAF02 Jarrah Forests adjacent to the Avon Wheatbelt)
 - Vegetation structure of a mature woodland, meets a minimum crown cover of 10%
 - Must support a canopy layer dominated or co-dominated by 'key' Eucalypt species identified in the approved Conservation Advice (Department of the Environment 2015) (**Appendix F**)
 - Native understorey is variable with a combination of species outlined by the (Department of the Environment 2015) TSSC (2015)
- + = Meets criteria



GDA 2020 / MGA Zone 50

Legend

- Survey Area
- Wheatbelt Woodlands Characteristic Vegetation within the Survey Area
- Wheatbelt Woodlands Characteristic Vegetation Adjacent to the Survey Area



Figure 17 - Wheatbelt Woodlands Characteristic Vegetation within and Adjacent to the Survey Area

Wheatbelt Woodlands Patches and Condition Thresholds

Wheatbelt woodlands patches are defined as a discrete and mostly continuous area of the ecological community. A patch may include small-scale variations and disturbances, such as tracks or breaks, watercourses/drainage lines or localised changes in vegetation that do not act as a permanent barrier or significantly alter its overall functionality. A large break (40 m or more) in native vegetation cover, for instance a gap dominated by non-native weed or crop species, would be considered as separate patches (TSSC 2015). Based on this, 31 patches of the Wheatbelt woodlands (extent of vegetation units 12 and 13) were identified and mapped, as shown in **Figure 17**.

Twenty-four of the 31 defined Wheatbelt woodland patches fall within the DBCA-mapped extent of the Wheatbelt woodlands. Patches 18, 19, 20, 21, 26, 27 and 28, do not fall within the DBCA-defined boundary.

The Conservation Advice (Department of the Environment 2015) specifies that patches of the Wheatbelt woodlands must meet certain condition and associated thresholds in order to be considered part of the nationally protected ecological community. Specific criteria apply, depending on the vegetation condition of each patch (as per Keighery 1994), weed cover and other factors, in order to determine patches representative of the ecological community (**Table 21**).

Table 21 - Condition Thresholds for Patches of Wheatbelt Woodlands

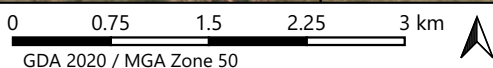
Vegetation Condition (Keighery 1994)	Cover of Weeds	Mature Trees (>30 cm DBH) Present (or Absent) AND:	Minimum Size
Pristine/ Excellent / Very Good	Exotic plant species account for 0 to 30% of total vegetation cover in the understorey layers (i.e. below the tree canopy)	Mature trees may be present or absent	2 ha
Good AND retains important habitat features	Exotic plant species account for more than 30 to 50% of total vegetation cover in the understorey layers (i.e. below the tree canopy)	Mature trees are present with at least 5 trees per 0.5 ha (as important habitat)	2 ha
Good	Exotic plant species account for more than 30 to 50% of total vegetation cover in the understorey layers (i.e. below the tree canopy)	Mature trees either absent or less than 5 trees per 0.5 ha are present	5 ha
Degraded to Good	Exotic plant species account for more than 50 to 70% of total vegetation cover in the understorey layer (i.e. below the tree canopy)	Mature trees are present with at least 5 trees per 0.5 ha	5 ha

To identify whether any of the patches of vegetation units 12 and 13 within the survey area meet the minimum condition thresholds, all patches were assessed in reference to the criteria in **Table 21**.

Based on the condition thresholds in the Conservation Advice, 21 patches totalling 468.01 ha (11.28% of the survey area) are of sufficient size and condition to be considered eligible as the TEC (**Table 22, Figure 18**).

Table 22 - Patch Assessment Against Condition Thresholds for the Wheatbelt Woodlands

Patch No.	Patch Size within Survey Area (ha)	Conservative Average Condition of the Patch	Eligible as Protectable TEC?
1	1.81	Excellent	No
2	20.92	Very Good-Excellent	Yes
3	3.09	Excellent	Yes
4	0.70	Excellent	Yes
5	12.45	Excellent	Yes
6	15.28	Excellent	Yes
7	5.00	Very Good	Yes
8	0.46	Excellent	No
9	2.02	Excellent	Yes
10	6.77	Excellent	Yes
11	0.84	Excellent	No
12	81.92	Excellent	Yes
13	5.19	Very Good	Yes
14	92.35	Excellent	Yes
15	11.38	Excellent	Yes
16	1.04	Excellent	No
17	72.93	Excellent	Yes
18	4.72	Very Good	Yes
19	0.51	Good	No
20	0.63	Excellent	No
21	2.28	Excellent	Yes
22	14.28	Excellent	Yes
23	2.29	Good-Very Good	Yes
24	16.08	Excellent	Yes
25	0.25	Excellent	No
26	0.11	Good	No
27	0.44	Good	No
28	0.41	Good	No
29	6.64	Excellent	Yes
30	78.12	Good	Yes
31	14.05	Excellent	Yes



Legend

- Survey Area
- Eligible Wheatbelt Woodlands



Figure 18 - Eligible Wheatbelt Woodlands Patches

6 DISCUSSION

6.1 FLORA

6.1.1 Floral Composition

A total of 491 flora species from 57 families and 185 genera were recorded during the field survey, of which 96.13% (472) are native taxa. This species diversity represents an average of 0.116 taxa/ha. Such floral diversity is considered significant for an area the size of the survey area in the Avon Wheatbelt bioregion, in comparison to the total number of species recorded in nearby reserves.

The surrounding Australian Wildlife Conservancy (AWC) Mount Gibson Wildlife Sanctuary encompasses an area of 131,812 ha and has recorded 664 plant taxa within the reserve (0.005 taxa/ha) (AWC 2022), and Bush Heritage's Charles Darwin Reserve to the west has recorded 680 plant taxa, within 68,600 ha (0.010 taxa/ha) (Bush Heritage Australia 2022). The survey area is within a known biodiversity "hotspot" and the high floral diversity recorded, is considered a result of being within an IBRA region transition zone and due to the highly complex local geology.

The Wheatbelt is one of the world's biological diversity "hotspots", with 40% of Australia's vascular plants occurring in the region (J. Hobbs 2003). Around one third of the plants within the IBRA subregion are endemic to the wheatbelt, and are in danger of extinction due to salinity, weed incursion, stock trampling and other effects of fragmentation (Beecham 2001).

The survey area occurs in a botanically rich transition zone, between the Avon Wheatbelt IBRA region and the Yalgoo IBRA region, both are of which are renowned for having high plant diversity (Beecham 2001; Desmond and Chant 2001). The Merredin IBRA subregion (AW1), which the survey area lies within, has 3,830 vascular plant taxa recorded, while the nearby Tallering subregion (YAL02) has 1,492 vascular plant taxa (Western Australian Herbarium 1998).

The survey area occurs at the base of the Archean Yalgoo-Singleton greenstone belt, with the gold deposit and associated pits abutting the belt. The resulting geology and mineralisation within the survey area is highly complex, and changes rapidly within a few hundred metres, with bands of rock running more or less north south (Jones and Southern Geoscience Consultants Pty Ltd. 1997). This area has also undergone faulting, being sited within the Retaliation-Yandhanoo Fold Belt, adding to the geological complexity.

There are large portions of granite throughout the survey area, which are noted for having unique flora and high plant diversity associated with them. In the South-West Botanical Province, individual outcrops support up to 200 species, especially from the Myrtaceae, Orchidaceae and Fabaceae families, and can have an unusually rich occurrence of annual taxa when compared to the flora as a whole. The diversity of microhabitats and soil moisture regimes associated with granite outcrops has allowed some species to occur outside of their main range, and has facilitated evolution of endemic species (Hopper *et al.* 1997).

Yellow sandplains (fR2 from (Anand *et al.* 1998)) occur south of the main string of existing mine pits, and to the west of the survey area. These communities contain a wide variety of Acacias, as well as unique Proteaceae species, and diversity in quadrats sampled on deep sands has been found to be higher than on duplex soils, as perennial restiads are particularly diverse (Gibson *et al.* 2004).

Of the total 491 flora taxa recorded, more than 96% are native, of which 15 are listed as Threatened or Priority flora. The Myrtaceae and Asteraceae families were found to be the most diverse, recording 63 and 66 taxa respectively. The abundant records of annual species, predominantly from the Asteraceae family, is likely a result of optimal timing of the field assessment coupled with excellent seasonal conditions from higher-than-average annual rainfall in some months preceding the survey. Of all genera, the most taxa were identified as either *Acacia*

or *Eucalyptus*, which is considered typical of vegetation remaining in the Merredin subregion, in reference to pre-European vegetation that identifies *Acacia* thickets and *Eucalyptus* woodlands.

Sixty-nine of the collected flora specimens were unable to be identified to species level with certainty, due to inadequate material with identifiable features being present at the time of survey and collection. Although the timing of the two phases of detailed field assessment were optimal, not all specimens produce viable material for identification at the same time. Only one of the uncertain taxa (*Lepidosperma*?sp. Blue Hills (A. Markey & S. Dillon 3468)) is considered to potentially represent conservation-significant species. Specimens that were not identified to species level that were initially suspected to potentially represent significant flora were submitted to the WA Herbarium for formal identification, and none were determined to be Threatened or Priority flora. Furthermore, out of these 69 uncertain taxa, 13 (19%) represent annual or short-lived species, and 19 (28%) records are likely to be represented by confidently identified taxa recorded during the survey.

The timing of the detailed field surveys (September 2021 and September 2022) was considered optimal to conduct targeted significant flora surveys, as September is within the peak flowering period for the region. The supplementary detailed survey in November 2022 was conducted late in the spring season and at a time potentially not optimal for annual and/or ephemeral species, as many typically senesce by that time. However, specimen collections and flora identifications from the November 2022 survey did not suggest constraints in this regard.

6.1.2 Threatened and Priority Flora

The individual Threatened and Priority flora recorded within the survey area discussed in detail below.

6.1.2.1 *Acacia synoria* (P2)

Acacia synoria is an obconic shrub or multi-stemmed tree, 1.5 to 5 m tall (**Plate 1**). It has light green phyllodes that are round in cross section and are 5 to 10.5 cm long by 0.7-1 mm wide with eight longitudinal nerves (**Plate 2**). Populations of *Acacia synoria* often occur as thickets, flowering in the month of December.

This species is known from nine WA Herbarium records between Yalgoo and Dalwallinu. Ten DBCA records occur within the study area approximately 13 km east and 45 km south east of the survey area (**Figure 19**) (WAH 1998-). One record occurs within the conservation estate Mount Gibson Wildlife Sanctuary with the remaining 11 km south-west of the Carlyarn Nature Reserve (**Figure 19**) (WAH 1998-). These records indicate this species has a range of approximately 45 km; however, is more common between the Goodlands and Carlyarn Nature Reserves. Typically occurring around granite outcrops, along creeks and near gravel pits in sandy clay or sandy loam soils (WAH 1998-), a total of 7,317 individual plants have been recorded across multiple field assessments within the survey area.

The 7,317 individual plants of this species have been recorded across four vegetation units (18, 19, 26, and 27). The number of individuals recorded within these vegetation units ranged from 270 to 2,990, with the greatest number recorded in vegetation units 19, 26 and 27 (2,419, 2,990, and 1,638 individuals, respectively). No individuals were recorded outside the study area.

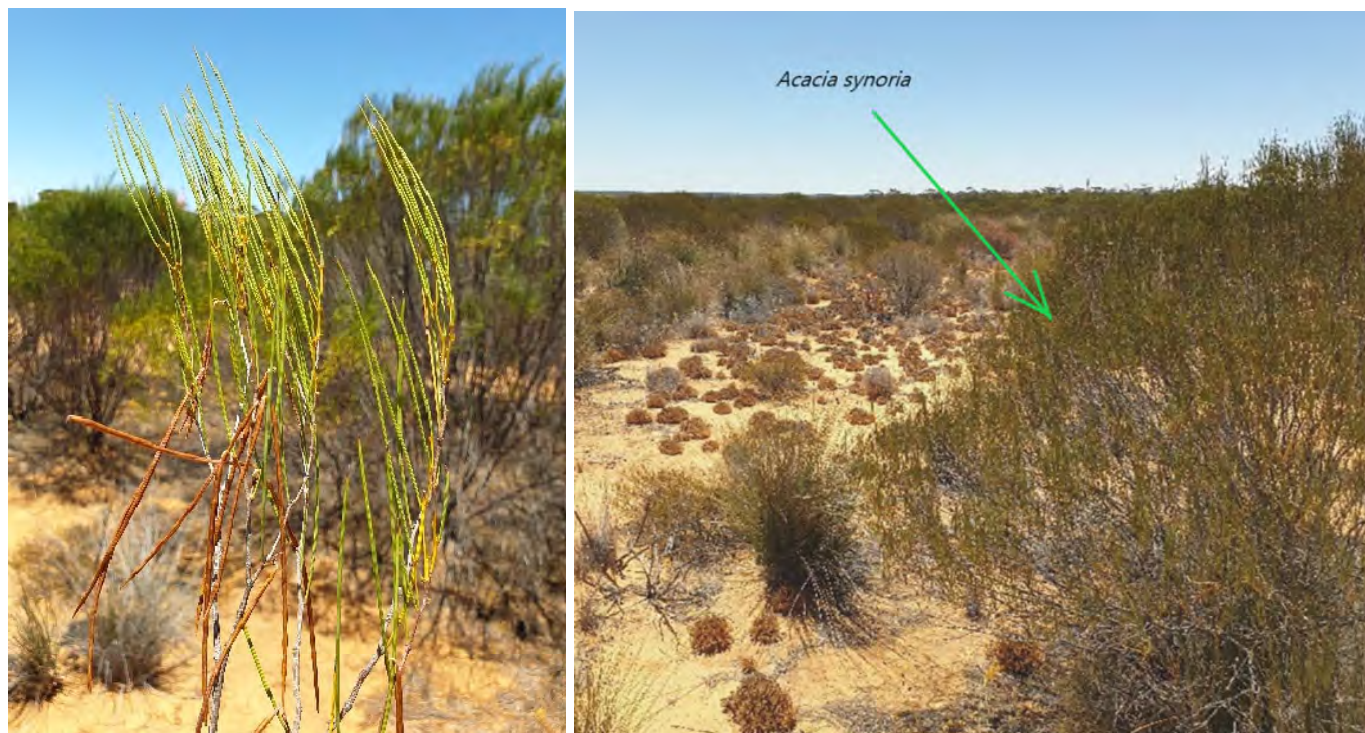


Plate 1 - *Acacia synoria*; Left, -pods; Right, -habit (Photo credit: Jenny Borger)

Acacia synoria

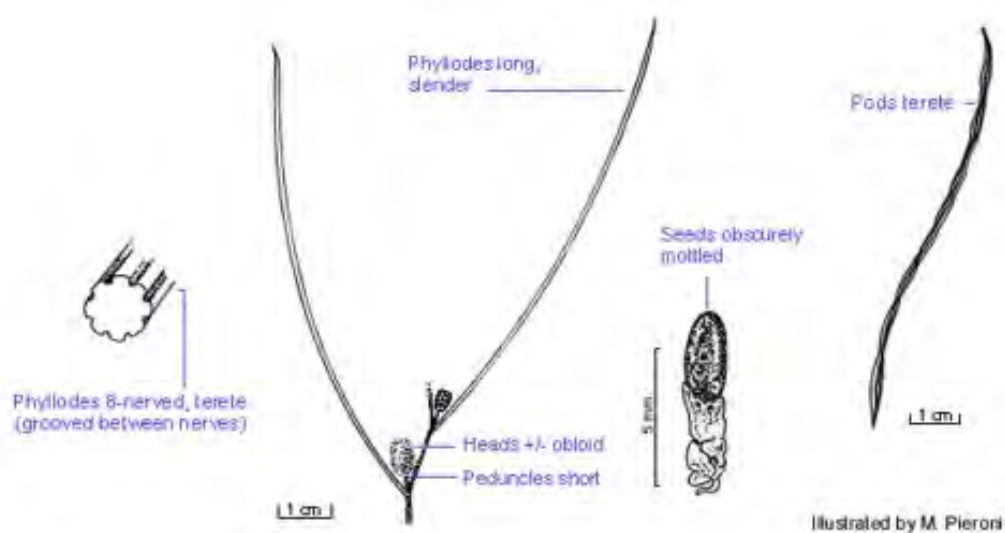


Plate 2 - *Acacia synoria* Taxonomic Diagram (Australian Biological Resources Study (ABRS))

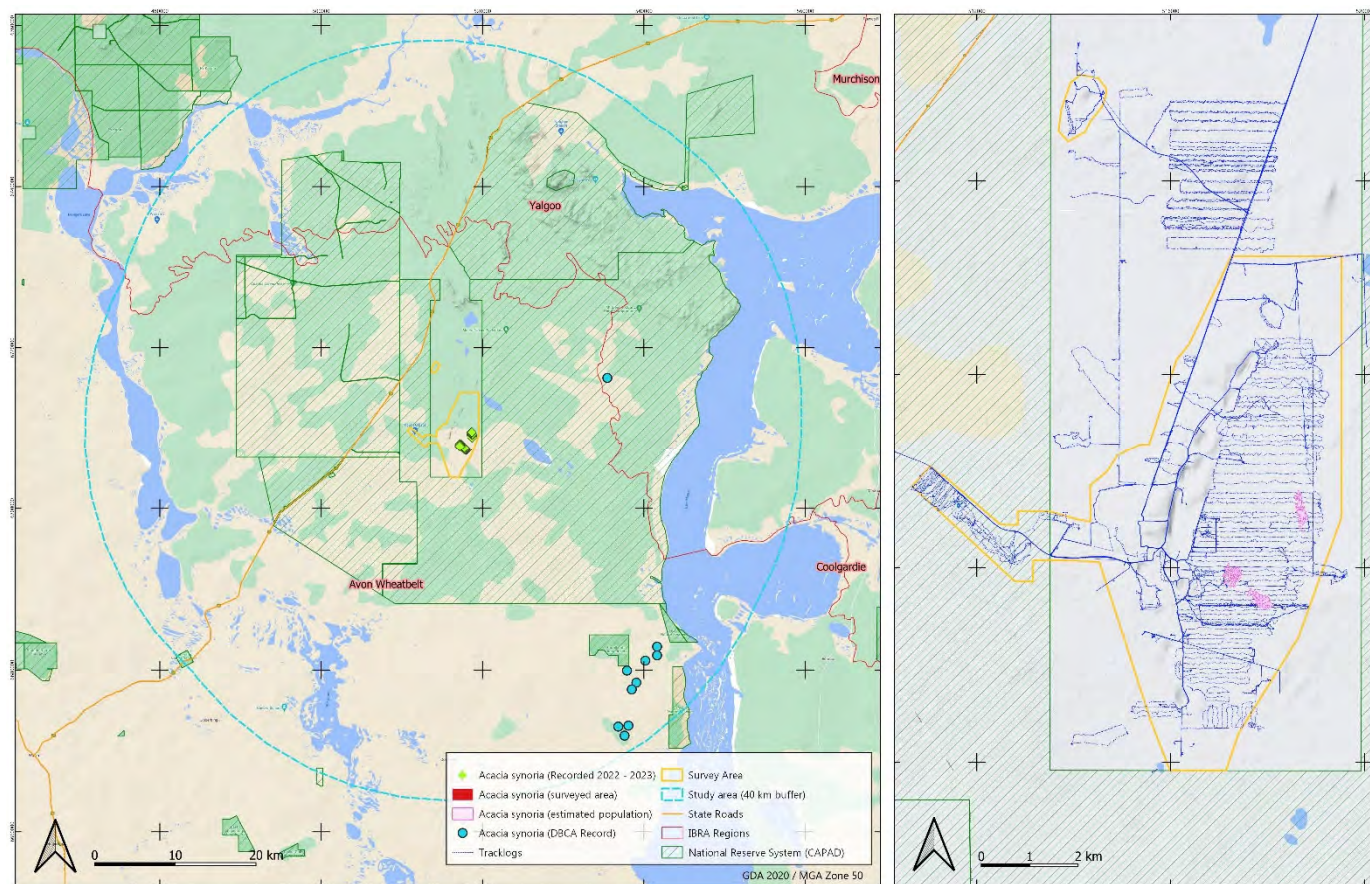


Figure 19 – *Acacia synoria* Known Distribution

6.1.2.2 *Allocasuarina tessellata* (P3)

Allocasuarina tessellata is a dioecious (having both male and female plants) shrub or tree growing to 3 to 5 m height (WAH 1998-) (**Plate 3**). The fruit and section of the cladode (stems which function like leaves) is shown in **Plate 4**. It is similar in appearance to *A. campestris* with the main difference being in the male and female flowers. *Allocasuarina tessellata* was originally collected from Mt Singleton (now Ninghan Indigenous Protected Area) to the north of the study area (Wilson and Johnson 1989; WAH 1998-).

It is known from 49 WA Herbarium records in Perenjori and Yalgoo, has a localised distribution of approximately 90 km (WAH 1998-). A total of 46 DBCA records occur within the study area all occurring to the north-east of the survey area (**Figure 20**). It grows on rocky outcrops and hillsides or in loamy or sandy soils (Atlas of Living Australia 2022), a total of 415 individual plants have been recorded across multiple field assessments within (138) and outside (277) the survey area.

The 138 individual plants of this species have been recorded across seven vegetation units (2, 3, 19, 26 and 27). The number of individuals recorded within these vegetation units ranged from two to one to 67, with the greatest number recorded in vegetation units 19 and 26 (81 and 51 individuals, respectively).



Plate 3 – *Allocasuarina tessellata*; Left-pods, Right-habitat (Photo credit –Megan Gray)

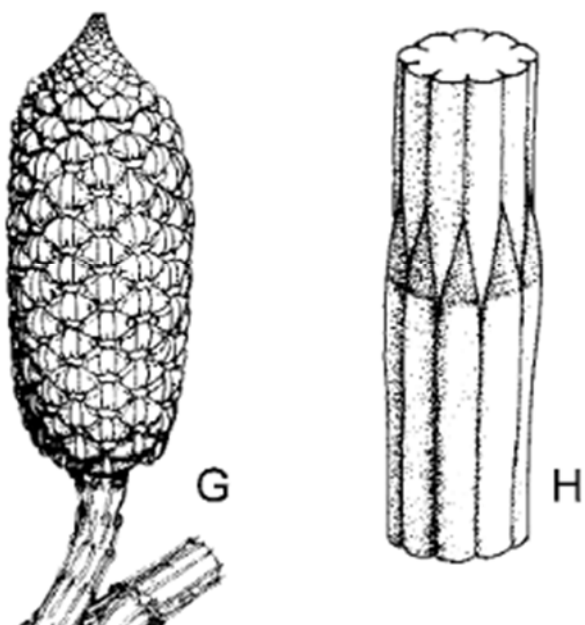


Plate 4 – *Allocasuarina tessellata* cones showing the distinctive pointed fruits of the species (Wilson and Johnson 1989)

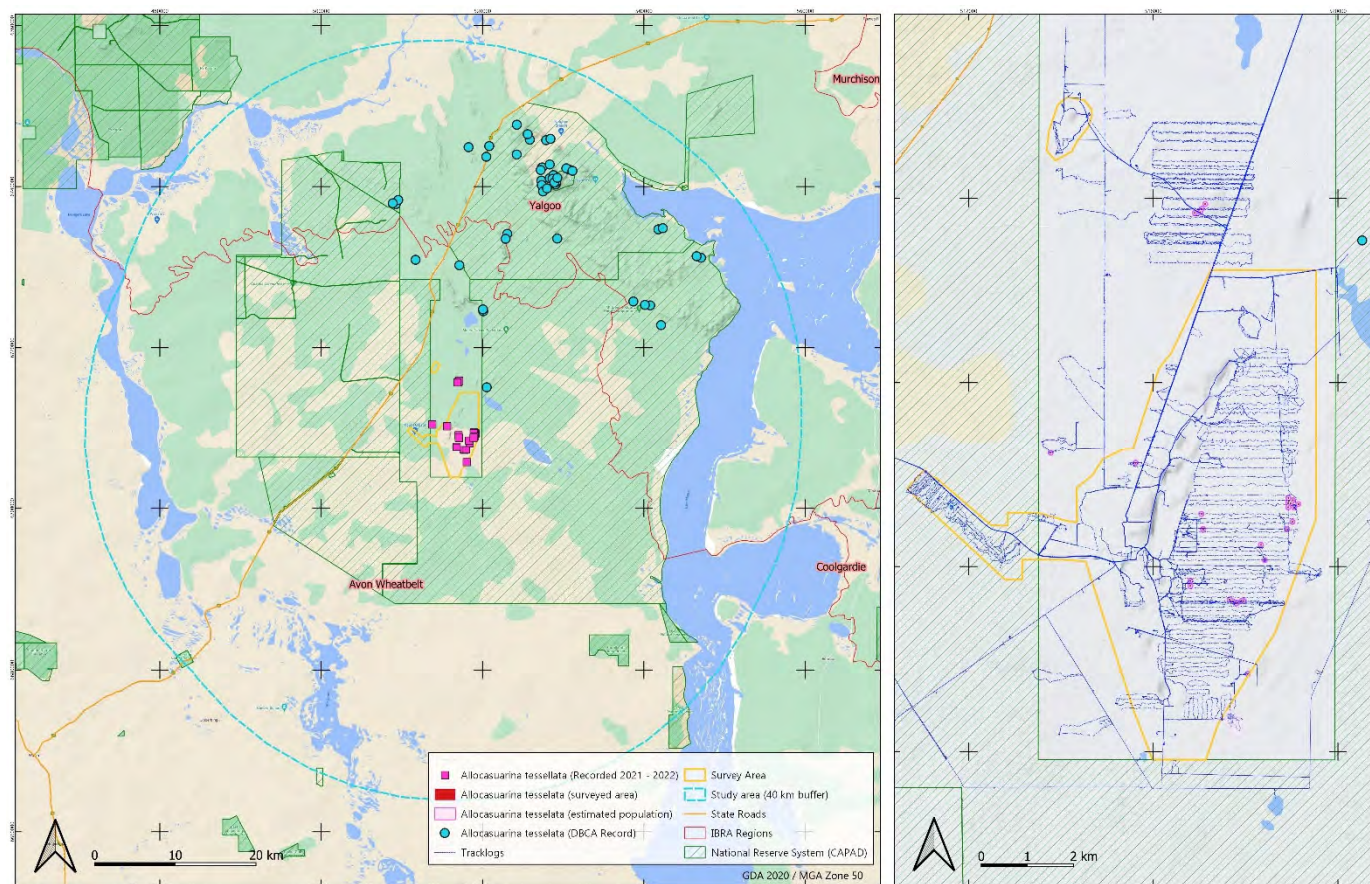


Figure 20 – *Allocasuarina tessellata* Known Distribution

6.1.2.3 *Alyxia tetanifolia* (P3)

Alyxia tetanifolia are erect shrubs to 2 m high, with opposite leaves, or in whorls of three (**Plate 5**). The leaves have very short petioles (1-2 mm long) with hairs, and leathery linear blades with a pointed apex. The leaves have strongly inrolled margins and measure 0.3-2.3 long by 0.1-0.25 cm wide. The cream coloured flowers occur singly on the end of the branches (Middleton 2002). The species has been previously recorded in chenopod shrubland and *Acacia* woodland on a variety of soils over granite (Middleton 2002). Flowering occurs May to June or in November (WAH 1998-).

Alyxia tetanifolia is known from 12 WA Herbarium specimens, with the closest occurring approximately 200 km north-east of the survey area. Currently known specimens occur between Mount Magnet and Kalgoorlie, a distribution of approximately 480 km soils (**Figure 21**) (Atlas of Living Australia 2022). Occurrence of *Alyxia tetanifolia* within the survey area constitutes a substantial range extension to the south-west for this species.

A total of two plants of *Alyxia tetanifolia* were recorded within the survey area, one each in quadrats MG021 and MG025, within vegetation units 5 and 17 during spring 2021 surveys. Despite targeted searches, particularly in the vicinity of recorded individuals, further occurrences were not observed.



Plate 5 - *Alyxia tetanifolia* (P3) A-habit, B-voucher specimen (Photo credit - Olga Nazarova)

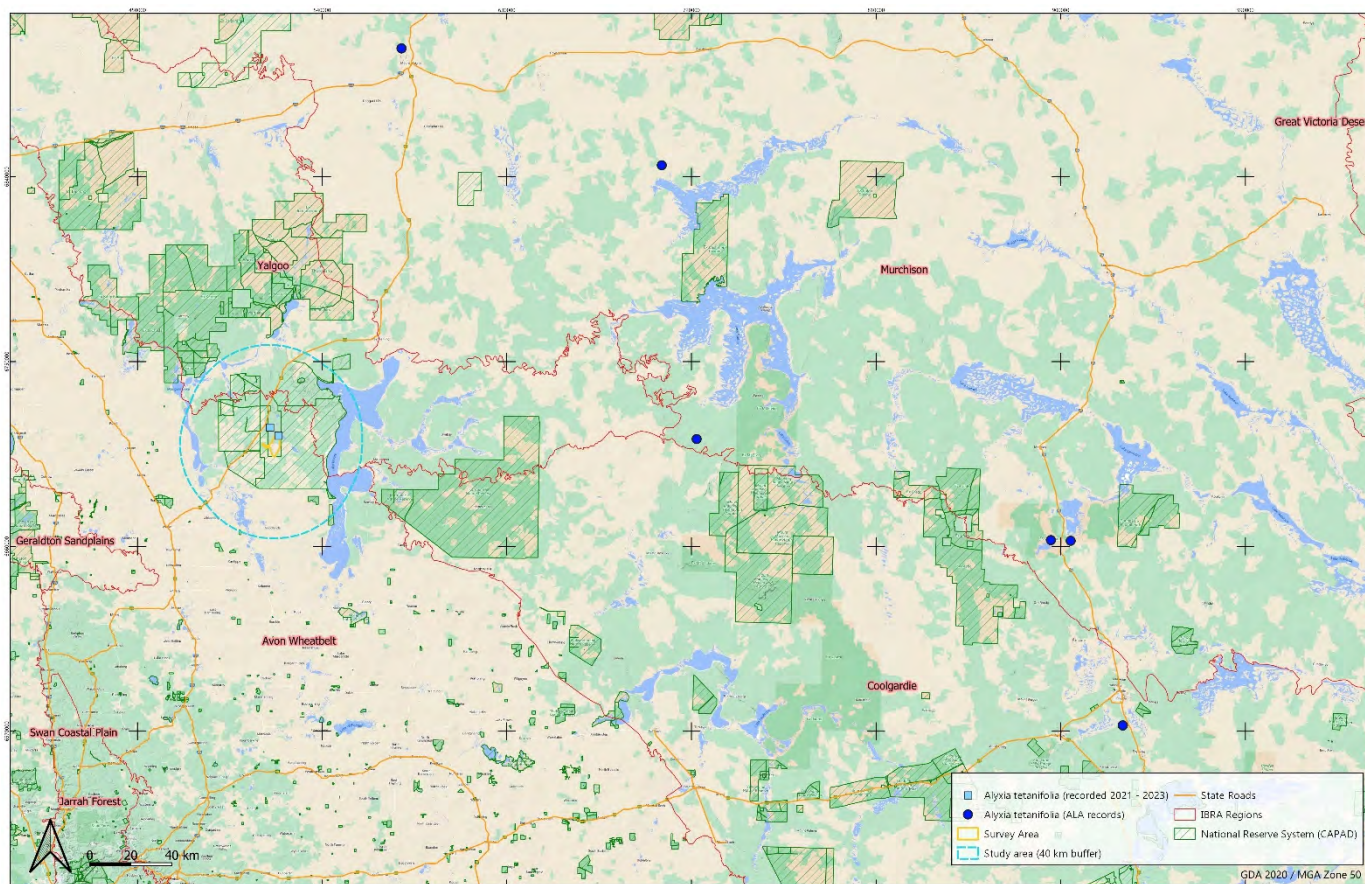


Figure 21 – *Alyxia tetanifolia* Known Distribution

6.1.2.4 *Calytrix plumulosa* (P3)

Calytrix plumulosa is a low bushy, or almost prostrate shrub growing to 15-40 cm height and up to 90 cm wide (**Plate 6**). Its alternate linear to linear-obovate leaves are 3-11 mm. It flowers from October to November, producing flowers with pink or violet petals that are 7.5-9 mm long and numerous yellow stamens up to 6 mm long. It has pubescent calyx with awns extended up to 9 mm long (WAH 1998-; Patrick 2001). *Calytrix plumulosa* is similar to *C. simplex* and distinguished in having orbicular to suborbicular leaf blade (Patrick 2001).

Calytrix plumulosa is known from 40 WA herbarium records occurring between Southern Cross and Perenjori, a distribution of approximately 262 km (WAH 1998-). Two DBCA records occur within the study area, one approximately 3 km south-west of the survey area. The populations occur on yellow sand or sandy loam with lateritic gravel or pebbles (Atlas of Living Australia 2022). A total of one individual was recorded within quadrat MG63 within vegetation unit 25, outside the survey area.



Plate 6 – *Calytrix plumulosa* holotype scan of herbarium specimen (Image credit – Royal Botanic Gardens Melbourne CC-BY 4.0 (Int))

6.1.2.5 *Enekbatus longistylus* (P3)

Enekbatus longistylus is compact shrub growing to 0.2–1 m high and spreading up to 0.8–1 m wide (**Plate 7**). It has short lateral branchlets up to 4 mm long with obovate or oblong to almost circular leaves up to 1.5 mm long and up to 0.4 mm thick. Pink or violet flowers are born terminally solitary or in twos from September to October with roundish petals up to 5 mm long (Trudgen and Rye 2010). This shrub is most commonly found in sandplains of dull brownish yellow sand in *Acacia* and *Melaleuca* dominated vegetation (Western Australian Herbarium 1998; Trudgen and Rye 2010).

Enekbatus longistylus is known from 18 WA Herbarium records from Eastern Murchison and Merredin over a distance of approximately 233 km (WAH 1998-). No DBCA records occur within the survey area, with the closest approximately 53 km to the north-west of the survey area (Atlas of Living Australia 2022), making the record within the study area a range extension. A total of 21 individual *Enekbatus longistylus* plants were recorded outside the survey area, opportunistically and within quadrat MG72 (vegetation unit 15).



Plate 7 – *Enekbatus longistylis* scan of isotype (Image credit – Royal Botanic Gardens Melbourne CC-BY 4.0 (Int))

6.1.2.6 *Eremophila viscida* (EPBC – Endangered, WA - Endangered/Threatened)

Eremophila viscida was listed as Endangered in July 2000 under the EPBC Act and is also listed as Endangered under the BC Act (State legislation) (DCCEE 2023d).

Eremophila viscida is a tree or shrub 2-6 m high, with sticky new growth due to the presence of resin (**Plate 8**). Its branchlets are hairless and sticky, shiny brown and rough due to persistent leaf bases. The leaves are alternate, with elliptic to land shaped blades that are tapered at both ends, folding into a U or V shape, 45 - 90 mm long by 10-21 mm wide, hairless and sticky. The flowers grow in the leaf axils in groups of 1 to 3 on sticky stalks 5-7 mm long. The flowers form a tube is cream coloured with a red or metallic blue green tinge on the outside and occur from September to November. The inside of the corolla tube has red to blackish-purple spots which sometimes join to form lines or patches. The corolla tube is covered in glandular hairs, with four stamens extending beyond the end of the tube (WAH 1998-; Atlas of Living Australia 2022).

The species has been recorded from granitic soils in shrubland on salt lake margins, sandplains and stony gullies with a range of approximately 574 km between Warralakin and Mullewa in the Avon Wheatbelt, Coolgardie and Yalgoo bioregions (Atlas of Living Australia 2023). It was known from 16 populations and 816 individuals in surveys conducted prior to 2003 (Phillimore *et al.* 2003). Little is known about the biology and ecology of the species, aside from its ability to resprout after fire. It is thought that fire may be necessary for recruitment of new individuals. Many occurrences of the species are in fragmented farmland and threats include poor recruitment, salinity and waterlogging, silting, soil erosion, road maintenance, invasive weed competition, grazing and trampling by stock and invasive species, and inappropriate fire regimes including frequency between fires (Threatened Species Scientific Committee 2017).

Associated species include *Melaleuca lateriflora*, *Acacia acuminata*, *Scaevola spinescens*, *Eucalyptus longicornis*, *Allocasuarina sp.*, *Acacia coolgardiensis*, and *Eremophila serrulata* (Phillimore *et al.* 2003).

All known habitat for the species was identified as critical habitat in the 2003-2008 Interim Recovery Plan for the species. Known populations were experiencing serious decline in 2000/2001, with only one population (south east of Mullewa) considered to be in healthy condition (Phillimore *et al.* 2003).

Most known populations of *Eremophila viscida* occur in small pockets of remnant vegetation where multiple threats are likely to reduce long term viability of the species at these sites (Phillimore *et al.* 2003). The population at Mount Gibson is in one of the largest patches of contiguous bushland in which the species occurs (Atlas of Living Australia 2022) and there are less threatening processes as a result of not being surrounded by agricultural land and associated pressures compared to other populations (Phillimore *et al.* 2003).

Eremophila viscida is currently known from 63 WA Herbarium records, with the closest preserved specimen approximately 65 km to the west of the survey area (**Figure 22**). Occurrence of the species within the survey area is found is within the broad known distribution; however, the distance from known individuals constitutes its occurrence as a range extension for the species (Atlas of Living Australia 2022).

Two individual plants of *Eremophila viscida* were recorded within the survey area, approximately 2.5 m apart, near quadrat JB026, within vegetation unit 19. Despite further targeted searching following the initial record, including on a dedicated, follow-up targeted survey, no further individuals were observed.

Areas supporting Threatened flora, plus appropriate buffers are recognised as ESAs, declared under Part V of the EP Act. A contemporary buffer applied by regulators for all Threatened species under normal circumstances and for ESAs as recognised by the EP Act is 50 m (BHB Billiton 2015). The determination of a buffer as an ongoing and viable area to protect the rare flora and ecological processes and functions, should be made on a case by case basis, and is related to the characteristics of the species being protected and the surrounding land uses (Department of Environment Regulation 2014).



Plate 8 – *Eremophila viscida*; Left-flowers, Right-habit (Photo credit- Jenny Borger)

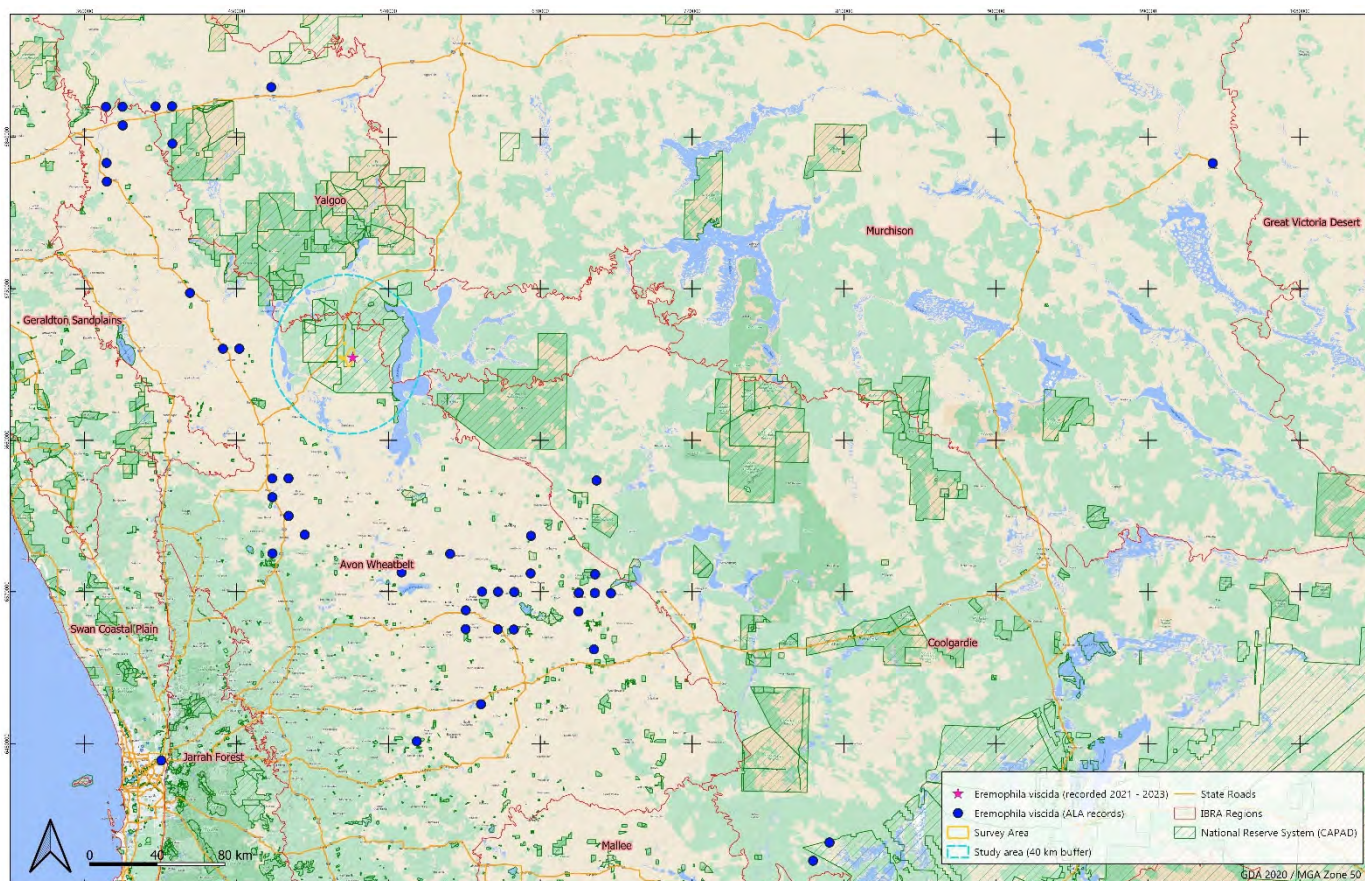


Figure 22 – *Eremophila viscida* Known Distribution

6.1.2.7 *Euryomyrtus recurva* (P3)

Euryomyrtus recurva is a spreading to compact shrub growing to 0.3–1 m high. Its linear leaves are tightly revolute with visible oil glands and recurved pointed tips. White to pink flowers up to 6.5 mm in diameter are born terminally or in axils of the upper leaves from June to September (Trudgen 2001) (**Plate 9**). The species is most commonly found on red to yellow sand, sandy laterite often over red or brown loam (Trudgen 2001; Atlas of Living Australia 2022).

Euryomyrtus recurva is known from 30 WA herbarium records from Eastern Murchison, Merredin, Southern Cross and Talling (WAH 1998-), covering a distance of approximately 300 km. A total of 20 DBCA records are found throughout the survey area, with the closest 8.8 km east of the survey area. *Euryomyrtus recurva* was recorded outside the survey area within quadrats MG63, MG66A, MG71, MG72 and MG80 (vegetation units 9, 15, 22 and 25).

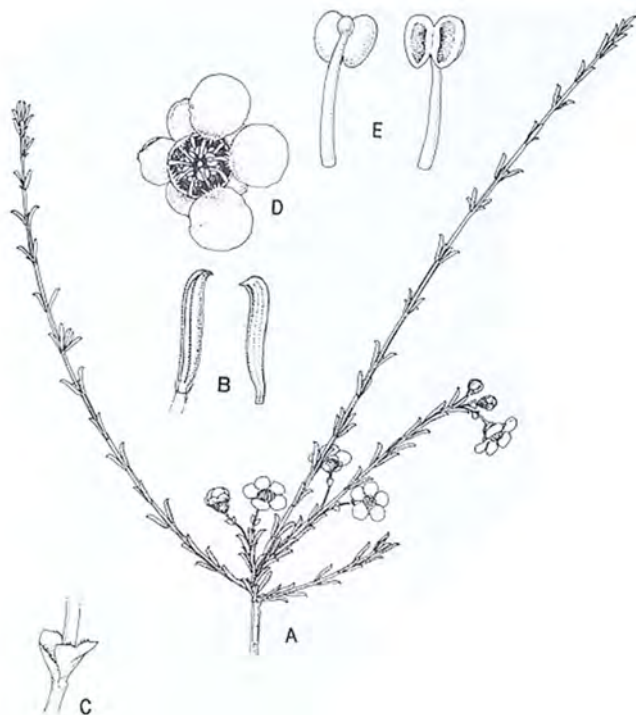


Plate 9 – *Euryomyrtus recurva* (A - flowering branch, B - two views of leaf, C - bracteoles, D - flower with two petals removed, E - two views of stamen) (Trudgen 2001)

6.1.2.8 *Grevillea scabrida* (P3)

Grevillea scabrida is a dense, irregularly branched shrub to 1.5 m tall with green-white flowers produced during July (WAH 1998-) (**Plate 10**). It is known from 45 records and has a localised distribution within 100 km of the survey area. The species commonly occurs on red clay loam and sandy loams within *Acacia* and/or *Allocasuarina* Shrublands.

Grevillea scabrida is known from 45 WA Herbarium records from Mt Gibson Private Nature Reserve to Warriedar Station Nature Reserve, a distance of approximately 125 km (WAH 1998-). A total of 36 DBCA records occur within the study area all occurring to the north-east of the survey area (**Figure 23**).

A total of 6,548 individual plants of *Grevillea scabrida* have been recorded across various field assessments. Of these, 16 plants were recorded within the survey area opportunistically within vegetation units 1 and 27.



Plate 10 – *Grevillea scabrata*; Left - habit, Right - fruit (Photo credit- Olga Nazarova)

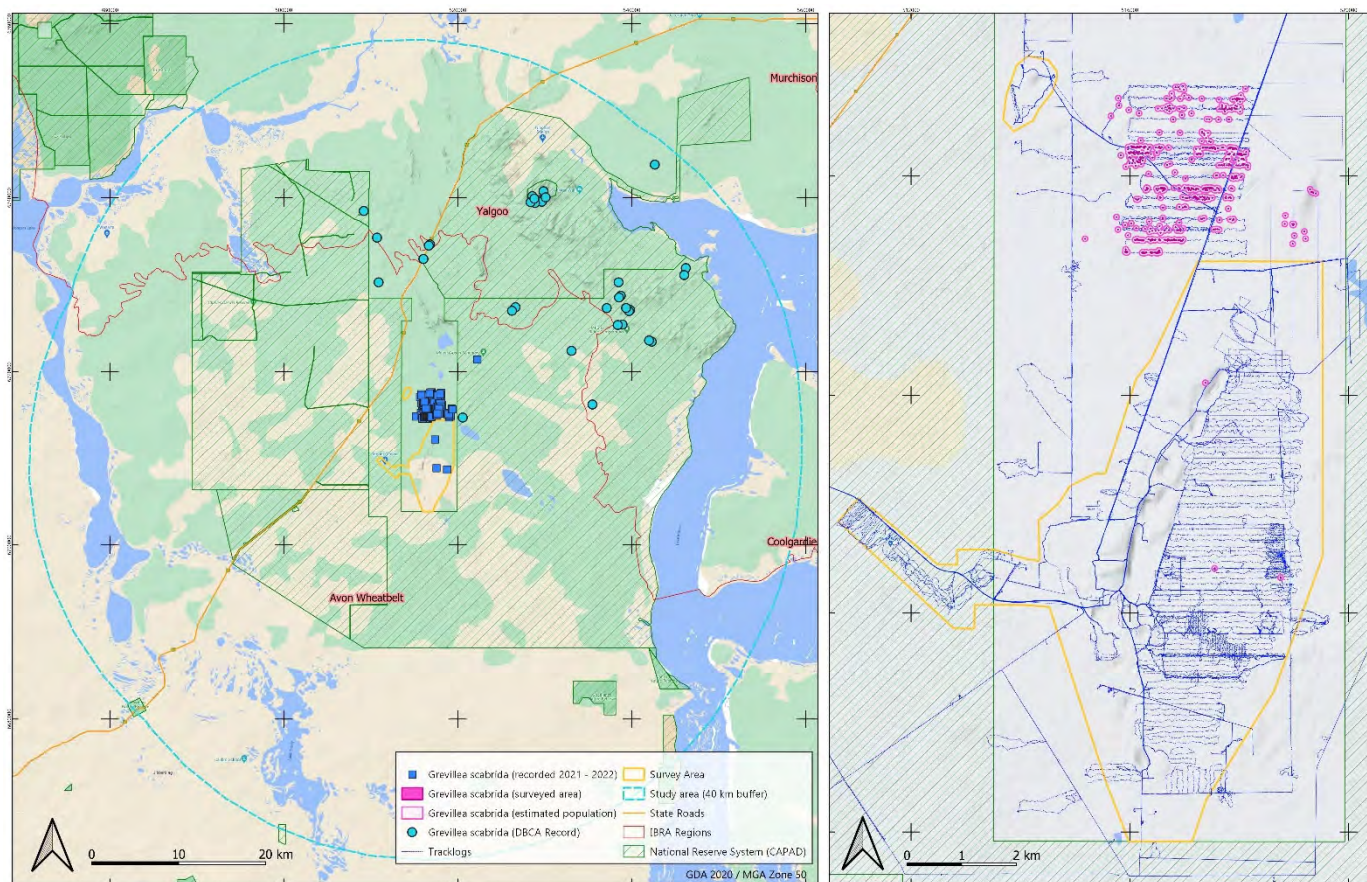


Figure 23 – *Grevillea scabrata* Known Distribution

6.1.2.9 *Hibbertia cockertoniana* (P3)

Hibbertia cockertoniana is an erect sparingly branched shrub usually growing to 0.4 -1 m (rarely reaching 1.3 m) high with variably pubescent reddish young branches (Thiele and Cockerton 2015) (**Plate 11**). Its linear spreading leaves are mostly 12–18 cm long and up to 1.2 mm wide with tightly recurved margins. Yellow pedicellate flowers produced singly in upper leaf axils from July to September (WAH 1998-). A unique characteristic of this species is its arrangement of staminodes behind the stamens, as well as between the stamens and the carpels (Thiele and Cockerton 2015).

Hibbertia cockertoniana is known from 30 WA herbarium records from Mt Gibson Private Nature Reserve to north of Mullewa approximately 165 km (**Figure 24**). It occurs in nature reserves, on private land, and on mining tenements and areas of active mining (WAH 1998-; Thiele and Cockerton 2015).

Almost 10,000 individual plants of *Hibbertia cockertoniana* were recorded within the survey area predominantly associated with granitic soils. This species was recorded opportunistically and within quadrat MG75, across 8 vegetation units (3, 9, 11, 18, 19, 24, 26 and 27), predominantly within vegetation unit 27, where 9,312 plants were recorded. No individuals were recorded outside the study area.



Plate 11 – *Hibbertia cockertoniana* – A-flower, B-habit (Photo credit - Megan Gray)

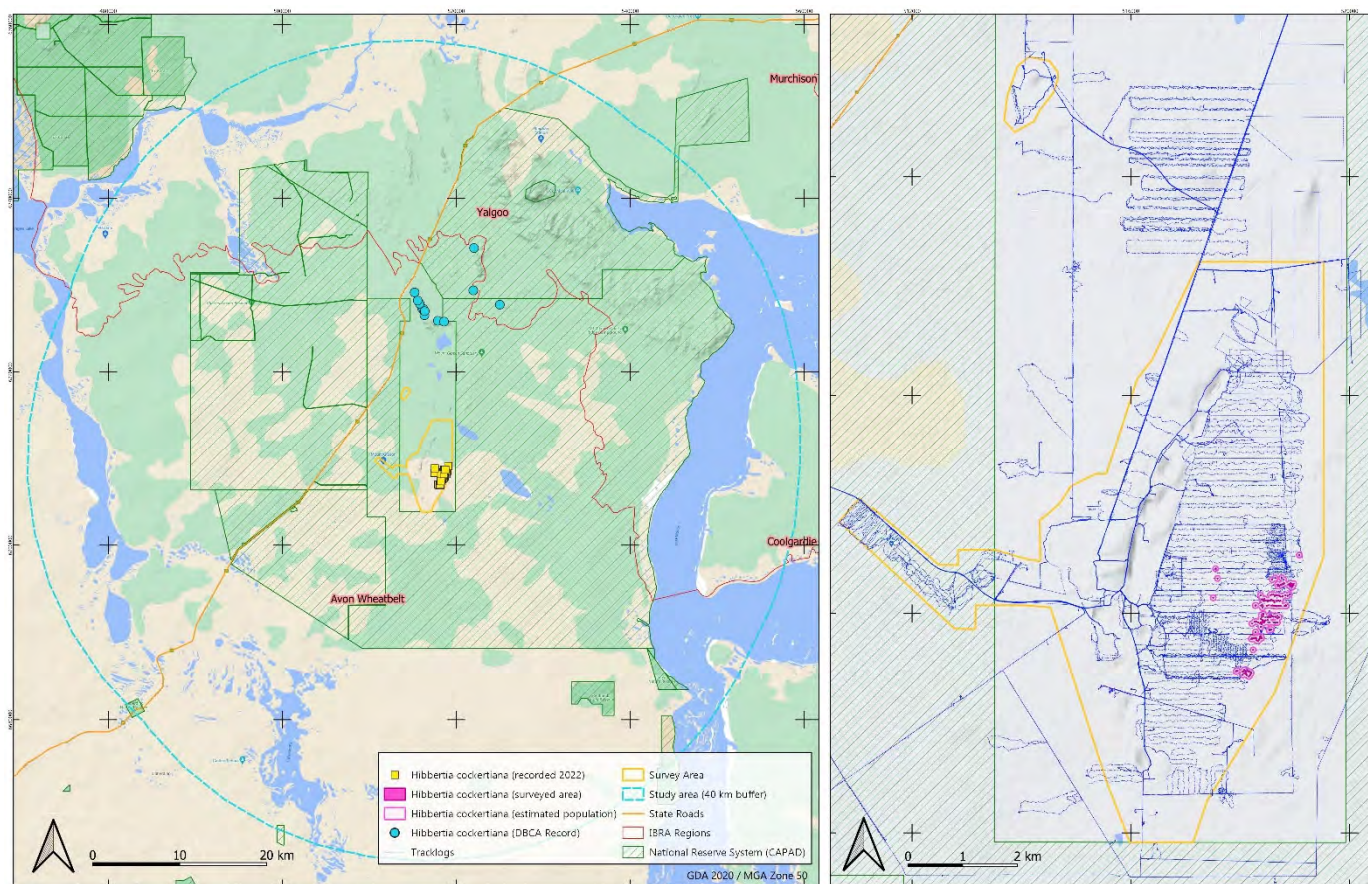


Figure 24 – *Hibbertia cockertoniana* Known Distribution

6.1.2.10 *Lepidosperma* sp. Blue Hills (A. Markey & S. Dillon 3468) (P1)

Lepidosperma sp. Blue Hills (A. Markey & S. Dillon 3468) is a clump forming blue-green sedge usually reaching 0.3-0.7 m in height with a few records growing up to 0.9 m in height (**Plate 12**). It produces inconspicuous brown flowers in August to September (WAH 1998-).

Lepidosperma sp. Blue Hills (A. Markey & S. Dillon 3468) is known from 28 WA herbarium records distributed over approximately 2,025 square kilometres, from Charles Darwin Conservation Reserve to Lake Weelhamby and north-west of Mongers Lake, Perenjori to Yalgoo area (**Figure 25**) (WAH 1998-). It is usually found near watercourses or drainage lines, on brown sand-loam or red-brown clay loam over granite, greenstone or Banded Ironstone Formation (WAH 1998-).

Lepidosperma sp. Blue Hills (A. Markey & S. Dillon 3468) is an undescribed species and the taxonomic delineation between *L. costale* (non-Priority listed species) and *L. sp. Blue Hills* (A. Markey & S. Dillon 3468) is currently undergoing investigation (J. Borger pers. comm.). Numerous undescribed species are undergoing taxonomic review at the WA Herbarium (M. Hislop, WAH, pers. comm.).

At least thirty-five individuals *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) were recorded opportunistically and within quadrat JB004 recorded within the survey area. Most of them were spotted opportunistically in two locations approximately 1.5 km apart, within vegetation unit 24.



Plate 12 – *Lepidosperma*?sp. Blue Hills (A. Markey & S. Dillon 3468) (Photo credit – Jenny Borger)

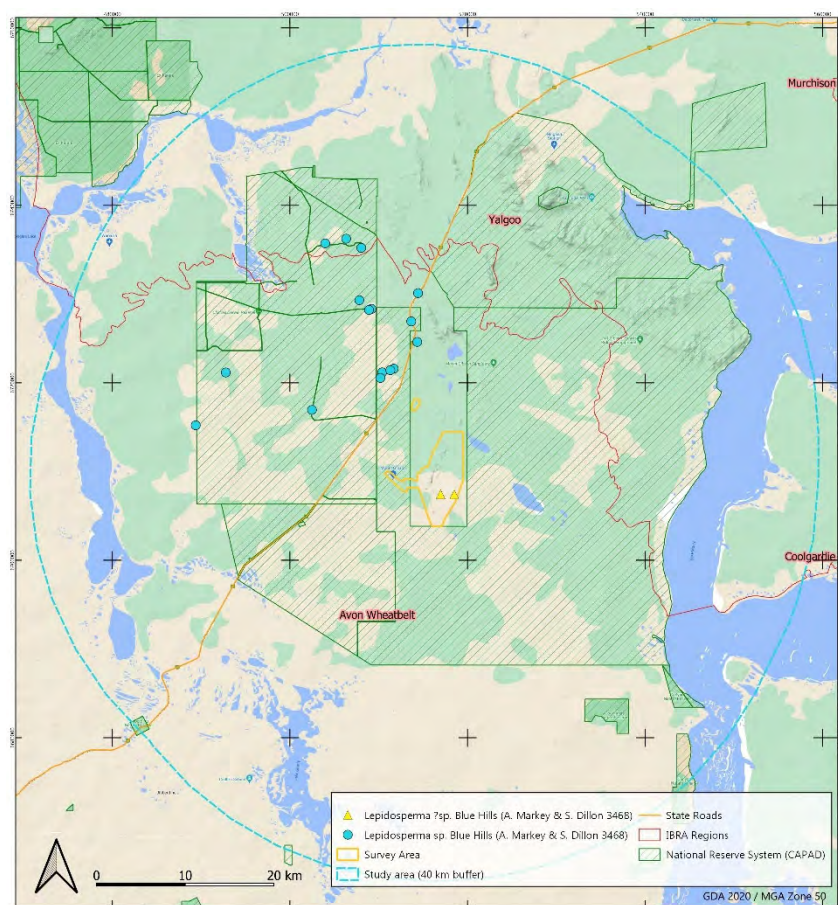


Figure 25 – *Lepidosperma* sp. Blue Hills (A. Markey & S. Dillon 3468) Known Distribution

6.1.2.11 *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3)

Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) is a spreading to dense woody shrub 30-80 cm high, with a single main stem at the base. It produces ericoid (small and sharply pointed) pink flowers with dark pink to reddish calyx from May to October (**Plate 13**). Small linear ericoid leaves rarely reach 4 mm in length, are dull light green with two distinct grooves below surface and a pointed tip (WAH 1998-). This shrub mostly occurs on rocky red to brown sandy clay or loam soils (WAH 1998-).

Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) is known from 44 WA Herbarium records over approximately 298 km from the Bungalbin Hill area to Paynes Find (WAH 1998-). The closest record to the survey area is approximately 25 km to the north-east, within the Mount Gibson Private Nature Reserve (**Figure 26**) (WAH 1998-).

A total of 69 individual *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) plants have been recorded across the series of field assessments, with 52 recorded within the survey area found opportunistically and in quadrat JB030, within vegetation unit 22.



Plate 13 – *Melichrus* sp. Bungalbin (F.H. & M.P. Mollemans 3069); Left - leaves and flowers, Right - habit (Photo credit – Jenny Borger)

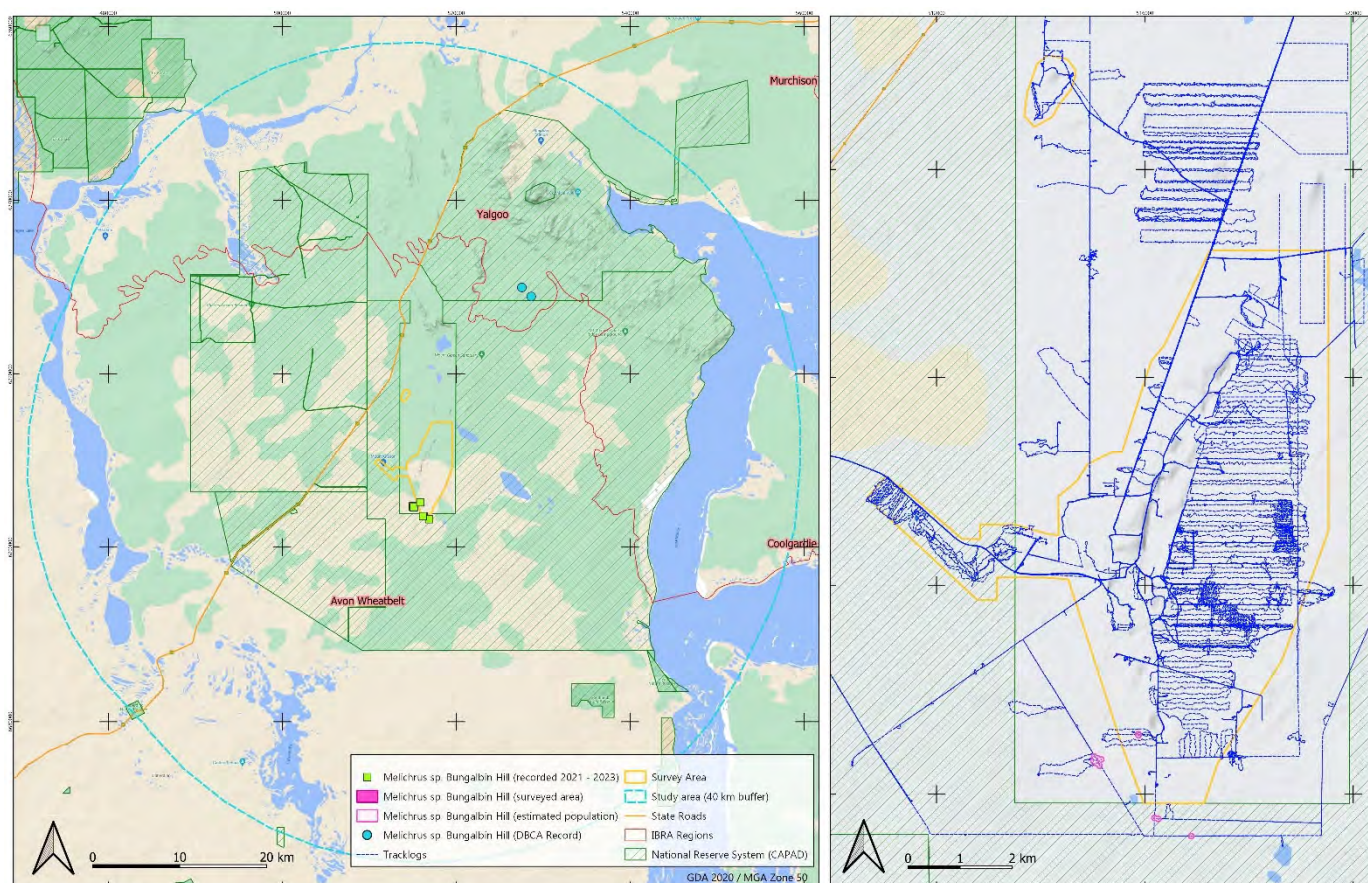


Figure 26 – *Melichrus* sp. Bungalbin (F.H. & M.P. Mollemans 3069) Known Distribution

6.1.2.12 *Microcorys tenuifolia* (P3)

Microcorys tenuifolia is a slender shrub usually growing to 0.4-1.8 m. Its narrow linear leaves are 1-2.5 cm long, have slightly recurved margins and are usually oppositely arranged. It produces white to blue or purple flowers from October to December or March to April. The corolla is about 1 cm long, broad with two upper lips that are almost as wide as the lower three lobes (Blackall and Grieve 1985; WAH 1998-) (**Plate 14**). The species mostly occurs on undulating plains with yellow sand or brown to red sandy loam (WAH 1998-).

Microcorys tenuifolia is known from 17 herbarium records stretching approximately 418 km, from Kalbarri National Park to the Paynes. The closest preserved specimen record is approximately 88 km to the west south-west of the survey area, and the record within the survey area constitutes a range extension for the species. *Microcorys tenuifolia* was recorded within quadrat MG70, within vegetation unit 15, outside the survey area.



Plate 14 – *Microcorys tenuifolia* (Photocredit: M. Fagg CC-BY 3.0 (Au) <https://biocache.ala.org.au/occurrences/f12019ca-a345-4695-87b5-fd33cc41e494>)

6.1.2.13 *Persoonia pentasticha* (P3)

Persoonia pentasticha is an erect spreading shrub that usually grows to 0.4-1.8 m high with terete branches and leaves that get less pubescent with age (Weston 1994). Its alternate linear leaves are 3.5 - 12 cm long and 0.7-1.2 mm wide, with five visible grooves running along the leaf (**Plate 15**). Yellow flowers are produced in groups of 1-15 from August to November. This species has individual radially symmetrical flowers that are about 7-12 mm long, with tepals recurved outwards when mature (Weston 1994; WAH 1998-).

Persoonia pentasticha is known from 51 herbarium records from Geraldton Hills, Merredin and Tallering covering an area of approximately 256 km, mostly occurring on sand or sandy laterite on loam or weathered granite (WAH 1998-). Of these records, 13 occur within the study area, one of which occurs within the survey area (**Figure 27**) (WAH 1998-).

A total of 757 individual plants of *Persoonia pentasticha* have been recorded across various field assessments. Of these, 381 plants were recorded within the survey area opportunistically and within quadrats (JB024, MG017 and MG019), across nine vegetation units (1, 3, 4, 7, 8, 11, 12 and 17) and rehabilitation, predominantly within vegetation unit 1.



Plate 15 – *Persoonia pentasticha*, A-habit, B-flowers (Photo credit-Megan Gray)

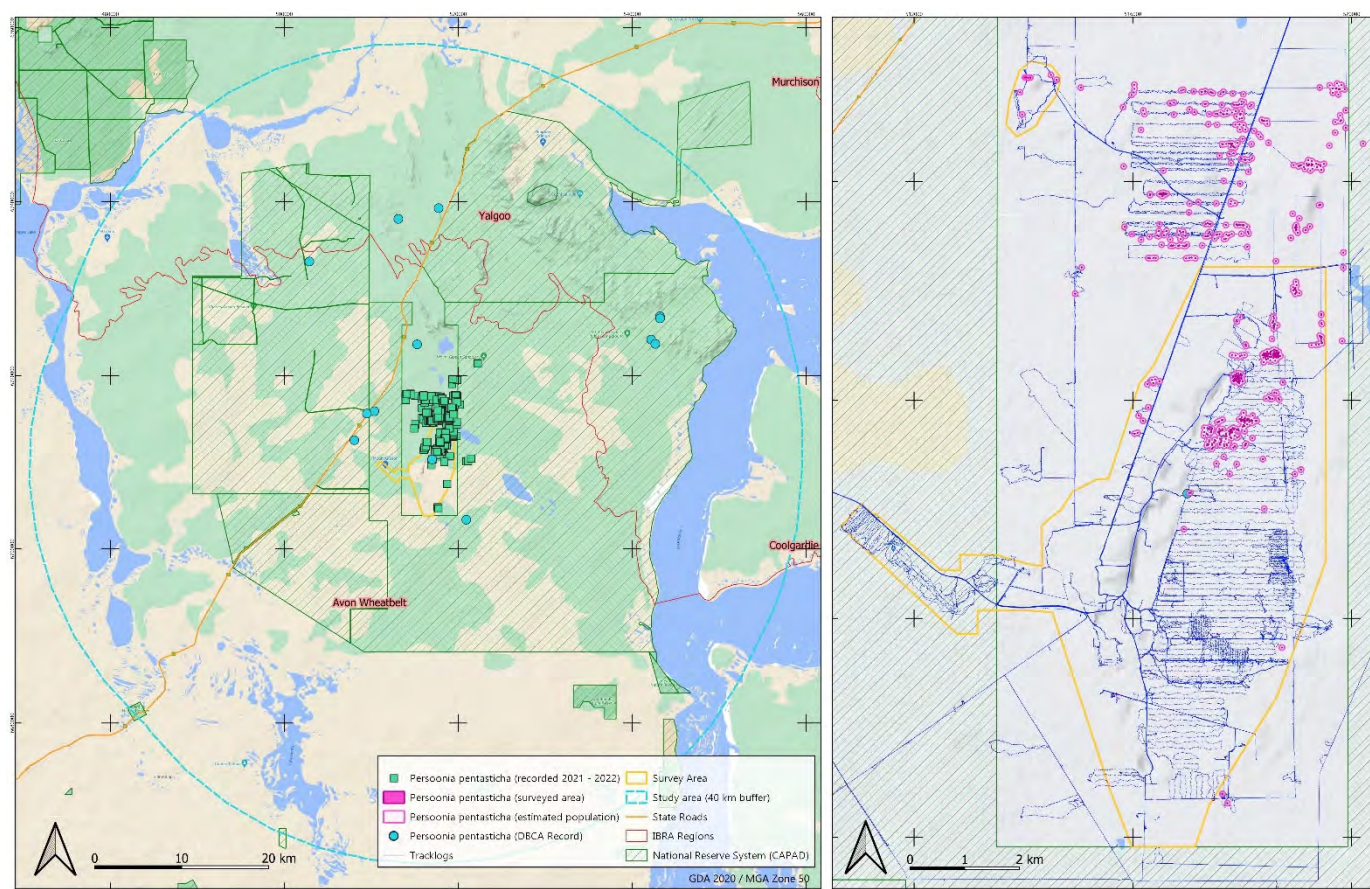


Figure 27 – *Persoonia pentasticha* Known Distribution

6.1.2.14 *Philotheca nutans* (P1)

Philotheca nutans is an erect, open to dense aromatic shrub growing to 30-90 cm high and has warty branches with stellate hairs (**Plate 16**). Its warty, subterete leaves are 5-10 mm long and 0.7-1.2 mm wide with numerous oil glands. It produces singular green-cream-yellow to red-pink flowers in leaf axils in April, June to July or September. Its 5 overlapping petals are 9-11 mm long with ciliate margins (WAH 1998-).

Philotheca nutans is known from 21 herbarium records, all but one recorded within 80 km east and west of Lake Moore; however, with the latter recorded 20 km south-east of Mount Magnet. These records indicate this species has a range of approximately 230 km, but is more common within the Wubin-Paynes Find Area. Of these 21 records, 18 occur within the study area and one within the survey area (**Figure 28**) (WAH 1998-). Mostly occurring on yellowish red to red-brown sand, sandy loam or sandy clay of low plains and undulating rises in open mallee woodland (WAH 1998-), a total of 8,911 individual plants have been recorded across multiple field assessments within (8,235) and outside (676) the survey area. Two populations were recorded outside the survey area occurring to the south-east and to the north-west (between the north and south survey areas).

A total of 8,847 individual plants have been recorded across multiple field assessments within (8,178) and outside (669) the survey area. The 8,178 individual plants of this species has been recorded across 9 vegetation units (1, 3, 7, 8, 11, 12, 17, 19 and 26) and Rehabilitation. The number of individuals recorded within these vegetation units ranged from two to 3 to 3,343, with the greatest number recorded in vegetation units 7, 17 and 26 (3,343, 1,982 and 1,405 individuals, respectively).

A previous survey of the area approximately 7 km north-east of the survey area by Eco Logical Australia (2020) recorded 443 specimens of this species in September 2019, less than 20 m from specimens recorded in the current surveys. It is likely that several of the specimens recorded by FVC represent the same individuals recorded by Eco Logical Australia (2020). This species was predominantly recorded within areas subject to apparent fire disturbance sometime prior to 2006 (Google Earth imagery 27/5/2006). Historic collections note that some populations have been recorded in areas of long unburnt vegetation (WAH 1998-), suggesting this species does not necessarily require fire to survive or stimulate germination; however, it has exhibited prolific post-fire germination within the survey area. This is supported by observations of Knuckey *et al.* (2016), that only found *Philotheca nutans* at two sites within a relatively short time since fire within close proximity to the current survey area. Given the abundance of the species within the survey area, particularly within areas of recent fire disturbance, the density and distribution of this population is greater than what was previously recorded.



Plate 16 – *Philotheca nutans* A-habit, B-flowers (Photo credit-Megan Gray)

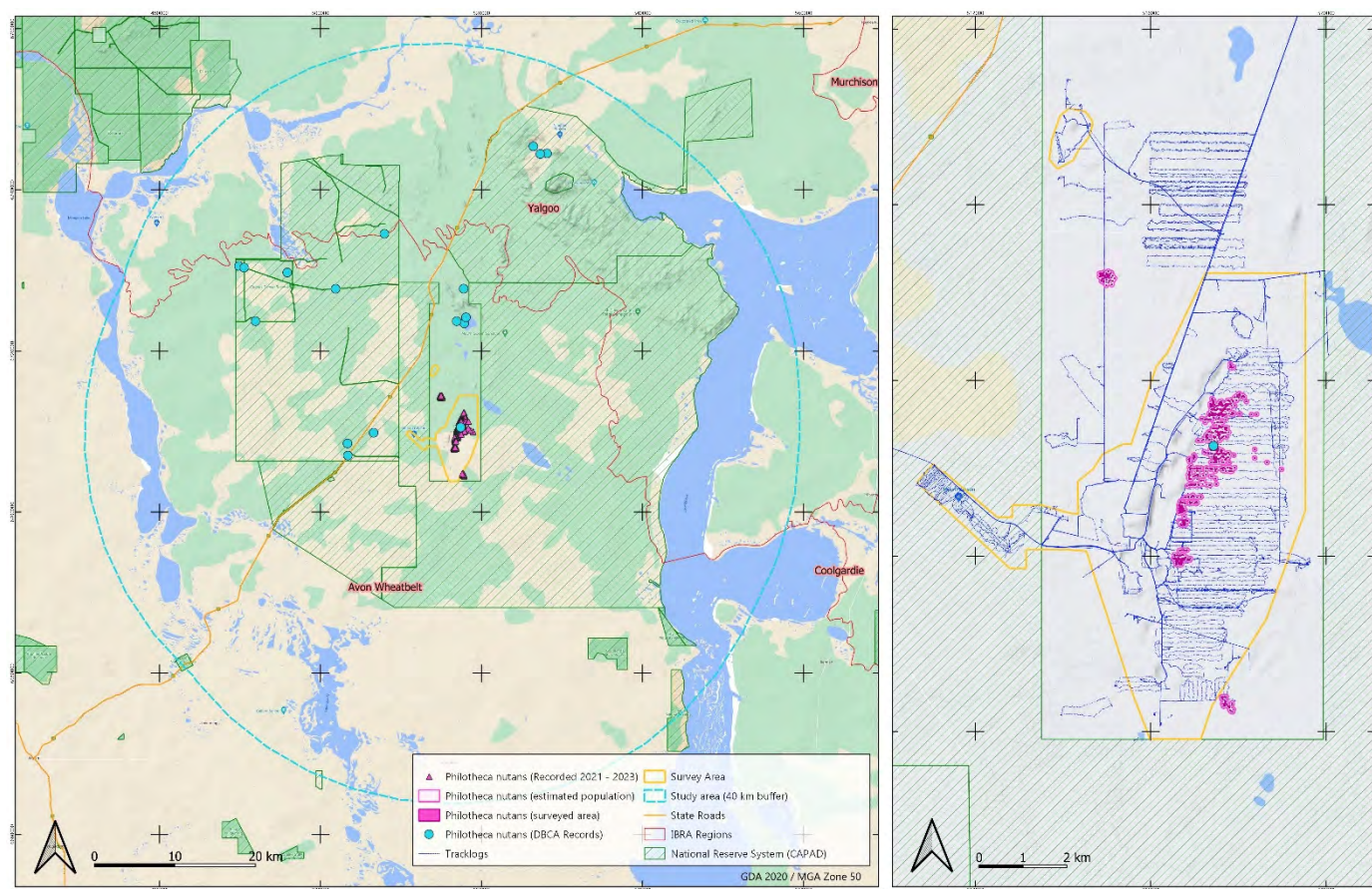


Figure 28 - *Philotheca nutans* Known Distribution

6.1.2.15 *Verticordia venusta* (P3)

Verticordia venusta is a slender open shrub with a single main stem at the base, growing to 3 m height and 3 m wide. Its spreading oval to elliptic leaves are 3-4 mm long (**Plates 17 and 18**). It flowers from September to January, producing dense spikes of pink to maroon feathery flowers which colour fades with time. The feathery appearance of the flowers is due to spreading sepals that have up to 13 downy lobes, with erect, roundish petals around 4-5.5 mm long that have a densely toothed margin (George and Pieroni 2002).

Verticordia venusta is known from 92 WA herbarium records from Merredin, Katanning and Lesueur Sandplain covering an area of approximately 217 km, occurring on yellow sand, yellow sandy gravel or sandy loam (WAH 1998-). It has been previously recorded in the Mount Gibson Wildlife Sanctuary within a few kilometres of the survey area. A single individual plant of *Verticordia venusta* was recorded within quadrat MG66A, within vegetation unit 9, outside the survey area.



Plate 17 – *Verticordia venusta* (Photo credit – FloraBase (WAH 1998-))



Plate 18 – *Verticordia venusta* (Photo credit – M. Fagg, CC-BY 3.0 (Au) <https://canbr.gov.au/photo/api/id/a/37850>)

6.1.3 Flora of Interest

Santalum spicatum (Sandalwood) is a slow-growing, long-lived small woody tree or shrub that is one of 25 known species of the *Santalum* genus, and one of four that is indigenous to Western Australia. Sandalwood extends across the southern semi-arid and arid regions of Western Australia and South Australia. 'Wild' sandalwood refers to populations of sandalwood growing among naturally established native vegetation; and 'plantation' sandalwood is cultivated sandalwood specifically grown on previously cleared land as a commercial crop. Within Western Australia, the sandalwood distribution is across 173 million hectares of the Wheatbelt, Goldfields, Murchison, Gascoyne and southern Pilbara regions, that is the Country of 80 or more Aboriginal Clans on lands now classified as either Crown or private. These lands are managed for purposes that include conservation, mining, pastoralism and the use and benefit of Aboriginal People (DBCA 2022e).

Sandalwood distribution occurs over 15 IBRA regions and 29 subregions (DBCA 2022e).

Sandalwood is economically valuable and is commercially harvested for the aromatic oils contained in the heartwood. As the heartwood extends throughout the tree, the whole tree (including roots) is removed and processed (DBCA 2022e). The commercial use is considered to be threatening populations and therefore, Sandalwood is listed as a Vulnerable species on the IUCN Red List (International Union for the Conservation of Nature 2023).

A total of 106 *Santalum spicatum* specimens were recorded from 96 locations across the various vegetation units of the survey area and surrounds, with approximately one third of these occurrences within the survey area.

6.1.4 Undescribed Flora

Eleven of the recorded flora taxa are currently undescribed (**Table 15**) (Western Australian Herbarium 1998). Of these, one taxon is Priority flora, listed under the BC Act, (*Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3)), and another (*Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) is a suspected P1 flora.

Although not yet formally described, none of the undescribed flora are new to science, and being undescribed does not contribute to conservation status as a factor in isolation. Most undescribed flora have wide-ranging distributions across their range.

6.1.5 Range Extensions

Twenty-two of the recorded flora taxa are considered to represent range extensions, with five species, *Atriplex nummularia*, *Atriplex stipitata*, *Drosera menziesii* and *Goodenia glabrata*, exhibiting an extension of 100 km or more beyond their currently documented range, in accordance with records of the WA Herbarium (WAH 1998) (**Table 16**). These four species are currently represented by known populations within the Murchison IBRA region, approximately 80 km north of the survey area, and their occurrence within the survey area exhibits range extensions between 117 and 238 km.

One of the range-extending species, *Microcorys tenuifolia* is a State-listed Priority 3 flora. *Microcorys tenuifolia* occurs in a range of habitats, with the one specimen recorded in this survey in vegetation unit 15. This species is known from only 17 herbarium records and is distributed between Kalbarri and Wongan Hills; its occurrence in the survey area is therefore recognised as a range extension of approximately 89 km.

None of the 22 species exhibiting range extensions (besides that of *Microcorys tenuifolia* (P3)) are considered significant, since their current known distributions are across multiple IRBA regions and these species are considered to be widespread and common. The range extensions are indicated to be due to a paucity of WA Herbarium records. With the exception of *Micrcorys tenuifolia*, the range extensions are not restricted to one IBRA region, however, their occurrence within the survey area will contribute to updates to their known ranges.

6.1.6 Introduced Flora

Vegetation in the areas around the existing mining pits and where there was previous disturbance had an understorey predominantly comprised of weed species, such as **Cleretum papulosum*, **Rumex vesicarius*, and **Mesembryanthemum* spp.. These areas were not systematically surveyed as part of this survey, but a significant proportion of the understorey is comprised of these weed species.

**Rumex vesicarius* has been shown to colonise revegetated areas, and control by hand weeding and herbicides has been shown to only be partially effective (Schatral and Osborne 2006). **Rumex vesicarius* is a category 5 weed, that is "naturalised and known to be a major problem at four or more locations within a state or territory" according to the Weed Categories for Natural and Agricultural Ecosystem Management (Groves *et al.* 2003). Seeds from **Rumex vesicarius* are salt tolerant, and form a persistent seed bank within the soil that can last for many years (Schatral and Osborne 2006). Establishment of **Rumex vesicarius* has been shown to cause seasonal erosion problems in rehabilitated areas as it often outcompetes native species due to vigorous growth following rainfall, but then dies off in summer, leaving the soil destabilised. This is evident along the bund of the pit in the north of the survey area.

The Environmental Weed Strategy of Western Australia states that areas of good or better vegetation (Keighery 1994) should be maintained, in particular lands that contain plant communities not represented in conservation areas should be of high priority (Department of Conservation and Land Management 1999). The majority of the vegetation of the survey area (not including areas immediately surrounding areas of previous disturbance such as existing mining pits and overburden dumps) was found to be in 'Excellent' condition (Keighery 1994). The survey area is surrounded by the AWC Mount Gibson Wildlife Sanctuary, which contains vegetation that is not represented in the State-based National Park system, with some broad vegetation classes within the reserve having less than one percent of their original distribution under formal protection (Australian Wildlife Conservancy 2022).

Environmental weeds (DBCA 2023b), such as **Rumex vesicarius*, **Cleretum papulosum*, **Carrichtera annua*, and **Mesembryanthemum* spp., that occur within the survey area are known to occur in areas of the Wheatbelt woodlands TEC, particularly adjacent to disturbances, where edge effects are apparent, and weeds are identified as a key to the community (Department of the Environment (2015). The Environmental Weed Strategy states that weeds can impact on threatened species and communities, and weed management is very important to ensure the survival of nationally significant species (Department of Conservation and Land Management 1999).

**Rumex vesicarius* (Ruby Dock), is a particularly invasive species, occurring in warmer regions of Western Australia, generally associated with mining activities (Schatral and Osborne 2006). Ruby dock is an annual weed that rapidly colonises newly rehabilitated mine sites. Plants die off in summer, leaving rehabilitated areas barren and susceptible to erosion where native shrubs have not established. Ruby dock often outcompetes native plants during the seedling establishment phase as seed germination occurs earlier and the growth of the plant is rapid.

Despite the amount of disturbance observed throughout some of the survey area, the number of weeds and their extent is considered low, predominantly due to the remote location. A greater weed presence throughout vegetation unit 12 is likely due to the presence of historical tracks for exploration and pastoral activities, which has impacted on the structure of understorey vegetation. This is contrast to vegetation units with denser vegetation, where access to create tracks is unattainable without major impact to vegetation.

6.2 VEGETATION

6.2.1 Vegetation Units

Thirty-three vegetation units were recorded across the survey area and surrounds, defined from 85 quadrats and 14 relevés. Of the 33 units defined, 29 have been mapped to occur within the survey area. The vegetation units within the survey area are highly diverse and, in some areas, vegetation units vary across small areas. This is because vegetation units are comprised of communities of plants that are distributed within the landscape based on preferences for soil nutrients and their availability, soil particle size, water availability and landform. Since these supporting physical properties of the survey area vary significantly and frequently, the variability of vegetation also does.

This complexity and frequent variation across the survey area has resulted in a number of the vegetation units each occupying areas of less than 2% of the survey area. Some vegetation units were sampled by only one site, and most of these comprise less than 1% of the survey area. This limited sampling (number of quadrats) reflects the small proportionate area and limited extent that many of these vegetation units are represented by within the survey area. Such limited extent and area reduces sampling opportunities; and it may not be possible to sample at least three quadrats in such units in any case.

The three pre-European vegetation associations supported by the survey area; vegetation association 141 (Medium Woodland; York Gum, Salmon Gum and Gimlet), vegetation association 437 (Shrublands; Mixed Acacia thicket on sandplain) and vegetation association 352 (Medium Woodland; York Gum) are broadly defined vegetation associations that are comprised of a number of more finely-defined vegetation units. They are considered too broad to reference for direct comparison with regards to the conservation significance or the variability of the vegetation within the survey area. Inadequate systematic knowledge of biodiversity at an appropriately fine-scale has been listed as a constraint in assessing conservation priorities for vegetation with the AW1 IBRA subregion (Beecham 2001). However, at a regional scale, the vegetation units defined and mapped within the survey area are likely represented within nearby areas, including those managed for conservation, although such information is not currently available.

6.2.2 Vegetation Condition

The condition of the vegetation within the survey area was found to range from 'Excellent' to 'Completely Degraded', with the majority not having undergone previous disturbance from mining operations, track clearing, historic pastoral activities or affected by fire, and found to be in 'Excellent' condition. Areas in 'Good' (somewhat degraded) condition occur within fire-affected areas (not currently suitable for floristic sampling due to fire effects), and in close proximity to areas of high disturbance, such as adjacent to tracks or areas in the southern section that have been historically cleared but have had a long period for vegetation reestablishment.

Pastoral activities are known to have historically been carried out in the region, although obvious degradation resulting from such activities is not evident in the survey area, it is likely that the current diversity and structure of the vegetation has been affected by this in comparison to that of the pre-European vegetation.

There are some portions of the Wheatbelt woodlands eligible for inclusion as the protectable TEC in the north-west of the southern portion of the survey area that have minor weed incursion, likely the result of downslope run-off from the mining areas.

A large proportion of the eastern part of the survey area, while in 'Excellent' condition, contains vegetation that is regenerating following a fire, estimated to have occurred prior to 2006. Areas in 'Degraded' to 'Completely

Degraded' condition are in such condition as a result of previous mining, exploration and clearing activity in the area.

Areas that have been subject to disturbance and historic clearing support vegetation of poorer quality, which is evident along tracks, revegetation areas and cleared areas. Poorer quality vegetation is also present in areas that have been subjected to historic pastoral activities and current and historic impacts from rabbits, which disturb substrates and exacerbate weed invasion. Areas of better-quality vegetation were recorded to the north, where mining exploration and activity has been limited; however, signs of historic disturbance such as tracks are still present throughout.

Revegetation areas are in varying condition throughout the survey area, at various stages of growth, with some areas exhibiting a partial return of structure and diversity similar to that which would have been supported prior to disturbance. However, areas subject to greater disturbance remain in 'Degraded' condition, with little structure present.

The existing mining pits and associated over burden piles were not systematically surveyed for weeds during this survey, but a significant component of the understorey within the disturbance areas was observed to contain weed species.

6.2.3 Threatened and Priority Ecological Communities

The DBCA TEC and PEC database search identified the presence within the survey area of the *Eucalypt Woodlands of the Western Australian Wheatbelt* (Wheatbelt woodlands), listed as a Commonwealth Critically Endangered TEC and a State-listed Priority 3 Ecological Community. Additionally, the DBCA database search results show that the Mount Gibson BIF PEC is known to occur approximately 6 km north of the survey area.

6.2.3.1 Wheatbelt Woodlands

The existence and extent of the Wheatbelt woodlands TEC/PEC within the survey area was verified by ground truthing (quadrat and relevé data and general vegetation observations (focused on the presence or absence of Eucalypt species characteristic of the Wheatbelt woodlands)) and extrapolation of these observations using high-resolution aerial imagery.

The Wheatbelt woodlands has been delineated by DBCA to occur over a large proportion of the survey area (**Figure 11**). The extent of the community's occurrence within the survey area has been mapped at a finer scale than DBCA data, based on a combination of ground-truthing and analysis of aerial imagery. Therefore, there is a relatively high degree of confidence in the mapped extent of vegetation characteristic of the Wheatbelt woodlands in the survey area.

Defined vegetation units 12 and 13, both broadly described as *Eucalyptus* woodlands, comprising of 474.96 (11.44% of the survey area), were inferred to be characteristic of the Wheatbelt woodlands. The condition of the community within the survey area ranges from 'Good' (81.07 ha) to 'Excellent' (393.73 ha). Within the survey area, 31 patches were identified and mapped and of these, 21 patches, comprising 468.71 ha (11.29% of the survey area) meet the condition thresholds detailed in the Conservation Advice (Department of the Environment 2015) and are therefore eligible for protection under the EPBC Act (**Figure 18**).

The objective of the Conservation Advice for the Wheatbelt woodlands is to "mitigate the risk of extinction of the Eucalypt Woodlands of the WA Wheatbelt ecological community, and maintain its biodiversity and function, through the protections provided under the *Environment Protection and Biodiversity Conservation Act 1999* and through the implementation of priority conservation actions" (Department of the Environment 2015).

6.2.4 Significant Vegetation

6.2.4.1 Restricted Regional Representation and Distribution

The most important aspect in the consideration of regional significance of vegetation is the representation of that vegetation in the regional context. Regional context is considered at a broad scale, defined by (the extent and scale of) existing regional studies (EPA 2016b). The work of Beard (1990) allows the determination of vegetation extent and representation in a regional (IBRA region) context, which is the accepted methodology for determining the regional significance of vegetation as required by the Technical Guidance (EPA 2016b). Within each IBRA region, some regionally defined vegetation associations (Beard 1990) comprise a very small proportion of the vegetation within that region. Vegetation units are considered significant if they are part of vegetation complexes that are poorly represented regionally (in that IBRA region). In order to gain a wider context for assessing the regional representation (and remaining extent of the vegetation units of the current study, as discussed further in the following section), each unit was also aligned with the broad, regional vegetation associations described in by Beard (1990) and later by Shepherd *et al.* (2002). The results of this analysis demonstrate that none of the three pre-European vegetation associations (141, 352 and 437) represented within the survey area (across the Avon Wheatbelt by 2.63%, 6.63% and 1.84%, respectively) are limited in their regional representation or distribution within the Avon Wheatbelt IBRA Region (**Table 6**). Therefore, none of the vegetation units are considered to be regionally significant due to this factor.

6.2.4.2 Extent Remaining

An objective of the EPA is 'to protect flora and vegetation so that biological diversity and ecological integrity are maintained' (EPA 2016b). The threshold levels that are considered important to ensure that ecological communities are maintained is considered to be 30% of the original extent in unconstrained areas and 10% in constrained areas, such as urban zones (EPA 2008). This philosophy is also in accordance with the principles of Bush Forever (Government of Western Australia 2019). In the absence of quantified thresholds in the current guidance (EPA 2016b), these philosophies and the threshold levels are still considered applicable in determining vegetation significance in relation to extent remaining.

The survey area is considered to be an unconstrained area and as such, the minimum retention target of 30% of the original pre-European vegetation extent applies. Of the three vegetation associations present within the survey area, two (141 and 437) exceed the 30% retention threshold in State, regional, subregional and local contexts; and therefore, meet the EPA objective of retention for the purpose of biodiversity conservation. Vegetation association 352 does not meet the 30% retention threshold in a State, regional or subregional context (19.61% 17.27% and 24.8%, respectively) and therefore, the EPA objective of retention for the purpose of biodiversity conservation is not met across these contexts. Therefore, vegetation that occurs within the extent of vegetation association 352 (comprising portions of vegetation units 12 and 20), comprising a total area of 13.37 ha (0.32% of the survey area) may be considered to be regionally significant.

7 CONCLUSIONS

The key findings and conclusions arising from the flora and vegetation assessments within the survey area are as follows:

- The timing of the field assessments are considered to have been optimal based on volumes of rainfall in some of the months preceding the field assessments, the variety and abundance of annual flora and flowering observed and conditions observed on site.
- A total of 491 flora taxa were recorded during the field survey, 472 (96.13%) of which are native and 19 (3.87%) are introduced (weeds) (none of which are listed as DP plants or WoNS), with Myrtaceae, Asteraceae and Fabaceae found to be the dominant families.
- The following 11 Threatened or Priority flora species were recorded within the survey area:
 - *Eremophila viscida* (Threatened: EPBC Act; Endangered, BC Act; Endangered); two individuals recorded from vegetation unit 19
 - *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468) (likely P1); 36 individuals recorded from two locations within vegetation units 11 and 24
 - *Philotheca nutans* (P1); 8,216 individual plants recorded within the survey area (and 658 outside the survey area) across nine vegetation units and rehabilitation areas
 - *Acacia synoria* (P2); 7,317 individuals recorded from four vegetation units within the survey area
 - *Alyxia tetanifolia* (P3); two individuals recorded from vegetation units 5 and 17
 - *Allocasuarina tessellata* (P3); 144 individuals recorded within the survey area (and 43 outside the survey area) from seven vegetation units
 - *Hibbertia cockertoniana* (P3); 9,893 individuals recorded from 8 vegetation units
 - *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3); 57 individuals recorded within the survey area (and 17 outside the survey area) from vegetation unit 22
 - *Grevillea scabrida* (P3); 22 individuals recorded within the survey area (and 6,696 outside the survey area) from vegetation units 1, 19 and 27
 - *Persoonia pentasticha* (P3); 518 individuals recorded within the survey area (and 425 outside the survey area) from nine vegetation units and rehabilitation areas.
- Several individuals of *Santalum spicatum* (IUCN Red List (Vulnerable) species) were recorded throughout much of the survey area.
- The following 11 undescribed taxa were recorded:
 - *Olearia* sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)
 - *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)
 - *Lepidosperma* ?sp. Blue Hills (A. Markey & S. Dillon 3468)
 - *Drosera* sp. Branched styles (S.C. Coffey 193)
 - *Leucopogon* sp. Clyde Hill (M.A. Burgman 1207)
 - *Melichrus* sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)
 - *Mirbelia* sp. Bursarioides (T.R. Lally 760)
 - *Senna* sp. Austin (A. Strid 20210)
 - *Microcorys* sp. Mt Gibson (S. Patrick 2098)
 - *Calytrix* sp. Paynes Find (F. & J. Hort 1188)
 - *Eremophila latrobei* subsp. warty leaves (M. Officer 230).
- Twenty-two species were found to be exhibiting an extension beyond their current documented range, with one of these one species, *Microcorys tenuifolia*, also a Priority species (P3).

- Thirty-three vegetation units were described and mapped across the surveys, 29 of which occur within the survey area, determined from the analysis of floristic data from 85 quadrats and 14 relevés, and from field observations and aerial imagery.
- The high diversity of vegetation units defined and mapped reflects the complex local geology, although the majority of the vegetation units of the survey area are expected to be represented in the broader region.
- Vegetation condition was found to range from 'Excellent' to 'Completely Degraded', with some areas of 'Cleared' or 'Revegetation' status, 83.28% in 'Good' or better condition, and the majority (67.33%) considered to be in 'Excellent' condition, not having previously been subject to disturbance from mining operations or other impacts.
- Vegetation units 12 and 13, both broadly described as *Eucalyptus* woodlands (collectively occupying 474.96 ha (11.44%) of the survey area), support vegetation that is characteristic of the Wheatbelt woodlands ecological community, a Commonwealth-listed TEC and a State-listed PEC (Priority 3), and within these areas, 21 patches occupying 468.71 ha (11.29% of the survey area) are of sufficient size and condition to be considered eligible for protection under the EPBC Act.
- In addition to vegetation units confirmed or suspected to represent significant ecological communities, vegetation units can also be considered to be of significance if they are restricted in their regional extent and/or distribution, or are limited in their remaining extent in comparison to their pre-European extent. The vegetation units that may be considered to be of significance due to relevant factors are:
 - vegetation units 12 and 13, due to representing a Commonwealth-listed TEC and a State-listed PEC (Wheatbelt woodlands)
 - vegetation units 12 and 20, due to occurring within a regional vegetation association that is under-represented, with less than 30% of its pre-European extent remaining.

8 LIST OF PARTICIPANTS

The FVC personnel who contributed to the project are summarised in **Table 24**, with other contributors summarised in **Table 25**.

Table 23 – FVC Project Team

Name Title (Flora Collection Lic. No.)	Qualification	Years of Relevant Experience	Project Role
Kellie Bauer–Simpson Principal Ecologist (FB62000531)	B.Sc. Biological Science	24	Project manager, study scoping, field survey, technical and authorisation reviews
Lisa Chappell Senior Botanist / Environmental Scientist	B.Env.Sc. (Hons) (Environmental Science)	20	Reporting support, spatial data management, technical reviews
Julie Fielder Senior Botanist (FB62000476)	B.Sc (Hons) Botany, Geography and Environmental Studies	21	Field survey, data analysis, report writing, vegetation mapping
Dan Roberts Botanist/Ecologist (FB62000435)	B.Sc. Environmental Science; Marine Science	10	Field survey, study planning, GIS mapping, floristic analysis, report preparation
Megan Gray Botanist/Ecologist (FB62000534)	B.Sc. Environmental Biology	4	Field survey, GIS, floristic analysis, vegetation mapping, report preparation.
Natalie Krawczyk Botanist (FB62000338)	B.Sc. Conservation Biology and Management (Hons.)	7	Field survey and desktop assessment
Kelly Hopkinson Graduate Ecologist (FB62000404)	B.Sc. Conservation and Wildlife Biology	1	Field survey
Sarah Beckwith Graduate Botanist	B.Sc. Environmental Biology	1	Data entry and report preparation
Jaydn England Graduate Environmental Scientist	Grad. Cert. OHSE B. Sc. Environmental Biology	3	Report preparation
Kristen Bleby Senior Ecologist	B.Sc. (Hons) (Natural Resource Management)	10	Report technical review
Margaret Collins Senior Botanist/Taxonomist	Ph.D. Botany M.Sc. Biotech. & Molecular Biology B.Sc.(Hons) Organic Chem & Microbiol.	26	Flora identifications
Olga Nazarova Botanist/Taxonomist (FB62000439)	B.Sc. (Botany) B.Sc. (Genetics)	3	Field survey, flora identifications, data analysis/management and report preparation
Dr Shibi Chandran Botanist/Taxonomist	B.Sc. (Zoology) M.Sc. (Fisheries and Aquaculture)	11	Flora identifications
Flavia dos Santos Pereira GIS Technician	B.Sc. Geography	4	GIS mapping, spatial analysis and spatial data management
Will Bauer–Simpson Technician	Cert IV (Health and Safety)	11	Field safety and logistics planning, mapping, spatial analysis and data management
Megan Meadowcroft Administration		6	Data entry, report compilation
Linda Hosking Administration		20	Editorial support

Table 24 – Other Contributors

Name	Company	Contributions to Surveys
Jenny Borger Principal Botanist	JB Botanical Consulting	Field survey lead, flora identifications
James Hesford Principal Environmental Consultant	Tetris Environmental	Field assistance
Jacob Jones Graduate Environmental Scientist	Tetris Environmental	Field assistance
Kurt Bowden Field Technician	Crimson Metals	Field assistance
Amelia Shepherdson Graduate Botanist	Ecotec (WA)	Field assistance

9 REFERENCES

- Anand RR, Churchward HM, Smith RE (1998) Regolith-landform development and siting and bonding of elements in regolith units, Mt. Gibson district, Western Australia. CSIRO Division of Exploration Geoscience Report., 61 <https://publications.csiro.au/rpr/pub?pid=legacy:1748>.
- Anand RR, Smith RE (2005) Mt Gibson Gold Deposit, Western Australia. *Cooperative Research Centre for Landscape Environments and Mineral Exploration* 1–3.
- Animal Plant Mineral Pty Ltd (2018) Mt Mulgine Project Biological Survey. Rothsay, WA. Unpublished report for Tungsten Mining NL,
- ATA Environmental (2006) Flora and vegetation assessment - Proposed slurry pipeline Mount Gibson to Geraldton Port. Unpublished report for Mount Gibson Mining Limited,
- ATA Environmental (2007) Flora, vegetation and fauna assessment - Proposed haul road along Wanarra road and Perenjori Rothsay road. Unpublished report for Mount Gibson Mining Limited,
- Atlas of Living Australia (2022) Atlas of Living Australia. *Atlas of Living Australia*. <https://www.ala.org.au>.
- Australian Biological Resources Study (ABRS) World Wide Wattle. <http://worldwidewattle.com/>. Accessed 15 February 2023.
- Australian Wildlife Conservancy (2022) Mt Gibson. *Australian Wildlife Conservancy*. <https://www.australianwildlife.org/where-we-work/mt-gibson-wildlife-sanctuary/>.
- Beard JS (1975) 'Vegetation Survey of Western Australia: Pilbara.' (University of Western Australia Press)
- Beard JS (1990) 'Plant life of Western Australia.' (Kangaroo Press: Kenthurst, N.S.W)
- Beecham B (2001) Avon Wheatbelt 1 (AW1 - Ancient Drainage subregion). 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'. pp. 7–35. (Department of Conservation and Land Management)
- Belbin L, Collins A (2006) PATN V. 3.1. *Blatant Fabrications Pty Ltd: Brisbane*.
- Belle E, Lewis E, Juffe-Bignoli D, Shi Y, Burgess N, Bingham H, Bhola N (2018) Protected Planet Report 2018. United Nations Environment Programme,
- Bennett Environmental Consulting Pty Ltd (2000) Flora and Vegetation of Mt Gibson. Unpublished report for Mt Gibson Iron Limited, https://consultation.epa.wa.gov.au/seven-day-comment-on-referrals/mount-gibson-iron-ore-mine-and-infrastructure-iron/supporting_documents/Bennett%202000%20Flora%20and%20Vegetation%20of%20Mt%20Gibson.pdf.
- BHB Billiton (2015) Regional Land and Biodiversity Management Plan. https://www.epa.wa.gov.au/sites/default/files/API_documents/Appendix%20L-%20Biodiversity%20Regional%20Mgt%20Plan%20revisedMar15.pdf.
- Blackall WE, Grieve BJ (1985) 'How to know Western Australian wildflowers: a key to the flora of the temperate regions of Western Australia. Parts 1, 2.' (University of Western Australia Press: Perth, W.A.)

- BoM (2023) Climate Data Online. *Bureau of Meteorology*. <http://www.bom.gov.au/climate/data/>.
- Bush Heritage Australia (2022) Charles Darwin Nature Reserve (WA). *Bush Heritage Australia*. <https://www.bushheritage.org.au/places-we-protect/western-australia/charles-darwin>.
- Centre for Invasive Species Solutions (2022) Weeds of National Significance (WONS). *Weeds Australia*. <https://weeds.org.au/weeds-profiles/>.
- Christian CS, Stewart GA (1953) Survey of Katherine-Darwin Region, 1946. CSIRO,
- Coffey environments (2009) Flora and vegetation assessment proposed Three Springs to Mount Gibson Ranges 330kV transmission line V3. Unpublished report prepared for Extension Hill Pty Ltd,
- Colwell R, Coddington J (1994) Estimating terrestrial biodiversity through extrapolation. *Philosophical Transactions of the Royal Society of London Series B, Biological Sciences* **345**, 101–18. doi:10.1098/rstb.1994.0091.
- Colwell RK, Li Y, Morales AS, Preis H (2022) EstimateS_9.1_Windows. <https://osf.io/su57f>.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005. (Canberra)
- Department of Biodiversity, Conservation and Attractions (2022a) Threatened species and communities. <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities>.
- Department of Biodiversity, Conservation and Attractions (2022b) Legislated Lands and Waters (DBCA-011). <https://catalogue.data.wa.gov.au/dataset/dbca-legislated-lands-and-waters>.
- Department of Biodiversity, Conservation and Attractions (2023a) NatureMap. <https://static.dbca.wa.gov.au/pages/naturemap.html>.
- Department of Biodiversity, Conservation and Attractions (2023b) Weeds - Wheatbelt Impact and Invasiveness Ratings. <https://www.dbca.wa.gov.au/management/threats/weeds>.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020) Conservation codes for Western Australian Flora and Fauna. <https://www.dpaw.wa.gov.au/images/Conservation%20codes%20for%20Western%20Australian%20Flora%20and%20Fauna%20179KB.pdf>.
- Department of Climate Change, Energy, the Environment and Water (2020) CAPAD: protected area data. <https://www.dcceew.gov.au/environment/land/nrs/science/capad>.
- Department of Climate Change, Energy, the Environment and Water (2022) Australia's bioregions (IBRA). *Department of Climate Change, Energy, the Environment and Water*. <https://www.dcceew.gov.au/environment/land/nrs/science/ibra>.
- Department of Climate Change, Energy, the Environment and Water (2023a) Species Profiles and Threats Database (SPRAT). <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.
- Department of Climate Change, Energy, the Environment and Water (2023b) Protected Matters Search Tool. <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>.

- Department of Climate Change, Energy, the Environment and Water (2023c) Australian Ramsar Wetlands. <https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/australian-ramsar-wetlands>.
- Department of Climate Change, Energy, the Environment and Water (2023d) *Eremophila viscida* — Varnish Bush. *Species Profile and Threats Database*. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=2394.
- Department of Conservation and Land Management (1999) Environmental weed strategy for Western Australia. Environmental Protection Branch, (Como, Western Australia)
- Department of Environment and Conservation (2007) 'Conserving Threatened Ecological Communities.' (Publicly available brochure prepared by the Department of Environment and Conservation in conjunction with National Heritage Trust: Perth, W.A.)
- Department of Environment and Conservation (2013) Definition, categories, and criteria for threatened and priority ecological communities. https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/definitions_categories_and_criteria_for_threatened_and_priority_ecological_communities.pdf.
- Department of Environmental Regulation (2014) A guide to the assessment of applications to clear native vegetation, Under Part V Division 2 of the Environmental Protection Act 1986. Government of Western Australia, (Perth, Western Australia) https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.
- Department of Environmental Regulation (2015) Native Vegetation clearing legislation in Western Australia. https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Fact_sheets/fs1_legislation.pdf.
- Department of Mines, Industry Regulation and Safety (2018) File Notation Area (DMIRS-002). <https://catalogue.data.wa.gov.au/dataset/file-notation-area-dmirs-002>.
- Department of Parks and Wildlife (2013) Weed prioritisation process for DPaW (formerly DEC) - 'An integrated approach to Weed Management on DPaW-managed lands in WA'. <https://www.dbca.wa.gov.au/sites/default/files/2021-08/Weed%20prioritisation%20process.pdf>.
- Department of Primary Industries and Regional Development (2022) Western Australian Organism List. *Agriculture and Food*. <https://www.agric.wa.gov.au/organisms>.
- Department of the Environment (2013) Matters of National Environmental Significance, Significant impact guidelines 1.1.
- Department of the Environment (2015) Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt. Department of the Environment, <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/128-conservation-advice.pdf>.
- Department of the Environment and Energy (2016) Eucalypt Woodlands of the Western Australian Wheatbelt: a nationally protected ecological community. <https://www.dcceew.gov.au/sites/default/files/documents/guide-eucalypt-woodlands-wa-wheatbelt.pdf>.

- Desmond A, Chant A (2001) Yalgoo (Yal). 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'. pp. 656–667. (Department of Conservation and Land Management)
- Dudley N (editor) (2008) 'Guidelines for Applying Protected Area Management Categories.' (IUCN: Gland, Switzerland)
- Eco Logical Australia (2016a) Mount Gibson Level 2 Flora and Vegetation Survey. Unpublished report for Mount Gibson Mining,
- Eco Logical Australia (2016b) Mount Gibson Level 2 Flora and Vegetation Survey (Limited regional). Unpublished report prepared for Mount Gibson Mining Limited, https://www.epa.wa.gov.au/sites/default/files/Proponent_response_to_submissions/16PER_3500_Mt%20Gibson%20L2%20Flora%20and%20Vegetation%20limited%20regional_V6.pdf.
- Eco Logical Australia (2020) Mount Gibson Gold Exploration Drill Program Targeted Flora and Fauna Survey - Final Report. Unpublished report for Extension Hill Pty Ltd,
- Ecologia Environmental (2016) Mount Gibson Mining Iron Hill Flora and Vegetation Assessment based on regional and local floristic analysis. Unpublished report for Mount Gibson Mining, https://www.epa.wa.gov.au/sites/default/files/Proponent_response_to_submissions/Ecologia%202016%20Iron%20Hill%20Flora%20and%20Vegetation%20Assessment%20%20Rev1_0.pdf.
- English V, Blyth J (1997) 'Identifying and Conserving Threatened Ecological Communities in the South-West Botanical Province: ANCA National Reserves System Cooperative Program, Project Number N702: Final Report, May 1997.' (Department of Conservation and Land Management)
- Environmental Protection Authority (2007) State of the Environment Report 2007 | EPA Western Australia. Government of Western Australia, (Perth, Western Australia) <https://www.epa.wa.gov.au/state-environment-report-2007>.
- Environmental Protection Authority (2008) Environmental Guidance for Planning and Development. Guidance Statement No. 33. Government of Western Australia, https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/GS33-270508.pdf.
- Environmental Protection Authority (2016a) Environmental Factor Guideline - Flora and Vegetation. Government of Western Australia, (Perth, Western Australia) https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Guideline-Flora-Vegetation-131216_4.pdf.
- Environmental Protection Authority (2016b) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Environmental Protection Authority, https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.
- EnviroWorks Consulting (2013) Level 2 Flora and Vegetation Survey - Mummaloo. Unpublished report for Top Iron Pty Ltd, T05-J02.
- FI Joint Venture Pty. Ltd. (2019) Yogi Magnetite Project Flora and Vegetation Assessment. Unpublished report for GHD Pty. Ltd., https://www.epa.wa.gov.au/sites/default/files/PER_documentation2/App%20B%20-%20-%20Flora%20and%20Vegetation%20Assessment%20-%20Part%202.1.pdf.

- Geological Survey of Western Australia (1984)
- Geological Survey of Western Australia (1986)
- George EA (Berndt), Pieroni M (2002) 'Verticordia: the turner of hearts.' (University of Western Australia Press: Nedlands, W.A)
- Gibson N, Keighery GJ, Lyons MN, Webb A (2004) Terrestrial flora and vegetation of the Western Australian wheatbelt. *Records of the Western Australian Museum, Supplement* **67**, 139. doi:10.18195/issn.0313-122x.67.2004.139-189.
- Government of Western Australia (2005) 'Environmental Protection (Environmentally Sensitive Areas) Notice 2005.'
[https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_37202.pdf/\\$FILE/Environmental%20Protection%20\(Environmentally%20Sensitive%20Areas\)%20Notice%202005%20-%20%5B00-a0-02%5D.pdf?OpenElement](https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_37202.pdf/$FILE/Environmental%20Protection%20(Environmentally%20Sensitive%20Areas)%20Notice%202005%20-%20%5B00-a0-02%5D.pdf?OpenElement).
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Department of Biodiversity, Conservation and Attractions, <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics/resource/0fc225fa-b06b-4da4-b5ed-62a146842389>.
- Groves RH, Hosking JR, Batianoff GN, Cooke DA, Cowie ID, Johnson RW, Keighery GJ, Lepschi BJ, Mitchell AA, Moerkerk M, Randall RP, Rozefelds AC, Walsh NG, Waterhouse BM (2003) Weed Categories for Natural and Agricultural Ecosystem Management. Commonwealth of Australia, (Canberra, A.C.T)
- Hopper SD, Brown AP, Marchant NG (1997) Plants of Western Australian granite outcrops. *Journal of the Royal Society of Western Australia* 18.
- J. Hobbs R (2003) The wheatbelt of Western Australia. *Pacific Conservation Biology* **9**, 9. doi:10.1071/PC030009.
- Jennifer Borger Botanical Consultant (2014) Vegetation and flora survey of the legend airstrip proposed extension area for Extension Hill Pty Ltd. Unpublished report for Extension Hill Pty Ltd,
- Jones MG, Southern Geoscience Consultants Pty Ltd. (1997) Camelot Resources NL Mt. Gibson Gold Project Geological interpretation map.
- International Union for Conservation of Nature (2023) Background and History. <https://www.iucnredlist.org/about/background-history>
- Keighery B (1994) 'Bushland Plant Survey: A Guide to Plant Community Survey for the Community.' (Wildflower Society of WA (Inc.): Nedlands, W.A)
- Knuckey CG, Van Etten EJB, Doherty TS (2016) Effects of long-term fire exclusion and frequent fire on plant community composition: A case study from semi-arid shrublands: Fire Effects on Semi-arid Shrubland. *Austral Ecology* **41**, 964–975. doi:10.1111/aec.12388.
- Macfarlane TD (2009) Biodiversity survey pilot project at Charles Darwin Reserve, Western Australia Vascular Plants. Report to the Australian Biological Resources Study, Department of the Environment, Water, Heritage and the Arts, Canberra, <https://library.dbca.wa.gov.au/static/FullTextFiles/072140.pdf>.

- Macfarlane TD, Trudgen MS, Hislop M, Thiele KR (2010) Bush Blitz on Karara, Lochanda and Kadji Kadji Pastoral Leases and Charles Darwin Reserve, Western Australia. Report to Australia Biological Resources Study, Department of the Environment, Water, Heritage and the Arts,
- Maia Environmental Consultancy (2020) EMR Golden Grove: Gosaan Valley study area. Detailed flora and vegetation assessment and *Stylidium scintillans* census. unpublished report for EMR Golden Grove,
- Meissner R, Caruso Y (2008) Flora and Vegetation of Banded Iron Formations of the Yilgarn Craton: Mount Gibson and Surrounding Area. *Conservation Science Western Australia* **7**, 105–120.
- Middleton DJ (2002) Revision of *Alyxia* (Apocynaceae). Part 2: Pacific Islands and Australia. *Blumea: Biodiversity, Evolution and Biogeography of Plants* **47**, 1–93.
- Mitchell AA, McCarthy RC, Hacker RB (1988) A range inventory and condition survey of part of the Western Australian Nullarbor Plain, 1974. *Department of Primary Industries and Regional Development*. https://library.dpird.wa.gov.au/cgi/viewcontent.cgi?httpsredir=1&article=1058&context=tech_bull#:~:text=A%20range%20inventory%20and%20condition%20survey%20of%20part,1974%20and%20published%20with%20the%20authority%20of%20the.
- NVIS Technical Working Group (2017) Australian Vegetation Attribute Manual V 7.0. Department of Environment and Energy, (Canberra)
- Patrick SJ (2001) Declared Rare and Poorly Known Flora in the Geraldton District. Department of Conservation and Land Management, (Kensington, W.A.) https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/recovery_plans/wildlife_management_plans/Geraldton_District_WMP_26.pdf.
- Paul Armstrong and Associates (2004) Vegetation assessment and rare flora search between Perenjori and Mt Gibson. Unpublished report for Mt Gibson Iron Ltd,
- Phillimore R, Evans R, Brown A, English V (2003) Varnish bush (*Eremophila viscida*) Interim recovery plan 2003 - 2008. Department of Conservation and Land Management, (Wanneroo, Western Australia) <https://www.dcceew.gov.au/sites/default/files/documents/eremophila-viscida.pdf>.
- Sarmah CK (2017) Chao, Jackknife and Bootstrap estimators of species richness. *International Journal of Applied Mathematical Analysis and Applications* **12**, 7–15.
- Schatral A, Osborne J (2006) Management of *Rumex vesicarius* L. on rehabilitated mine sites in the goldfields of Western Australia. Minerals and energy research institute of Western Australia, (East Perth, W.A) <https://mriwa.sharepoint.com/sites/FinalReports/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FFinalReports%2FShared%20Documents%2FFinal%2DReport%5F242%5FMERIWA%5FM0332%2Epdf&parent=%2Fsites%2FFinalReports%2FShared%20Documents&p=true&ga=1>.
- Shepherd D, Beeston G, Hopkins A (2002) Native vegetation in Western Australia: extent, type and status. Department of Conservation and Land Management, <https://library.dpird.wa.gov.au/rmtr/235>.
- Spectrum Ecology (2020) Mount Mulgine Flora & Vegetation Assessment. Prepared for Tungsten Mining NL, https://biocollect.ala.org.au/document/download/2020-10/2019-2020_Mt%20Mulgine_Detailed%20F%26V_v4.pdf.
- Takor Group (2021) Mappt. <https://mappt.com.au/>.

- The National Vegetation Information Technical Working Group (2017) 'Australian Vegetation Attribute Manual Version 7.0.' (Department of Environment and Energy) <https://www.dcceew.gov.au/environment/land/publications/australian-vegetation-attribute-manual-version-7>.
- Thiele KR, Cockerton G (2015) A revision of the *Hibbertia hypericoides* species group (Dilleniaceae). **25**, 285–300.
- Threatened Species Scientific Committee (2017) Conservation Advice *Eremophila viscida* Varnish bush. Australian Government, <http://www.environment.gov.au/biodiversity/threatened/species/pubs/2394-conservation-advice-13072017.pdf>.
- Threatened Species Scientific Committee (TSSC) (2015) Approved Conservation Advice - Appendices for the Eucalypt Woodlands of the Western Australian Wheatbelt. Department of the Environment, <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/128-conservation-advice-appendices.pdf>.
- Trudgen ME (1991) Vegetation Condition Scale. 'Urban Bushland Policy'. (Eds National Trust WA, Wildflower Society of Western Australia Inc., Tree Society Inc)(Perth Western Australia)
- Trudgen ME (2001) Reinstatement and revision of *Euryomyrtus* (Myrtaceae). *Nuytsia* **13**, 543–566.
- Trudgen ME, Rye BL (2010) *Enekbatus*, a new Western Australian genus of Myrtaceae with a multi-locular indehiscent fruit. *Nuytsia* **20**, 229–259.
- Umwelt (Australia) Pty Limited (2022) Flora, vegetation and fauna impact assessment, Karara Project expansion. unpublished report for Karara Mining Limited, Draft
- United Nations Environment Program World Conservation Monitoring Centre, IUCN (2022) The World Database on Protected Areas (WDPA) and World Database on Other Effective Area-based Conservation Measures (WD-OECM). www.protectedplanet.net.
- Western Australian Herbarium (1998) Florabase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/>.
- Weston (1994) 'Telopea: Journal of plant systematics.' (Royal Botanic Garden Sydney: Sydney) <https://www.biodiversitylibrary.org/item/264631>.
- Wilson KL, Johnson LAS (1989) Casuarinaceae. 'Flora of Australia, Volume 3, Hamamelidales to Casuarinales'. (Ed AS George)(Australian Government Publishing Service: Canberra) <https://www.dcceew.gov.au/sites/default/files/env/pages/a08d125d-a6d0-47c4-85e9-9b7ac5d4931a/files/flora-australia-03-hamamelidales-casuarinales.pdf>.
- Yeats CJ, Groves DI (1998) The Archaean Mount Gibson gold deposits, Yilgarn Craton, Western Australia: Products of combined synvolcanic and syntectonic alteration and mineralisation. *Ore Geology Reviews* **13**, 103–129. doi:10.1016/S0169-1368(97)00015-2.

APPENDIX A - DBCA NATUREMAP SEARCH REPORT

TEPL21003_NatureMap Species Report

Created By Guest user on 26/11/2021

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 117° 10' 25" E, 29° 44' 54" S
Buffer 20km
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	706	4893
Other specially protected fauna	1	7
Priority 1	7	49
Priority 2	4	7
Priority 3	13	55
Priority 4	2	3
Rare or likely to become extinct	8	316
TOTAL	741	5330

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Rare or likely to become extinct				
1.	14118 <i>Acacia imitans</i>		T	
2.	5516 <i>Darwinia masonii</i> (Mason's Darwinia)		T	
3.	25107 <i>Egernia stokesii</i> subsp. <i>badia</i> (Western Spiny-tailed Skink, Gidgee Skink)		T	
4.	5783 <i>Eucalyptus synandra</i> (Jingymia Mallee)		T	
5.	5217 <i>Hybanthus cymulosus</i>		T	
6.	33917 <i>Idiosoma nigrum</i> (Shield-backed Trapdoor Spider)		T	
7.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T	
8.	31764 <i>Lepidosperma gibsonii</i>		T	
Other specially protected fauna				
9.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
Priority 1				
10.	14058 <i>Acacia cerastes</i>		P1	
11.	19152 <i>Acacia</i> sp. <i>Kalannie North</i> (B.R. Maslin 7702)		P1	
12.	1738 <i>Allocasuarina tessellata</i>		P1	
13.	14728 <i>Chamelaucium</i> sp. <i>Yalgoo</i> (Y. Chadwick 1816)		P1	
14.	2090 <i>Grevillea scabrida</i>		P1	
15.	33280 <i>Lepidosperma</i> sp. <i>Blue Hills</i> (A. Markey & S. Dillon 3468)		P1	
16.	18511 <i>Philotheca nutans</i>		P1	
Priority 2				
17.	44575 <i>Amanita inculta</i>		P2	
18.	14475 <i>Baeckea</i> sp. <i>Perenjori</i> (J.W. Green 1516)		P2	
19.	14663 <i>Comesperma griffinii</i>		P2	
20.	16370 <i>Psammomoya grandiflora</i>		P2	
Priority 3				
21.	17232 <i>Austrostipa blackii</i>		P3	
22.	5472 <i>Calytrix plumulosa</i>		P3	
23.	17914 <i>Euryomyrtus recurva</i>		P3	
24.	12572 <i>Goodenia perryi</i>		P3	
25.	15983 <i>Grevillea obliquistigma</i> subsp. <i>cullenii</i>		P3	
26.	2100 <i>Grevillea subtiliflora</i>		P3	
27.	45519 <i>Hibbertia cockertoniana</i>		P3	
28.	6903 <i>Microcorys tenuifolia</i>		P3	
29.	31845 <i>Micromyrtus trudgenii</i>		P3	
30.	14569 <i>Persoonia pentasticha</i>		P3	
31.	12732 <i>Podotheca unisetata</i>		P3	
32.	13243 <i>Rhodanthe collina</i>		P3	
33.	12468 <i>Verticordia venusta</i>		P3	
Priority 4				

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
34.	33902 <i>Aganippe castellum</i> (Tree-stem Trapdoor Spider)		P4	
35.	31881 <i>Dodonaea amplisemina</i>		P4	
Non-conservation taxon				
36.	3199 <i>Acacia acuaria</i>			
37.	3200 <i>Acacia acuminata</i> (Jam, Mangard)			
38.	3216 <i>Acacia andrewsii</i>			
39.	12247 <i>Acacia anthochaera</i>			
40.	15467 <i>Acacia assimilis</i> subsp. <i>assimilis</i>			
41.	16112 <i>Acacia aulacophylla</i>			
42.	3248 <i>Acacia burkittii</i> (Sandhill Wattle)			
43.	3264 <i>Acacia colletioides</i> (Wait-a-while)			
44.	3269 <i>Acacia coolgardiensis</i> (Spinifex Wattle)			
45.	3301 <i>Acacia dielsii</i>			
46.	3315 <i>Acacia duriuscula</i>			
47.	32118 <i>Acacia effusifolia</i>			
48.	3324 <i>Acacia erinacea</i>			
49.	3330 <i>Acacia exocarpoides</i>			
50.	12258 <i>Acacia inceana</i> subsp. <i>conformis</i>			
51.	3393 <i>Acacia jennerae</i>			
52.	3403 <i>Acacia kochii</i>			
53.	3452 <i>Acacia murrayana</i> (Sandplain Wattle)			
54.	15290 <i>Acacia neurophylla</i> subsp. <i>erugata</i>			
55.	3465 <i>Acacia obtecta</i>			
56.	3481 <i>Acacia papyrocarpa</i> (Western Myall)			
57.	3495 <i>Acacia prainii</i> (Prain's Wattle)			
58.	19499 <i>Acacia ramulosa</i> var. <i>ramulosa</i>			
59.	3513 <i>Acacia resinimarginea</i>			
60.	16145 <i>Acacia resinosa</i>			
61.	3515 <i>Acacia restiacea</i>			
62.	3539 <i>Acacia sericocarpa</i>			
63.	3545 <i>Acacia sibina</i>			
64.	8949 <i>Acacia sibirica</i> (Bastard Mulga)			
65.	18622 <i>Acacia</i> sp. <i>Kalannie</i> (B.R. Maslin 7706)			
66.	15294 <i>Acacia stereophylla</i> var. <i>stereophylla</i>			
67.	3577 <i>Acacia tetragonophylla</i> (Kurara, Wakalpuka)			
68.	3586 <i>Acacia tysonii</i>			
69.	31071 <i>Acacia umbraculiformis</i>			
70.	15292 <i>Acacia yorkrakinensis</i> subsp. <i>acrita</i>			
71.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
72.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
73.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
74.	24264 <i>Acanthiza robustirostris</i> (Slaty-backed Thornbill)			
75.	24265 <i>Acanthiza uropygialis</i> (Chestnut-rumped Thornbill)			
76.	<i>Acariformes</i> sp.			
77.	27576 <i>Acarospora nodulosa</i>			
78.	28195 <i>Acarospora nodulosa</i> var. <i>reagens</i>			
79.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
80.	6204 <i>Actinotus humilis</i>			
81.	25544 <i>Aegotheles cristatus</i> (Australian Owllet-nightjar)			
82.	1720 <i>Allocasuarina acutivalvis</i>			
83.	13904 <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>			
84.	13905 <i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>			
85.	1721 <i>Allocasuarina campestris</i>			
86.	19465 <i>Aluta aspera</i> subsp. <i>hesperia</i>			
87.	4905 <i>Alyogyne hakeifolia</i>			
88.	4907 <i>Alyogyne pinoniana</i> (Sand Hibiscus)			
89.	6565 <i>Alyxia buxifolia</i> (Dysentery Bush)			
90.	12025 <i>Amphipogon caricinus</i> var. <i>caricinus</i>			
91.	11191 <i>Amyema gibberula</i> var. <i>tatei</i>			
92.	2380 <i>Amyema miquelii</i> (Stalked Mistletoe)			
93.	<i>Aname tepperi</i>			
94.	24312 <i>Anas gracilis</i> (Grey Teal)			
95.	40910 <i>Androcalva luteiflora</i> (Yellow-flowered Rulingia)			
96.	40904 <i>Androcalva stowardii</i>			
97.	<i>Anidiops villosus</i>			
98.	25448 <i>Antaresia stimsoni</i> (Stimson's Python)			
99.	11454 <i>Anthocercis anisantha</i> subsp. <i>anisantha</i>			
100.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
101.	<i>Antichiropus</i> sp.			
102.	25528 <i>Aphelocephala leucopsis</i> (Southern Whiteface)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
103.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
104.	<i>Argiope protensa</i>			
105.	207 <i>Aristida contorta</i> (Bunched Kerosene Grass)			
106.	12063 <i>Aristida holathera</i> var. <i>holathera</i>			
107.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
108.	24352 <i>Artamus cinereus</i> subsp. <i>melanops</i> (Black-faced Woodswallow)			
109.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
110.	24355 <i>Artamus minor</i> (Little Woodswallow)			
111.	1265 <i>Arthropodium curvipes</i>			
112.	1266 <i>Arthropodium dyeri</i>			
113.	<i>Asadipus phaleratus</i>			
114.	48911 <i>Aspicilia contorta</i>			
115.	2479 <i>Atriplex stipitata</i> (Mallee Saltbush)			
116.	17237 <i>Austrostipa elegantissima</i>			
117.	17238 <i>Austrostipa eremophila</i>			
118.	17239 <i>Austrostipa exilis</i>			
119.	17241 <i>Austrostipa hemipogon</i>			
120.	17246 <i>Austrostipa nitida</i>			
121.	17251 <i>Austrostipa scabra</i>			
122.	17255 <i>Austrostipa trichophylla</i>			
123.	5344 <i>Baeckea elderiana</i>			
124.	5356 <i>Baeckea muricata</i>			
125.	5375 <i>Balaustion pulcherrimum</i> (Native Pomegranate)			
126.	<i>Barnardius zonarius</i>			
127.	7852 <i>Bellida graminea</i> (Rosy Bellida)			
128.	<i>Bigenditia zuytdorp</i>			
129.	7856 <i>Blennospora drummondii</i>			
130.	1267 <i>Borya constricta</i>			
131.	1273 <i>Borya sphaerocephala</i> (Pincushions)			
132.	3722 <i>Bossiaea walkeri</i>			
133.	4999 <i>Brachychiton gregorii</i> (Desert Kurrajong, Ngalta)			
134.	7882 <i>Brachyscome perpusilla</i>			
135.	7883 <i>Brachyscome pusilla</i>			
136.	247 <i>Bromus arenarius</i> (Sand Brome)			
137.	7413 <i>Brunonia australis</i> (Native Cornflower)			
138.	19069 <i>Brunonia</i> sp. Goldfields (K.R. Newbey 6044)			
139.	<i>Buddelundia</i> sp.			
140.	1366 <i>Bulbine semibarbata</i> (Leek Lily)			
141.	24722 <i>Cacatua leadbeateri</i> (Major Mitchell's Cockatoo)			
142.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
143.	24723 <i>Cacatua pastinator</i> subsp. <i>butleri</i> (Butler's Corella)			
144.	25715 <i>Cacatua roseicapilla</i> (Galah)			
145.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
146.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
147.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
148.	29439 <i>Caesia</i> sp. Wongan (K.F. Kenneally 8820)			
149.	46535 <i>Caladenia incensum</i> (Glistening spider orchid)			
150.	15357 <i>Caladenia incrassata</i>			
151.	1614 <i>Caladenia roei</i> (Ant Orchid)			
152.	2853 <i>Calandrinia eremaea</i> (Twining Purslane)			
153.	2862 <i>Calandrinia porifera</i>			
154.	19455 <i>Calandrinia</i> sp. Bungalbin (G.J. Keighery & N. Gibson 1656)			
155.	31132 <i>Calandrinia</i> sp. Truncate capsules (A. Markey & S. Dillon 3474)			
156.	30396 <i>Calandrinia translucens</i>			
157.	4717 <i>Callitriche stagnalis</i> (Common Starwort)	Y		
158.	8466 <i>Callitris columellaris</i> (White Cypress Pine)			
159.	7895 <i>Calocephalus multiflorus</i> (Yellow-top)			
160.	27626 <i>Caloplaca citrina</i>			
161.	5398 <i>Calothamnus aridus</i>			
162.	5408 <i>Calothamnus gilesii</i>			
163.	7903 <i>Calotis hispidula</i> (Bindy Eye)			
164.	7905 <i>Calotis multicaulis</i> (Many-stemmed Burr-daisy)			
165.	16492 <i>Calycopeplus paucifolius</i>			
166.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
167.	24732 <i>Calyptorhynchus banksii</i> subsp. <i>samueli</i> (Red-tailed Black-Cockatoo)			
168.	5461 <i>Calytrix glutinosa</i>			
169.	5465 <i>Calytrix leschenaultii</i>			
170.	28241 <i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)			
171.	2955 <i>Cassylia nodiflora</i>			
172.	1134 <i>Centrolepis polygyna</i> (Wiry Centrolepis)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
173.	43642 <i>Centrolepis</i> sp. <i>Kalannie</i> (B.J. Lepschi et al. B.JL 3517)			
174.	7922 <i>Cephalopterum drummondii</i> (Pompom Head)			
175.	7924 <i>Ceratogyne obionoides</i> (Wingwort)			
176.	<i>Cercophonius granulatus</i>			
177.	1216 <i>Chamaexeros macranthera</i>			
178.	35640 <i>Chamelaucium pauciflorum</i> subsp. <i>Perenjori</i> (B.J. Conn 2181)			
179.	12796 <i>Cheilanthes adiantoides</i>			
180.	12818 <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			
181.	31768 <i>Cheiranthra simplicifolia</i>			
182.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
183.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
184.	3756 <i>Chorizema genistoides</i>			
185.	24431 <i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
186.	7933 <i>Chthonocephalus pseudevax</i> (Woolly Groundheads)			
187.	27664 <i>Cladia corallaizon</i>			
188.	20406 <i>Cleretum papulosum</i>	Y		
189.	2778 <i>Codonocarpus cotinifolius</i> (Native Poplar, Kundurangu)			
190.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
191.	38986 <i>Comatricha elegans</i>			
192.	4555 <i>Comesperma integerrimum</i>			
193.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
194.	24416 <i>Corvus bennetti</i> (Little Crow)			
195.	25592 <i>Corvus coronoides</i> (Australian Raven)			
196.	25593 <i>Corvus orru</i> (Torresian Crow)			
197.	24418 <i>Corvus orru</i> subsp. <i>ceciliae</i> (Western Crow)			
198.	7944 <i>Cotula bipinnata</i> (Ferny Cotula)	Y		
199.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
200.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
201.	24422 <i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
202.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
203.	17701 <i>Crassula closiana</i>			
204.	11709 <i>Crassula colorata</i> var. <i>acuminata</i>			
205.	11563 <i>Crassula colorata</i> var. <i>colorata</i>			
206.	20271 <i>Crassula extrorsa</i>			
207.	20268 <i>Crassula tetramera</i>			
208.	15544 <i>Cryptandra apetala</i> var. <i>apetala</i>			
209.	14314 <i>Cryptandra imbricata</i>			
210.	30886 <i>Cryptoblepharus australis</i>			
211.	30893 <i>Cryptoblepharus buchananii</i>			
212.	25020 <i>Cryptoblepharus plagiocephalus</i>			
213.	24871 <i>Ctenophorus cristatus</i> (Bicycle Dragon)			
214.	25460 <i>Ctenophorus maculatus</i> (Spotted Military Dragon)			
215.	24883 <i>Ctenophorus ornatus</i> (Ornate Crevice-Dragon)			
216.	24886 <i>Ctenophorus reticulatus</i> (Western Netted Dragon)			
217.	24889 <i>Ctenophorus scutulatus</i> (Lozenge-marked Dragon)			
218.	25054 <i>Ctenotus mimetes</i>			
219.	25463 <i>Ctenotus pantherinus</i> (Leopard Ctenotus)			
220.	25074 <i>Ctenotus schomburgkii</i>			
221.	25075 <i>Ctenotus severus</i>			
222.	25465 <i>Ctenotus uber</i> (Spotted Ctenotus)			
223.	6663 <i>Cuscuta epithymum</i> (Lesser Dodder, Greater Dodder)	Y		
224.	11021 <i>Cuscuta planiflora</i>	Y		
225.	15400 <i>Cyanicula amplexans</i>			
226.	6747 <i>Cyanostegia angustifolia</i> (Tinsel-flower)			
227.	6751 <i>Cyanostegia microphylla</i> (Tinsel Flower)			
228.	42066 <i>Cyathostemon heterantherus</i>			
229.	809 <i>Cyperus rigidellus</i>			
230.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
231.	7438 <i>Dampiera eriocephala</i> (Woolly-headed Dampiera)			
232.	11326 <i>Dampiera incana</i> var. <i>fuscescens</i>			
233.	7451 <i>Dampiera lavandulacea</i>			
234.	7456 <i>Dampiera luteiflora</i> (Yellow Dampiera)			
235.	7486 <i>Dampiera wellsiana</i> (Wells' Dampiera)			
236.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
237.	5506 <i>Darwinia capitellata</i>			
238.	41025 <i>Dasymalla terminalis</i> (Native Foxglove)			
239.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
240.	3813 <i>Daviesia grahamii</i>			
241.	24995 <i>Delma australis</i>			
242.	24997 <i>Delma butleri</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
243.	11636 <i>Dianella revoluta</i> var. <i>divaricata</i>			
244.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
245.	6755 <i>Dicrastylis corymbosa</i>			
246.	29279 <i>Dicrastylis globiflora</i>			
247.	6771 <i>Dicrastylis parvifolia</i>			
248.	18549 <i>Dicrastylis soliparma</i>			
249.	32346 <i>Didymodon torquatus</i>			
250.	25469 <i>Diplodactylus granariensis</i>			
251.	24929 <i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
252.	24940 <i>Diplodactylus pulcher</i>			
253.	27720 <i>Diploschistes hensseniae</i>			
254.	11681 <i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>			
255.	4752 <i>Dodonaea adenophora</i>			
256.	4766 <i>Dodonaea inaequifolia</i>			
257.	4780 <i>Dodonaea stenozyga</i>			
258.	11247 <i>Dodonaea viscosa</i> subsp. <i>angustissima</i>			
259.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
260.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
261.	49090 <i>Drosera</i> sp. <i>Branched styles</i> (S.C. Coffey 193)			
262.	24650 <i>Drymodes brunneopygia</i> (Southern Scrub-robin)			
263.	6966 <i>Duboisia hopwoodii</i> (Pituri, Kundugu)			
264.	1066 <i>Ecdiocolea monostachya</i>			
265.	25092 <i>Egernia depressa</i> (Southern Pygmy Spiny-tailed Skink)			
266.	<i>Egretta novaehollandiae</i>			
267.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			
268.	19844 <i>Enekbatas stowardii</i>			
269.	<i>Eolophus roseicapillus</i>			
270.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
271.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
272.	24653 <i>Eopsaltria pulverulenta</i> (Mangrove Robin)			
273.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
274.	25109 <i>Eremiascincus richardsonii</i> (Broad-banded Sand Swimmer)			
275.	13807 <i>Eremophila caperata</i>			
276.	7189 <i>Eremophila clarkei</i> (Turpentine Bush)			
277.	14895 <i>Eremophila decipiens</i> subsp. <i>decipiens</i>			
278.	7198 <i>Eremophila deserti</i>			
279.	7204 <i>Eremophila eriocalyx</i> (Desert Pride)			
280.	15052 <i>Eremophila forrestii</i> subsp. <i>forrestii</i>			
281.	7211 <i>Eremophila georgei</i>			
282.	17174 <i>Eremophila glabra</i> subsp. <i>elegans</i>			
283.	7216 <i>Eremophila glutinosa</i>			
284.	7219 <i>Eremophila granitica</i> (Thin-leaved Poverty Bush)			
285.	7230 <i>Eremophila latrobei</i> (Warty Fuchsia Bush, Mintjingka)			
286.	17576 <i>Eremophila latrobei</i> subsp. <i>latrobei</i>			
287.	15003 <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>			
288.	17168 <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>			
289.	18570 <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>			
290.	7269 <i>Eremophila serrulata</i> (Serrate-leaved Eremophila)			
291.	415 <i>Eriachne ovata</i>			
292.	20718 <i>Ericksonella saccharata</i>			
293.	4333 <i>Erodium cicutarium</i> (Common Storksbill)	Y		
294.	4335 <i>Erodium cygnorum</i> (Blue Heronsbill)			
295.	12740 <i>Erymophyllum tenellum</i>			
296.	<i>Ethmostigmus curtipes</i>			
297.	11978 <i>Eucalyptus celastroides</i> subsp. <i>virella</i>			
298.	48436 <i>Eucalyptus clelandiorum</i>			
299.	5595 <i>Eucalyptus comitae-vallis</i> (Comet Vale Mallee)			
300.	5641 <i>Eucalyptus ewartiana</i> (Ewart's Mallee)			
301.	5673 <i>Eucalyptus horistes</i>			
302.	19523 <i>Eucalyptus kochii</i> subsp. <i>amaryssia</i>			
303.	15670 <i>Eucalyptus kochii</i> subsp. <i>plenissima</i>			
304.	13057 <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>			
305.	5702 <i>Eucalyptus loxophleba</i> (York Gum, Dwoda)			
306.	13037 <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>			
307.	13038 <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>			
308.	19323 <i>Eucalyptus moderata</i>			
309.	5722 <i>Eucalyptus obtusiflora</i> (Dongara Mallee)			
310.	5725 <i>Eucalyptus oldfieldii</i> (Oldfield's Mallee)			
311.	5761 <i>Eucalyptus rigidula</i> (Stiff-leaved Mallee)			
312.	12693 <i>Eucalyptus salicola</i> (Salt Gum)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
313.	5767 <i>Eucalyptus salubris</i> (Gimlet)			
314.	5778 <i>Eucalyptus stowardii</i> (Fluted Horn Mallee)			
315.	12882 <i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>			
316.	19816 <i>Eucalyptus wubinensis</i>			
317.	4620 <i>Euphorbia boophthona</i> (Gascoyne Spurge)			
318.	4626 <i>Euphorbia drummondii</i> (Caustic Weed, Piwi)			
319.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
320.	25621 <i>Falco berigora</i> (Brown Falcon)			
321.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
322.	25623 <i>Falco longipennis</i> (Australian Hobby)			
323.	12622 <i>Feldstonia nitens</i>			
324.	24041 <i>Felis catus</i> (Cat)	Y		
325.	<i>Fissarena woodleigh</i>			
326.	32367 <i>Fissidens megalotis</i>			
327.	5212 <i>Frankenia setosa</i> (Bristly Frankenia)			
328.	904 <i>Gahnia drummondii</i>			
329.	3907 <i>Gastrolobium laytonii</i> (Breelya, Prilya)			
330.	24959 <i>Gehyra variegata</i>			
331.	<i>Geogarypus taylori</i>			
332.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
333.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
334.	12780 <i>Gilberta tenuifolia</i>			
335.	11008 <i>Gilruthia osbornii</i>			
336.	33620 <i>Glischrocaryon angustifolium</i>			
337.	6143 <i>Glischrocaryon aureum</i> (Common Popflower)			
338.	6144 <i>Glischrocaryon flavescens</i>			
339.	8002 <i>Gnephosis tenuissima</i>			
340.	11584 <i>Gonocarpus confertifolius</i> var. <i>confertifolius</i>			
341.	11801 <i>Gonocarpus confertifolius</i> var. <i>helmsii</i>			
342.	6159 <i>Gonocarpus nodulosus</i>			
343.	7495 <i>Goodenia berardiana</i>			
344.	7514 <i>Goodenia havilandii</i>			
345.	7527 <i>Goodenia mimuloides</i>			
346.	7531 <i>Goodenia occidentalis</i>			
347.	7534 <i>Goodenia piniifolia</i> (Pine-leaved Goodenia)			
348.	7535 <i>Goodenia pinnatifida</i> (Cutleaf Goodenia)			
349.	7541 <i>Goodenia pusilliflora</i> (Smallflower Goodenia)			
350.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
351.	13453 <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>			
352.	2001 <i>Grevillea eriostachya</i> (Flame Grevillea, Kaliny-kalinyapa)			
353.	13430 <i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>			
354.	15844 <i>Grevillea juncifolia</i> subsp. <i>temulenta</i>			
355.	16797 <i>Grevillea levis</i>			
356.	19542 <i>Grevillea nematophylla</i> subsp. <i>supraplana</i>			
357.	2051 <i>Grevillea obliquistigma</i>			
358.	15981 <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i>			
359.	2057 <i>Grevillea paradoxa</i> (Bottlebrush Grevillea)			
360.	2068 <i>Grevillea ptyophylla</i>			
361.	2077 <i>Grevillea pterosperma</i>			
362.	2124 <i>Grevillea yorkakinensis</i>			
363.	2783 <i>Gyrostemon racemiger</i>			
364.	27763 <i>Haematomma eremaeum</i>			
365.	2163 <i>Hakea francisiana</i> (Emu Tree)			
366.	2167 <i>Hakea invaginata</i>			
367.	2182 <i>Hakea minyma</i>			
368.	2196 <i>Hakea preissii</i> (Needle Tree, Dandjin)			
369.	2199 <i>Hakea recurva</i> (Djarnokmurd)			
370.	17557 <i>Hakea recurva</i> subsp. <i>recurva</i>			
371.	30294 <i>Halgania gustafsenii</i> var. <i>Mid West</i> (G. Perry 370)			
372.	6691 <i>Halgania integerrima</i>			
373.	6180 <i>Haloragis trigonocarpa</i>			
374.	17725 <i>Hannafordia bissillii</i> subsp. <i>latifolia</i>			
375.	33778 <i>Hemigenia botryphylla</i>			
376.	33781 <i>Hemigenia ciliata</i>			
377.	17397 <i>Hemigenia</i> sp. <i>Yalgoo</i> (A.M. Ashby 2624)			
378.	33779 <i>Hemigenia tomentosa</i>			
379.	46414 <i>Hemigenia yalgensis</i>			
380.	27771 <i>Heppia lutosa</i>			
381.	42408 <i>Hesperoedura reticulata</i>			
382.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
383.	19692 <i>Hibbertia ancistrophylla</i>			
384.	14459 <i>Hibbertia arcuata</i>			
385.	5124 <i>Hibbertia exasperata</i>			
386.	19779 <i>Hibbertia glomerosa</i> var. <i>glomerosa</i>			
387.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
388.	<i>Hibbertia</i> sp.			
389.	19683 <i>Hibbertia stenophylla</i>			
390.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
391.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
392.	<i>Hoggicosa bicolor</i>			
393.	<i>Hoggicosa castanea</i>			
394.	<i>Hoggicosa snelli</i>			
395.	<i>Hoggicosa storri</i>			
396.	<i>Holconia westralia</i>			
397.	5806 <i>Homalocalyx aureus</i>			
398.	5808 <i>Homalocalyx coarctatus</i>			
399.	5815 <i>Homalocalyx thryptomenoides</i>			
400.	12742 <i>Hyalosperma demissum</i>			
401.	15447 <i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>			
402.	15448 <i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>			
403.	12756 <i>Hyalosperma zacchaeus</i>			
404.	12007 <i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			
405.	6239 <i>Hydrocotyle rugulosa</i>			
406.	34001 <i>Hylacola cauta</i> subsp. <i>whitlocki</i> (Shy Groundwren)			
407.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
408.	48656 <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>			
409.	8087 <i>Isoetopsis graminifolia</i> (Cushion Grass)			
410.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
411.	14781 <i>Jacksonia acicularis</i>			
412.	4026 <i>Jacksonia rhadinoclada</i>			
413.	20019 <i>Lachnagrostis filiformis</i>			
414.	19955 <i>Lachnagrostis plebeia</i>			
415.	6779 <i>Lachnostachys coolgardiensis</i>			
416.	6782 <i>Lachnostachys verbascifolia</i> (Lambs' Tails)			
417.	17209 <i>Lachnostachys verbascifolia</i> var. <i>verbascifolia</i>			
418.	24367 <i>Lalage tricolor</i> (White-winged Triller)			
419.	<i>Latrodectus hasseltii</i>			
420.	13284 <i>Lawrencella rosea</i>			
421.	4959 <i>Lawrencia squamata</i>			
422.	<i>Lecanora</i> sp.			
423.	7583 <i>Lechenaultia macrantha</i> (Wreath Leschenaultia)			
424.	<i>Lecidea</i> sp.			
425.	3033 <i>Lepidium oxytrichum</i>			
426.	930 <i>Lepidosperma costale</i>			
427.	<i>Lepidosperma</i> sp.			
428.	15428 <i>Leptosema aphyllum</i>			
429.	25137 <i>Lerista gerrardii</i>			
430.	<i>Lerista kingi</i>			
431.	30927 <i>Lerista kingi</i>			
432.	16049 <i>Leucopogon</i> sp. <i>Clyde Hill</i> (M.A. Burgman 1207)			
433.	7672 <i>Levenhookia octomaculata</i> (Eight-spotted Stylewort)			
434.	25005 <i>Lialis burtonis</i>			
435.	25659 <i>Lichenostomus leucotis</i> (White-eared Honeyeater)			
436.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
437.	41411 <i>Liopholis inornata</i> (Desert Skink)			
438.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
439.	36861 <i>Lobelia fissiflora</i>			
440.	7409 <i>Lobelia winfridae</i> (Little Lobelia)			
441.	<i>Lophochroa leadbeateri</i>			
442.	30935 <i>Lucasium maini</i>			
443.	<i>Lycosa australicola</i>			
444.	<i>Lycosa godeffroyi</i>			
445.	2396 <i>Lysiana casuarinae</i>			
446.	5050 <i>Lysiosepalum rugosum</i> (Wrinkled Leaf Lysiosepalum)			
447.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
448.	2544 <i>Maireana georgei</i> (Satiny Bluebush)			
449.	2550 <i>Maireana marginata</i>			
450.	2566 <i>Maireana thesioides</i> (Lax Bluebush)			
451.	2568 <i>Maireana trichoptera</i> (Downy Bluebush)			
452.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
453.	5865 <i>Malleostemon roseus</i>			
454.	5866 <i>Malleostemon tuberculatus</i>			
455.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
456.	24551 <i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
457.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
458.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
459.	74 <i>Marsilea drummondii</i> (Common Nardoo)			
460.	15064 <i>Melaleuca acuminata</i> subsp. <i>websteri</i>			
461.	20284 <i>Melaleuca atroviridis</i>			
462.	19380 <i>Melaleuca calyptroides</i>			
463.	5895 <i>Melaleuca conothamnoides</i>			
464.	5896 <i>Melaleuca cordata</i>			
465.	5908 <i>Melaleuca eleuterostachya</i>			
466.	18528 <i>Melaleuca fabri</i>			
467.	5912 <i>Melaleuca fulgens</i> (Scarlet Honeymyrtle)			
468.	19486 <i>Melaleuca hamata</i>			
469.	5929 <i>Melaleuca leiocarpa</i>			
470.	9183 <i>Melaleuca nematophylla</i> (Wiry Honey-myrtle)			
471.	5958 <i>Melaleuca radula</i> (Graceful Honeymyrtle)			
472.	19449 <i>Melaleuca stereophloia</i>			
473.	20289 <i>Melaleuca vinnula</i>			
474.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
475.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
476.	25184 <i>Menetia greyii</i>			
477.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
478.	17643 <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)			
479.	25693 <i>Microeca fascinans</i> (Jacky Winter)			
480.	17357 <i>Micromyrtus clavata</i>			
481.	6000 <i>Micromyrtus racemosa</i>			
482.	8105 <i>Millotia myosotidifolia</i>			
483.	12631 <i>Millotia perpusilla</i>			
484.	4094 <i>Mirbelia microphylla</i>			
485.	4097 <i>Mirbelia ramulosa</i>			
486.	41988 <i>Mirbelia</i> sp. <i>Bursarioides</i> (T.R. Lally 760)			
487.	4100 <i>Mirbelia spinosa</i>			
488.	<i>Missulena rutraspina</i>			
489.	24904 <i>Moloch horridus</i> (Thorny Devil)			
490.	<i>Molycris vokes</i>			
491.	490 <i>Monachather paradoxus</i>			
492.	29418 <i>Monoculus monstrosus</i>	Y		
493.	19584 <i>Monotaxis bracteata</i>			
494.	19587 <i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>			
495.	25190 <i>Morethia butleri</i>			
496.	2412 <i>Muehlenbeckia adpressa</i> (Climbing Lignum)			
497.	24223 <i>Mus musculus</i> (House Mouse)	Y		
498.	8116 <i>Myriocephalus gueriniae</i>			
499.	14186 <i>Myriocephalus pygmaeus</i>			
500.	25425 <i>Neobatrachus kunapalari</i> (Kunapalari Frog)			
501.	25427 <i>Neobatrachus sutor</i> (Shoemaker Frog)			
502.	<i>Nicodamus mainae</i>			
503.	6977 <i>Nicotiana rosulata</i> (Rosetted Tobacco)			
504.	11734 <i>Nicotiana rosulata</i> subsp. <i>rosulata</i>			
505.	24224 <i>Notomys alexis</i> (Spinifex Hopping-mouse)			
506.	24229 <i>Notomys mitchellii</i> (Mitchell's Hopping-mouse)			
507.	<i>Notsodipus domain</i>			
508.	<i>Notsodipus linnaei</i>			Y
509.	<i>Novakiella trituberculosa</i>			
510.	27881 <i>Ochrolechia pallescens</i>			
511.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
512.	12734 <i>Olearia humilis</i>			
513.	8140 <i>Olearia muelleri</i> (Goldfields Daisy)			
514.	8145 <i>Olearia pimeleoides</i> (Pimelea Daisybush, Burrobunga)			
515.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
516.	24618 <i>Oreoica gutturalis</i> (Crested Bellbird)			
517.	34011 <i>Oreoica gutturalis</i> subsp. <i>gutturalis</i> (Crested Bellbird (southern))			
518.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
519.	24619 <i>Pachycephala inornata</i> (Gilbert's Whistler)			
520.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
521.	39056 <i>Paradiacheopsis fimbriata</i>			
522.	25254 <i>Parasuta monachus</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
523.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
524.	12670 <i>Parietaria cardiostegia</i>			
525.	1762 <i>Parietaria debilis</i> (Pellitory)			
526.	43764 <i>Pauridia glabella</i> var. <i>leptantha</i>			
527.	<i>Pediana tenuis</i>			
528.	<i>Pellenes bitaeniata</i>			
529.	40424 <i>Pentameris airoides</i> subsp. <i>airoides</i>	Y		
530.	27947 <i>Pertusaria gibberosa</i>			
531.	3674 <i>Petalostylis cassioides</i>			
532.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
533.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
534.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
535.	10775 <i>Petrophile incurvata</i>			
536.	2308 <i>Petrophile seminuda</i>			
537.	48853 <i>Phaeotrametes decipiens</i>			
538.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
539.	4497 <i>Phebalium canaliculatum</i>			
540.	16556 <i>Phebalium megaphyllum</i>			
541.	4504 <i>Phebalium tuberculosum</i>			
542.	20460 <i>Pheladenia deformis</i>			
543.	<i>Phellinus rimosus</i>			
544.	18537 <i>Philothea brucei</i> subsp. <i>brucei</i>			
545.	18385 <i>Philothea deserti</i> subsp. <i>deserti</i>			
546.	18513 <i>Philothea glabra</i>			
547.	18508 <i>Philothea sericea</i>			
548.	18507 <i>Philothea thryptomenoides</i>			
549.	18506 <i>Philothea tomentella</i>			
550.	16824 <i>Phyllangium sulcatum</i>			
551.	5229 <i>Pimelea aeruginosa</i>			
552.	5231 <i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
553.	5233 <i>Pimelea avonensis</i>			
554.	5245 <i>Pimelea forrestiana</i>			
555.	11185 <i>Pimelea microcephala</i> subsp. <i>microcephala</i>			
556.	7299 <i>Plantago debilis</i>			
557.	24748 <i>Platycercus varius</i> (Mulga Parrot)			
558.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
559.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
560.	45238 <i>Podolepis aristata</i> subsp. <i>affinis</i>			
561.	8177 <i>Podolepis lessonii</i>			
562.	8184 <i>Podotheca gnaphalioides</i> (Golden Long-heads)			
563.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
564.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
565.	8188 <i>Pogonolepis stricta</i>			
566.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
567.	24683 <i>Pomatostomus superciliosus</i> (White-browed Babbler)			
568.	34013 <i>Pomatostomus superciliosus</i> subsp. <i>ashbyi</i> (White-browed Babbler (western wheatbelt))			
569.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
570.	15822 <i>Prostanthera althoferi</i> subsp. <i>althoferi</i>			
571.	6912 <i>Prostanthera campbellii</i>			
572.	6915 <i>Prostanthera eckersleyana</i> (Crinkly Mintbush)			
573.	6919 <i>Prostanthera magnifica</i> (Magnificent Prostanthera)			
574.	6920 <i>Prostanthera patens</i>			
575.	41650 <i>Prostanthera prostantheroides</i>			
576.	4725 <i>Psammomoya choretroides</i>			
577.	24106 <i>Pseudantechinus woolleyae</i> (Woolley's Pseudantechinus)			
578.	25261 <i>Pseudechis australis</i> (Mulga Snake)			
579.	24235 <i>Pseudomys desertor</i> (Desert Mouse)			
580.	24237 <i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
581.	42416 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
582.	25263 <i>Pseudonaja modesta</i> (Ringed Brown Snake)			
583.	25264 <i>Pseudonaja nuchalis</i> (Gwardar, Northern Brown Snake)			
584.	24390 <i>Psophodes occidentalis</i> (Western Wedgebill, Chiming Wedgebill)			
585.	27999 <i>Psora crystallifera</i>			
586.	28000 <i>Psora decipiens</i>			
587.	18657 <i>Pterostylis</i> sp. <i>inland</i> (A.C. Beaglehole 11880)			
588.	2718 <i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
589.	48602 <i>Ptilotus eremita</i>			
590.	2719 <i>Ptilotus eriотrichus</i>			
591.	2721 <i>Ptilotus exaltatus</i> (Tall Mulla Mulla)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
592.	2729 <i>Ptilotus grandiflorus</i>			
593.	2731 <i>Ptilotus helipteroides</i> (Hairy Mulla Mulla)			
594.	2732 <i>Ptilotus holosericeus</i>			
595.	2747 <i>Ptilotus obovatus</i> (Cotton Bush)			
596.	2757 <i>Ptilotus schwartzii</i>			
597.	42344 <i>Purnella albifrons</i> (White-fronted Honeyeater)			
598.	25009 <i>Pygopus nigriceps</i>			
599.	24278 <i>Pyrrholaemus brunneus</i> (Redthroat)			
600.	2581 <i>Rhagodia drummondii</i>			
601.	19495 <i>Rhagodia</i> sp. <i>Watheroo</i> (R.J. Cranfield & P.J. Spencer 8183)			
602.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
603.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
604.	13306 <i>Rhodanthe battii</i>			
605.	13241 <i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>			
606.	13242 <i>Rhodanthe chlorocephala</i> subsp. <i>splendida</i>			
607.	13300 <i>Rhodanthe citrina</i>			
608.	13294 <i>Rhodanthe laevis</i>			
609.	13234 <i>Rhodanthe manglesii</i>			
610.	13238 <i>Rhodanthe maryonii</i>			
611.	13296 <i>Rhodanthe polycephala</i>			
612.	13252 <i>Rhodanthe pygmaea</i>			
613.	13309 <i>Rhodanthe spicata</i>			
614.	13254 <i>Rhodanthe stricta</i>			
615.	24982 <i>Rhynchoedura ornata</i> (Western Beaked Gecko)			
616.	4704 <i>Ricinocarpos velutinus</i>			
617.	45152 <i>Roebuckiella cheilocarpa</i>			
618.	48882 <i>Roepera apiculata</i>			
619.	48890 <i>Roepera eremaea</i>			
620.	48901 <i>Roepera similis</i>			
621.	2356 <i>Santalum acuminatum</i> (Quandong, Warrnga)			
622.	7644 <i>Scaevola spinescens</i> (Currant Bush, Maroon)			
623.	8200 <i>Schoenia cassiniana</i> (<i>Schoenia</i>)			
624.	993 <i>Schoenus hexandrus</i>			
625.	1002 <i>Schoenus nanus</i> (Tiny Bog Rush)			
626.	1013 <i>Schoenus sculptus</i> (Gimlet Bog-rush)			
627.	2611 <i>Sclerolaena ericantha</i> (Tall Bindii)			
628.	2615 <i>Sclerolaena fusiformis</i>			
629.	8877 <i>Sclerolaena gardneri</i>			
630.	<i>Selenotholus foelschei</i>			
631.	12276 <i>Senna artemisioides</i> subsp. <i>filifolia</i>			
632.	18444 <i>Senna charlesiana</i>			
633.	12305 <i>Senna glutinosa</i> subsp. <i>chatelainiana</i>			
634.	16378 <i>Senna pleurocarpa</i>			
635.	14579 <i>Senna</i> sp. <i>Austin</i> (A. Strid 20210)			
636.	18446 <i>Senna stowardii</i>			
637.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
638.	46824 <i>Seringia velutina</i> (Velvet firebush)			
639.	4970 <i>Sida calyxymenia</i> (Tall Sida)			
640.	19712 <i>Sida</i> sp. <i>dark green fruits</i> (S. van Leeuwen 2260)			
641.	14583 <i>Siloxerus multiflorus</i>			
642.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
643.	28060 <i>Siphula coriacea</i>			
644.	30948 <i>Smicromis brevirostris</i> (Weebill)			
645.	24108 <i>Sminthopsis crassicaudata</i> (Fat-tailed Dunnart)			
646.	24109 <i>Sminthopsis dolichura</i> (Little long-tailed Dunnart)			
647.	24111 <i>Sminthopsis gilberti</i> (Gilbert's Dunnart)			
648.	6999 <i>Solanum coactiliferum</i> (Western Nightshade)			
649.	7018 <i>Solanum lasiophyllum</i> (Flannel Bush, Mindjulu)			
650.	7023 <i>Solanum nummularium</i> (Money-leaved Solanum)			
651.	7025 <i>Solanum oldfieldii</i>			
652.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
653.	3076 <i>Stenopetalum filifolium</i>			
654.	<i>Storena formosa</i>			
655.	<i>Storena sinuosa</i>			
656.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
657.	24923 <i>Strophurus assimilis</i> (Goldfields Spiny-tailed Gecko)			
658.	24946 <i>Strophurus strophurus</i>			
659.	7704 <i>Stylidium confluens</i>			
660.	40944 <i>Stylidium decipiens</i>			
661.	7751 <i>Stylidium limbatum</i> (Fringed-leaved Triggerplant)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
662.	18417 <i>Stylidium warriedarens</i>			
663.	7810 <i>Stylidium yilgarnense</i> (Yilgarn Triggerplant)			
664.	<i>Supunna funerea</i>			
665.	25269 <i>Suta fasciata</i> (Rosen's Snake)			
666.	12355 <i>Swainsona affinis</i>			
667.	7363 <i>Synaptantha tillaeacea</i>			
668.	<i>Synsphyronus christopherdarwini</i>			
669.	<i>Synsphyronus mimulus</i>			
670.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
671.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
672.	31492 <i>Tecticornia disarticulata</i>			
673.	48313 <i>Teucrium disjunctum</i>			
674.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
675.	20732 <i>Thelymitra petrophila</i>			
676.	5103 <i>Thomasia tremandroides</i>			
677.	19696 <i>Thryptomene costata</i>			
678.	6053 <i>Thryptomene cuspidata</i>			
679.	37661 <i>Thysanothecium hookeri</i> subsp. <i>xanthonicum</i>			
680.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
681.	1346 <i>Thysanotus pyramidalis</i>			
682.	<i>Thysanotus</i> sp.			
683.	29456 <i>Thysanotus</i> sp. Twining Wheatbelt (N.H. Brittan 81/29)			
684.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
685.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
686.	28076 <i>Toninia sedifolia</i>			
687.	6268 <i>Trachymene cyanopetala</i>			
688.	6279 <i>Trachymene ornata</i> (Spongefruit)			
689.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
690.	<i>Trichocycclus balladong</i>			
691.	32450 <i>Trichostomum eckelianum</i>			
692.	45094 <i>Tricoryne tuberosa</i>			
693.	4297 <i>Trifolium glomeratum</i> (Cluster Clover)	Y		
694.	33276 <i>Triglochin isingiana</i>			
695.	17881 <i>Triodia desertorum</i>			
696.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
697.	24851 <i>Turnix velox</i> (Little Button-quail)			
698.	24983 <i>Underwoodisaurus milii</i> (Barking Gecko)			
699.	<i>Urodacus hoplurus</i>			
700.	8254 <i>Urospermum picroides</i> (False Hawkbit)	Y		
701.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
702.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
703.	25211 <i>Varanus caudolineatus</i>			
704.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
705.	25524 <i>Varanus panoptes</i> (Yellow-spotted Monitor)			
706.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
707.	25227 <i>Varanus tristis</i> subsp. <i>tristis</i> (Racehorse Monitor)			
708.	7656 <i>Velleia cynopotamica</i>			
709.	7658 <i>Velleia discophora</i> (Cabbage Poison)			
710.	7661 <i>Velleia hispida</i> (Hispid Velleia)			
711.	7664 <i>Velleia rosea</i> (Pink Velleia)			
712.	12394 <i>Verticordia auriculata</i>			
713.	12402 <i>Verticordia chrysanthella</i>			
714.	15621 <i>Verticordia endlicheriana</i> var. <i>compacta</i>			
715.	12422 <i>Verticordia eriocephala</i> (Common Cauliflower)			
716.	6087 <i>Verticordia helmsii</i>			
717.	6114 <i>Verticordia rennieana</i>			
718.	48986 <i>Vincetoxicum lineare</i>			
719.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
720.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
721.	11018 <i>Vulpia muralis</i>	Y		
722.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
723.	7393 <i>Wahlenbergia tumidifruca</i>			
724.	13331 <i>Waitzia acuminata</i> var. <i>acuminata</i>			
725.	<i>Wesmaldra urawa</i>			
726.	6938 <i>Westringia cephalantha</i>			
727.	31272 <i>Wurmbea</i> sp. Paynes Find (C.J. French 1237)			
728.	1403 <i>Wurmbea tenella</i> (Eight Nancy)			
729.	44221 <i>Xalocoa ocellata</i>			
730.	28102 <i>Xanthoparmelia alternata</i>			
731.	30657 <i>Xanthoparmelia convolutoides</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
732.	28120 <i>Xanthoparmelia cranfieldii</i>			Y
733.	28326 <i>Xanthoparmelia incantata</i>			
734.	28172 <i>Xanthoparmelia reptans</i>			
735.	44326 <i>Xanthoparmelia rimalis</i>			
736.	28327 <i>Xanthoparmelia semiviridis</i>			
737.	28186 <i>Xanthoparmelia versicolor</i>			
738.	28189 <i>Xanthoparmelia willisii</i>			
739.	44040 <i>Xanthosia kochii</i>			
740.	1248 <i>Xerolirion divaricata</i> (Basil's Asparagus)			
741.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereeye)			

Conservation Codes

T - Rare or likely to become extinct
 X - Presumed extinct
 IA - Protected under international agreement
 S - Other specially protected fauna
 1 - Priority 1
 2 - Priority 2
 3 - Priority 3
 4 - Priority 4
 5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

APPENDIX B - EPBC PROTECTED MATTERS SEARCH REPORT



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 26/11/21 13:29:02

[Summary](#)

[Details](#)

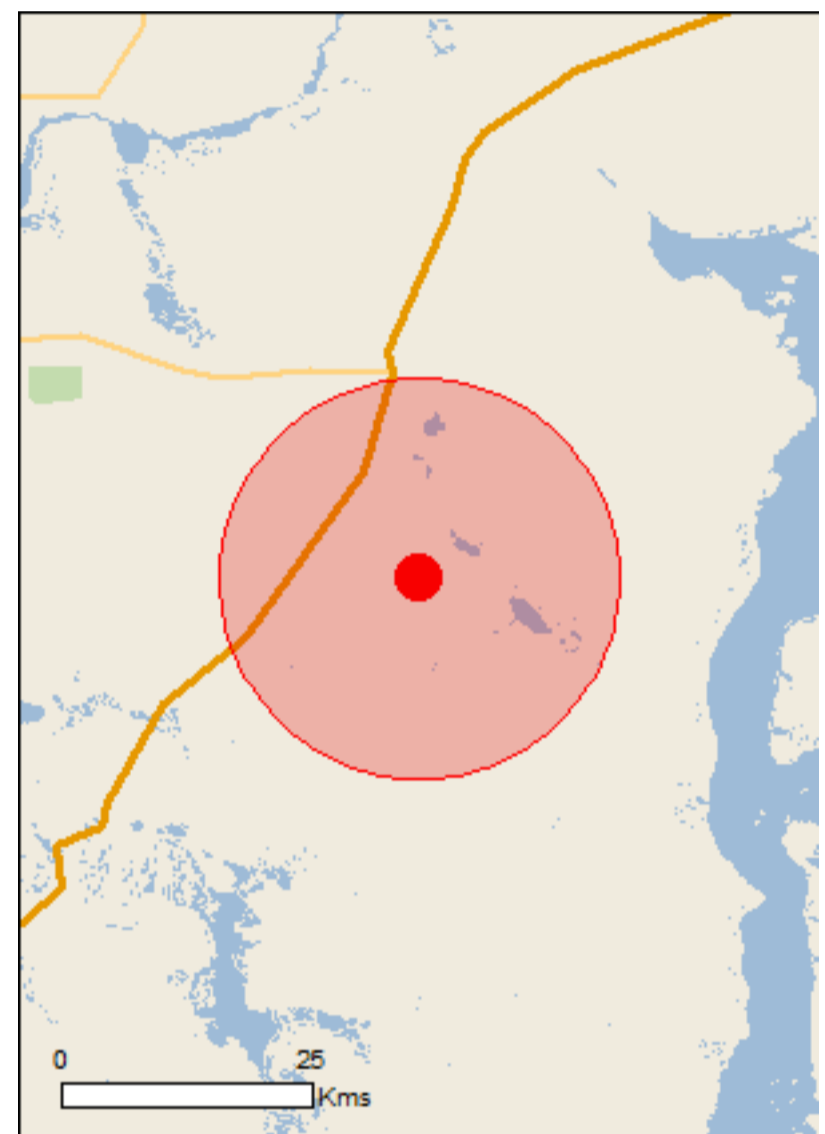
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

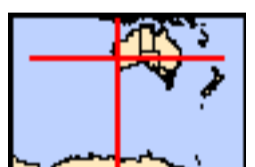
[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia
(Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 20.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	19
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

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

Name	Status	Type of Presence
Eucalypt Woodlands of the Western Australian Wheatbelt	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
------	--------	------------------

Birds

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Mammals

Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Leporillus conditor Wopilkara, Greater Stick-nest Rat [137]	Vulnerable	Species or species habitat may occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Translocated population known to occur within area

Other

Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat known to occur within area
--	------------	---

Plants

Acacia imitans Gibson Wattle [65211]	Endangered	Species or species habitat may occur within
---	------------	---

Name	Status	Type of Presence area
Darwinia masonii Mason's Darwinia [18538]	Vulnerable	Species or species habitat known to occur within area
Dasymalla axillaris Native Foxglove [38829]	Critically Endangered	Species or species habitat likely to occur within area
Eremophila viscida Varnish Bush [2394]	Endangered	Species or species habitat may occur within area
Eucalyptus synandra Jingymia Mallee [3753]	Vulnerable	Species or species habitat known to occur within area
Frankenia conferta Silky Frankenia [6074]	Endangered	Species or species habitat may occur within area
Gyrostemon reticulatus Net-veined Gyrostemon [8491]	Critically Endangered	Species or species habitat likely to occur within area
Hybanthus cymulosus Ninghan Violet [2803]	Critically Endangered	Species or species habitat known to occur within area
Roycea pycnophylloides Saltmat [21161]	Endangered	Species or species habitat likely to occur within area

Reptiles

Egernia stokesii badia Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area
--	------------	---

Listed Migratory Species

[[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Charles Darwin	WA
Mt Gibson	WA
Ninghan	WA

Invasive Species [\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
------	--------	------------------

Birds

Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
--	--	--

Mammals

Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
--	--	--

Capra hircus Goat [2]		Species or species habitat likely to occur within area
--------------------------	--	--

Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
--	--	--

Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
-----------------------------------	--	--

Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
--	--	--

Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
------------------------------------	--	--

Plants

Carrichtera annua Ward's Weed [9511]		Species or species habitat may occur within area
---	--	--

Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
---	--	--

Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
---	--	--

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-29.73743 117.1775

Acknowledgements

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

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

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

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

© Commonwealth of Australia

Department of Agriculture Water and the Environment

GPO Box 858

Canberra City ACT 2601 Australia

+61 2 6274 1111

APPENDIX C – LIST OF RECORDED VASCULAR PLANTS

*denotes introduced (weed) species

Family	Taxon
Aizoaceae	* <i>Cleretum papulosum</i>
Aizoaceae	<i>Gunnopsis rubra</i>
Aizoaceae	* <i>Mesembryanthemum crystallinum</i>
Aizoaceae	* <i>Mesembryanthemum nodiflorum</i>
Aizoaceae	<i>Tetragonia diptera</i>
Amaranthaceae	<i>Ptilotus divaricatus</i>
Amaranthaceae	<i>Ptilotus drummondii</i>
Amaranthaceae	<i>Ptilotus eremita</i>
Amaranthaceae	<i>Ptilotus eriotrichus</i>
Amaranthaceae	<i>Ptilotus exaltatus</i>
Amaranthaceae	<i>Ptilotus gaudichaudii</i>
Amaranthaceae	<i>Ptilotus holosericeus</i>
Amaranthaceae	<i>Ptilotus obovatus</i>
Amaranthaceae	<i>Ptilotus spathulatus</i>
Apiaceae	<i>Daucus glochidiatus</i>
Apiaceae	<i>Platysace ? trachymenioides</i>
Apiaceae	<i>Platysace trachymenioides</i>
Apiaceae	<i>Xanthosia kochii</i>
Apocynaceae	<i>Alyxia buxifolia</i>
Apocynaceae	<i>Alyxia tetanifolia</i> (P3)
Araliaceae	<i>Hydrocotyle intertexta</i>
Araliaceae	<i>Trachymene ceratocarpa</i>
Araliaceae	<i>Trachymene cyanopetala</i>
Araliaceae	<i>Trachymene ornata</i>
Araliaceae	<i>Trachymene pilosa</i>
Asparagaceae	<i>Arthropodium dyeri</i>
Asparagaceae	<i>Chamaexeros fimbriata</i>
Asparagaceae	<i>Lomandra effusa</i>
Asparagaceae	<i>Lomandra</i> sp.
Asparagaceae	<i>Thysanotus ? manglesianus</i>
Asparagaceae	<i>Thysanotus manglesianus</i>
Asparagaceae	<i>Thysanotus patersonii</i>
Asparagaceae	<i>Thysanotus pyramidalis</i>
Asparagaceae	<i>Thysanotus</i> sp.
Asparagaceae	<i>Thysanotus speckii</i>
Asparagaceae	<i>Xerolirion divaricata</i>
Asteraceae	<i>Actinobole uliginosum</i>
Asteraceae	<i>Angianthus tomentosus</i>
Asteraceae	ASTERACEAE sp.
Asteraceae	ASTERACEAE sp. 1
Asteraceae	ASTERACEAE sp. 2
Asteraceae	<i>Bellida graminea</i>
Asteraceae	<i>Blennospora drummondii</i>
Asteraceae	<i>Blennospora</i> sp.
Asteraceae	<i>Brachyscome iberidifolia</i>
Asteraceae	<i>Brachyscome</i> sp.

Asteraceae	<i>Calocephalus multiflorus</i>
Asteraceae	<i>Calocephalus</i> sp.
Asteraceae	<i>Calotis hispidula</i>
Asteraceae	<i>Calotis multicaulis</i>
Asteraceae	* <i>Centaurea melitensis</i>
Asteraceae	<i>Cephalopterum drummondii</i>
Asteraceae	<i>Ceratogyne obionoides</i>
Asteraceae	<i>Chthonocephalus pseudevax</i>
Asteraceae	<i>Erymophyllum glossanthus</i>
Asteraceae	<i>Erymophyllum ramosum</i>
Asteraceae	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>
Asteraceae	<i>Feldstonia nitens</i>
Asteraceae	<i>Gilberta tenuifolia</i>
Asteraceae	<i>Gilruthia osbornei</i>
Asteraceae	<i>Gnephosis</i> ? <i>drummondii</i>
Asteraceae	<i>Gnephosis brevifolia</i>
Asteraceae	<i>Gnephosis drummondii</i>
Asteraceae	<i>Gnephosis</i> sp.
Asteraceae	<i>Gnephosis tenuissima</i>
Asteraceae	<i>Helipterum craspedioides</i>
Asteraceae	<i>Hyalosperma demissum</i>
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>
Asteraceae	<i>Hyalosperma zacchaeus</i>
Asteraceae	* <i>Hypochaeris glabra</i>
Asteraceae	<i>Lawrencella davenportii</i>
Asteraceae	<i>Lawrencella rosea</i>
Asteraceae	<i>Myriocephalus occidentalis</i>
Asteraceae	<i>Myriocephalus</i> sp.
Asteraceae	<i>Olearia</i> ? <i>pimeleoides</i>
Asteraceae	<i>Olearia humilis</i>
Asteraceae	<i>Olearia muelleri</i>
Asteraceae	* <i>Sonchus oleraceus</i>
Asteraceae	<i>Olearia pimeleoides</i>
Asteraceae	<i>Olearia</i> sp.
Asteraceae	<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)
Asteraceae	<i>Panaetia lessonii</i>
Asteraceae	<i>Podolepis aristata</i>
Asteraceae	<i>Podolepis aristata</i> subsp. <i>affinis</i>
Asteraceae	<i>Podotheca gnaphalioides</i>
Asteraceae	<i>Pogonolepis muelleriana</i>
Asteraceae	<i>Rhodanthe citrina</i>
Asteraceae	<i>Rhodanthe laevis</i>
Asteraceae	<i>Schoenia cassiniana</i>
Asteraceae	<i>Senecio</i> ? <i>glossanthus</i>
Asteraceae	<i>Senecio glossanthus</i>
Asteraceae	<i>Senecio lacustrinus</i>
Asteraceae	<i>Senecio pinnatifolius</i> ? var. <i>pinnatifolius</i>
Asteraceae	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>
Asteraceae	<i>Siemssenia capillaris</i>
Asteraceae	<i>Siloxerus multiflorus</i>

Asteraceae	<i>Waitzia acuminata</i>
Asteraceae	<i>Waitzia acuminata</i> var. <i>acuminata</i>
Boryaceae	<i>Borya constricta</i>
Boryaceae	<i>Borya sphaerocephala</i>
Brassicaceae	* <i>Alyssum linifolium</i>
Brassicaceae	* <i>Brassica tournefortii</i>
Brassicaceae	* <i>Carrichtera annua</i>
Brassicaceae	<i>Lepidium oxytrichum</i>
Brassicaceae	<i>Menkea australis</i>
Brassicaceae	<i>Phlegmatospermum drummondii</i>
Brassicaceae	* <i>Sisymbrium erysimoides</i>
Brassicaceae	<i>Stenopetalum filifolium</i>
Brassicaceae	<i>Stenopetalum</i> sp.
Campanulaceae	<i>Lobelia fissiflora</i>
Caryophyllaceae	* <i>Spergula pentandra</i>
Casuarinaceae	<i>Allocasuarina acutivalvis</i>
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>
Casuarinaceae	<i>Allocasuarina campestris</i>
Casuarinaceae	<i>Allocasuarina corniculata</i>
Casuarinaceae	<i>Allocasuarina dielsiana</i>
Casuarinaceae	<i>Allocasuarina tessellata</i> (P3)
Celastraceae	<i>Psammomoya choretroides</i>
Celastraceae	<i>Stackhousia monogyna</i>
Celastraceae	<i>Tripterococcus brunonis</i>
Chenopodiaceae	<i>Atriplex codonocarpa</i>
Chenopodiaceae	<i>Atriplex nummularia</i>
Chenopodiaceae	<i>Atriplex paludosa</i> subsp. <i>baudinii</i>
Chenopodiaceae	<i>Atriplex semilunaris</i>
Chenopodiaceae	<i>Atriplex stipitata</i>
Chenopodiaceae	<i>Atriplex vesicaria</i>
Chenopodiaceae	<i>Enchylaena lanata</i>
Chenopodiaceae	<i>Enchylaena tomentosa</i>
Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>
Chenopodiaceae	<i>Eriochiton sclerolaenoides</i>
Chenopodiaceae	<i>Maireana carnosa</i>
Chenopodiaceae	<i>Maireana georgei</i>
Chenopodiaceae	<i>Maireana marginata</i>
Chenopodiaceae	<i>Maireana planifolia</i>
Chenopodiaceae	<i>Maireana thesioides</i>
Chenopodiaceae	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>
Chenopodiaceae	<i>Maireana trichoptera</i>
Chenopodiaceae	<i>Maireana triptera</i>
Chenopodiaceae	<i>Rhagodia drummondii</i>
Chenopodiaceae	<i>Rhagodia eremaea</i>
Chenopodiaceae	<i>Rhagodia preissii</i>
Chenopodiaceae	<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)
Chenopodiaceae	<i>Sclerolaena</i> ? <i>fusiformis</i>
Chenopodiaceae	<i>Sclerolaena diacantha</i>
Chenopodiaceae	<i>Sclerolaena eurotioides</i>
Chenopodiaceae	<i>Sclerolaena fusiformis</i>

Chenopodiaceae	<i>Sclerolaena gardneri</i>
Chenopodiaceae	<i>Sclerolaena obliquicuspis</i>
Chenopodiaceae	<i>Tecticornia disarticulata</i>
Colchicaceae	<i>Wurmbea flavanthera</i>
Crassulaceae	<i>Crassula closiana</i>
Crassulaceae	<i>Crassula colorata</i>
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>
Crassulaceae	<i>Crassula exserta</i>
Cupressaceae	<i>Callitris ? columellaris</i>
Cupressaceae	<i>Callitris columellaris</i>
Cyperaceae	<i>Chrysitrix distigmata</i>
Cyperaceae	<i>Gahnia drummondii</i>
Cyperaceae	<i>Lepidosperma ?sp.</i> Blue Hills (A. Markey & S. Dillon 3468) (P1)
Cyperaceae	<i>Lepidosperma costale</i>
Cyperaceae	<i>Lepidosperma sanguinolentum</i>
Cyperaceae	<i>Lepidosperma</i> sp. 1
Cyperaceae	<i>Lepidosperma</i> sp. 2
Cyperaceae	<i>Schoenus nanus</i>
Cyperaceae	<i>Schoenus subaphyllus</i>
Dilleniaceae	<i>Hibbertia arcuata</i>
Dilleniaceae	<i>Hibbertia cockertoniana</i> (P3)
Dilleniaceae	<i>Hibbertia drummondii</i>
Dilleniaceae	<i>Hibbertia exasperata</i>
Dilleniaceae	<i>Hibbertia glomerosa</i>
Dilleniaceae	<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>
Dilleniaceae	<i>Hibbertia gracilipes</i>
Dilleniaceae	<i>Hibbertia stenophylla</i>
Droseraceae	<i>Drosera ? menziesii</i>
Droseraceae	<i>Drosera andersoniana</i>
Droseraceae	<i>Drosera menziesii</i>
Droseraceae	<i>Drosera</i> sp.
Droseraceae	<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)
Droseraceae	<i>Drosera subhirtella</i>
Ecdeiocoleaceae	<i>Ecdeiocolea monostachya</i>
Ericaceae	<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)
Ericaceae	<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3)
Ericaceae	<i>Styphelia hamulosa</i>
Ericaceae	<i>Styphelia serratifolia</i>
Euphorbiaceae	<i>Calycopeplus paucifolius</i>
Euphorbiaceae	<i>Calycopeplus</i> sp.
Euphorbiaceae	<i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>
Fabaceae	<i>Acacia ? colletioides</i>
Fabaceae	<i>Acacia acanthoclada</i>
Fabaceae	<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>
Fabaceae	<i>Acacia acuarria</i>
Fabaceae	<i>Acacia acuminata</i>
Fabaceae	<i>Acacia andrewsii</i>
Fabaceae	<i>Acacia anthochaera</i>
Fabaceae	<i>Acacia assimilis</i>
Fabaceae	<i>Acacia assimilis</i> subsp. <i>assimilis</i>
Fabaceae	<i>Acacia burkittii</i>

Fabaceae	<i>Acacia colletioides</i>
Fabaceae	<i>Acacia coolgardiensis</i>
Fabaceae	<i>Acacia dielsii</i>
Fabaceae	<i>Acacia duriuscula</i>
Fabaceae	<i>Acacia effusifolia</i>
Fabaceae	<i>Acacia erinacea</i>
Fabaceae	<i>Acacia jibberdingensis</i>
Fabaceae	<i>Acacia kalgoorliensis</i>
Fabaceae	<i>Acacia longispinea</i>
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>erugata</i>
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>
Fabaceae	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>
Fabaceae	<i>Acacia obtecta</i>
Fabaceae	<i>Acacia prainii</i>
Fabaceae	<i>Acacia resinimarginea</i>
Fabaceae	<i>Acacia saligna</i>
Fabaceae	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>
Fabaceae	<i>Acacia sibina</i>
Fabaceae	<i>Acacia</i> sp. 1
Fabaceae	<i>Acacia</i> sp. 3
Fabaceae	<i>Acacia</i> sp. 4
Fabaceae	<i>Acacia stereophylla</i> var. <i>stereophylla</i>
Fabaceae	<i>Acacia synoria</i> (P2)
Fabaceae	<i>Acacia tetragonophylla</i>
Fabaceae	<i>Bossiaea walkeri</i>
Fabaceae	<i>Daviesia benthamii</i>
Fabaceae	<i>Daviesia grahamii</i>
Fabaceae	<i>Gastrolobium laytonii</i>
Fabaceae	<i>Jacksonia acicularis</i>
Fabaceae	<i>Jacksonia rhadinoclada</i>
Fabaceae	<i>Leptosema aphyllum</i>
Fabaceae	<i>Mirbelia depressa</i>
Fabaceae	<i>Mirbelia microphylla</i>
Fabaceae	<i>Mirbelia ramulosa</i>
Fabaceae	<i>Mirbelia</i> sp. <i>Bursarioides</i> (T.R. Lally 760)
Fabaceae	<i>Mirbelia spinosa</i>
Fabaceae	<i>Senna artemisioides</i> subsp. <i>filifolia</i>
Fabaceae	<i>Senna charlesiana</i>
Fabaceae	<i>Senna</i> sp. Austin (A. Strid 20210)
Fabaceae	<i>Senna stowardii</i>
Frankeniaceae	<i>Frankenia setosa</i>
Geraniaceae	<i>Erodium cygnorum</i>
Geraniaceae	* <i>Erodium ? moschatum</i>
Geraniaceae	* <i>Erodium moschatum</i>
Goodeniaceae	? <i>Dampiera</i> sp.
Goodeniaceae	<i>Brunonia australis</i>
Goodeniaceae	<i>Dampiera lavandulacea</i>
Goodeniaceae	<i>Goodenia berardiana</i>
Goodeniaceae	<i>Goodenia capillosa</i>
Goodeniaceae	<i>Goodenia cycnopotamica</i>
Goodeniaceae	<i>Goodenia glabrata</i>

Goodeniaceae	<i>Goodenia occidentalis</i>
Goodeniaceae	<i>Goodenia pinifolia</i>
Goodeniaceae	<i>Goodenia rosea</i>
Goodeniaceae	<i>Goodenia</i> sp.
Goodeniaceae	<i>Scaevola</i> sp.
Goodeniaceae	<i>Scaevola spinescens</i>
Haloragaceae	<i>Glischrocaryon aureum</i>
Haloragaceae	<i>Gonocarpus nodulosus</i>
Haloragaceae	<i>Haloragis trigonocarpa</i>
Haloragaceae	<i>Myriophyllum decussatum</i>
Hemerocallidaceae	? <i>Tricoryne tuberosa</i>
Hemerocallidaceae	<i>Dianella revoluta</i>
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>
Hemerocallidaceae	<i>Tricoryne elatior</i>
Hemerocallidaceae	<i>Tricoryne</i> sp.
Hemerocallidaceae	<i>Tricoryne tuberosa</i>
Lamiaceae	<i>Hemigenia benthamii</i>
Lamiaceae	<i>Hemigenia botryphylla</i>
Lamiaceae	<i>Hemigenia ciliata</i>
Lamiaceae	<i>Hemigenia macphersonii</i>
Lamiaceae	<i>Hemigenia yalgensis</i>
Lamiaceae	<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)
Lamiaceae	<i>Microcorys tenuifolia</i> (P3)
Lamiaceae	<i>Prostanthera campbellii</i>
Lamiaceae	<i>Prostanthera prostantheroides</i>
Lamiaceae	<i>Westringia cephalantha</i>
Lauraceae	<i>Cassytha glabella</i>
Lauraceae	<i>Cassytha nodiflora</i>
Loganiaceae	<i>Phyllangium sulcatum</i>
Loranthaceae	<i>Amyema</i> ? <i>miquelii</i>
Malvaceae	<i>Alyogyne hakeifolia</i>
Malvaceae	<i>Androcalva luteiflora</i>
Malvaceae	<i>Brachychiton gregorii</i>
Malvaceae	<i>Lawrencia squamata</i>
Malvaceae	<i>Seringia velutina</i>
Malvaceae	<i>Sida</i> ? <i>calyxhymenia</i>
Malvaceae	<i>Sida petrophila</i>
Malvaceae	<i>Sida</i> sp.
Montiaceae	<i>Calandrinia baccata</i>
Montiaceae	<i>Calandrinia calyptrata</i>
Montiaceae	<i>Calandrinia eremaea</i>
Montiaceae	<i>Calandrinia granulifera</i>
Montiaceae	<i>Calandrinia primuliflora</i>
Montiaceae	<i>Calandrinia sculpta</i>
Montiaceae	<i>Calandrinia</i> sp.
Montiaceae	<i>Calandrinia translucens</i>
Myrtaceae	<i>Aluta aspera</i>
Myrtaceae	<i>Aluta aspera</i> subsp. <i>hesperia</i>
Myrtaceae	<i>Baeckea elderiana</i>
Myrtaceae	<i>Balaustion pulcherrimum</i>
Myrtaceae	<i>Calothamnus aridus</i>

Myrtaceae	<i>Calothamnus gilesii</i>
Myrtaceae	<i>Calytrix glutinosa</i>
Myrtaceae	<i>Calytrix leschenaultii</i>
Myrtaceae	<i>Calytrix plumulosa</i> (P3)
Myrtaceae	<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)
Myrtaceae	<i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i>
Myrtaceae	<i>Enekbatus longistylus</i> (P3)
Myrtaceae	<i>Enekbatus stowardii</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>ceratocorys</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>horistes</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>kochii</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>salmonophloia</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>stowardii</i>
Myrtaceae	<i>Eucalyptus</i> ? <i>subangusta</i>
Myrtaceae	<i>Eucalyptus capillosa</i>
Myrtaceae	<i>Eucalyptus ewartiana</i>
Myrtaceae	<i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i>
Myrtaceae	<i>Eucalyptus horistes</i>
Myrtaceae	<i>Eucalyptus kochii</i>
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i>
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>
Myrtaceae	<i>Eucalyptus leptopoda</i>
Myrtaceae	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>
Myrtaceae	<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Myrtaceae	<i>Eucalyptus salicola</i>
Myrtaceae	<i>Eucalyptus salmonophloia</i>
Myrtaceae	<i>Eucalyptus salubris</i>
Myrtaceae	<i>Eucalyptus</i> sp.
Myrtaceae	<i>Eucalyptus</i> sp. 1
Myrtaceae	<i>Eucalyptus</i> sp. 2
Myrtaceae	<i>Eucalyptus stowardii</i>
Myrtaceae	<i>Eucalyptus subangusta</i>
Myrtaceae	<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>
Myrtaceae	<i>Euryomyrtus recurva</i> (P3)
Myrtaceae	<i>Homalocalyx aureus</i>
Myrtaceae	<i>Homalocalyx thryptomenoides</i>
Myrtaceae	<i>Hysterobaeckea setifera</i>
Myrtaceae	<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>
Myrtaceae	<i>Malleostemon roseus</i>
Myrtaceae	<i>Malleostemon tuberculatus</i>
Myrtaceae	<i>Melaleuca</i> ? <i>atroviridis</i>
Myrtaceae	<i>Melaleuca atroviridis</i>
Myrtaceae	<i>Melaleuca calyptroides</i>
Myrtaceae	<i>Melaleuca conothamnoides</i>
Myrtaceae	<i>Melaleuca cordata</i>
Myrtaceae	<i>Melaleuca eleuterostachya</i>
Myrtaceae	<i>Melaleuca hamata</i>
Myrtaceae	<i>Melaleuca lanceolata</i>
Myrtaceae	<i>Melaleuca leiocarpa</i>
Myrtaceae	<i>Melaleuca nematophylla</i>
Myrtaceae	<i>Melaleuca radula</i>

Myrtaceae	<i>Melaleuca</i> sp. 1
Myrtaceae	<i>Melaleuca</i> sp. 3
Myrtaceae	<i>Melaleuca stereophloia</i>
Myrtaceae	<i>Micromyrtus racemosa</i>
Myrtaceae	MYRTACEAE sp.
Myrtaceae	<i>Thryptomene costata</i>
Myrtaceae	<i>Thryptomene cuspidata</i>
Myrtaceae	<i>Thryptomene kochii</i>
Myrtaceae	<i>Verticordia helmsii</i>
Myrtaceae	<i>Verticordia venusta</i> (P3)
Orchidaceae	<i>Caladenia</i> sp.
Orchidaceae	<i>Cyanicula amplexans</i>
Orchidaceae	<i>Cyanicula</i> sp.
Orchidaceae	<i>Diuris</i> sp.
Orchidaceae	<i>Pterostylis setulosa</i>
Orchidaceae	<i>Pterostylis</i> sp.
Orchidaceae	<i>Pterostylis spathulata</i>
Orchidaceae	<i>Thelymitra antennifera</i>
Orchidaceae	<i>Thelymitra petrophila</i>
Phyllanthaceae	<i>Poranthera leiosperma</i>
Phyllanthaceae	<i>Poranthera microphylla</i>
Pittosporaceae	<i>Bursaria occidentalis</i>
Pittosporaceae	<i>Cheiranthra filifolia</i>
Pittosporaceae	<i>Cheiranthra simplicifolia</i>
Plantaginaceae	<i>Plantago debilis</i>
Poaceae	<i>Amphipogon caricinus</i>
Poaceae	<i>Amphipogon caricinus</i> var. <i>caricinus</i>
Poaceae	<i>Amphipogon strictus</i>
Poaceae	<i>Aristida contorta</i>
Poaceae	<i>Austrostipa blackii</i>
Poaceae	<i>Austrostipa elegantissima</i>
Poaceae	<i>Austrostipa hemipogon</i>
Poaceae	<i>Austrostipa nitida</i>
Poaceae	<i>Austrostipa scabra</i>
Poaceae	<i>Austrostipa</i> sp.
Poaceae	<i>Austrostipa trichophylla</i>
Poaceae	<i>Austrostipa variabilis</i>
Poaceae	* <i>Bromus madritensis</i>
Poaceae	* <i>Bromus rubens</i>
Poaceae	<i>Eriachne ovata</i>
Poaceae	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>
Poaceae	<i>Monachather paradoxus</i>
Poaceae	<i>Neurachne alopecuroidea</i>
Poaceae	* <i>Pentameris airoides</i>
Poaceae	* <i>Pentameris airoides</i> subsp. <i>airoides</i>
Poaceae	* <i>Rostraria pumila</i>
Poaceae	<i>Rytidosperma caespitosum</i>
Poaceae	<i>Rytidosperma setaceum</i>
Poaceae	<i>Triodia rigidissima</i>
Polygalaceae	<i>Comesperma ?integerrimum</i>
Polygalaceae	<i>Comesperma integerrimum</i>

Polygonaceae	<i>*Rumex vesicarius</i>
Proteaceae	<i>Grevillea ?extorris</i>
Proteaceae	<i>Grevillea acacioides</i>
Proteaceae	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>
Proteaceae	<i>Grevillea eriostachya</i>
Proteaceae	<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>
Proteaceae	<i>Grevillea huegelii</i>
Proteaceae	<i>Grevillea juncifolia</i> subsp. <i>temulenta</i>
Proteaceae	<i>Grevillea levis</i>
Proteaceae	<i>Grevillea paradoxa</i>
Proteaceae	<i>Grevillea pterosperma</i>
Proteaceae	<i>Grevillea scabrifa</i> (P3)
Proteaceae	<i>Grevillea yorkrakinensis</i>
Proteaceae	<i>Hakea ?minyma</i>
Proteaceae	<i>Hakea francisiana</i>
Proteaceae	<i>Hakea invaginata</i>
Proteaceae	<i>Hakea minyma</i>
Proteaceae	<i>Hakea recurva</i>
Proteaceae	<i>Hakea recurva</i> subsp. <i>arida</i>
Proteaceae	<i>Hakea recurva</i> subsp. <i>recurva</i>
Proteaceae	<i>Hakea scoparia</i>
Proteaceae	<i>Persoonia pentasticha</i> (P3)
Proteaceae	<i>Petrophile incurvata</i>
Pteridaceae	<i>Cheilanthes adiantoides</i>
Pteridaceae	<i>Cheilanthes sieberi</i>
Pteridaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>
Restionaceae	<i>Lepidobolus preissianus</i>
Rhamnaceae	<i>Cryptandra apetala</i> var. <i>apetala</i>
Rubiaceae	<i>Oldenlandia</i> sp.
Rutaceae	<i>Phebalium canaliculatum</i>
Rutaceae	<i>Phebalium tuberculatum</i>
Rutaceae	<i>Philothea brucei</i>
Rutaceae	<i>Philothea brucei</i> subsp. <i>brucei</i>
Rutaceae	<i>Philothea deserti</i>
Rutaceae	<i>Philothea deserti</i> subsp. <i>deserti</i>
Rutaceae	<i>Philothea glabra</i>
Rutaceae	<i>Philothea nutans</i> (P1)
Rutaceae	<i>Philothea sericea</i>
Rutaceae	<i>Philothea</i> sp.
Rutaceae	<i>Philothea thryptomenoides</i>
Rutaceae	<i>Philothea tomentella</i>
Rutaceae	RUTACEAE sp.
Santalaceae	<i>Exocarpos aphyllus</i>
Santalaceae	<i>Santalum acuminatum</i>
Santalaceae	<i>Santalum spicatum</i>
Sapindaceae	<i>Dodonaea ?adenophora</i>
Sapindaceae	<i>Dodonaea ?pinifolia</i>
Sapindaceae	<i>Dodonaea bursariifolia</i>
Sapindaceae	<i>Dodonaea inaequifolia</i>
Sapindaceae	<i>Dodonaea</i> sp.
Sapindaceae	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>

Scrophulariaceae	<i>Eremophila caperata</i>
Scrophulariaceae	<i>Eremophila clarkei</i>
Scrophulariaceae	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>
Scrophulariaceae	<i>Eremophila deserti</i>
Scrophulariaceae	<i>Eremophila eriocalyx</i>
Scrophulariaceae	<i>Eremophila georgei</i>
Scrophulariaceae	<i>Eremophila granitica</i>
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. warty leaves (M. Officer 230)
Scrophulariaceae	<i>Eremophila oldfieldii</i>
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>
Scrophulariaceae	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>
Scrophulariaceae	<i>Eremophila pantonii</i>
Scrophulariaceae	<i>Eremophila serrulata</i>
Scrophulariaceae	<i>Eremophila</i> sp.
Scrophulariaceae	<i>Eremophila viscida</i> (T)
Solanaceae	<i>Duboisia hopwoodii</i>
Solanaceae	<i>Nicotiana rosulata</i>
Solanaceae	<i>Nicotiana rotundifolia</i>
Solanaceae	<i>Solanum</i> aff. <i>ashbyae</i>
Solanaceae	<i>Solanum lasiophyllum</i>
Solanaceae	<i>Solanum nummularium</i>
Solanaceae	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>
Stylidiaceae	<i>Levenhookia dubia</i>
Stylidiaceae	<i>Levenhookia leptantha</i>
Stylidiaceae	<i>Levenhookia octomaculata</i>
Stylidiaceae	<i>Stylidium arenicola</i>
Stylidiaceae	<i>Stylidium confluens</i>
Stylidiaceae	<i>Stylidium decipiens</i>
Stylidiaceae	<i>Stylidium induratum</i>
Stylidiaceae	<i>Stylidium limbatum</i>
Stylidiaceae	<i>Stylidium warriedarensense</i>
Thymelaeaceae	<i>Pimelea avonensis</i>
Urticaceae	<i>Parietaria cardiostegia</i>
Zygophyllaceae	<i>Roepera aurantiaca</i>
Zygophyllaceae	<i>Roepera eremaea</i>
Zygophyllaceae	<i>Roepera ovata</i>

APPENDIX D – FLORA SPECIES RECORDED WITHIN VEGETATION UNITS

*denotes introduced (weed) species

Units 1 to 18:

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Aizoaceae	* <i>Cleretum papulosum</i>	+											+	+					
Aizoaceae	* <i>Mesembryanthemum crystallinum</i>																		
Aizoaceae	* <i>Mesembryanthemum nodiflorum</i>												+						
Aizoaceae	<i>Gunniopsis rubra</i>											+				+			
Aizoaceae	<i>Tetragonia diptera</i>												+						
Amaranthaceae	<i>Ptilotus divaricatus</i>									+									
Amaranthaceae	<i>Ptilotus drummondii</i>			+	+					+		+				+			
Amaranthaceae	<i>Ptilotus eremita</i>											+	+			+			
Amaranthaceae	<i>Ptilotus eriотrichus</i>												+						
Amaranthaceae	<i>Ptilotus exaltatus</i>			+	+								+	+				+	
Amaranthaceae	<i>Ptilotus gaudichaudii</i>		+	+	+					+		+	+					+	
Amaranthaceae	<i>Ptilotus holosericeus</i>			+								+	+						
Amaranthaceae	<i>Ptilotus obovatus</i>	+		+	+					+		+	+	+				+	
Amaranthaceae	<i>Ptilotus spathulatus</i>					+													
Apiaceae	<i>Daucus glochidiatus</i>				+				+			+	+						
Apiaceae	<i>Platysace ? trachymenioides</i>											+							
Apiaceae	<i>Platysace trachymenioides</i>																		
Apiaceae	<i>Xanthosia kochii</i>																		+
Apocynaceae	<i>Alyxia buxifolia</i>	+		+	+	+				+	+		+	+		+			+
Apocynaceae	<i>Alyxia tetanifolia</i> (P3)					+												+	
Araliaceae	<i>Hydrocotyle intertexta</i>	+							+				+						
Araliaceae	<i>Trachymene ceratocarpa</i>											+							
Araliaceae	<i>Trachymene cyanopetala</i>	+										+			+				
Araliaceae	<i>Trachymene ornata</i>	+	+	+	+	+				+		+							
Araliaceae	<i>Trachymene pilosa</i>	+				+						+	+				+		
Asparagaceae	<i>Arthropodium dyeri</i>	+			+							+	+						
Asparagaceae	<i>Chamaexeros fimbriata</i>														+				
Asparagaceae	<i>Lomandra effusa</i>	+		+	+							+	+				+		
Asparagaceae	<i>Lomandra</i> sp.				+														
Asparagaceae	<i>Thysanotus ? manglesianus</i>		+																
Asparagaceae	<i>Thysanotus manglesianus</i>	+	+	+	+	+			+	+		+	+			+	+		

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Asparagaceae	<i>Thysanotus patersonii</i>							+											
Asparagaceae	<i>Thysanotus pyramidalis</i>								+			+							
Asparagaceae	<i>Thysanotus</i> sp.									+					+				
Asparagaceae	<i>Thysanotus speckii</i>															+			
Asparagaceae	<i>Xerolirion divaricata</i>																	+	
Asteraceae	<i>Actinobole uliginosum</i>	+	+		+								+		+	+			
Asteraceae	<i>Angianthus tomentosus</i>																		
Asteraceae	ASTERACEAE sp.	+																	
Asteraceae	ASTERACEAE sp. 1												+						
Asteraceae	ASTERACEAE sp. 2																		
Asteraceae	<i>Bellida graminea</i>	+			+	+					+		+						
Asteraceae	<i>Blennospora drummondii</i>	+								+	+								
Asteraceae	<i>Blennospora</i> sp.				+								+						
Asteraceae	<i>Brachyscome iberidifolia</i>												+						
Asteraceae	<i>Brachyscome</i> sp.									+			+						
Asteraceae	<i>Calocephalus multiflorus</i>								+										
Asteraceae	<i>Calocephalus</i> sp.	+		+	+	+			+	+			+	+				+	
Asteraceae	<i>Calotis hispidula</i>			+	+				+	+			+	+			+	+	
Asteraceae	<i>Calotis multicaulis</i>																		
Asteraceae	<i>Cephalopterum drummondii</i>												+						
Asteraceae	<i>Ceratogyne obionoides</i>																		
Asteraceae	<i>Chthonocephalus pseudevax</i>	+														+			
Asteraceae	<i>Erymophyllum glossanthus</i>												+	+					
Asteraceae	<i>Erymophyllum ramosum</i>													+					
Asteraceae	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>													+					
Asteraceae	<i>Feldstonia nitens</i>	+																	
Asteraceae	<i>Gilberta tenuifolia</i>	+	+		+	+			+	+					+	+			
Asteraceae	<i>Gilruthia osbornei</i>	+		+	+								+	+				+	
Asteraceae	<i>Gnephosis ? drummondii</i>		+		+	+							+						
Asteraceae	<i>Gnephosis brevifolia</i>													+					
Asteraceae	<i>Gnephosis drummondii</i>												+						
Asteraceae	<i>Gnephosis</i> sp.																		
Asteraceae	<i>Gnephosis tenuissima</i>													+		+			
Asteraceae	<i>Helipterum craspedioides</i>																		
Asteraceae	<i>Hyalosperma demissum</i>												+						

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>												+						
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>													+					
Asteraceae	<i>Hyalosperma zacchaeus</i>	+							+				+						
Asteraceae	* <i>Hypochoeris glabra</i>												+						
Asteraceae	<i>Lawrencella davenportii</i>																		
Asteraceae	<i>Lawrencella rosea</i>	+	+	+	+	+							+						
Asteraceae	<i>Myriocephalus occidentalis</i>				+														
Asteraceae	<i>Myriocephalus</i> sp.												+						
Asteraceae	<i>Olearia</i> ? <i>pimeleoides</i>															+			
Asteraceae	<i>Olearia humilis</i>																		
Asteraceae	<i>Olearia muelleri</i>		+	+	+					+			+	+	+			+	
Asteraceae	<i>Olearia pimeleoides</i>	+		+	+	+			+			+	+						
Asteraceae	<i>Olearia</i> sp.			+	+														
Asteraceae	<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)			+	+											+			
Asteraceae	<i>Panaetia lessonii</i>												+	+					
Asteraceae	<i>Podolepis aristata</i>																		
Asteraceae	<i>Podolepis aristata</i> subsp. <i>affinis</i>	+																	
Asteraceae	<i>Podotheca gnaphalioides</i>										+		+			+			
Asteraceae	<i>Pogonolepis muelleriana</i>												+	+					
Asteraceae	<i>Rhodanthe citrina</i>	+				+													
Asteraceae	<i>Rhodanthe laevis</i>	+	+		+				+	+			+	+		+			
Asteraceae	<i>Schoenia cassiniana</i>			+	+				+	+			+			+			
Asteraceae	<i>Senecio</i> ? <i>glossanthus</i>												+						
Asteraceae	<i>Senecio glossanthus</i>												+						
Asteraceae	<i>Senecio lacustrinus</i>																		
Asteraceae	<i>Senecio pinnatifolius</i> ? var. <i>pinnatifolius</i>										+								
Asteraceae	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>										+								
Asteraceae	<i>Siemssenia capillaris</i>	+											+			+			
Asteraceae	<i>Siloxerus multiflorus</i>												+		+				
Asteraceae	* <i>Sonchus oleraceus</i>												+						
Asteraceae	<i>Waitzia acuminata</i>	+	+	+	+	+	+	+	+	+	+	+	+				+	+	
Asteraceae	<i>Waitzia acuminata</i> var. <i>acuminata</i>	+				+			+			+	+		+	+			
Boryaceae	<i>Borya constricta</i>										+				+				

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Boryaceae	<i>Borya sphaerocephala</i>	+			+					+		+				+		+	
Brassicaceae	* <i>Alyssum linifolium</i>												+						
Brassicaceae	* <i>Brassica tournefortii</i>									+									
Brassicaceae	<i>Lepidium oxytrichum</i>																		
Brassicaceae	<i>Menkea australis</i>	+		+						+		+	+			+	+		
Brassicaceae	<i>Phlegmatospermum drummondii</i>											+	+						
Brassicaceae	* <i>Sisymbrium erysimoides</i>												+						
Brassicaceae	<i>Stenopetalum filifolium</i>	+	+	+	+	+			+	+		+	+						
Brassicaceae	<i>Stenopetalum</i> sp.																+		
Campanulaceae	<i>Lobelia fissiflora</i>		+	+		+			+			+							
Caryophyllaceae	* <i>Spergula pentandra</i>									+									
Casuarinaceae	<i>Allocasuarina acutivalvis</i>							+	+									+	
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>			+				+	+	+		+	+						
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>											+							
Casuarinaceae	<i>Allocasuarina campestris</i>				+							+							
Casuarinaceae	<i>Allocasuarina corniculata</i>										+								
Casuarinaceae	<i>Allocasuarina dielsiana</i>				+														
Casuarinaceae	<i>Allocasuarina tessellata</i> (P3)		+	+															
Celastraceae	<i>Psammomoya choretroides</i>										+					+			
Celastraceae	<i>Stackhousia monogyna</i>																		
Celastraceae	<i>Tripterococcus brunonis</i>												+		+	+			
Chenopodiaceae	<i>Atriplex codonocarpa</i>																		
Chenopodiaceae	<i>Atriplex paludosa</i> subsp. <i>baudinii</i>												+						
Chenopodiaceae	<i>Atriplex semilunaris</i>																		
Chenopodiaceae	<i>Atriplex stipitata</i>												+						
Chenopodiaceae	<i>Atriplex vesicaria</i>												+						
Chenopodiaceae	<i>Enchylaena lanata</i>	+		+	+	+						+	+						
Chenopodiaceae	<i>Enchylaena tomentosa</i>	+											+				+		
Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	+											+						
Chenopodiaceae	<i>Eriochiton sclerolaenoides</i>												+						
Chenopodiaceae	<i>Maireana carnosa</i>	+			+							+	+	+			+		
Chenopodiaceae	<i>Maireana georgei</i>			+	+							+	+	+					
Chenopodiaceae	<i>Maireana marginata</i>											+	+	+					
Chenopodiaceae	<i>Maireana planifolia</i>																		

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Chenopodiaceae	<i>Maireana thesioides</i>											+	+				+		
Chenopodiaceae	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>																		
Chenopodiaceae	<i>Maireana trichoptera</i>			+								+	+				+		
Chenopodiaceae	<i>Maireana triptera</i>												+						
Chenopodiaceae	<i>Rhagodia drummondii</i>	+		+								+	+	+					
Chenopodiaceae	<i>Rhagodia eremaea</i>			+								+	+						
Chenopodiaceae	<i>Rhagodia preissii</i>												+						
Chenopodiaceae	<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)	+			+								+				+		
Chenopodiaceae	<i>Sclerolaena ? fusiformis</i>												+						
Chenopodiaceae	<i>Sclerolaena diacantha</i>											+	+	+					
Chenopodiaceae	<i>Sclerolaena eurotioides</i>																		
Chenopodiaceae	<i>Sclerolaena fusiformis</i>	+		+								+	+				+		
Chenopodiaceae	<i>Sclerolaena gardneri</i>												+				+		
Chenopodiaceae	<i>Sclerolaena obliquicuspis</i>																		
Chenopodiaceae	<i>Tecticornia disarticulata</i>													+					
Colchicaceae	<i>Wurmbea flavanthera</i>																		
Crassulaceae	<i>Crassula closiana</i>															+			
Crassulaceae	<i>Crassula colorata</i>	+		+	+	+				+		+	+				+		
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	+											+	+	+	+	+		
Crassulaceae	<i>Crassula exserta</i>																+		
Cupressaceae	<i>Callitris ? columellaris</i>					+													
Cupressaceae	<i>Callitris columellaris</i>	+		+	+	+			+	+	+	+	+						
Cyperaceae	<i>Chrysitrix distigmatosa</i>															+			
Cyperaceae	<i>Gahnia drummondii</i>																		
Cyperaceae	<i>Lepidosperma ?</i> sp. Blue Hills (A. Markey & S. Dillon 3468) (P1)																		
Cyperaceae	<i>Lepidosperma costale</i>																		
Cyperaceae	<i>Lepidosperma sanguinolentum</i>															+			
Cyperaceae	<i>Lepidosperma</i> sp. 1																		
Cyperaceae	<i>Lepidosperma</i> sp. 2																		
Cyperaceae	<i>Schoenus nanus</i>																		
Cyperaceae	<i>Schoenus subaphyllus</i>															+			
Dilleniaceae	<i>Hibbertia arcuata</i>			+					+			+						+	
Dilleniaceae	<i>Hibbertia cockertoniana</i> (P3)			+							+	+						+	
Dilleniaceae	<i>Hibbertia drummondii</i>																		

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Dilleniaceae	<i>Hibbertia exasperata</i>				+	+													
Dilleniaceae	<i>Hibbertia glomerosa</i>																		
Dilleniaceae	<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>																		
Dilleniaceae	<i>Hibbertia gracilipes</i>																		
Dilleniaceae	<i>Hibbertia stenophylla</i>										+								
Droseraceae	<i>Drosera ?menziesii</i>																		
Droseraceae	<i>Drosera andersoniana</i>															+			
Droseraceae	<i>Drosera menziesii</i>					+			+			+							
Droseraceae	<i>Drosera</i> sp.																		
Droseraceae	<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)																		
Droseraceae	<i>Drosera subhirtella</i>																		
Ecdeiocoleaceae	<i>Ecdeiocolea monostachya</i>									+	+		+			+			
Ericaceae	<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)																		
Ericaceae	<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3)																		
Ericaceae	<i>Styphelia hamulosa</i>										+								
Ericaceae	<i>Styphelia serratifolia</i>																		
Euphorbiaceae	<i>Calycopeplus paucifolius</i>																		
Euphorbiaceae	<i>Calycopeplus</i> sp.																		
Euphorbiaceae	<i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>																		
Fabaceae	<i>Acacia ?collettioides</i>																		
Fabaceae	<i>Acacia acanthoclada</i>									+				+					
Fabaceae	<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>															+			
Fabaceae	<i>Acacia acuaria</i>	+	+	+	+	+		+			+		+	+	+		+		
Fabaceae	<i>Acacia acuminata</i>	+		+	+					+	+		+	+	+		+		
Fabaceae	<i>Acacia andrewsii</i>												+	+					
Fabaceae	<i>Acacia anthochaera</i>				+				+				+	+					
Fabaceae	<i>Acacia assimilis</i>																	+	
Fabaceae	<i>Acacia assimilis</i> subsp. <i>assimilis</i>					+								+				+	
Fabaceae	<i>Acacia burkittii</i>											+						+	
Fabaceae	<i>Acacia collettioides</i>				+	+							+	+					
Fabaceae	<i>Acacia coolgardiensis</i>							+											
Fabaceae	<i>Acacia dielsii</i>																		
Fabaceae	<i>Acacia duriuscula</i>									+									

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Fabaceae	<i>Acacia effusifolia</i>	+	+	+	+	+		+	+	+		+	+		+	+			
Fabaceae	<i>Acacia erinacea</i>				+							+	+	+					
Fabaceae	<i>Acacia jibberdingensis</i>																		
Fabaceae	<i>Acacia kalgoorliensis</i>														+				
Fabaceae	<i>Acacia longispinea</i>		+		+			+		+									
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>erugata</i>																		
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>																	+	
Fabaceae	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>				+														
Fabaceae	<i>Acacia obtecta</i>	+						+					+						
Fabaceae	<i>Acacia prainii</i>		+													+			
Fabaceae	<i>Acacia resinimarginea</i>				+	+										+			
Fabaceae	<i>Acacia saligna</i>											+	+						
Fabaceae	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>											+							
Fabaceae	<i>Acacia sibina</i>																		
Fabaceae	<i>Acacia</i> sp. 1																		
Fabaceae	<i>Acacia</i> sp. 3										+								
Fabaceae	<i>Acacia</i> sp. 4														+				
Fabaceae	<i>Acacia stereophylla</i> var. <i>stereophylla</i>										+								
Fabaceae	<i>Acacia synoria</i> (P2)																	+	
Fabaceae	<i>Acacia tetragonophylla</i>	+										+	+						
Fabaceae	<i>Bossiaea walkeri</i>	+			+			+				+					+		
Fabaceae	<i>Daviesia benthamii</i>															+			
Fabaceae	<i>Daviesia grahamii</i>				+														
Fabaceae	<i>Gastrolobium laytonii</i>							+											
Fabaceae	<i>Jacksonia acicularis</i>																		
Fabaceae	<i>Jacksonia rhadinoclada</i>																		
Fabaceae	<i>Leptosema aphyllum</i>																		
Fabaceae	<i>Mirbelia depressa</i>										+								
Fabaceae	<i>Mirbelia microphylla</i>										+							+	
Fabaceae	<i>Mirbelia ramulosa</i>			+															
Fabaceae	<i>Mirbelia</i> sp. <i>Bursarioides</i> (T.R. Lally 760)																		
Fabaceae	<i>Mirbelia spinosa</i>																	+	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>filifolia</i>			+	+					+		+	+	+			+		
Fabaceae	<i>Senna charlesiana</i>											+							
Fabaceae	<i>Senna</i> sp. Austin (A. Strid 20210)																		
Fabaceae	<i>Senna stowardii</i>									+		+	+	+					

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Frankeniaceae	<i>Frankenia setosa</i>													+					
Geraniaceae	<i>Erodium cygnorum</i>	+			+				+				+			+			
Geraniaceae	* <i>Erodium ?moschatum</i>	+																	
Geraniaceae	* <i>Erodium moschatum</i>	+											+						
Goodeniaceae	<i>Brunonia australis</i>		+			+						+			+	+			
Goodeniaceae	<i>Dampiera lavandulacea</i>				+										+				
Goodeniaceae	? <i>Dampiera</i> sp.												+						
Goodeniaceae	<i>Goodenia berardiana</i>			+	+				+			+	+		+	+			
Goodeniaceae	<i>Goodenia capillosa</i>				+	+				+									
Goodeniaceae	<i>Goodenia cynopotamica</i>	+										+			+				
Goodeniaceae	<i>Goodenia glabrata</i>																		
Goodeniaceae	<i>Goodenia occidentalis</i>	+	+		+							+	+			+	+		
Goodeniaceae	<i>Goodenia pinifolia</i>																		
Goodeniaceae	<i>Goodenia rosea</i>	+	+	+	+				+	+		+			+	+	+		
Goodeniaceae	<i>Goodenia</i> sp.											+							
Goodeniaceae	<i>Scaevola</i> sp.												+						
Goodeniaceae	<i>Scaevola spinescens</i>				+	+				+		+	+					+	
Haloragaceae	<i>Glischrocaryon aureum</i>																		
Haloragaceae	<i>Gonocarpus nodulosus</i>																		
Haloragaceae	<i>Haloragis trigonocarpa</i>											+							
Haloragaceae	<i>Myriophyllum decussatum</i>																		
Hemerocallidaceae	? <i>Tricoryne tuberosa</i>																+		
Hemerocallidaceae	<i>Dianella revoluta</i>		+	+	+	+			+	+		+			+	+			
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>			+					+	+	+		+	+					
Hemerocallidaceae	<i>Tricoryne elatior</i>																		
Hemerocallidaceae	<i>Tricoryne</i> sp.															+			
Hemerocallidaceae	<i>Tricoryne tuberosa</i>		+			+						+							
Lamiaceae	<i>Hemigenia benthamii</i>																		
Lamiaceae	<i>Hemigenia botryphylla</i>										+					+			
Lamiaceae	<i>Hemigenia ciliata</i>	+				+						+			+			+	
Lamiaceae	<i>Hemigenia macphersonii</i>												+						
Lamiaceae	<i>Hemigenia yalgensis</i>											+							
Lamiaceae	<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)			+	+				+				+			+			
Lamiaceae	<i>Microcorys tenuifolia</i> (P3)															+			
Lamiaceae	<i>Prostanthera campbellii</i>	+			+							+	+	+					

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Lamiaceae	<i>Prostanthera prostantheroides</i>		+					+											
Lamiaceae	<i>Westringia cephalantha</i>				+	+													
Lauraceae	<i>Cassytha nodiflora</i>																		
Loganiaceae	<i>Phyllangium sulcatum</i>		+									+							
Loranthaceae	<i>Amyema ? miquelii</i>										+								
Malvaceae	<i>Alyogyne hakeifolia</i>																		
Malvaceae	<i>Androcalva luteiflora</i>																		
Malvaceae	<i>Brachychiton gregorii</i>																		
Malvaceae	<i>Lawrenzia squamata</i>																		
Malvaceae	<i>Seringia velutina</i>																		
Malvaceae	<i>Sida ? calyxhymentia</i>																		
Malvaceae	<i>Sida petrophila</i>												+						
Malvaceae	<i>Sida</i> sp.																		
Montiaceae	<i>Calandrinia baccata</i>											+	+		+				
Montiaceae	<i>Calandrinia calyprata</i>												+						
Montiaceae	<i>Calandrinia eremaea</i>	+		+	+					+		+	+				+		
Montiaceae	<i>Calandrinia granulifera</i>				+								+						
Montiaceae	<i>Calandrinia primuliflora</i>				+							+							
Montiaceae	<i>Calandrinia sculpta</i>																		
Montiaceae	<i>Calandrinia</i> sp.	+		+	+					+		+	+			+	+		
Montiaceae	<i>Calandrinia translucens</i>			+	+														
Myrtaceae	<i>Aluta aspera</i>																		
Myrtaceae	<i>Aluta aspera</i> subsp. <i>hesperia</i>					+			+		+								
Myrtaceae	<i>Baeckea elderiana</i>																		
Myrtaceae	<i>Balaustion pulcherrimum</i>											+							
Myrtaceae	<i>Calothamnus aridus</i>																		
Myrtaceae	<i>Calothamnus gilesii</i>																		
Myrtaceae	<i>Calytrix glutinosa</i>																+		
Myrtaceae	<i>Calytrix leschenaultii</i>																		
Myrtaceae	<i>Calytrix plumulosa</i> (P3)																		
Myrtaceae	<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)			+	+								+						
Myrtaceae	<i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i>											+							
Myrtaceae	<i>Enekbatus longistylus</i> (P3)																+		
Myrtaceae	<i>Enekbatus stowardii</i>	+	+			+			+										

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Myrtaceae	<i>Eucalyptus ?ceratocorys</i>					+													
Myrtaceae	<i>Eucalyptus ?horistes</i>																	+	
Myrtaceae	<i>Eucalyptus ?kochii</i>				+	+			+										
Myrtaceae	<i>Eucalyptus ?salmonophloia</i>											+							
Myrtaceae	<i>Eucalyptus ?stowardii</i>																		
Myrtaceae	<i>Eucalyptus ?subangusta</i>				+														
Myrtaceae	<i>Eucalyptus capillosa</i>				+		+												
Myrtaceae	<i>Eucalyptus ewartiana</i>							+											
Myrtaceae	<i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i>																		
Myrtaceae	<i>Eucalyptus horistes</i>		+		+													+	
Myrtaceae	<i>Eucalyptus kochii</i>				+		+												
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i>									+									
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>				+					+		+					+		
Myrtaceae	<i>Eucalyptus leptopoda</i>								+										
Myrtaceae	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>										+	+						+	
Myrtaceae	<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	+		+	+		+	+		+	+	+	+					+	
Myrtaceae	<i>Eucalyptus salicola</i>											+							
Myrtaceae	<i>Eucalyptus salmonophloia</i>											+	+						
Myrtaceae	<i>Eucalyptus salubris</i>											+	+						
Myrtaceae	<i>Eucalyptus</i> sp.																+		
Myrtaceae	<i>Eucalyptus</i> sp. 1																		
Myrtaceae	<i>Eucalyptus</i> sp. 2														+				
Myrtaceae	<i>Eucalyptus stowardii</i>																	+	
Myrtaceae	<i>Eucalyptus subangusta</i>								+										
Myrtaceae	<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>											+	+		+				
Myrtaceae	<i>Euryomyrtus recurva</i> (P3)										+				+				
Myrtaceae	<i>Homalocalyx aureus</i>																		
Myrtaceae	<i>Homalocalyx thryptomenoides</i>		+												+				
Myrtaceae	<i>Hysterobaeckea setifera</i>								+		+								
Myrtaceae	<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>								+		+								
Myrtaceae	<i>Malleostemon roseus</i>										+								
Myrtaceae	<i>Malleostemon tuberculatus</i>																		
Myrtaceae	<i>Melaleuca ?atroviridis</i>				+														
Myrtaceae	<i>Melaleuca atroviridis</i>																		
Myrtaceae	<i>Melaleuca calyptroides</i>										+								
Myrtaceae	<i>Melaleuca conothamnoides</i>										+								

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Myrtaceae	<i>Melaleuca cordata</i>																		
Myrtaceae	<i>Melaleuca eleuterostachya</i>											+		+	+		+		
Myrtaceae	<i>Melaleuca hamata</i>											+		+			+		
Myrtaceae	<i>Melaleuca lanceolata</i>													+					
Myrtaceae	<i>Melaleuca leiocarpa</i>	+					+	+	+					+	+				
Myrtaceae	<i>Melaleuca nematophylla</i>																	+	
Myrtaceae	<i>Melaleuca radula</i>																	+	
Myrtaceae	<i>Melaleuca</i> sp. 1																		
Myrtaceae	<i>Melaleuca</i> sp. 3																		
Myrtaceae	<i>Melaleuca stereophloia</i>						+		+		+	+					+		
Myrtaceae	<i>Micromyrtus racemosa</i>																	+	
Myrtaceae	MYRTACEAE sp.																		
Myrtaceae	<i>Thryptomene costata</i>																		
Myrtaceae	<i>Thryptomene cuspidata</i>																		
Myrtaceae	<i>Thryptomene kochii</i>																		
Myrtaceae	<i>Verticordia helmsii</i>			+									+						
Myrtaceae	<i>Verticordia venusta</i> (P3)												+						
Orchidaceae	<i>Caladenia</i> sp.	+																	
Orchidaceae	<i>Cyanicula amplexans</i>	+															+		
Orchidaceae	<i>Cyanicula</i> sp.	+																	
Orchidaceae	<i>Diuris</i> sp.																		
Orchidaceae	<i>Pterostylis setulosa</i>													+					
Orchidaceae	<i>Pterostylis</i> sp.										+			+					
Orchidaceae	<i>Pterostylis spathulata</i>																		
Orchidaceae	<i>Thelymitra antennifera</i>								+										
Orchidaceae	<i>Thelymitra petrophila</i>																		
Phyllanthaceae	<i>Poranthera leiosperma</i>				+	+	+				+								
Phyllanthaceae	<i>Poranthera microphylla</i>																		
Pittosporaceae	<i>Bursaria occidentalis</i>					+													
Pittosporaceae	<i>Cheiranthra filifolia</i>																		
Pittosporaceae	<i>Cheiranthra simplicifolia</i>	+			+	+	+				+						+	+	
Plantaginaceae	<i>Plantago debilis</i>	+	+			+	+				+		+						
Poaceae	<i>Amphipogon carcinus</i>																		
Poaceae	<i>Amphipogon carcinus</i> var. <i>carcinus</i>	+	+	+	+	+				+	+	+		+		+		+	
Poaceae	<i>Amphipogon strictus</i>																		
Poaceae	<i>Aristida contorta</i>					+							+	+			+	+	

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Poaceae	<i>Austrostipa blackii</i>																		
Poaceae	<i>Austrostipa elegantissima</i>	+		+	+	+						+	+	+	+				
Poaceae	<i>Austrostipa hemipogon</i>				+								+		+				
Poaceae	<i>Austrostipa nitida</i>			+	+							+	+				+		
Poaceae	<i>Austrostipa scabra</i>	+							+							+			
Poaceae	<i>Austrostipa</i> sp.											+	+						
Poaceae	<i>Austrostipa trichophylla</i>	+		+	+					+		+	+				+		
Poaceae	<i>Austrostipa variabilis</i>																		
Poaceae	* <i>Bromus rubens</i>																		
Poaceae	<i>Eriachne ovata</i>																		
Poaceae	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>												+						
Poaceae	<i>Monachather paradoxus</i>			+	+	+						+				+			
Poaceae	<i>Neurachne alopecuroidea</i>																		
Poaceae	* <i>Pentameris airoides</i>	+		+	+														
Poaceae	* <i>Pentameris airoides</i> subsp. <i>airoides</i>				+								+			+	+		
Poaceae	* <i>Rostraria pumila</i>												+						
Poaceae	<i>Rytidosperma caespitosum</i>			+	+							+							
Poaceae	<i>Rytidosperma setaceum</i>																		
Poaceae	<i>Triodia rigidissima</i>										+					+			
Polygalaceae	<i>Comesperma ? integerrimum</i>																		
Polygalaceae	<i>Comesperma integerrimum</i>			+	+	+	+		+			+	+						
Polygonaceae	* <i>Rumex vesicarius</i>											+							
Proteaceae	<i>Grevillea ? extorris</i>																		
Proteaceae	<i>Grevillea acacioides</i>																		
Proteaceae	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>										+								
Proteaceae	<i>Grevillea eriostachya</i>										+								
Proteaceae	<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>														+				
Proteaceae	<i>Grevillea huegelii</i>																		
Proteaceae	<i>Grevillea juncifolia</i> subsp. <i>temulenta</i>																		
Proteaceae	<i>Grevillea levis</i>											+							
Proteaceae	<i>Grevillea paradoxa</i>					+												+	
Proteaceae	<i>Grevillea pterosperma</i>										+								
Proteaceae	<i>Grevillea scabrida</i> (P3)	+																	
Proteaceae	<i>Grevillea yorkkrainensis</i>														+				
Proteaceae	<i>Hakea ? minyma</i>		+							+									

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Proteaceae	<i>Hakea francisiana</i>						+	+											
Proteaceae	<i>Hakea invaginata</i>		+		+			+		+					+				
Proteaceae	<i>Hakea minyma</i>					+													
Proteaceae	<i>Hakea recurva</i>											+							
Proteaceae	<i>Hakea recurva</i> subsp. <i>arida</i>	+																	
Proteaceae	<i>Hakea recurva</i> subsp. <i>recurva</i>	+		+								+							
Proteaceae	<i>Hakea scoparia</i>								+										
Proteaceae	<i>Persoonia pentasticha</i> (P3)	+		+	+				+	+		+	+				+		
Proteaceae	<i>Petrophile incurvata</i>										+								
Pteridaceae	<i>Cheilanthes adiantoides</i>									+									
Pteridaceae	<i>Cheilanthes sieberi</i>	+										+	+						
Pteridaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+			+	+						+							
Restionaceae	<i>Lepidobolus preissianus</i>																+		
Rhamnaceae	<i>Cryptandra apetala</i> var. <i>apetala</i>		+		+							+					+		
Rubiaceae	<i>Oldenlandia</i> sp.				+														
Rutaceae	<i>Phebalium canaliculatum</i>							+											
Rutaceae	<i>Phebalium tuberculatum</i>											+							
Rutaceae	<i>Philothea brucei</i>									+									
Rutaceae	<i>Philothea brucei</i> subsp. <i>brucei</i>									+		+						+	
Rutaceae	<i>Philothea deserti</i>										+								
Rutaceae	<i>Philothea deserti</i> subsp. <i>deserti</i>		+							+		+					+		
Rutaceae	<i>Philothea glabra</i>																		
Rutaceae	<i>Philothea nutans</i> (P1)	+		+						+	+		+	+				+	
Rutaceae	<i>Philothea sericea</i>																		
Rutaceae	<i>Philothea</i> sp.																		
Rutaceae	<i>Philothea thryptomenoides</i>										+								
Rutaceae	<i>Philothea tomentella</i>	+														+	+		
Rutaceae	RUTACEAE sp.															+			
Santalaceae	<i>Exocarpos aphyllus</i>	+		+	+								+	+				+	
Santalaceae	<i>Santalum acuminatum</i>			+	+					+		+	+						
Santalaceae	<i>Santalum spicatum</i>			+	+							+	+					+	
Sapindaceae	<i>Dodonaea ?adenophora</i>																		
Sapindaceae	<i>Dodonaea ?pinifolia</i>	+										+	+						
Sapindaceae	<i>Dodonaea bursariifolia</i>															+			
Sapindaceae	<i>Dodonaea inaequifolia</i>									+		+	+					+	
Sapindaceae	<i>Dodonaea</i> sp.																		

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Sapindaceae	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	+		+								+	+						
Scrophulariaceae	<i>Eremophila caperata</i>			+	+				+			+	+				+		
Scrophulariaceae	<i>Eremophila clarkei</i>					+			+			+		+				+	
Scrophulariaceae	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>	+		+									+						
Scrophulariaceae	<i>Eremophila deserti</i>												+						
Scrophulariaceae	<i>Eremophila eriocalyx</i>	+																	
Scrophulariaceae	<i>Eremophila georgei</i>											+							
Scrophulariaceae	<i>Eremophila granitica</i>	+																	
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. <i>warty leaves</i> (M. Officer 230)																		
Scrophulariaceae	<i>Eremophila oldfieldii</i>											+							
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>				+							+	+						
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>											+		+					
Scrophulariaceae	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>											+	+	+				+	
Scrophulariaceae	<i>Eremophila pantonii</i>				+								+						
Scrophulariaceae	<i>Eremophila serrulata</i>																		
Scrophulariaceae	<i>Eremophila</i> sp.																		
Scrophulariaceae	<i>Eremophila viscida</i> (T)																		
Solanaceae	<i>Duboisia hopwoodii</i>								+										
Solanaceae	<i>Nicotiana rosulata</i>															+			
Solanaceae	<i>Nicotiana rotundifolia</i>	+																	
Solanaceae	<i>Solanum</i> aff. <i>ashbyae</i>	+																	
Solanaceae	<i>Solanum lasiophyllum</i>				+				+			+						+	
Solanaceae	<i>Solanum nummularium</i>												+						
Solanaceae	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>					+			+										
Stylidiaceae	<i>Levenhookia dubia</i>			+	+														
Stylidiaceae	<i>Levenhookia leptantha</i>			+												+			
Stylidiaceae	<i>Levenhookia octomaculata</i>				+														
Stylidiaceae	<i>Stylidium arenicola</i>														+				
Stylidiaceae	<i>Stylidium confluens</i>					+													
Stylidiaceae	<i>Stylidium decipiens</i>																		
Stylidiaceae	<i>Stylidium induratum</i>																		
Stylidiaceae	<i>Stylidium limbatum</i>										+								
Stylidiaceae	<i>Stylidium warriedarensense</i>		+		+	+													
Thymelaeaceae	<i>Pimelea avonensis</i>																		

Family	Species	Vegetation Unit																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	
Urticaceae	<i>Parietaria cardiostegia</i>																		
Zygophyllaceae	<i>Roepera aurantiaca</i>												+	+					
Zygophyllaceae	<i>Roepera eremaea</i>													+					
Zygophyllaceae	<i>Roepera ovata</i>			+	+								+	+					

Units 19 to 34 and Rehabilitation:

Family	Species	Vegetation Unit																	
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab	
Aizoaceae	* <i>Cleretum papulosum</i>						+											+	
Aizoaceae	* <i>Mesembryanthemum crystallinum</i>													+					
Aizoaceae	* <i>Mesembryanthemum nodiflorum</i>																		
Aizoaceae	<i>Gunniopsis rubra</i>																		
Aizoaceae	<i>Tetragonia diptera</i>																		
Amaranthaceae	<i>Ptilotus divaricatus</i>																		
Amaranthaceae	<i>Ptilotus drummondii</i>																		
Amaranthaceae	<i>Ptilotus eremita</i>						+									+			
Amaranthaceae	<i>Ptilotus eriotrichus</i>																		
Amaranthaceae	<i>Ptilotus exaltatus</i>						+												
Amaranthaceae	<i>Ptilotus gaudichaudii</i>																		
Amaranthaceae	<i>Ptilotus holosericeus</i>																		
Amaranthaceae	<i>Ptilotus obovatus</i>						+												
Amaranthaceae	<i>Ptilotus spathulatus</i>																		
Apiaceae	<i>Daucus glochidiatus</i>						+												
Apiaceae	<i>Platysace ? trachymenioides</i>																		
Apiaceae	<i>Platysace trachymenioides</i>	+								+									
Apiaceae	<i>Xanthosia kochii</i>						+												
Apocynaceae	<i>Alyxia buxifolia</i>						+												
Apocynaceae	<i>Alyxia tetanifolia</i> (P3)																		
Araliaceae	<i>Hydrocotyle intertexta</i>			+		+	+												
Araliaceae	<i>Trachymene ceratocarpa</i>																		
Araliaceae	<i>Trachymene cyanopetala</i>																		
Araliaceae	<i>Trachymene ornata</i>		+	+		+	+		+				+						
Araliaceae	<i>Trachymene pilosa</i>																		
Asparagaceae	<i>Arthropodium dyeri</i>						+												
Asparagaceae	<i>Chamaexeros fimbriata</i>																		
Asparagaceae	<i>Lomandra effusa</i>																		

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Asparagaceae	<i>Lomandra</i> sp.																	
Asparagaceae	<i>Thysanotus ? manglesianus</i>																	
Asparagaceae	<i>Thysanotus manglesianus</i>	+		+		+	+			+	+	+				+		
Asparagaceae	<i>Thysanotus patersonii</i>								+									
Asparagaceae	<i>Thysanotus pyramidalis</i>			+														
Asparagaceae	<i>Thysanotus</i> sp.		+	+	+	+	+											
Asparagaceae	<i>Thysanotus speckii</i>																	
Asparagaceae	<i>Xerolirion divaricata</i>						+											
Asteraceae	<i>Actinobole uliginosum</i>									+						+		
Asteraceae	<i>Angianthus tomentosus</i>									+								
Asteraceae	ASTERACEAE sp.												+					
Asteraceae	ASTERACEAE sp. 1																	
Asteraceae	ASTERACEAE sp. 2						+											
Asteraceae	<i>Bellida graminea</i>		+			+												
Asteraceae	<i>Blennospora drummondii</i>					+	+					+	+					
Asteraceae	<i>Blennospora</i> sp.			+														
Asteraceae	<i>Brachyscome iberidifolia</i>					+										+		
Asteraceae	<i>Brachyscome</i> sp.								+									
Asteraceae	<i>Calocephalus multiflorus</i>													+				
Asteraceae	<i>Calocephalus</i> sp.								+									
Asteraceae	<i>Calotis hispidula</i>						+											
Asteraceae	<i>Calotis multicaulis</i>																+	
Asteraceae	<i>Cephalipterum drummondii</i>						+									+		
Asteraceae	<i>Ceratogyne obionoides</i>					+						+						
Asteraceae	<i>Chthonocephalus pseudevax</i>																	
Asteraceae	<i>Erymophyllum glossanthus</i>																	
Asteraceae	<i>Erymophyllum ramosum</i>																	
Asteraceae	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>						+											
Asteraceae	<i>Feldstonia nitens</i>																	
Asteraceae	<i>Gilberta tenuifolia</i>			+		+	+			+		+						
Asteraceae	<i>Gilruthia osbornei</i>																	
Asteraceae	<i>Gnephosis ? drummondii</i>			+					+									
Asteraceae	<i>Gnephosis brevifolia</i>													+				
Asteraceae	<i>Gnephosis drummondii</i>	+								+								
Asteraceae	<i>Gnephosis</i> sp.					+												

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Asteraceae	<i>Gnephosis tenuissima</i>				+	+												
Asteraceae	<i>Helipterum craspedioides</i>	+																
Asteraceae	<i>Hyalosperma demissum</i>			+														
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>						+			+							+	
Asteraceae	<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>						+										+	
Asteraceae	<i>Hyalosperma zacchaeus</i>					+											+	
Asteraceae	* <i>Hypochaeris glabra</i>																	
Asteraceae	<i>Lawrencella davenportii</i>					+												
Asteraceae	<i>Lawrencella rosea</i>			+								+	+				+	
Asteraceae	<i>Myriocephalus occidentalis</i>																	
Asteraceae	<i>Myriocephalus</i> sp.																	
Asteraceae	<i>Olearia</i> ? <i>pimeleoides</i>																	
Asteraceae	<i>Olearia humilis</i>					+												
Asteraceae	<i>Olearia muelleri</i>										+							
Asteraceae	<i>Olearia pimeleoides</i>									+								
Asteraceae	<i>Olearia</i> sp.																	
Asteraceae	<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)																	
Asteraceae	<i>Panaetia lessonii</i>					+												
Asteraceae	<i>Podolepis aristata</i>										+							
Asteraceae	<i>Podolepis aristata</i> subsp. <i>affinis</i>							+										
Asteraceae	<i>Podotheca gnaphalioides</i>							+			+						+	
Asteraceae	<i>Pogonolepis muelleriana</i>							+									+	+
Asteraceae	<i>Rhodanthe citrina</i>			+		+	+											
Asteraceae	<i>Rhodanthe laevis</i>			+		+	+											
Asteraceae	<i>Schoenia cassiniana</i>					+	+				+						+	
Asteraceae	<i>Senecio</i> ? <i>glossanthus</i>																	
Asteraceae	<i>Senecio glossanthus</i>																	
Asteraceae	<i>Senecio lacustrinus</i>					+												
Asteraceae	<i>Senecio pinnatifolius</i> ? var. <i>pinnatifolius</i>																	
Asteraceae	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>																	
Asteraceae	<i>Siemssenia capillaris</i>																	
Asteraceae	<i>Siloxerus multiflorus</i>																	
Asteraceae	* <i>Sonchus oleraceus</i>																	

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Asteraceae	<i>Waitzia acuminata</i>	+	+	+	+		+		+	+								
Asteraceae	<i>Waitzia acuminata</i> var. <i>acuminata</i>		+			+	+				+	+	+		+	+		
Boryaceae	<i>Borya constricta</i>						+					+						
Boryaceae	<i>Borya sphaerocephala</i>	+	+		+		+		+	+		+					+	
Brassicaceae	* <i>Alyssum linifolium</i>																	
Brassicaceae	* <i>Brassica tournefortii</i>																	
Brassicaceae	<i>Lepidium oxytrichum</i>						+											
Brassicaceae	<i>Menkea australis</i>																	+
Brassicaceae	<i>Phlegmatospermum drummondii</i>																	
Brassicaceae	* <i>Sisymbrium erysimoides</i>																	
Brassicaceae	<i>Stenopetalum filifolium</i>				+			+			+							
Brassicaceae	<i>Stenopetalum</i> sp.																	
Campanulaceae	<i>Lobelia fissiflora</i>				+					+								
Caryophyllaceae	* <i>Spergula pentandra</i>																	+
Casuarinaceae	<i>Allocasuarina acutivalvis</i>	+	+															
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	+	+	+	+	+	+		+	+		+						
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>						+											
Casuarinaceae	<i>Allocasuarina campestris</i>	+							+	+								
Casuarinaceae	<i>Allocasuarina corniculata</i>		+					+										
Casuarinaceae	<i>Allocasuarina dielsiana</i>						+											
Casuarinaceae	<i>Allocasuarina tessellata</i> (P3)	+							+	+								
Celastraceae	<i>Psammomoya choretroides</i>	+																
Celastraceae	<i>Stackhousia monogyna</i>																	+
Celastraceae	<i>Tripterococcus brunonis</i>																	
Chenopodiaceae	<i>Atriplex codonocarpa</i>																	+
Chenopodiaceae	<i>Atriplex paludosa</i> subsp. <i>baudinii</i>																	
Chenopodiaceae	<i>Atriplex semilunaris</i>																	+
Chenopodiaceae	<i>Atriplex stipitata</i>																	
Chenopodiaceae	<i>Atriplex vesicaria</i>																	
Chenopodiaceae	<i>Enchylaena lanata</i>						+											
Chenopodiaceae	<i>Enchylaena tomentosa</i>							+										
Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>							+										
Chenopodiaceae	<i>Eriochiton sclerolaenoides</i>																	
Chenopodiaceae	<i>Maireana carnosa</i>															+		

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Chenopodiaceae	<i>Maireana georgei</i>						+							+				
Chenopodiaceae	<i>Maireana marginata</i>																	
Chenopodiaceae	<i>Maireana planifolia</i>						+											
Chenopodiaceae	<i>Maireana thesioides</i>													+				
Chenopodiaceae	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>																+	
Chenopodiaceae	<i>Maireana trichoptera</i>						+										+	
Chenopodiaceae	<i>Maireana triptera</i>																	
Chenopodiaceae	<i>Rhagodia drummondii</i>						+											
Chenopodiaceae	<i>Rhagodia eremaea</i>																	
Chenopodiaceae	<i>Rhagodia preissii</i>																	
Chenopodiaceae	<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)																	
Chenopodiaceae	<i>Sclerolaena ?fusiformis</i>																	
Chenopodiaceae	<i>Sclerolaena diacantha</i>																	
Chenopodiaceae	<i>Sclerolaena eurotioides</i>													+			+	
Chenopodiaceae	<i>Sclerolaena fusiformis</i>																	
Chenopodiaceae	<i>Sclerolaena gardneri</i>																	
Chenopodiaceae	<i>Sclerolaena obliquicuspis</i>																+	
Chenopodiaceae	<i>Tecticornia disarticulata</i>																	
Colchicaceae	<i>Wurmbea flavanthera</i>	+					+				+							
Crassulaceae	<i>Crassula closiana</i>					+						+	+					
Crassulaceae	<i>Crassula colorata</i>			+					+									
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>					+	+				+	+			+	+		
Crassulaceae	<i>Crassula exserta</i>																	
Cupressaceae	<i>Callitris ?columellaris</i>																	
Cupressaceae	<i>Callitris columellaris</i>	+				+			+									
Cyperaceae	<i>Chrysitrix distigmatosa</i>																	
Cyperaceae	<i>Gahnia drummondii</i>				+													
Cyperaceae	<i>Lepidosperma ?sp.</i> Blue Hills (A. Markey & S. Dillon 3468) (P1)						+											
Cyperaceae	<i>Lepidosperma costale</i>				+					+								
Cyperaceae	<i>Lepidosperma sanguinolentum</i>																	
Cyperaceae	<i>Lepidosperma</i> sp. 1				+													
Cyperaceae	<i>Lepidosperma</i> sp. 2				+													
Cyperaceae	<i>Schoenus nanus</i>			+														
Cyperaceae	<i>Schoenus subaphyllus</i>																	

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Dilleniaceae	<i>Hibbertia arcuata</i>		+	+							+		+					
Dilleniaceae	<i>Hibbertia cockertoniana</i> (P3)	+					+		+	+								
Dilleniaceae	<i>Hibbertia drummondii</i>				+													
Dilleniaceae	<i>Hibbertia exasperata</i>																	
Dilleniaceae	<i>Hibbertia glomerosa</i>	+								+								
Dilleniaceae	<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>	+							+	+							+	
Dilleniaceae	<i>Hibbertia gracilipes</i>					+					+							
Dilleniaceae	<i>Hibbertia stenophylla</i>																	
Droseraceae	<i>Drosera ?menziesii</i>																+	
Droseraceae	<i>Drosera andersoniana</i>																	
Droseraceae	<i>Drosera menziesii</i>			+					+									
Droseraceae	<i>Drosera</i> sp.					+	+										+	
Droseraceae	<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)					+	+					+						
Droseraceae	<i>Drosera subhirtella</i>						+				+							
Ecdeiocoleaceae	<i>Ecdeiocolea monostachya</i>	+	+		+	+		+	+	+	+							
Ericaceae	<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)					+												
Ericaceae	<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3)				+													
Ericaceae	<i>Styphelia hamulosa</i>																	
Ericaceae	<i>Styphelia serratifolia</i>							+										
Euphorbiaceae	<i>Calycopleplus paucifolius</i>	+						+			+							
Euphorbiaceae	<i>Calycopleplus</i> sp.										+							
Euphorbiaceae	<i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>		+															
Fabaceae	<i>Acacia ?collettioides</i>				+													
Fabaceae	<i>Acacia acanthoclada</i>																	
Fabaceae	<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>																	
Fabaceae	<i>Acacia acuaria</i>											+					+	
Fabaceae	<i>Acacia acuminata</i>	+						+		+	+	+	+	+				
Fabaceae	<i>Acacia andrewsii</i>							+							+			
Fabaceae	<i>Acacia anthochaera</i>		+															
Fabaceae	<i>Acacia assimilis</i>																	
Fabaceae	<i>Acacia assimilis</i> subsp. <i>assimilis</i>		+					+										
Fabaceae	<i>Acacia burkittii</i>	+								+								

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Fabaceae	<i>Mirbelia</i> sp. Bursarioides (T.R. Lally 760)						+											
Fabaceae	<i>Mirbelia spinosa</i>	+							+									
Fabaceae	<i>Senna artemisioides</i> subsp. <i>filifolia</i>																	
Fabaceae	<i>Senna charlesiana</i>																	
Fabaceae	<i>Senna</i> sp. Austin (A. Strid 20210)																	+
Fabaceae	<i>Senna stowardii</i>																	
Frankeniaceae	<i>Frankenia setosa</i>																	+
Geraniaceae	<i>Erodium cygnorum</i>					+	+											
Geraniaceae	* <i>Erodium</i> ? <i>moschatum</i>																	
Geraniaceae	* <i>Erodium moschatum</i>																	
Goodeniaceae	<i>Brunonia australis</i>			+		+						+						+
Goodeniaceae	<i>Dampiera lavandulacea</i>	+			+													
Goodeniaceae	? <i>Dampiera</i> sp.																	
Goodeniaceae	<i>Goodenia berardiana</i>						+				+							
Goodeniaceae	<i>Goodenia capillosa</i>																	
Goodeniaceae	<i>Goodenia cycnopotamica</i>					+					+	+						
Goodeniaceae	<i>Goodenia glabrata</i>					+												+
Goodeniaceae	<i>Goodenia occidentalis</i>			+								+						+
Goodeniaceae	<i>Goodenia pinifolia</i>							+										
Goodeniaceae	<i>Goodenia rosea</i>					+	+				+	+			+	+	+	
Goodeniaceae	<i>Goodenia</i> sp.										+							
Goodeniaceae	<i>Scaevola</i> sp.																	
Goodeniaceae	<i>Scaevola spinescens</i>										+							+
Haloragaceae	<i>Glischrocaryon aureum</i>									+								
Haloragaceae	<i>Gonocarpus nodulosus</i>											+						+
Haloragaceae	<i>Haloragis trigonocarpa</i>						+											
Haloragaceae	<i>Myriophyllum decussatum</i>																	+
Hemerocallidaceae	? <i>Tricoryne tuberosa</i>											+						
Hemerocallidaceae	<i>Dianella revoluta</i>	+		+	+	+			+	+	+	+	+					+
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>	+	+		+		+		+	+								
Hemerocallidaceae	<i>Tricoryne elatior</i>										+							
Hemerocallidaceae	<i>Tricoryne</i> sp.																	
Hemerocallidaceae	<i>Tricoryne tuberosa</i>										+	+						+
Lamiaceae	<i>Hemigenia benthamii</i>					+												
Lamiaceae	<i>Hemigenia botryphylla</i>																	
Lamiaceae	<i>Hemigenia ciliata</i>	+	+						+	+	+							+

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Lamiaceae	<i>Hemigenia macphersonii</i>	+					+			+								
Lamiaceae	<i>Hemigenia yalgensis</i>						+			+								
Lamiaceae	<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)																	
Lamiaceae	<i>Microcorys tenuifolia</i> (P3)																	
Lamiaceae	<i>Prostanthera campbellii</i>			+		+			+									
Lamiaceae	<i>Prostanthera prostantheroides</i>	+		+		+			+									
Lamiaceae	<i>Westringia cephalantha</i>																	
Lauraceae	<i>Cassytha nodiflora</i>	+																
Loganiaceae	<i>Phyllangium sulcatum</i>			+				+										
Loranthaceae	<i>Amyema ? miquelii</i>																	
Malvaceae	<i>Alyogyne hakeifolia</i>	+									+							
Malvaceae	<i>Androcalva luteiflora</i>															+		
Malvaceae	<i>Brachychiton gregorii</i>		+															
Malvaceae	<i>Lawrenzia squamata</i>													+				
Malvaceae	<i>Seringia velutina</i>								+									
Malvaceae	<i>Sida ? calyxhymania</i>						+											
Malvaceae	<i>Sida petrophila</i>																	
Malvaceae	<i>Sida</i> sp.						+											
Montiaceae	<i>Calandrinia baccata</i>																	
Montiaceae	<i>Calandrinia calyptrata</i>																	
Montiaceae	<i>Calandrinia eremaea</i>							+										+
Montiaceae	<i>Calandrinia granulifera</i>																	+
Montiaceae	<i>Calandrinia primuliflora</i>										+							
Montiaceae	<i>Calandrinia sculpta</i>																	+
Montiaceae	<i>Calandrinia</i> sp.																+	
Montiaceae	<i>Calandrinia translucens</i>																	
Myrtaceae	<i>Aluta aspera</i>		+															
Myrtaceae	<i>Aluta aspera</i> subsp. <i>hesperia</i>		+			+			+		+	+	+					
Myrtaceae	<i>Baeckea elderiana</i>				+													
Myrtaceae	<i>Balaustion pulcherrimum</i>											+						
Myrtaceae	<i>Calothamnus aridus</i>								+	+								
Myrtaceae	<i>Calothamnus gilesii</i>		+								+							
Myrtaceae	<i>Calytrix glutinosa</i>						+											
Myrtaceae	<i>Calytrix leschenaultii</i>						+											
Myrtaceae	<i>Calytrix plumulosa</i> (P3)							+										

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Myrtaceae	<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)																	
Myrtaceae	<i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i>				+													
Myrtaceae	<i>Enekbatus longistylus</i> (P3)																	
Myrtaceae	<i>Enekbatus stowardii</i>			+		+			+	+			+					
Myrtaceae	<i>Eucalyptus</i> ? <i>ceratocorys</i>			+														
Myrtaceae	<i>Eucalyptus</i> ? <i>horistes</i>																	
Myrtaceae	<i>Eucalyptus</i> ? <i>kochii</i>																	
Myrtaceae	<i>Eucalyptus</i> ? <i>salmonophloia</i>																	
Myrtaceae	<i>Eucalyptus</i> ? <i>stowardii</i>		+															
Myrtaceae	<i>Eucalyptus</i> ? <i>subangusta</i>	+								+								
Myrtaceae	<i>Eucalyptus capillosa</i>																	
Myrtaceae	<i>Eucalyptus ewartiana</i>					+												
Myrtaceae	<i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i>																	+
Myrtaceae	<i>Eucalyptus horistes</i>																	
Myrtaceae	<i>Eucalyptus kochii</i>		+															
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i>																	
Myrtaceae	<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>					+												
Myrtaceae	<i>Eucalyptus leptopoda</i>																	
Myrtaceae	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>																	
Myrtaceae	<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	+	+					+		+								
Myrtaceae	<i>Eucalyptus salicola</i>																	
Myrtaceae	<i>Eucalyptus salmonophloia</i>																	
Myrtaceae	<i>Eucalyptus salubris</i>																	
Myrtaceae	<i>Eucalyptus</i> sp.							+	+		+							
Myrtaceae	<i>Eucalyptus</i> sp. 1					+												
Myrtaceae	<i>Eucalyptus</i> sp. 2																	
Myrtaceae	<i>Eucalyptus stowardii</i>							+										
Myrtaceae	<i>Eucalyptus subangusta</i>																	
Myrtaceae	<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>																	
Myrtaceae	<i>Euryomyrtus recurva</i> (P3)				+				+									
Myrtaceae	<i>Homalocalyx aureus</i>										+							
Myrtaceae	<i>Homalocalyx thryptomenoides</i>			+	+	+			+	+								

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Myrtaceae	<i>Hysterobaeckea setifera</i>		+		+				+									
Myrtaceae	<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>					+			+									
Myrtaceae	<i>Malleostemon roseus</i>				+					+								
Myrtaceae	<i>Malleostemon tuberculatus</i>	+		+						+								
Myrtaceae	<i>Melaleuca ? atroviridis</i>																	
Myrtaceae	<i>Melaleuca atroviridis</i>	+			+		+											
Myrtaceae	<i>Melaleuca calyptroides</i>																	
Myrtaceae	<i>Melaleuca conothamnoides</i>								+									
Myrtaceae	<i>Melaleuca cordata</i>				+	+					+							
Myrtaceae	<i>Melaleuca eleuterostachya</i>	+							+	+						+		
Myrtaceae	<i>Melaleuca hamata</i>				+	+			+	+			+			+		
Myrtaceae	<i>Melaleuca lanceolata</i>											+						
Myrtaceae	<i>Melaleuca leiocarpa</i>		+	+		+			+			+						
Myrtaceae	<i>Melaleuca nematophylla</i>	+					+				+							
Myrtaceae	<i>Melaleuca radula</i>										+							
Myrtaceae	<i>Melaleuca</i> sp. 1											+						
Myrtaceae	<i>Melaleuca</i> sp. 3						+											
Myrtaceae	<i>Melaleuca stereophloia</i>	+							+	+						+		
Myrtaceae	<i>Micromyrtus racemosa</i>						+											
Myrtaceae	MYRTACEAE sp.						+											
Myrtaceae	<i>Thryptomene costata</i>						+			+								
Myrtaceae	<i>Thryptomene cuspidata</i>																+	
Myrtaceae	<i>Thryptomene kochii</i>							+		+							+	
Myrtaceae	<i>Verticordia helmsii</i>																	
Myrtaceae	<i>Verticordia venusta</i> (P3)																	
Orchidaceae	<i>Caladenia</i> sp.																	
Orchidaceae	<i>Cyanicula amplexans</i>					+	+					+	+				+	
Orchidaceae	<i>Cyanicula</i> sp.																	
Orchidaceae	<i>Diuris</i> sp.																+	
Orchidaceae	<i>Pterostylis setulosa</i>																	
Orchidaceae	<i>Pterostylis</i> sp.																	
Orchidaceae	<i>Pterostylis spathulata</i>																	
Orchidaceae	<i>Thelymitra antennifera</i>																+	
Orchidaceae	<i>Thelymitra petrophila</i>						+										+	
Phyllanthaceae	<i>Poranthera leiosperma</i>									+								
Phyllanthaceae	<i>Poranthera microphylla</i>											+						

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Pittosporaceae	<i>Bursaria occidentalis</i>																	
Pittosporaceae	<i>Cheiranthra filifolia</i>						+											
Pittosporaceae	<i>Cheiranthra simplicifolia</i>					+												
Plantaginaceae	<i>Plantago debilis</i>					+	+									+		
Poaceae	<i>Amphipogon caricinus</i>	+																
Poaceae	<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	+	+	+	+	+	+	+	+	+	+				+		
Poaceae	<i>Amphipogon strictus</i>					+												
Poaceae	<i>Aristida contorta</i>										+					+		
Poaceae	<i>Austrostipa blackii</i>						+											
Poaceae	<i>Austrostipa elegantissima</i>						+	+					+				+	
Poaceae	<i>Austrostipa hemipogon</i>						+					+						
Poaceae	<i>Austrostipa nitida</i>																	
Poaceae	<i>Austrostipa scabra</i>																	
Poaceae	<i>Austrostipa</i> sp.										+							
Poaceae	<i>Austrostipa trichophylla</i>							+										
Poaceae	<i>Austrostipa variabilis</i>							+										
Poaceae	* <i>Bromus rubens</i>																	+
Poaceae	<i>Eriachne ovata</i>											+						
Poaceae	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>																	
Poaceae	<i>Monachather paradoxus</i>			+		+												
Poaceae	<i>Neurachne alopecuroidea</i>							+										
Poaceae	* <i>Pentameris airoides</i>							+			+							
Poaceae	* <i>Pentameris airoides</i> subsp. <i>airoides</i>							+										
Poaceae	* <i>Rostraria pumila</i>																	
Poaceae	<i>Rytidosperma caespitosum</i>																	
Poaceae	<i>Rytidosperma setaceum</i>							+										+
Poaceae	<i>Triodia rigidissima</i>																	
Polygalaceae	<i>Comesperma ?integerrimum</i>					+												
Polygalaceae	<i>Comesperma integerrimum</i>					+	+							+		+		
Polygonaceae	* <i>Rumex vesicarius</i>																	
Proteaceae	<i>Grevillea ?extorris</i>							+			+							
Proteaceae	<i>Grevillea acacioides</i>				+													
Proteaceae	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>								+									
Proteaceae	<i>Grevillea eriostachya</i>		+					+										
Proteaceae	<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>							+										

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Proteaceae	<i>Grevillea huegelii</i>							+										
Proteaceae	<i>Grevillea juncefolia</i> subsp. <i>temulenta</i>		+															
Proteaceae	<i>Grevillea levis</i>	+							+	+								
Proteaceae	<i>Grevillea paradoxa</i>			+				+		+								
Proteaceae	<i>Grevillea pterosperma</i>		+															
Proteaceae	<i>Grevillea scabrida</i> (P3)												+					
Proteaceae	<i>Grevillea yorkrakinensis</i>				+													
Proteaceae	<i>Hakea ?minyma</i>																	
Proteaceae	<i>Hakea francisiana</i>		+							+								
Proteaceae	<i>Hakea invaginata</i>		+	+	+				+	+		+	+				+	
Proteaceae	<i>Hakea minyma</i>					+												
Proteaceae	<i>Hakea recurva</i>																+	
Proteaceae	<i>Hakea recurva</i> subsp. <i>arida</i>																	
Proteaceae	<i>Hakea recurva</i> subsp. <i>recurva</i>					+												
Proteaceae	<i>Hakea scoparia</i>		+															
Proteaceae	<i>Persoonia pentasticha</i> (P3)																	+
Proteaceae	<i>Petrophile incurvata</i>																	
Pteridaceae	<i>Cheilanthes adiantoides</i>					+	+										+	
Pteridaceae	<i>Cheilanthes sieberi</i>					+	+					+						
Pteridaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			+														
Restionaceae	<i>Lepidobolus preissianus</i>																	
Rhamnaceae	<i>Cryptandra apetala</i> var. <i>apetala</i>																	
Rubiaceae	<i>Oldenlandia</i> sp.																	
Rutaceae	<i>Phebalium canaliculatum</i>		+			+												
Rutaceae	<i>Phebalium tuberosum</i>		+			+			+			+	+					
Rutaceae	<i>Philothea brucei</i>																	
Rutaceae	<i>Philothea brucei</i> subsp. <i>brucei</i>					+	+		+									
Rutaceae	<i>Philothea deserti</i>																	
Rutaceae	<i>Philothea deserti</i> subsp. <i>deserti</i>			+					+									
Rutaceae	<i>Philothea glabra</i>			+														
Rutaceae	<i>Philothea nutans</i> (P1)	+							+									
Rutaceae	<i>Philothea sericea</i>		+															
Rutaceae	<i>Philothea</i> sp.							+										
Rutaceae	<i>Philothea thryptomenoides</i>																	
Rutaceae	<i>Philothea tomentella</i>					+												
Rutaceae	RUTACEAE sp.																	

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Santalaceae	<i>Exocarpos aphyllus</i>						+							+				
Santalaceae	<i>Santalum acuminatum</i>																	
Santalaceae	<i>Santalum spicatum</i>	+	+				+			+								
Sapindaceae	<i>Dodonaea ?adenophora</i>	+																
Sapindaceae	<i>Dodonaea ?pinifolia</i>																	
Sapindaceae	<i>Dodonaea bursariifolia</i>																	
Sapindaceae	<i>Dodonaea inaequifolia</i>						+			+								
Sapindaceae	<i>Dodonaea</i> sp.						+											
Sapindaceae	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>		+															
Scrophulariaceae	<i>Eremophila caperata</i>																	
Scrophulariaceae	<i>Eremophila clarkei</i>	+				+	+			+								
Scrophulariaceae	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>																	
Scrophulariaceae	<i>Eremophila deserti</i>																	
Scrophulariaceae	<i>Eremophila eriocalyx</i>																	
Scrophulariaceae	<i>Eremophila georgei</i>																	
Scrophulariaceae	<i>Eremophila granitica</i>										+							
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. warty leaves (M. Officer 230)						+											
Scrophulariaceae	<i>Eremophila oldfieldii</i>																	
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>						+											
Scrophulariaceae	<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>																	
Scrophulariaceae	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>													+				
Scrophulariaceae	<i>Eremophila pantonii</i>																	
Scrophulariaceae	<i>Eremophila serrulata</i>										+					+		
Scrophulariaceae	<i>Eremophila</i> sp.						+											
Scrophulariaceae	<i>Eremophila viscida</i> (T)	+																
Solanaceae	<i>Duboisia hopwoodii</i>																	
Solanaceae	<i>Nicotiana rosulata</i>																	
Solanaceae	<i>Nicotiana rotundifolia</i>					+												
Solanaceae	<i>Solanum</i> aff. <i>ashbyae</i>						+				+							
Solanaceae	<i>Solanum lasiophyllum</i>						+				+							
Solanaceae	<i>Solanum nummularium</i>																	
Solanaceae	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>																	
Stylidiaceae	<i>Levenhookia dubia</i>																	

Family	Species	Vegetation Unit																
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Rehab
Stylidiaceae	<i>Levenhookia leptantha</i>																	
Stylidiaceae	<i>Levenhookia octomaculata</i>																	
Stylidiaceae	<i>Stylidium arenicola</i>				+													
Stylidiaceae	<i>Stylidium confluens</i>																	
Stylidiaceae	<i>Stylidium decipiens</i>						+											
Stylidiaceae	<i>Stylidium induratum</i>					+			+			+				+		
Stylidiaceae	<i>Stylidium limbatum</i>				+													
Stylidiaceae	<i>Stylidium warriedarensense</i>			+					+									
Thymelaeaceae	<i>Pimelea avonensis</i>									+							+	
Urticaceae	<i>Parietaria cardiostegia</i>					+	+											
Zygophyllaceae	<i>Roepera aurantiaca</i>																	
Zygophyllaceae	<i>Roepera eremaea</i>						+											
Zygophyllaceae	<i>Roepera ovata</i>																	

APPENDIX E – VEGETATION QUADRAT DATA

Site JB001

Date	18/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517872 mE 6708382 mN
Vegetation Unit	19 - <i>Acacia burkittii</i> , <i>Acacia duriuscula</i> , <i>Cassyltha nodiflora</i> tall shrubland over <i>Acacia burkittii</i> , <i>Ecdeiocolea monostachya</i> , <i>Dianella revoluta</i> var <i>divaricata</i> , <i>Acacia duriuscul</i> , <i>Grevillea levis</i> sparse shrubland over <i>Platysace trachymenioides</i> , <i>Amphipogon carincinus</i> subsp <i>carincinus</i> , <i>Hemigenia ciliata</i> low sparse shrubland over <i>Borya sphaerocephala</i> , <i>Waitzia acuminata</i> low sparse forbland.
Slope	Gentle
Landform	Undulating plain
Soil Colour	Yellow to brown
Soil Type	Sand to sandy loam
Litter	30%
Bare Ground	25%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Old fire, vines are native parasitic, historic pastoral activities, drought with some deaths. <2yrs. Recent mining, access track to north.



Species	Height (m)	Cover (%)
<i>Cassutha nodiflora</i>	2.5	13
<i>Acacia burkittii</i>	2	30
<i>Acacia duriuscula</i>	2	13
<i>Grevillea levis</i>	1.65	2.5
<i>Dianella revoluta</i> var. <i>divaricata</i>	1.1	1.5
<i>Ecdeiocolea monostachya</i>	1.1	2.5
<i>Platysace trachymenioides</i>	0.5	2.5
<i>Amphipogon caricinus</i>	0.4	1
<i>Hibbertia glomerosa</i>	0.4	0.5
<i>Hemigenia ciliata</i>	0.3	0.5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.1	0.5
<i>Borya sphaerocephala</i>	0.1	1
<i>Gnephosis drummondii</i>	0.1	0.5
<i>Waitzia acuminata</i>	0.1	1.5
<i>Acacia longispinea</i>		+
<i>Allocasuarina acutivalvis</i> subsp. <i>Acutivalvis</i>		+
<i>Dodonaea adenophora</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Malleostemon tuberculatus</i>		Associated

Site JB002

Date	18/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518566 mE 6707955 mN
Vegetation Unit	27 – <i>Melaleuca hamata</i> low isolated trees over <i>Acacia acuminata</i> , <i>Acacia duriuscula</i> , <i>Thryptomene costata</i> tall shrubland over <i>Thryptomene costata</i> <i>Hemigenia yalgensis</i> , <i>Eremophila clarkei</i> open shrubland over <i>Leptosema aphyllum</i> , <i>Hibbertia cockertoniana</i> (P3) low open shrubland over <i>Waitzia acuminata</i> , <i>Angianthus tomentosus</i> , <i>Goodenia berardiana</i> low forbland.
Slope	Gentle, granite outcrop SE corner, minor outcrop further in
Landform	Plain
Soil Colour	Red
Soil Type	Clay loam
Litter	45%
Bare Ground	<5%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Old fire >20yrs, Drought - high % <i>Leptosema</i> foliage is dead or senescing



Species	Height (m)	Cover (%)
<i>Melaleuca hamata</i>	4.5	2
<i>Acacia acuminata</i>	3	33
<i>Acacia duriuscula</i>	3	3.5
<i>Thryptomene costata</i>	3	6
<i>Dodonaea inaequifolia</i>	2.2	0.8
<i>Eremophila clarkei</i>	1.5	1.5
<i>Hemigenia yalgensis</i>	1.4	2
<i>Hibbertia cockertoniana</i> P3	0.8	2.5
<i>Dianella revoluta</i>	0.7	1.5
<i>Leptosema aphyllum</i>	0.7	2.5
<i>Waitzia acuminata</i>	0.3	17
<i>Borya sphaerocephala</i>	0.2	1
<i>Goodenia berardiana</i>	0.2	4.5
<i>Angianthus tomentosus</i>	0.1	13
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa</i> sp.		+
<i>Calandrinia primuliflora</i>		+
<i>Calycopeplus paucifolius</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Malleostemon roseus</i>		+
<i>Pimelea avonensis</i>		+
<i>Podolepis aristata</i>		+
<i>Schoenia cassiniana</i>		+
<i>Solanum lasiophyllum</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		Associated
<i>Calothamnus gilesii</i>		Associated
<i>Grevillea levis</i>		Associated
<i>Melaleuca radula</i>		Associated

Site JB003

Date	18/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517534 mE 6707721 mN
Vegetation Unit	27 - <i>Malleostemon tuberculatus</i> , <i>Thryptomene costata</i> shrubland over <i>Thryptomene costata</i> , <i>Hemigenia ciliata</i> low sparse shrubland over <i>Borya sphaerocephala</i> , <i>Gnephosis drummondii</i> , <i>Calandrinia primuliflora</i> , low forbland
Slope	Flat, slight depression
Landform	Undulating plain, Skeletal sandy soil/granite, Granite outcrop to S
Soil Colour	Red-brown
Soil Type	Sandy loam
Litter	7%
Bare Ground	25%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Some dry conditions, MYRTACEAE shrubs drying off, senescing and rabbit disturbance.



Species	Height (m)	Cover (%)
<i>Thryptomene costata</i>	1.4	4
<i>Dianella revoluta</i> var. <i>divaricata</i>	1.3	0.5
<i>Malleostemon tuberculatus</i>	1.2	27
<i>Acacia effusifolia</i>	1.1	0.5
<i>Ecdeiocolea monostachya</i>	0.7	0.5
<i>Austrostipa hemipogon</i>	0.6	0.5
<i>Hemigenia ciliata</i>	0.4	1
<i>Borya sphaerocephala</i>	0.15	13
<i>Waitzia acuminata</i>	0.1	0.5
<i>Gnephosis drummondii</i>	0.05	7
<i>Calandrinia primuliflora</i>	0.02	4
<i>Actinobole uliginosum</i>		+
<i>Aristida contorta</i>		+
<i>Eremophila clarkei</i>		+
<i>Gnephosis drummondii</i>		+
<i>Goodenia rosea</i>		+
<i>Hemigenia ciliata</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Podolepis aristata</i>		+
<i>Acacia acuminata</i>		Associated
<i>Eucalyptus</i> sp.		Associated

Site JB004

Date	18/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518359 mE 6707707 mN
Vegetation Unit	24 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia tetragonophylla</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> , <i>Mirbelia</i> sp. Bursarioides (T.R. Lally 760) sparse shrubland over <i>Philotheca brucei</i> subsp. <i>brucei</i> , <i>Calytrix leschenaultii</i> , <i>Styphelia serratifolia</i> , <i>Xerolirion divaricata</i> low open shrubland over <i>Borya sphaerocephala</i> low open forbland.
Slope	Gentle
Landform	Granite outcrop, ridge, slight E aspect
Soil Colour	Brown
Soil Type	Sandy loam
Litter	7%
Bare Ground	<1%
Fire Age	None
Vegetation Condition	Excellent
Disturbances/impacts	Low impacts, cryptogram crust intact, good diversity, slight erosion at edge of crust, minor back cutting.



Species	Height (m)	Cover (%)
<i>Acacia tetragonophylla</i>	2	2
<i>Mirbelia</i> sp. Bursarioides (T.R. Lally 760)	1.4	1.5
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.2	3.5
<i>Philotheca brucei</i> subsp. <i>brucei</i>	1.2	3.5
<i>Thryptomene costata</i>	1	0.5
<i>Acacia andrewsii</i>	0.9	1
<i>Micromyrtus racemosa</i>	0.7	1
<i>Lepidosperma</i> ?sp. Blue Hills (A. Markey & S. Dillon 3468) P1	0.5	1
<i>Styphelia serratifolia</i>	0.3	2
<i>Xerolirion divaricata</i>	0.3	2
<i>Calytrix leschenaultii</i>	0.2	2
<i>Borya sphaerocephala</i>	0.1	7
<i>Calytrix glutinosa</i>	0.1	0.5
<i>Goodenia rosea</i>	0.1	0.5
<i>Schoenia cassiniana</i>	0.1	0.5
<i>Alyxia buxifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Cheiranthra filifolia</i>		+
<i>Dodonaea inaequifolia</i>		+
<i>Eremophila latrobei</i> subsp. warty leaves (M. Officer 230)		+
<i>Hibbertia cockertoniana</i> P3		+
<i>Maireana georgei</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Solanum lasiophyllum</i>		+
<i>Waitzia acuminata</i>		+
<i>Gastrolobium laytonii</i>		Associated
<i>Ptilotus obovatus</i>		Associated

Site JB005r

Date	18/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	518369 mE 6708220 mN
Vegetation Unit	27 - <i>Calandrinia primuliflora</i> , <i>Borya sphaerocephala</i> low open forbland
Slope	Gentle, upper slope, near top of catchment
Landform	Granite outcrop
Soil Colour	Yellow – red
Soil Type	Skeletal sand
Litter	<5%
Bare Ground	<1%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Low



Species	Height (m)	Cover (%)
<i>Borya sphaerocephala</i>	0.05	5
<i>Calandrinia primuliflora</i>	0.02	30
<i>Acacia acuminata</i>		Associated
<i>Acacia duriuscula</i>		Associated
<i>Calycopeplus paucifolius</i>		Associated
<i>Eremophila serrulata</i>		Associated
<i>Hemigenia ciliata</i>		Associated
<i>Malleostemon tuberculatus</i>		Associated
<i>Melaleuca radula</i>		Associated

Site JB006

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518415 mE 6708137 mN
Vegetation Unit	27 – <i>Acacia duriuscula</i> tall open shrubland over <i>Malleostemon tuberculatus</i> , <i>Acacia duriuscula</i> open shrubland over <i>Dianella revoluta</i> var. <i>divaricata</i> , <i>Hibbertia cockertoniana</i> (P3) low sparse shrubland over <i>Waitzia acuminata</i> , <i>Borya sphaerocephala</i> , <i>Hemigenia ciliata</i> , <i>Hibbertia glomerosa</i> , <i>Amphipogon caricinus</i> var <i>caricinus</i> low open forbland
Slope	Gentle, upper slope
Landform	Undulating plain - granite outcropping on mid to upper slopes
Soil Colour	Strong brown
Soil Type	Fine sandy loam
Litter	17%
Bare Ground	25%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Water stress, historic fire, historic pastoral impacts.



Species	Height (m)	Cover (%)
<i>Acacia duriuscula</i>	4	18
<i>Acacia acuminata</i>	2	1
<i>Melaleuca hamata</i>	2	1
<i>Malleostemon tuberculatus</i>	1.6	18
<i>Calycopeplus paucifolius</i>	1	0.5
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.9	2
<i>Hibbertia cockertoniana</i> P3	0.8	1.5
<i>Hemigenia ciliata</i>	0.5	2
<i>Hibbertia glomerosa</i>	0.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.4	2
<i>Waitzia acuminata</i>	0.25	5.5
<i>Borya sphaerocephala</i>	0.2	2
<i>Allocasuarina tessellata</i> P3		+
<i>Angianthus tomentosus</i>		+
<i>Austrostipa hemipogon</i>		+
<i>Calycopeplus</i> sp.		+
<i>Goodenia</i> sp.		+
<i>Podolepis aristata</i>		+
<i>Acacia jibberdingensis</i>		Associated
<i>Calandrinia primuliflora</i>		Associated
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		Associated
<i>Thryptomene costata</i>		Associated
<i>Thysanotus manglesianus</i>		Associated

Site JB007

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517660 mE 6707256 mN
Vegetation Unit	8 - <i>Eucalyptus kochii</i> subsp. <i>plenissima</i> open mallee woodland over <i>Melaleuca stereophloia</i> , <i>Eremophila clarkei</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia acuminata</i> tall shrubland over <i>Melaleuca stereophloia</i> , <i>Eremophila clarkei</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> open shrubland over <i>Eremophila clarkei</i> , <i>Melaleuca stereophloia</i> , <i>Dianella revoluta</i> var. <i>divaricata</i> low sparse shrubland over <i>Waitzia acuminata</i> , <i>Goodenia rosea</i> low forbland.
Slope	Flat
Landform	Undulating plain – minor granite outcrops 2-3%
Soil Colour	Yellowish red
Soil Type	Sandy loam to sandy clay loam
Litter	65%
Bare Ground	15%
Fire Age	>20yrs
Vegetation Condition	Excellent
Disturbances/impacts	Mining to south, drill access track. Vegetation intact. May have had some impacts from cyclone Seroja. A lot of fallen timber (melleuca).



Species	Height (m)	Cover (%)
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>	7	4.5
<i>Melaleuca stereophloia</i>	4.5	32.5
<i>Acacia acuminata</i>	3.5	3
<i>Eremophila clarkei</i>	2.5	10
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.5	3.5
<i>Philotheca brucei</i>	1.5	1.5
<i>Austrostipa trichophylla</i>	0.5	0.5
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.5	0.5
<i>Waitzia acuminata</i>	0.2	45
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Borya sphaerocephala</i>		+
<i>Dodonaea inaequifolia</i>		+
<i>Goodenia rosea</i>		+
<i>Ptilotus divaricatus</i>		+
<i>Ptilotus drummondii</i>		+
<i>Schoenia cassiniana</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Acacia duriuscula</i>		Associated
<i>Acacia effusifolia</i>		Associated
<i>Blennospora drummondii</i>		Associated
<i>Ecdeiocolea monostachya</i>		Associated
<i>Gilberta tenuifolia</i>		Associated
<i>Solanum lasiophyllum</i>		Associated

Site JB008

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518512 mE 6707274 mN
Vegetation Unit	18 - <i>Eucalyptus stowardii</i> open mallee woodland over <i>Acacia assimilis</i> subsp. <i>assimilis</i> , <i>Allocasuarina acutivalvis</i> subsp <i>acutivalvis</i> , <i>Acacia burkittii</i> tall shrubland over <i>Melaleuca nematophylla</i> , <i>Acacia assimilis</i> subsp. <i>assimilis</i> , <i>Dodonaea inaequifolia</i> , <i>Allocasuarina acutivalvis</i> subsp <i>acutivalvis</i> open shrubland <i>Xanthosia kochii</i> <i>Hibbertia arcuata</i> , <i>Hemigenia ciliata</i> low open shrubland over <i>Borya sphaerocephala</i> low sparse forbland.
Slope	Gentle
Landform	Undulating plain , granite outcropping in area - minor
Soil Colour	Deeper brown
Soil Type	Sandy loam
Litter	65%
Bare Ground	<1%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Water stressed. Vegetation senescing.



Species	Height (m)	Cover (%)
<i>Eucalyptus stowardii</i>	6	2.5
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2.6	18
<i>Acacia burkittii</i>	2.5	4.5
<i>Acacia assimilis</i> subsp. <i>assimilis</i>	2	23
<i>Melaleuca nematophylla</i>	1.8	2.5
<i>Dodonaea inaequifolia</i>	1.3	3.5
<i>Hibbertia arcuata</i>	0.7	3.5
<i>Hemigenia ciliata</i>	0.6	3.5
<i>Xanthosia kochii</i>	0.6	13
<i>Acacia assimilis</i>		+
<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>		+
<i>Alyxia buxifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Borya sphaerocephala</i>		+
<i>Eremophila clarkei</i>		+
<i>Grevillea paradoxa</i>		+
<i>Melaleuca radula</i>		+
<i>Micromyrtus racemosa</i>		+
<i>Mirbelia spinosa</i>		+
<i>Waitzia acuminata</i>		+
<i>Xerolirion divaricata</i>		+
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		Associated
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>		Associated
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>		Associated
<i>Philotheca brucei</i> subsp. <i>brucei</i>		Associated
<i>Scaevola spinescens</i>		Associated
<i>Solanum lasiophyllum</i>		Associated

Site JB009

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518112 mE 6706748 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Acacia acuminata</i> , <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i> tall sparse shrubland over <i>Alyxia buxifolia</i> , <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i> , <i>Scaevola spinescens</i> , <i>Acacia tetragonophylla</i> shrubland over <i>Scaevola spinescens</i> , <i>Acacia erinacea</i> , <i>Olearia muelleri</i> , <i>Rhagodia drummondii</i> low open shrubland.
Slope	Gentle
Landform	Low rise, undulating plain. Granite outcropping in vicinity
Soil Colour	Yellowish red
Soil Type	Sandy clay loam
Litter	35%
Bare Ground	<1%
Fire Age	>20yrs
Vegetation Condition	Excellent
Disturbances/impacts	Rabbits. Possible Cyclone Seroja impact



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	3.5	4.5
<i>Dodonaea inaequifolia</i>	3.5	1
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	3.5	1
<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>	2.5	8
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	11	18
<i>Acacia tetragonophylla</i>	1.5	1.5
<i>Alyxia buxifolia</i>	1.5	18
<i>Scaevola spinescens</i>	1.5	7
<i>Acacia erinacea</i>	0.5	2.5
<i>Olearia muelleri</i>	0.5	2.5
<i>Rhagodia drummondii</i>	0.5	1.5
<i>Acacia acuarina</i>		+
<i>Aristida contorta</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Comesperma integerrimum</i>		+
<i>Dianella revoluta</i> var. <i>divaricata</i>		+
<i>Eremophila clarkei</i>		+
<i>Goodenia</i> sp.		+
<i>Hemigenia yalgensis</i>		+
<i>Maireana georgei</i>		+
<i>Maireana marginata</i>		+
<i>Ptilotus obovatus</i>		+
<i>Santalum spicatum</i>		+
<i>Senna charlesiana</i>		+
<i>Siloxerus multiflorus</i>		+
<i>Solanum lasiophyllum</i>		+
<i>Waitzia acuminata</i>		+
<i>Borya sphaerocephala</i>		Associated
<i>Calandrinia primuliflora</i>		Associated
<i>Hakea recurva</i> subsp. <i>recurva</i>		Associated
<i>Panaetia lessonii</i>		Associated
<i>Sclerolaena diacantha</i>		Associated

Site JB010r

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	517627 mE 6706205 mN
Vegetation Unit	10 - <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> isolated mallee trees over <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland.
Slope	Undulating plain, upper slope. Gentle slope
Landform	Undulating plain; upper slope
Soil Colour	Yellowish brown
Soil Type	Sandy loam to sandy clay loam
Litter	25%
Bare Ground	<1%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Low. very dense tall shrubland, mature community. Understorey very sparse/ isolated.



Species	Height (m)	Cover (%)
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>	3.2	2
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2.1	60
<i>Acacia burkittii</i>	2	0.5
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.8	0.5
<i>Philotheca deserti</i> subsp. <i>deserti</i>	0.8	0.5
<i>Hibbertia arcuata</i>	0.6	0.5
<i>Waitzia acuminata</i>	0.05	0.5

Site JB011

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517620mE 6706353mN
Vegetation Unit	20 - <i>Eucalyptus stowardii</i> , <i>Eucalyptus</i> ? <i>kochii</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> mallee woodland over <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia effusifolia</i> , <i>Acacia assimilis</i> subsp. <i>assimilis</i> , <i>Acacia anthochaera</i> tall shrubland over <i>Acacia effusifolia</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Calothamnus gilesii</i> sparse shrubland over <i>Hibbertia arcuata</i> , <i>Hysterobaeckea setifera</i> , <i>Phebalium canaliculatum</i> , <i>Amphipogon caricinus</i> subsp. <i>caricinus</i> low sparse shrubland.
Slope	Gentle; upper slope. Granite outcropping to E/S of site
Landform	Plain
Soil Colour	Yellow brown
Soil Type	Fine sandy clay loam
Litter	65%
Bare Ground	<5
Fire Age	Relatively unburnt strip within burnt, regrowth >10yrs or more. Mature fire regrowth patch within more recent burn (JB10)
Vegetation Condition	Excellent
Disturbances/impacts	Fire historic. Rabbits



Species	Height (m)	Cover (%)
<i>Eucalyptus ?stowardii</i>	5.5	3.5
<i>Eucalyptus kochii</i>	4	2.5
<i>Acacia assimilis subsp. assimilis</i>	2.8	7
<i>Acacia effusifolia</i>	2.5	16
<i>Allocasuarina acutivalvis subsp. acutivalvis</i>	2.5	30
<i>Acacia anthochaera</i>	2.3	2.5
<i>Calothamnus gilesii</i>	1.2	1
<i>Hibbertia arcuata</i>	0.8	4.5
<i>Phebalium canaliculatum</i>	0.6	1.5
<i>Hysterobaeckea setifera</i>	0.5	1.5
<i>Amphipogon caricinus var. caricinus</i>	0.4	1.5
<i>Aluta aspera subsp. hesperia</i>		+
<i>Dianella revoluta var. divaricata</i>		+
<i>Waitzia acuminata</i>		+

Site JB012

Date	19/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517797 mE 6705573 mN
Vegetation Unit	31 - <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> , <i>Acacia acuminata</i> , <i>Exocarpos aphyllus</i> sparse shrubland over <i>Frankenia setosa</i> , <i>Lawrenzia squamata</i> , <i>Acacia andrewsii</i> , <i>Scaevola spinescens</i> , <i>Acacia erinacea</i> low shrubland.
Slope	Almost flat; depressions
Landform	Valley. Low rocky hill
Soil Colour	Brown
Soil Type	Sandy loam
Litter	<10%
Bare Ground	<10%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Weeds, rabbits, old tracks.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	1.5	0.5
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	1.5	3.5
<i>Exocarpos aphyllus</i>	1.5	0.5
<i>Hakea recurva</i>	1.5	0.5
<i>Acacia andrewsii</i>	0.5	5.5
<i>Scaevola spinescens</i>	0.5	2.5
<i>Acacia erinacea</i>	0.3	4
<i>Frankenia setosa</i>	0.3	13
<i>Lawrenzia squamata</i>	0.3	13
<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>	0.2	1.5
<i>Calocephalus multiflorus</i>		+
<i>Comesperma integerrimum</i>		+
<i>Gnephosis brevifolia</i>		+
<i>Hyalosperma zacchaeus</i>		+
<i>Maireana carnosae</i>		+
<i>Maireana georgei</i>		+
* <i>Mesembryanthemum crystallinum</i>		+
<i>Sclerolaena eurotioides</i>		+
<i>Senna</i> sp. Austin (A. Strid 20210)		+
<i>Maireana thesioides</i>		Associated

Site JB013r

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	517961 mE 6705677 mN
Vegetation Unit	24 - <i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i> , <i>Acacia acuminata</i> , <i>Melaleuca nematophylla</i> tall shrubland over <i>Leptosema aphyllum</i> sparse sedgeland and <i>Waitzia acuminata</i> , <i>Xanthosia kochii</i> herbland.
Slope	Gentle
Landform	Ridge. Quartz dyke
Soil Colour	Strong brown
Soil Type	Fine sandy clay loam
Litter	45%
Bare Ground	<1%
Fire Age	>20yrs
Vegetation Condition	Excellent
Disturbances/impacts	A lot of fallen timber; water stress on <i>Leptosema</i> and <i>Xanthosia</i> .



Species	Height (m)	Cover (%)
<i>Allocasuarina dielsiana</i>	5.5	0.5
<i>Acacia acuminata</i>	3	2.5
<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>	3	33
<i>Melaleuca nematophylla</i>	2.5	1.5
<i>Acacia assimilis</i> subsp. <i>assimilis</i>	1.5	0.5
<i>Hemigenia yalgensis</i>	1.3	0.5
<i>Eremophila clarkei</i>	1	0.5
<i>Leptosema aphyllum</i>	1	3
<i>Xanthosia kochii</i>	0.9	13
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.7	0.5
<i>Austrostipa variabilis</i>	0.2	0.5
<i>Stenopetalum filifolium</i>	0.2	0.5
<i>Waitzia acuminata</i>	0.2	33
<i>Acacia effusifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Comesperma integerrimum</i>		+
<i>Philothea brucei</i> subsp. <i>brucei</i>		+
<i>Schoenia cassiniana</i>		+
<i>Sida</i> sp.		+
<i>Thysanotus manglesianus</i>		+

Site JB014r

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	517991 mE 6705706 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i> , <i>Acacia acuminata</i> , <i>Santalum spicatum</i> tall shrubland over <i>Ptilotus obovatus</i> , <i>Oleari muellerii</i> , <i>Acacia andrewsii</i> low open shrubland.
Slope	Gentle
Landform	Outwash slope of rocky ridge
Soil Colour	Red brown
Soil Type	Clay loam
Litter	20%
Bare Ground	<2%
Fire Age	>20yrs
Vegetation Condition	Very Good - Excellent
Disturbances/impacts	Few deaths, historic pastoral, water stress towards ridge, ground cover is sparse.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	4	10.5
<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>	3	14
<i>Santalum spicatum</i>	2.5	1
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	11	15
<i>Acacia tetragonophylla</i>	1.5	4
<i>Dodonaea inaequifolia</i>	1.5	3.5
<i>Acacia andrewsii</i>	0.8	2.5
<i>Olearia muelleri</i>	0.5	2.5
<i>Ptilotus obovatus</i>	0.5	8
<i>Acacia erinacea</i>		+
<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>		+
<i>Austrostipa</i> sp.		+
<i>Eremophila oldfieldii</i>		+
<i>Hemigenia yalgensis</i>		+
<i>Roepera aurantiaca</i>		+
<i>Scaevola spinescens</i>		+
<i>Sclerolaena diacantha</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Thysanotus pyramidalis</i>		+
<i>Waitzia acuminata</i>		+
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		Associated
<i>Eucalyptus salmonophloia</i>		Associated
<i>Gnaphosis drummondii</i>		Associated
<i>Santalum acuminatum</i>		Associated

Site JB015

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518046 mE 6705681 mN
Vegetation Unit	27 - <i>Allocasuarina tessellata</i> (P3), <i>Acacia auminata</i> , <i>Acacia duriscula</i> , <i>Melaleuca hamata</i> tall shrubland over <i>Malleostemon tuberculatus</i> , <i>Calothmanus gilesii</i> sparse shrubland over <i>Borya sphaerocephala</i> , <i>Waitzia acuminata</i> sparse herbland.
Slope	Flat, Gentle
Landform	Outwashed mid slope from ridge
Soil Colour	Yellow-red
Soil Type	Clay loam
Litter	22%
Bare Ground	<5%
Fire Age	>20yrs
Vegetation Condition	Very Good
Disturbances/impacts	Historical fire. Bit of water stress.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	4.5	4.5
<i>Acacia duriuscula</i>	3.8	1.5
<i>Allocasuarina tessellata</i> P3	1.9	25
<i>Melaleuca hamata</i>	1.9	3
<i>Calothamnus gilesii</i>	1.8	2
<i>Malleostemon tuberculatus</i>	1	2
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.8	0.5
<i>Borya sphaerocephala</i>	0.2	4
<i>Goodenia berardiana</i>	0.2	0.5
<i>Tricoryne elatior</i>	0.2	0.5
<i>Waitzia acuminata</i>	0.2	1

Site JB016r

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	517937 mE 6705666 mN
Vegetation Unit	13 - <i>Eucalyptus salubris</i> woodland over <i>Tecticornia disarticulata</i> , <i>Maireana carnos</i> , <i>Frankenia setosa</i> , * <i>Cleretum papulosum</i> over <i>Hyalosperma glutinosum</i> subsp. <i>venustum</i> sparse herbland.
Slope	Gentle
Landform	Outwash slope
Soil Colour	Brown
Soil Type	Sandy loam
Litter	35%
Bare Ground	<5%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Weeds, * <i>Cleretum papulosum</i> . Historic pastoral impacts



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	13	35
<i>Tecticornia disarticulata</i>	0.8	27
* <i>Cleretum papulosum</i>	0.5	3
<i>Frankenia setosa</i>	0.5	2
<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>	0.5	2
<i>Maireana carnos</i>	0.5	2
<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>		+
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		+

Site JB017

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517675 mE 6705463 mN
Vegetation Unit	13 - <i>Eucalyptus salubris</i> woodland over <i>Exocarpos aphyllus</i> isolated shrubs over <i>Sclerolaena diacantha</i> , <i>Tecticornia disarticulata</i> , <i>Frankenia setosa</i> , <i>Rhagodia drummondii</i> low shrubland over * <i>Cleretum papulosum</i> open herbland.
Slope	Plain, very gentle sloping to W
Landform	Plain
Soil Colour	Yellow to brown
Soil Type	Silty clay loam
Litter	55%
Bare Ground	15%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Weeds. Sheet erosion, some back cutting.



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	14	28
<i>Exocarpos aphyllus</i>	1	1
<i>Tecticornia disarticulata</i>	0.7	12.5
<i>Rhagodia drummondii</i>	0.6	1.5
<i>Acacia erinacea</i>	0.5	1
<i>Frankenia setosa</i>	0.4	3.5
<i>Sclerolaena diacantha</i>	0.3	18
* <i>Cleretum papulosum</i>	0.1	18
<i>Austrostipa elegantissima</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>		+
<i>Maireana carnosae</i>		+
<i>Maireana georgei</i>		+
<i>Maireana marginata</i>		+
<i>Olearia muelleri</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Senna stowardii</i>		+
<i>Siloxerus multiflorus</i>		+
<i>Eremophila clarkei</i>		Associated
<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>		Associated
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		Associated
<i>Ptilotus exaltatus</i>		Associated
<i>Ptilotus obovatus</i>		Associated

Site JB018

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517485 mE 6705448 mN
Vegetation Unit	20 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland over <i>Acacia effusifolia</i> , <i>Acacia resinomarginea</i> , <i>Melaleuca leiocarpa</i> shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> , <i>Hibbertia arctuata</i> low sparse shrubland over <i>Amphipogon caricinus</i> sparse grassland.
Slope	Gentle
Landform	Undulating plain
Soil Colour	Light yellow brown
Soil Type	Findy sandy clay loam
Litter	50%
Bare Ground	<1%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, old tracks. Erosion stabilised



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2.4	8
<i>Acacia effusifolia</i>	1.6	25
<i>Acacia resinimarginea</i>	1.6	25
<i>Allocasuarina acutivalvis</i>	1.6	8
<i>Melaleuca leiocarpa</i>	1.5	3
<i>Aluta aspera</i> subsp. <i>hesperia</i>	0.6	7
<i>Hibbertia arcuata</i>	0.6	0.5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.4	2
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.3	0.5
<i>Waitzia acuminata</i>	0.2	0.5
<i>Hakea scoparia</i>		+
<i>Philotheca sericea</i>		Associated

Site JB019r

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	517097 mE 6706193 mN
Vegetation Unit	26 - <i>Acacia effusifolia</i> , <i>Acacia resinomarginea</i> , <i>Hakea invaginata</i> , <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> shrubland over <i>Ecdeiocolea monostachya</i> , <i>Dianella revoluta</i> var. <i>divaricata</i> sparse sedgeland.
Slope	Gentle
Landform	Undulating plain
Soil Colour	Pale yellow red
Soil Type	Sandy clay loam
Litter	35%
Bare Ground	15%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, old tracks. Historic pastoral.



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	1.3	15
<i>Acacia resinimarginea</i>	1.3	15
<i>Hakea invaginata</i>	1.2	1.5
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	1.2	1.5
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.5	0.5
<i>Ecdeiocolea monostachya</i>	0.45	3.5
<i>Aluta aspera</i> subsp. <i>hesperia</i>		+
<i>Borya sphaerocephala</i>		+
<i>Hemigenia ciliata</i>		+
<i>Melaleuca hamata</i>		+
<i>Waitzia acuminata</i>		+

Site JB020

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	516411 mE 6705901 mN
Vegetation Unit	3 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> , <i>Callitris columellaris</i> open woodland over <i>Acacia anthochaera</i> , <i>Acacia acuminata</i> , <i>Santalum acuminatum</i> tall open shrubland over <i>Microcorys</i> sp. Mt Gibson (S. Patrick), <i>Alyxia buxifolia</i> , <i>Olearia</i> sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628), <i>Olearia pimeleoides</i> open shrubland over <i>Austrostipa trichophylla</i> sparse grassland.
Slope	Flat
Landform	Plain
Soil Colour	Yellow red
Soil Type	Fine sandy clay loam
Litter	35%
Bare Ground	15%
Fire Age	>10yrs
Vegetation Condition	Very Good - Excellent
Disturbances/impacts	Historic pastoral; mining activities.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	4	5
<i>Acacia anthochaera</i>	3	11
<i>Santalum acuminatum</i>	3	3
<i>Callitris columellaris</i>	12	9
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	10.5	2
<i>Alyxia buxifolia</i>	1.5	3
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)	1.2	7
<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)	1.2	4
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	1	2
<i>Olearia pimeleoides</i>	1	3
<i>Austrostipa trichophylla</i>	0.8	4
<i>Olearia muelleri</i>	0.8	0.5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Calandrinia translucens</i>		+
<i>Goodenia berardiana</i>		+
<i>Hakea recurva</i> subsp. <i>recurva</i>		+
<i>Monachather paradoxus</i>		+
* <i>Pentameris airoides</i>		+
<i>Rhagodia drummondii</i>		+
<i>Schoenia cassiniana</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Waitzia acuminata</i>		+
<i>Acacia colletioides</i>		Associated
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		Associated
<i>Dianella revoluta</i> var. <i>divaricata</i>		Associated
<i>Exocarpos aphyllus</i>		Associated
<i>Mirbelia ramulosa</i>		Associated
<i>Ptilotus obovatus</i>		Associated

Site JB021

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	516079 mE 6704379 mN
Vegetation Unit	4 - <i>Eucalyptus kochii</i> subsp. <i>plenissima</i> , <i>Eucalyptus capillosa</i> mallee woodland over <i>Melaleuca stereophloia</i> , <i>Alyxia buxifolia</i> tall shrubland over <i>Monachather paradoxus</i> , <i>Austrostipa elegantissima</i> sparse grassland.
Slope	Flat
Landform	Plain
Soil Colour	Yellow to red
Soil Type	Sand clay loam
Litter	17%
Bare Ground	<2%
Fire Age	>10yrs
Vegetation Condition	Very Good - Excellent
Disturbances/impacts	Historic pastoral and mining. Good cover of grasses.



Species	Height (m)	Cover (%)
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>	10	13
<i>Eucalyptus capillosa</i>	6.5	10
<i>Melaleuca stereophloia</i>	3	35
<i>Alyxia buxifolia</i>	1.1	1
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.8	4
<i>Monachather paradoxus</i>	0.7	4
<i>Austrostipa elegantissima</i>	0.5	0.5
<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)	0.4	0.5
<i>Actinobole uliginosum</i>		+
<i>Arthropodium dyeri</i>		+
<i>Calandrinia primuliflora</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia rosea</i>		+
<i>Lomandra effusa</i>		+
<i>Ptilotus drummondii</i>		+
<i>Schoenia cassiniana</i>		+
<i>Waitzia acuminata</i>		+
<i>Acacia colletioides</i>		Associated
<i>Borya sphaerocephala</i>		Associated
<i>Callitris columellaris</i>		Associated
<i>Santalum acuminatum</i>		Associated

Site JB022

Date	20/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	516224 mE 6704159 mN
Vegetation Unit	4 - <i>Eucalyptus kochii</i> subsp. <i>plenissima</i> , <i>Eucalyptus capillosa</i> mallee woodland over <i>Melaleuca stereophloia</i> , <i>Acacia colletioides</i> tall shrubland over <i>Austrostipa elegantissima</i> , <i>Monachather paradoxus</i> isolated tussock grasses and <i>Waitzea acuminata</i> , <i>Goodenia rosea</i> open herbland.
Slope	Flat
Landform	Plain
Soil Colour	Yellow to red
Soil Type	Fine sandy clay loam
Litter	35%
Bare Ground	<2%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	low



Species	Height (m)	Cover (%)
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>	9	14
<i>Eucalyptus capillosa</i>	7	5
<i>Acacia colletioides</i>	3	3
<i>Melaleuca stereophloia</i>	3	43
<i>Austrostipa elegantissima</i>	0.5	1
<i>Lomandra</i> sp.	0.4	0.5
<i>Olearia muelleri</i>	0.4	0.5
<i>Monachather paradoxus</i>	0.35	0.5
<i>Calandrinia primuliflora</i>	0.3	0.5
<i>Goodenia rosea</i>	0.3	13
<i>Myriocephalus occidentalis</i>	0.3	2.5
<i>Waitzia acuminata</i>	0.3	13
<i>Actinobole uliginosum</i>		+
<i>Alyxia buxifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Olearia muelleri</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Ptilotus gaudichaudii</i>		Associated
<i>Stenopetalum filifolium</i>		Associated
<i>Acacia assimilis</i> subsp. <i>assimilis</i>		Associated
<i>Aristida contorta</i>		Associated
<i>Callitris columellaris</i>		Associated
<i>Maireana carnosae</i>		Associated
<i>Maireana georgei</i>		Associated
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)		Associated
<i>Olearia pimeleoides</i>		Associated
<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)		Associated

Site JB023

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518825 mE 6710906 mN
Vegetation Unit	12 - <i>Eucalyptus salmonophloia</i> open forest over <i>Eremophila caperata</i> tall sparse shrubland over <i>Acacia collectioides</i> , <i>Acacia anthochaera</i> , <i>Acacia erinacea</i> , <i>Olearia muellerii</i> low open shrubland over <i>Ptilotus gaudichaudii</i> , <i>Ptilotus eritrichus</i> , <i>Ptilotus exaltatus</i> open herbland.
Slope	Gentle
Landform	Undulating plain, upper stone
Soil Colour	Red
Soil Type	Sand clay loam
Litter	>60%
Bare Ground	<10%
Fire Age	No signs of fire
Vegetation Condition	Excellent
Disturbances/impacts	Historic pastoral.



Species	Height (m)	Cover (%)
<i>Eremophila caperata</i>	2.2	5
<i>Eucalyptus salmonophloia</i>	15	38
<i>Acacia anthochaera</i>	1.8	4
<i>Acacia colletioides</i>	1.8	6
<i>Acacia erinacea</i>	1.2	2
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	1.2	1
<i>Olearia muelleri</i>	0.5	3
<i>Ptilotus eriotrichus</i>	0.5	2
<i>Ptilotus exaltatus</i>	0.5	2
<i>Maireana georgei</i>	0.3	0.5
<i>Ptilotus gaudichaudii</i>	0.3	12
<i>Acacia acuminata</i>		+
<i>Alyxia buxifolia</i>		+
<i>Atriplex vesicaria</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Calandrinia calyptrata</i>		+
<i>Enchylaena lanata</i>		+
<i>Eremophila pantonii</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Melaleuca eleuterostachya</i>		+
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia preissii</i>		+
<i>Roepera aurantiaca</i>		+
<i>Sclerolaena diacantha</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Senna stowardii</i>		+
<i>Waitzia acuminata</i>		+
<i>Acacia tetragonophylla</i>		Associated
<i>Atriplex stipitata</i>		Associated
<i>Dianella revoluta</i> var. <i>divaricata</i>		Associated
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>		Associated
<i>Goodenia berardiana</i>		Associated
<i>Santalum acuminatum</i>		Associated

Site JB024

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	516900 mE 6709679 mN
Vegetation Unit	7 - <i>Eucalyptus subangusta</i> , <i>Eucalyptus ewartiana</i> open mallee woodland over <i>Acacia anthochaera</i> , <i>Acacia effusifolia</i> shrubland over <i>Melaleuca leiocarpa</i> , <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098), <i>Philotheca nutans</i> (P1), <i>Hakea scoparia</i> low low open shrubland.
Slope	Gentle
Landform	Undulating plain
Soil Colour	Yellowish red
Soil Type	Clay loam
Litter	25%
Bare Ground	<1%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Mining impacts adjacent; historic fire, water stress. Bungarra hole.



Species	Height (m)	Cover (%)
<i>Eucalyptus subangusta</i>	3.5	7
<i>Acacia anthochaera</i>	2	3
<i>Eucalyptus ewartiana</i>	0.9	2
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)	0.9	2
<i>Acacia effusifolia</i>	0.8	34
<i>Hakea scoparia</i>	0.6	0.5
<i>Melaleuca leiocarpa</i>	0.6	5
<i>Philotheca nutans</i> P1	0.6	1
<i>Aluta aspera</i> subsp. <i>hesperia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Calocephalus multiflorus</i>		+
<i>Dianella revoluta</i> var. <i>divaricata</i>		+
<i>Hakea invaginata</i>		+
<i>Olearia pimeleoides</i>		+
<i>Waitzia acuminata</i>		+
<i>Persoonia pentasticha</i> P3		Associated
<i>Prostanthera prostantheroides</i>		Associated

Site JB025r

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	518075 mE 6708905 mN
Vegetation Unit	4 - <i>Eucalyptus kochii</i> subsp. <i>plenissima</i> , <i>Callitris columellaris</i> tall mallee woodland over <i>Callitris columellaris</i> , <i>Eucalyptus kochii</i> subsp. <i>plenissima</i> , <i>Acacia acuminata</i> low open woodland over <i>Alyxia buxifolia</i> , <i>Exocarpos aphyllus</i> , <i>Callitris columellaris</i> , <i>Santalanum spicatum</i> sparse shrubland <i>Acacia acuarria</i> , <i>Bursaria occidentalis</i> , <i>ptilotus obovatus</i> low open shrubland.
Slope	Almost level
Landform	Plain
Soil Colour	Yellow red
Soil Type	Sandy loam to sandy clay loam
Litter	35%
Bare Ground	20%
Fire Age	>20yrs
Vegetation Condition	Excellent
Disturbances/impacts	low



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	4.5	2
<i>Allocasuarina dielsiana</i>	4.5	0.5
<i>Alyxia buxifolia</i>	2.5	2
<i>Exocarpos aphyllus</i>	2.5	2
<i>Santalum spicatum</i>	2.5	1
<i>Callitris columellaris</i>	10	5
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>	10	15
<i>Acacia acuaria</i>	1	8
<i>Bursaria occidentalis</i>	1	2
<i>Ptilotus obovatus</i>	0.6	2
<i>Acacia erinacea</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Calandrinia translucens</i>		+
<i>Dianella revoluta</i>		+
<i>Eremophila pantonii</i>		+
<i>Maireana georgei</i>		+
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)		+
<i>Olearia</i> sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)		+
<i>Ptilotus drummondii</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Schoenia cassiniana</i>		+
<i>Solanum lasiophyllum</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Waitzia acuminata</i>		+
<i>Aristida contorta</i>		Associated
<i>Goodenia rosea</i>		Associated
<i>Hakea invaginata</i>		Associated
<i>Olearia muelleri</i>		Associated
<i>Scaevola spinescens</i>		Associated

Site JB026

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	518751 mE 6709075 mN
Vegetation Unit	19 – <i>Acacia burkittii</i> , <i>Allocasuarina acutivalvis</i> subsp <i>acutivalvis</i> , <i>Acacia sibina</i> , <i>Acacia synoria</i> (P2) tall open shrubland over <i>Ecdeiocolea monostachya</i> , <i>Acacia synoria</i> (P2), <i>Melaleuca stereophloia</i> open rushland over <i>Borya sphaerocephala</i> , <i>Hemigenia ciliata</i> , <i>Amphipogon caricinus</i> subsp. <i>caricinus</i> low open forbland
Slope	Gentle
Landform	Undulating plain
Soil Colour	Yellow to brown
Soil Type	Sand clay loam
Litter	17%
Bare Ground	30%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Water Stress



Species	Height (m)	Cover (%)
<i>Acacia sibina</i>	2.5	4
<i>Allocasuarina acutivalvis</i>	2.5	7
<i>Acacia burkittii</i>	1.8	15
<i>Acacia synoria</i> P2	1.5	5
<i>Ecdeiocolea monostachya</i>	0.9	15
<i>Melaleuca stereophloia</i>	0.8	3
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.4	3
<i>Hemigenia ciliata</i>	0.4	4
<i>Mirbelia spinosa</i>	0.4	1
<i>Borya sphaerocephala</i>	0.2	13
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.2	0.5
<i>Helipterum craspedioides</i>		+
<i>Waitzia acuminata</i>		+
<i>Eremophila viscida</i> T		Associated
<i>Hemigenia ciliata</i>		Associated
<i>Malleostemon tuberculatus</i>		Associated

Site JB027r

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	518372 mE 6708414 mN
Vegetation Unit	27 - <i>Acacia acuminata</i> tall sparse shrubland over <i>Allocasuarina tessellata</i> (P3), <i>Melaleuca radula</i> , <i>Acacia duriuscula</i> , <i>Malleostemon roseus</i> shrubland over <i>Goodenia berardiana</i> herbland.
Slope	Moderate
Landform	Upper slope, Granite hill and Dolerite outcrop
Soil Colour	Red
Soil Type	Clay loam
Litter	<10%
Bare Ground	1%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Bit of water stress



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	3.5	3
<i>Alyogyne hakeifolia</i>	2.5	0.5
<i>Allocasuarina tessellata</i> P3	1.5	23
<i>Melaleuca radula</i>	1.5	8
<i>Acacia duriuscula</i>	1.3	2
<i>Malleostemon roseus</i>	1.1	2
<i>Hemigenia ciliata</i>	0.3	0.5
<i>Solanum lasiophyllum</i>	0.2	0.5
<i>Aristida contorta</i>	0.1	0.5
<i>Goodenia berardiana</i>	0.1	35
<i>Waitzia acuminata</i>	0.1	8
<i>Grevillea levis</i>		+
<i>Hemigenia yalgensis</i>		+
<i>Leptosema aphyllum</i>		+
<i>Pimelea avonensis</i>		+
<i>Scaevola spinescens</i>		Associated
<i>Acacia jibberdingensis</i>		Associated
<i>Borya sphaerocephala</i>		Associated
<i>Calandrinia primuliflora</i>		Associated
<i>Calycopeplus paucifolius</i>		Associated
<i>Eremophila clarkei</i>		Associated
<i>Eremophila granitica</i>		Associated
<i>Eremophila serrulata</i>		Associated
<i>Eriachne ovata</i>		Associated
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		Associated

Site JB028r

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	514853 mE 6707724 mN
Vegetation Unit	26 - <i>Acacia effusifolia</i> , <i>Melaleuca hamata</i> , <i>Hysterobaseckea setifera</i> shrubland over <i>Ecdeiocolea monostachya</i> sparse sedgeland.
Slope	Flat. Slight depression
Landform	Plain
Soil Colour	Light yellow brown
Soil Type	Sand loam to sandy clay loam
Litter	7%
Bare Ground	20%
Fire Age	10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Powerline, fire, Rabbits. Low diversity



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	1.4	23
<i>Melaleuca hamata</i>	1.4	4
<i>Hysterobaeckea setifera</i>	1.1	3
<i>Ecdeiocolea monostachya</i>	1	9
<i>Hemigenia ciliata</i>	0.5	8
<i>Waitzia acuminata</i>	0.2	0.5
<i>Acacia burkittii</i>		+
<i>Acacia longispinea</i>		Associated
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		Associated
<i>Glischrocaryon aureum</i>		Associated
<i>Mirbelia spinosa</i>		Associated
<i>Seringia velutina</i>		Associated

Site JB029r

Date	21/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	513700 mE 6708392 mN
Vegetation Unit	6 - <i>Eucalyptus capillosa</i> low mallee woodland over <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Hakea francisiana</i> , <i>Acacia coolgardiensis</i> tall shrubland over <i>Phebalium canaliculatum</i> , <i>Hibbertia arcuata</i> low sparse shrubland.
Slope	Low rise, gentle slope, mid to upper slope
Landform	Undulating plain
Soil Colour	Brown
Soil Type	Sandy loam
Litter	>90%
Bare Ground	<1%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Low



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i>	6.5	15
<i>Eucalyptus capillosa</i>	6.5	15
<i>Acacia coolgardiensis</i>	6	35
<i>Hakea francisiana</i>	6	8
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.1	1
<i>Phebalium canaliculatum</i>	1	8
<i>Hibbertia arcuata</i>	0.7	2
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.5	2
<i>Waitzia acuminata</i>	0.1	0.5
<i>Comesperma integerrimum</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Melaleuca stereophloia</i>		+
<i>Eucalyptus kochii</i>		Associated
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>		Associated

Site JB030

Date	22/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	515871 mE 6705147 mN
Vegetation Unit	22 - <i>Acacia sibina</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Hakea invaginata</i> open shrubland over <i>Baeckea elderiana</i> , <i>Grevillea yorkkrakensis</i> , <i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) (P3) low sparse shrubland over <i>Ecdeiochloa monostachya</i> , <i>Borya sphaerocephala</i> , <i>Stylidium limbatum</i> open sedgeland.
Slope	Gentle
Landform	Sandplain
Soil Colour	Brown
Soil Type	Sandy loam
Litter	< 10%
Bare Ground	35%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Fire, some wind erosion, hummocking, building up against sedge tussocks 10cm.



Species	Height (m)	Cover (%)
<i>Acacia sibina</i>	1.7	18
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.7	0.5
<i>Hakea invaginata</i>	1.7	2
<i>Ecdeiocolea monostachya</i>	1	11
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.9	1
<i>Baeckea elderiana</i>	0.8	3
<i>Melichrus</i> sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069) P3	0.3	3
<i>Grevillea yorkrakinensis</i>	0.2	2
<i>Stylidium limbatum</i>	0.15	0.5
<i>Borya sphaerocephala</i>	0.1	3
<i>Gnephosis tenuissima</i>	0.02	0.5
<i>Lepidosperma costale</i>		+
<i>Hysterobaeckea setifera</i>		Associated
<i>Waitzia acuminata</i>		Associated

Site JB031

Date	22/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	515779 mE 6705186 mN
Vegetation Unit	22 - <i>Acacia sibina</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Hakea invaginata</i> open shrubland over <i>Baeckea elderiana</i> , <i>Grevillea acacioides</i> , <i>Malleostemon roseus</i> low sparse shrubland over <i>Ecdeiochloa monostachya</i> , <i>Borya sphaerocephala</i> , <i>Lepidosperma costale</i> open sedgeland.
Slope	Gentle, flat-slope
Landform	Plain, slight depression
Soil Colour	Brown
Soil Type	Sandy loam
Litter	1%
Bare Ground	20%
Fire Age	10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Historic fire and wind erosion.



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.9	0.5
<i>Acacia sibina</i>	1.7	19
<i>Hakea invaginata</i>	1.5	0.5
<i>Melaleuca hamata</i>	1.4	6
<i>Dianella revoluta</i> var. <i>divaricata</i>	1	1
<i>Ecdeiocolea monostachya</i>	1	11
<i>Baeckea elderiana</i>	0.5	18
<i>Grevillea acacioides</i>	0.5	3
<i>Lepidosperma costale</i>	0.5	3
<i>Malleostemon roseus</i>	0.5	3
<i>Borya sphaerocephala</i>	0.1	3
<i>Stylidium limbatum</i>	0.1	1
<i>Thysanotus</i> sp.		+
<i>Acacia dielsii</i>		Associated
<i>Grevillea yorkkrakinensis</i>		Associated
<i>Hysterobaeckea setifera</i>		Associated
<i>Melaleuca cordata</i>		Associated

Site JB032

Date	22/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	516763 mE 6708903 mN
Vegetation Unit	7 - <i>Eucalyptus ewartiana</i> , <i>Eucalyptus leptopoda</i> open mallee woodland over <i>Acacia effusifolia</i> , <i>Acacia longispinea</i> tall shrubland over <i>Melaleuca leiocarpa</i> , <i>Philotheca nutans</i> (P1), <i>Hysterobaeckea setifera</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> isolated tussock grasses.
Slope	Gentle
Landform	Undulating plain, slight depression
Soil Colour	Light brown
Soil Type	Sand clay loam
Litter	35%
Bare Ground	35%
Fire Age	10yrs
Vegetation Condition	Very Good - excellent
Disturbances/impacts	Fire, historic pastoral, mining and some water stress.



Species	Height (m)	Cover (%)
<i>Eucalyptus ewartiana</i>	4	3
<i>Eucalyptus leptopoda</i>	4	2
<i>Acacia effusifolia</i>	1.5	42
<i>Allocasuarina acutivalvis</i>	1.5	2
<i>Melaleuca leiocarpa</i>	0.9	4
<i>Acacia longispinea</i>	0.7	0.5
<i>Philotheca nutans</i> P1	0.7	4
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.15	0.5
<i>Hysterobaeckea setifera</i>	0.1	0.5
<i>Aluta aspera</i> subsp. <i>Hesperia</i>		+
<i>Callitris columellaris</i>		+
<i>Dianella revoluta</i> var. <i>divaricata</i>		+
<i>Hakea invaginata</i>		+
<i>Hakea francisiana</i>		Associated
<i>Prostanthera prostantheroides</i>		Associated
<i>Thysanotus manglesianus</i>		Associated
<i>Waitzia acuminata</i>		Associated

Site JB033r

Date	22/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	Relevé
NW Corner Coordinates	511598 mE 6709517 mN
Vegetation Unit	20 – <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia effusifolia</i> , <i>Acacia longispinea</i> , <i>Acacia neurophylla</i> subsp. <i>erugata</i> tall shrubland over <i>Calothamnus gilesii</i> , <i>Aluta aspera</i> low isolated shrubs over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland.
Slope	Gentle
Landform	Sandplain, plain
Soil Colour	Yellow brown
Soil Type	Sandy loam
Litter	>90%
Bare Ground	<1%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Mature veg community, only surface soil (bare) is associated with ant nests. Some disturbance near road and airport side.



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	7	35
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	7	4
<i>Acacia neurophylla</i> subsp. <i>Erugata</i>	4.5	2
<i>Acacia longispinea</i>	4	8
<i>Calothamnus gilesii</i>	2.5	0.5
<i>Aluta aspera</i> subsp. <i>hesperia</i>	1.5	0.5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	3
<i>Waitzia acuminata</i>	0.1	0.5
<i>Brachychiton gregorii</i>		Associated
<i>Grevillea eriostachya</i>		Associated
<i>Grevillea pterosperma</i>		Associated

Site JB034

Date	22/11/2022
Botanist	Jenny Borger and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	514893 mE 6710108 mN
Vegetation Unit	9 - <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> mallee woodland over <i>Allocasuarina corniculata</i> , <i>Acacia longispinea</i> , <i>Acacia effusifolia</i> , <i>Melaleuca hamata</i> tall open shrubland over <i>Hysterobaeckea setifera</i> , <i>Aluta aspera</i> subsp. <i>hesperia</i> , <i>Hakea invaginata</i> open shrubland over <i>Ecdeiocolea monostachya</i> open sedgeland.
Slope	Gentle
Landform	Sandplain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	35%
Bare Ground	15%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Historic mining, water stress.



Species	Height (m)	Cover (%)
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>	4	12
<i>Melaleuca hamata</i>	4	2
<i>Acacia effusifolia</i>	3.5	4
<i>Allocasuarina corniculata</i>	2	0.5
<i>Acacia longispinea</i>	1.5	9
<i>Hakea invaginata</i>	1.5	2
<i>Hysterobaeckea setifera</i>	1.5	8
<i>Hibbertia stenophylla</i>	1	2
<i>Ecdeiocolea monostachya</i>	0.6	23
<i>Aluta aspera</i> subsp. <i>hesperia</i>	0.4	2
<i>Acacia stereophylla</i> var. <i>stereophylla</i>		+
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>		+
<i>Philothea thryptomenoides</i>		+
<i>Waitzia acuminata</i>		+
<i>Grevillea eriostachya</i>		Associated
<i>Malleostemon roseus</i>		Associated
<i>Melaleuca conothamnoides</i>		Associated
<i>Verticordia helmsii</i>		Associated

Site MG001

Date	27/11/2022
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515405.09 mE 6706621.871 mN
Vegetation Unit	21 - <i>Acacia effusifolia</i> , <i>Allocasurina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland over <i>Enekbatus stowardii</i> , <i>Philotheca glabra</i> low open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	30%
Bare Ground	10%
Fire Age	> 10yrs
Vegetation Condition	Good - Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	8	40
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	8	25
<i>Enekbatus stowardii</i>	1	5
<i>Philotheca glabra</i>	1	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	10
<i>Brunonia australis</i>		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Dianella revoluta</i> var. <i>divaricata</i>		+
<i>Drosera menziesii</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis</i> ? <i>drummondii</i>		+
<i>Goodenia occidentalis</i>		+
<i>Grevillea paradoxa</i>		+
<i>Hakea invaginata</i>		+
<i>Hibbertia arcuata</i>		+
<i>Lawrencella rosea</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Monachather paradoxus</i>		+
<i>Prostanthera campbellii</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Rhodanthe citrina</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG002

Date	27/11/2022
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515612.186 mE 6706560.796 mN
Vegetation Unit	12 - <i>Eucalyptus salubris</i> woodland over <i>Acacia acanthoclada</i> tall sparse shrubland over <i>Olearia muelleri</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Brown orange
Soil Type	Sandy loam
Litter	30%
Bare Ground	45%
Fire Age	3-5yrs
Vegetation Condition	Good - Very Good
Disturbances/impacts	Historic tracks nearby.



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	20	45
<i>Acacia acanthoclada</i>	2.5	5
<i>Olearia muelleri</i>	0.5	15
<i>Alyxia buxifolia</i>		+
<i>Arthropodium dyeri</i>		+
<i>Atriplex paludosa</i> subsp. <i>baudinii</i>		+
<i>Austrostipa nitida</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Calandrinia baccata</i>		+
<i>Cephalopterum drummondii</i>		+
<i>Comesperma integerrimum</i>		+
<i>Enchylaena lanata</i>		+
<i>Enchylaena tomentosa</i>		+
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia occidentalis</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>		+
<i>Maireana carnosae</i>		+
<i>Maireana georgei</i>		+
<i>Maireana marginata</i>		+
<i>Maireana trichoptera</i>		+
<i>Ptilotus eriotrichus</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Scaevola spinescens</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Sclerolaena gardneri</i>		+
<i>Senna stowardii</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Waitzia acuminata</i>		+

Site MG003

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515366.585 mE 6707483.452 mN
Vegetation Unit	5 - <i>Eucalyptus?ceratocorys</i> tall open mallee forest and <i>Callitris columellaris</i> low open woodland over <i>Acacia effusifolia</i> tall open shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	45%
Bare Ground	30%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus ?ceratocorys</i>	12	30
<i>Callitris columellaris</i>	8	5
<i>Acacia effusifolia</i>	6	20
<i>Aluta aspera</i> subsp. <i>hesperia</i>	2	25
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	10
<i>Waitzia acuminata</i>	0.2	2
<i>Acacia acuaria</i>		+
<i>Alyxia buxifolia</i>		+
<i>Bellida graminea</i>		+
<i>Brunonia australis</i>		+
<i>Callitris ?columellaris</i>		+
<i>Calocephalus</i> sp.		+
<i>Crassula colorata</i>		+
<i>Eremophila clarkei</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis ?drummondii</i>		+
<i>Goodenia capillosa</i>		+
<i>Hakea minyma</i>		+
<i>Hemigenia ciliata</i>		+
<i>Lawrencella rosea</i>		+
<i>Lobelia fissiflora</i>		+
<i>Monachather paradoxus</i>		+
<i>Poranthera leiosperma</i>		+
<i>Pterostylis spathulata</i>		+
<i>Ptilotus spathulatus</i>		+
<i>Scaevola spinescens</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Stylidium confluens</i>		+
<i>Stylidium warriedarens</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Tricoryne tuberosa</i>		+
<i>Waitzia acuminata</i>		+

Site MG004

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515385.992 mE 6707135.909 mN
Vegetation Unit	21 - <i>Eucalyptus ?ceratocorys</i> open woodland over <i>Acacia effusifolia</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall closed shrubland over <i>Hibbertia arcuata</i> , <i>Philothea deserti</i> subsp. <i>deserti</i> sparse shrubland.
Slope	Flat
Landform	Plain, depression
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	20%
Bare Ground	5%
Fire Age	> 10yrs
Vegetation Condition	Very Good - Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus ?ceratocorys</i>	12	5
<i>Acacia effusifolia</i>	6	80
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	5	5
<i>Philotheca deserti</i> subsp. <i>deserti</i>	1.5	2
<i>Hibbertia arcuata</i>	1	5
<i>Blennospora</i> sp.		+
<i>Brunonia australis</i>		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Crassula colorata</i>		+
<i>Drosera menziesii</i>		+
<i>Goodenia occidentalis</i>		+
<i>Hyalosperma demissum</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Lawrencella rosea</i>		+
<i>Lobelia fissiflora</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Rhodanthe laevis</i>		+
<i>Schoenus nanus</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Thysanotus pyramidalis</i>		+
<i>Thysanotus</i> sp.		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG005

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	518199.031 mE 6712654.918 mN
Vegetation Unit	12 - <i>Eucalyptus ? salmonophloia</i> tall woodland over <i>Acacia acanthoclada</i> tall sparse shrubland over <i>Senna stowardii</i> , <i>Atriplex paludosa</i> subsp. <i>baudinii</i> shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	10%
Bare Ground	35%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Historic tracks nearby.



Species	Height (m)	Cover (%)
<i>Eucalyptus ?salmonophloia</i>	25	20
<i>Acacia acanthoclada</i>	2.5	5
<i>Senna stowardii</i>	1.5	10
<i>Atriplex paludosa</i> subsp. <i>baudinii</i>	1	30
<i>Erymophyllum glossanthus</i>	0.1	5
<i>Actinobole uliginosum</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa nitida</i>		+
<i>Cephalopterum drummondii</i>		+
* <i>Cleretum papulosum</i>		+
<i>Gnephosis brevifolia</i>		+
<i>Maireana carnosia</i>		+
<i>Maireana georgei</i>		+
<i>Maireana trichoptera</i>		+
* <i>Mesembryanthemum nodiflorum</i>		+
<i>Pogonolepis muelleriana</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Roepera aurantiaca</i>		+
<i>Roepera ovata</i>		+
<i>Sclerolaena diacantha</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Sida petrophila</i>		+

Site MG006

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517009.752 mE 6708982.991 mN
Vegetation Unit	26 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia effusifolia</i> , <i>Hysterobaekea setifera</i> subsp. <i>setifera</i> closed shrubland over <i>Hemigenia ciliata</i> sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Light to brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	50%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, lots of juvenile regrowth.



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2	20
<i>Acacia effusifolia</i>	1.5	40
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	1.5	10
<i>Hemigenia ciliata</i>	0.3	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Borya sphaerocephala</i>		+
<i>Brachyscome</i> sp.		+
<i>Calocephalus</i> sp.		+
<i>Ecdeiocollea monostachya</i>		+
<i>Hakea invaginata</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Lobelia fissiflora</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Waitzia acuminata</i>		+

Site MG007

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	516646.557 mE 6708684.776 mN
Vegetation Unit	8 - <i>Eucalyptus? kochii</i> mallee woodland over <i>Acacia acuminata</i> , <i>Acacia effusifolia</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall shrubland over mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red orange
Soil Type	Sandy loam
Litter	30%
Bare Ground	30%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire and weeds



Species	Height (m)	Cover (%)
<i>Eucalyptus ?kochii</i>	7	15
<i>Acacia acuminata</i>	3	35
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	3	5
<i>Acacia effusifolia</i>	2.5	10
<i>Waitzia acuminata</i>	0.5	2
<i>Acacia acanthoclada</i>		+
<i>Alyxia buxifolia</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Brachyscome</i> sp.		+
* <i>Brassica tournefortii</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calocephalus</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i>		+
<i>Drosera menziesii</i>		+
<i>Eremophila caperata</i>		+
<i>Eremophila clarkei</i>		+
<i>Goodenia capillosa</i>		+
<i>Goodenia rosea</i>		+
<i>Menkea australis</i>		+
<i>Olearia muelleri</i>		+
<i>Philothea brucei</i> subsp. <i>brucei</i>		+
<i>Poranthera leiosperma</i>		+
<i>Pterostylis</i> sp.		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhodanthe laevis</i>		+
<i>Santalum acuminatum</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Senna stowardii</i>		+
<i>Solanum lasiophyllum</i>		+
<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus pyramidalis</i>		+
<i>Trachymene ornata</i>		+

<i>Callitris columellaris</i>		Associated
-------------------------------	--	------------

Site MG008

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	516980.991 mE 6708483.317 mN
Vegetation Unit	26 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia effusifolia</i> , <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> tall shrubland over <i>Hemigenia ciliata</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	2%
Bare Ground	40%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, lots of juvenile regrowth.



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2.5	10
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	2	2
<i>Acacia effusifolia</i>	1.5	45
<i>Hemigenia ciliata</i>	0.3	3
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Brachyscome</i> sp.		+
<i>Calothamnus aridus</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera menziesii</i>		+
<i>Ecdeiocolea monostachya</i>		+
<i>Gnephosis</i> ? <i>drummondii</i>		+
<i>Hakea invaginata</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Lobelia fissiflora</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Waitzia acuminata</i>		+

Site MG009

Date	28/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	516727.161 mE 6708204.385 mN
Vegetation Unit	7 - <i>Acacia effusifolia</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> closed shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	2%
Bare Ground	15%
Fire Age	1-3yrs
Vegetation Condition	Good
Disturbances/impacts	Fire, lots of juvenile regrowth.



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	1.5	80
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	1.5	2
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	1.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.2	2
<i>Calocephalus</i> sp.		+
<i>Cheiranthra simplicifolia</i>		+
<i>Dianella revoluta</i>		+
<i>Duboisia hopwoodii</i>		+
<i>Enekbatus stowardii</i>		+
<i>Hakea invaginata</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Lobelia fissiflora</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)		+
<i>Philotheca deserti</i> subsp. <i>deserti</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Thysanotus patersonii</i>		+
<i>Waitzia acuminata</i>		+

Site MG010

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	516983.945 mE 6707597.431 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> open woodland over <i>Acacia acuminata</i> , <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Dodonaea inaequifolia</i> tall open shrubland over <i>Maireana georgei</i> low sparse CHENOPODIACEAE spp. shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	20%
Bare Ground	30%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Recent fire, lots of dead wood, poor upper story.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	3.5	15
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2	3
<i>Dodonaea inaequifolia</i>	2	5
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	12	15
<i>Maireana georgei</i>	0.3	3
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa nitida</i>		+
<i>Blennospora</i> sp.		+
<i>Calandrinia baccata</i>		+
<i>Calotis hispidula</i>		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i>		+
<i>Daucus glochidiatus</i>		+
<i>Dianella revoluta</i>		+
<i>Eremophila clarkei</i>		+
<i>Eremophila georgei</i>		+
<i>Erymophyllum glossanthus</i>		+
<i>Goodenia rosea</i>		+
<i>Grevillea levis</i>		+
<i>Haloragis trigonocarpa</i>		+
<i>Lawrencella rosea</i>		+
<i>Maireana thesioides</i>		+
<i>Melaleuca eleuterostachya</i>		+
<i>Olearia muelleri</i>		+
<i>Phlegmatospermum drummondii</i>		+
<i>Pogonolepis muelleriana</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia eremaea</i>		+
<i>Rytidosperma caespitosum</i>		+
<i>Scaevola spinescens</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus pyramidalis</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG011

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517164.066 mE 6707597.598 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Acacia acuminata</i> , <i>Acacia effusifolia</i> , <i>Melaleuca eleuterostachya</i> tall shrubland.
Slope	Flat
Landform	Plain, depression
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	20%
Bare Ground	10%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Recent fire, lots of dead wood, poor upper story.



Species	Height (m)	Cover (%)
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	8	5
<i>Acacia acuminata</i>	3.5	40
<i>Acacia effusifolia</i>	2	15
<i>Melaleuca eleuterostachya</i>	2	2
<i>Waitzia acuminata</i>	0.2	3
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa nitida</i>		+
<i>Bellida graminea</i>		+
<i>Blennospora</i> sp.		+
<i>Borya sphaerocephala</i>		+
<i>Brachyscome</i> sp.		+
<i>Brunonia australis</i>		+
<i>Calandrinia eremaea</i>		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Crassula colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera menziesii</i>		+
<i>Ecdeiocolea monostachya</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Gnephosis</i> ? <i>drummondii</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Hemigenia ciliata</i>		+
<i>Hyalosperma demissum</i>		+
<i>Lawrencella rosea</i>		+
<i>Lobelia fissiflora</i>		+
<i>Melaleuca hamata</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Pogonolepis muelleriana</i>		+
<i>Rhodanthe laevis</i>		+
<i>Scaevola spinescens</i>		+
<i>Schoenia cassiniana</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Trachymene ceratocarpa</i>		+

<i>Trachymene ornata</i>		+
<i>Tricoryne tuberosa</i>		+

Site MG012

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517067.896 mE 6707948.387 mN
Vegetation Unit	26 - <i>Acacia effusifolia</i> closed shrubland over <i>Hemigenia ciliata</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> , <i>Amphipgon caricinus</i> var. <i>caricinus</i> and sedgeland/tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	2%
Bare Ground	10%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, juvenile regrowth.



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	1.5	75
<i>Ecdeiocolea monostachya</i>	1	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	2
<i>Hemigenia ciliata</i>	0.5	5
<i>Crassula colorata</i>		+
<i>Drosera menziesii</i>		+
<i>Gnephosis ? drummondii</i>		+
<i>Grevillea levis</i>		+
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>		+
<i>Jacksonia acicularis</i>		+
<i>Lobelia fissiflora</i>		+
<i>Mirbelia microphylla</i>		+
<i>Poranthera leiosperma</i>		+
<i>Thysanotus patersonii</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG013

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517148.055 mE 6710247.178 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Acacia acuminata</i> tall open shrubland over <i>Ptilotus obovatus</i> low isolated shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	40%
Bare Ground	50%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Burnt trunks of larger dead trees, dead wood scattered around, not much understory present.



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	2.5	20
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	12	25
<i>Ptilotus obovatus</i>	0.3	2
<i>Waitzia acuminata</i>	0.2	2
<i>Arthropodium dyeri</i>		+
<i>Austrostipa nitida</i>		+
<i>Bellida graminea</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia</i> sp.		+
<i>Calocephalus</i> sp.		+
<i>Crassula colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Enchylaena lanata</i>		+
<i>Eremophila clarkei</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia rosea</i>		+
<i>Hemigenia yalgensis</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Menkea australis</i>		+
<i>Panaetia lessonii</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Plantago debilis</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Rhodanthe laevis</i>		+
<i>Roepera aurantiaca</i>		+
<i>Roepera ovata</i>		+
<i>Schoenia cassiniana</i>		+
<i>Senecio ?glossanthus</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+

Site MG014

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517503.861 mE 6710158.193 mN
Vegetation Unit	3 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> woodland over <i>Acacia acuminata</i> , <i>Acacia effusifolia</i> open shrubland over <i>Olearia muelleri</i> low open shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	30%
Bare Ground	55%
Fire Age	1-3yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, lots of dead wood fallen



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	2	2
<i>Acacia effusifolia</i>	2	2
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	12	15
<i>Olearia muelleri</i>	0.5	15
<i>Acacia acuaria</i>		+
<i>Alyxia buxifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa nitida</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia</i> sp.		+
<i>Callitris columellaris</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Crassula colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Enchylaena lanata</i>		+
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia rosea</i>		+
<i>Lawrencella rosea</i>		+
<i>Lobelia fissiflora</i>		+
<i>Maireana georgei</i>		+
<i>Maireana trichoptera</i>		+
<i>Menkea australis</i>		+
<i>Monachather paradoxus</i>		+
<i>Olearia pimeleoides</i>		+
<i>Olearia</i> sp.		+
<i>Ptilotus drummondii</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Rhagodia eremaea</i>		+
<i>Roepera ovata</i>		+
<i>Rytidosperma caespitosum</i>		+
<i>Sclerolaena fusiformis</i>		+

<i>Stenopetalum filifolium</i>		+
<i>Waitzia acuminata</i>		+

Site MG015

Date	27/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517181.928 mE 6710447.239 mN
Vegetation Unit	7 - <i>Acacia effusifolia</i> , <i>Eucalyptus ewartiana</i> closed shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Light Brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	25%
Fire Age	1-3yrs
Vegetation Condition	Good
Disturbances/impacts	Fire, juvenile regrowth.



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	1.5	80
<i>Eucalyptus ewartiana</i>	1.5	2
<i>Waitzia acuminata</i>	0.2	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Calandrinia</i> sp.		+
<i>Enekbatus stowardii</i>		+
<i>Goodenia berardiana</i>		+
<i>Hakea ?minyma</i>		+
<i>Melaleuca leiocarpa</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Thysanotus manglesianus</i>		+

Site MG016

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517554.503 mE 6711149.335 mN
Vegetation Unit	17 - <i>Eucalyptus ? horistes</i> open mallee woodland over <i>Acacia acuminata</i> , <i>Acacia effusifolia</i> tall shrubland over <i>Philotheca nutans</i> (P1) sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	10%
Bare Ground	65%
Fire Age	> 10yrs
Vegetation Condition	Good – Very Good
Disturbances/impacts	Fire, upper story mostly destroyed, <i>Eucalyptus</i> regrowth present.



Species	Height (m)	Cover (%)
<i>Eucalyptus ?horistes</i>	5	5
<i>Acacia acuminata</i>	2.5	5
<i>Acacia effusifolia</i>	2	30
<i>Philotheca nutans</i> P1	0.5	2
<i>Waitzia acuminata</i>	0.2	1
<i>Austrostipa trichophylla</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia</i> sp.		+
<i>Calocephalus</i> sp.		+
<i>Cheiranthra simplicifolia</i>		+
<i>Enchylaena tomentosa</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia occidentalis</i>		+
<i>Menkea australis</i>		+
<i>Philotheca tomentella</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Thysanotus manglesianus</i>		+

Site MG017

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517838.725 mE 6711140.685 mN
Vegetation Unit	1 - <i>Callitris columellaris</i> low open forest over <i>Melaleuca leiocarpa</i> tall sparse shrubland over <i>Acacia effusifolia</i> open shrubland over <i>Amphipogon carcinus</i> var. <i>carcinus</i> low isolated tussock grasses.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	45%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, upper story maintained, nearby fire destroyed upper <i>Callitris</i> and <i>Melaleuca</i> .



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	8	30
<i>Melaleuca leiocarpa</i>	6	5
<i>Acacia effusifolia</i>	1.5	25
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.2	1
<i>Calocephalus</i> sp.	0.1	1
<i>Waitzia acuminata</i>	0.1	1
<i>Acacia obtecta</i>		+
<i>Acacia tetragonophylla</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Bellida graminea</i>		+
<i>Bossiaea walkeri</i>		+
<i>Calandrinia</i> sp.		+
<i>Cheiranthra simplicifolia</i>		+
<i>Crassula colorata</i>		+
<i>Enekbatus stowardii</i>		+
<i>Eremophila granitica</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Olearia pimeleoides</i>		+
<i>Persoonia pentasticha</i> P3		+
<i>Philothea tomentella</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+

Site MG018

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	518233.703 mE 6711176.99 mN
Vegetation Unit	4 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> , <i>Callitris columellaris</i> woodland over <i>Acacia acuminata</i> tall sparse shrubland over <i>Bossiaea walkeri</i> , <i>Hibbertia exasperata</i> shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red orange
Soil Type	Sandy loam
Litter	15%
Bare Ground	20%
Fire Age	5-10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	15	5
<i>Callitris columellaris</i>	6	5
<i>Acacia acuminata</i>	4	5
<i>Bossiaea walkeri</i>	1.5	30
<i>Hibbertia exasperata</i>	1	5
<i>Actinobole uliginosum</i>		+
<i>Austrostipa nitida</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Blennospora</i> sp.		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia granulifera</i>		+
<i>Calotis hispidula</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i>		+
<i>Erodium cygnorum</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Lawrencella rosea</i>		+
<i>Levenhookia dubia</i>		+
<i>Levenhookia octomaculata</i>		+
<i>Olearia muelleri</i>		+
<i>Plantago debilis</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Rhodanthe laevis</i>		+
<i>Roepera ovata</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG019

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	517925.479 mE 6711464.228 mN
Vegetation Unit	1 - <i>Callitris columellaris</i> low open forest over <i>Acacia acuminata</i> tall open shrubland over <i>Eremophila granitica</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red orange
Soil Type	Sandy loam
Litter	150%
Bare Ground	20%
Fire Age	3-5yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire, some damage to upper story, dead wood around, three stratum layers still prominent.



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	8	40

<i>Acacia acuminata</i>	3	10
<i>Eremophila granitica</i>	0.5	5
<i>Acacia acuarria</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Bellida graminea</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia</i> sp.		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
* <i>Cleretum papulosum</i>		+
<i>Crassula colorata</i>		+
<i>Enchylaena lanata</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gilruthia osbornei</i>		+
<i>Hakea recurva</i> subsp. <i>arida</i>		+
<i>Lawrencella rosea</i>		+
<i>Maireana carnosa</i>		+
<i>Nicotiana rotundifolia</i>		+
<i>Olearia pimeleoides</i>		+
<i>Persoonia pentasticha</i> P3		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Rhodanthe laevis</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG020

Date	29/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515918.666 mE 6710446.717 mN
Vegetation Unit	2 - <i>Eucalyptus horistes</i> mallee woodland over <i>Acacia effusifolia</i> , <i>Acacia prairii</i> tall closed shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Orange brown
Soil Type	Sandy loam
Litter	85%
Bare Ground	2%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus horistes</i>	8	20
<i>Acacia effusifolia</i>	3	75
<i>Acacia prainii</i>	2.5	5
<i>Acacia acuaria</i>		+
<i>Acacia longispinea</i>		+
<i>Actinobole uliginosum</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Brunonia australis</i>		+
<i>Cryptandra apetala</i> var. <i>apetala</i>		+
<i>Dianella revoluta</i>		+
<i>Enekbatus stowardii</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis ? drummondii</i>		+
<i>Goodenia rosea</i>		+
<i>Hakea ? minyma</i>		+
<i>Lawrencella rosea</i>		+
<i>Philothea deserti</i> subsp. <i>deserti</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Plantago debilis</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Rhodanthe laevis</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Stylidium warriedarens</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Tricoryne tuberosa</i>		+
<i>Waitzia acuminata</i>		+

Site MG021

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	514612.412 mE 6717851.228 mN
Vegetation Unit	5 - <i>Callitris columellaris</i> low woodland and <i>Eucalyptus kochii</i> open mallee woodland over <i>Melaleuca leiocarpa</i> , <i>Acacia effusifolia</i> tall open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Red orange
Soil Type	Sandy loam
Litter	65%
Bare Ground	25%
Fire Age	5-10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL, lots of dead wood around.



Species	Height (m)	Cover (%)
---------	------------	-----------

<i>Callitris columellaris</i>	10	30
<i>Eucalyptus kochii</i>	8	5
<i>Melaleuca leiocarpa</i>	8	5
<i>Acacia effusifolia</i>	3	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.2	3
<i>Acacia acuaria</i>		+
<i>Aluta aspera</i> subsp. <i>hesperia</i>		+
<i>Alyxia buxifolia</i>		+
<i>Alyxia tetanifolia</i> P3		+
<i>Austrostipa elegantissima</i>		+
<i>Bellida graminea</i>		+
<i>Brunonia australis</i>		+
<i>Calocephalus</i> sp.		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Comesperma integerrimum</i>		+
<i>Drosera menziesii</i>		+
<i>Enchylaena lanata</i>		+
<i>Enekbatus stowardii</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Goodenia capillosa</i>		+
<i>Grevillea paradoxa</i>		+
<i>Hibbertia exasperata</i>		+
<i>Lawrencella rosea</i>		+
<i>Monachather paradoxus</i>		+
<i>Olearia pimeleoides</i>		+
<i>Plantago debilis</i>		+
<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG022

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	514014.15 mE 6718033.255 mN
Vegetation Unit	12 - <i>Eucalyptus salmonophloia</i> woodland over <i>Acacia effusifolia</i> tall sparse shrubland over <i>Scaevola spinescens</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> sparse shrubland over <i>Maireana georgei</i> , <i>Maireana trichopteran</i> , <i>Sclerolaena fusiformis</i> low open CHENOPODIACEAE spp. shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red orange
Soil Type	Sandy loam
Litter	20%
Bare Ground	55%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL, not many herbs, bit of dead wood around, shrubs layer excellent condition.



Species	Height (m)	Cover (%)
<i>Eucalyptus salmonophloia</i>	30	20
<i>Acacia effusifolia</i>	2.5	5
<i>Scaevola spinescens</i>	1.5	2
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	1.5	3
<i>Maireana georgei</i>	0.2	3
<i>Maireana trichoptera</i>	0.2	5
<i>Sclerolaena fusiformis</i>	0.2	2
<i>Acacia acuaria</i>		+
<i>Acacia erinacea</i>		+
<i>Alyxia buxifolia</i>		+
<i>Atriplex paludosa</i> subsp. <i>baudinii</i>		+
<i>Austrostipa nitida</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calocephalus</i> sp.		+
* <i>Cleretum papulosum</i>		+
<i>Crassula colorata</i>		+
<i>Enchylaena lanata</i>		+
<i>Eremophila caperata</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Goodenia berardiana</i>		+
<i>Maireana marginata</i>		+
<i>Maireana thesioides</i>		+
<i>Maireana triptera</i>		+
<i>Menkea australis</i>		+
<i>Olearia muelleri</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Sclerolaena gardneri</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Waitzia acuminata</i>		+
<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>		Associated

Site MG023

Date	27/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	513859.734 mE 6717662.224 mN
Vegetation Unit	4 - <i>Eucalyptus? kochii</i> mallee woodland and <i>Callitris columellaris</i> Low open woodland over <i>Acacia resinimarginea</i> , <i>Westringia cephalantha</i> tall open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	40%
Bare Ground	25%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL, lots of dead wood around.



Species	Height (m)	Cover (%)
<i>Eucalyptus ?kochii</i>	10	10
<i>Callitris columellaris</i>	8	35
<i>Acacia resinimarginea</i>	3	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	5
<i>Westringia cephalantha</i>	0.5	2
<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>		+
<i>Alyxia buxifolia</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Bellida graminea</i>		+
<i>Calocephalus</i> sp.		+
<i>Cryptandra apetala</i> var. <i>apetala</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Goodenia capillosa</i>		+
<i>Melaleuca ?atroviridis</i>		+
<i>Monachather paradoxus</i>		+
<i>Oldenlandia</i> sp.		+
<i>Olearia muelleri</i>		+
<i>Ptilotus drummondii</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Thysanotus manglesianus</i>		+

Site MG024

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	513880.985 mE 6716953.402 mN
Vegetation Unit	12 - <i>Eucalyptus salubris</i> woodland over <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> sparse shrubland over <i>Olearia muellerii</i> low open shrubland
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	50%
Bare Ground	40%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL, lots of dead wood around



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	10	30
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	1.5	3
<i>Olearia muelleri</i>	0.5	15
<i>Acacia acuaria</i>		+
<i>Acacia erinacea</i>		+
<i>Alyxia buxifolia</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa nitida</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calocephalus</i> sp.		+
<i>Calotis hispidula</i>		+
* <i>Cleretum papulosum</i>		+
<i>Crassula colorata</i>		+
<i>Daucus glochidiatus</i>		+
<i>Enchylaena lanata</i>		+
<i>Erymophyllum ramosum</i>		+
<i>Maireana georgei</i>		+
<i>Maireana marginata</i>		+
<i>Maireana trichoptera</i>		+
<i>Menkea australis</i>		+
<i>Panaetia lessonii</i>		+
<i>Plantago debilis</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus holosericeus</i>		
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Roepera ovata</i>		+
<i>Scaevola spinescens</i>		+
<i>Sclerolaena diacantha</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Waitzia acuminata</i>		+

Site MG025

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	518700.348 mE 6713880.822 mN
Vegetation Unit	17 - <i>Eucalyptus horistes</i> tall mallee woodland over <i>Acacia effusifolia</i> tall open shrubland over <i>Olearia muelleri</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	15%
Bare Ground	70%
Fire Age	> 10yrs
Vegetation Condition	Good
Disturbances/impacts	Historic exploration tracks nearby, dead wood around.



Species	Height (m)	Cover (%)
---------	------------	-----------

<i>Eucalyptus horistes</i>	12	25
<i>Acacia effusifolia</i>	2.5	10
<i>Olearia muelleri</i>	0.5	5
<i>Alyxia tetanifolia</i> P3		+
<i>Aristida contorta</i>		+
<i>Austrostipa nitida</i>		+
<i>Bossiaea walkeri</i>		+
<i>Calandrinia</i> sp.		+
<i>Calocephalus</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Crassula colorata</i>		+
<i>Eremophila caperata</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Gilruthia osbornei</i>		+
<i>Goodenia rosea</i>		+
<i>Maireana carnosae</i>		+
<i>Maireana thesioides</i>		+
<i>Maireana trichoptera</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Sclerolaena fusiformis</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Sclerolaena gardneri</i>		+

Site MG026

Date	27/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	518022.239 mE 6713498.155 mN
Vegetation Unit	1 - <i>Callitris columellaris</i> woodland over <i>Acacia accuminata</i> , <i>Acacia obtecta</i> tall shrubland over <i>Acacia effusifolia</i> , <i>Bossiaea walkeri</i> , <i>Eremophila eriocalyx</i> open shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	20%
Bare Ground	55%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire looks like it burnt some of the upper story.



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	12	20
<i>Acacia acuminata</i>	4	15
<i>Acacia obtecta</i>	3	23
<i>Acacia effusifolia</i>	1.5	1
<i>Bossiaea walkeri</i>	1.5	20
<i>Eremophila eriocalyx</i>	1.5	5
<i>Acacia acuaria</i>		+
<i>Actinobole uliginosum</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Bellida graminea</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calandrinia</i> sp.		+
<i>Calocephalus</i> sp.		+
<i>Enchylaena tomentosa</i>		+
* <i>Erodium</i> ? <i>moschatum</i>		+
<i>Gilruthia osbornei</i>		+
<i>Lawrencella rosea</i>		+
<i>Olearia pimeleoides</i>		+
<i>Plantago debilis</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Rhodanthe citrina</i>		+
<i>Rhodanthe laevis</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Waitzia acuminata</i>		+

Site MG027

Date	27/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	518248.082 mE 6712959.149 mN
Vegetation Unit	12- <i>Eucalyptus salmonophloia</i> tall open forest over <i>Acacia obtecta</i> tall sparse shrubland over <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098), <i>Olearia muelleri</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	55%
Bare Ground	35%
Fire Age	> 10yrs
Vegetation Condition	Good
Disturbances/impacts	Historic exploration tracks nearby, dead wood around.



Species	Height (m)	Cover (%)
<i>Eucalyptus salmonophloia</i>	25	35
<i>Acacia obtecta</i>	2.5	5
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)	0.5	5
<i>Olearia muelleri</i>	0.5	1
<i>Atriplex paludosa</i> subsp. <i>baudinii</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Calandrinia</i> sp.		+
<i>Crassula colorata</i>		+
<i>Enchylaena tomentosa</i>		+
<i>Eremophila caperata</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Maireana georgei</i>		+
<i>Menkea australis</i>		+
<i>Ptilotus eriotrichus</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Scaevola spinescens</i>		+
<i>Sclerolaena diacantha</i>		+
<i>Sclerolaena fusiformis</i>		+

Site MG028

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515468.892 mE 6710207.923 mN
Vegetation Unit	2 - <i>Acacia effusifolia</i> , <i>Acacia longispinea</i> tall closed shrubland over <i>Olearia muellerii</i> , <i>Prostanthera prosantheroides</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> low sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Yellow to brown
Soil Type	Sandy loam
Litter	40%
Bare Ground	45%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Fire some dead individuals, drill track nearby



Species	Height (m)	Cover (%)
---------	------------	-----------

<i>Acacia effusifolia</i>	3	75
<i>Acacia longispinea</i>	2.5	10
<i>Olearia muelleri</i>	0.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	10
<i>Prostanthera prostantheroides</i>	0.3	3
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis ? drummondii</i>		+
<i>Goodenia occidentalis</i>		+
<i>Hakea invaginata</i>		+
<i>Homalocalyx thryptomenoides</i>		+
<i>Lobelia fissiflora</i>		+
<i>Philotheca deserti</i> subsp. <i>deserti</i>		+
<i>Rhodanthe laevis</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Thysanotus ? manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG029

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515809.291 mE 6710758.021 mN
Vegetation Unit	4 - <i>Eucalyptus horistes</i> tall mallee woodland and <i>Callitris columellaris</i> low open woodland over <i>Acacia effusifolia</i> tall sparse shrubland over <i>Westringia cephalantha</i> and <i>Olearia</i> sp. open shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Light brown
Soil Type	Sandy loam
Litter	55%
Bare Ground	40%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus horistes</i>	14	20
<i>Callitris columellaris</i>	6	2
<i>Acacia effusifolia</i>	3	5
<i>Westringia cephalantha</i>	2	5
<i>Olearia</i> sp.	1.5	15
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Aristida contorta</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa hemipogon</i>		+
<i>Calandrinia</i> sp.		+
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Cryptandra apetala</i> var. <i>apetala</i>		+
<i>Monachather paradoxus</i>		+
<i>Olearia muelleri</i>		+
<i>Poranthera leiosperma</i>		+
<i>Ptilotus drummondii</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Stylidium warriedarensense</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG030

Date	30/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515941.461 mE 6711431.489 mN
Vegetation Unit	4 – <i>Eucalyptus horistes</i> tall mallee woodland and <i>Callitris columellaris</i> low open woodland over <i>Bossiaea walkeri</i> open shrubland over <i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188) low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	15%
Bare Ground	55%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus horistes</i>	12	15
<i>Callitris columellaris</i>	5	2
<i>Bossiaea walkeri</i>	1.5	10
<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)	0.5	5
<i>Acacia longispinea</i>		+
<i>Actinobole uliginosum</i>		+
<i>Aristida contorta</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Austrostipa nitida</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Calandrinia</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Comesperma integerrimum</i>		+
<i>Daucus glochidiatus</i>		+
<i>Dianella revoluta</i>		+
<i>Enchylaena lanata</i>		+
<i>Eremophila caperata</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Gnephosis</i> ? <i>drummondii</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia rosea</i>		+
<i>Lawrencella rosea</i>		+
<i>Olearia muelleri</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Plantago debilis</i>		+
<i>Ptilotus gaudichaudii</i>		+
<i>Rhagodia</i> sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183)		+
<i>Rhodanthe laevis</i>		+
<i>Rytidosperma caespitosum</i>		+
<i>Scaevola spinescens</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG031

Date	30/09/2021
Botanist	Daniel Roberts, Megan Gray and Natalie Krawczyk
Quadrat Size	20m x 20m
NW Corner Coordinates	516063.848 mE 6711807.582 mN
Vegetation Unit	3 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> open woodland over <i>Calitris columellaris</i> low open woodland over <i>Olearia</i> sp., <i>olearis muelleri</i> low sparse shrubland <i>Lomandra effusa</i> and mixed sparse herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	25%
Bare Ground	55%
Fire Age	5-10yrs
Vegetation Condition	Very Good
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	15	15
<i>Callitris columellaris</i>	6	3
<i>Olearia</i> sp.	1.5	2
<i>Olearia muelleri</i>	1	5
<i>Lomandra effusa</i>	0.5	2
<i>Acacia acuminata</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calocephalus</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Eremophila caperata</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Hibbertia arcuata</i>		+
<i>Levenhookia dubia</i>		+
<i>Lomandra effusa</i>		+
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)		+
<i>Mirbelia ramulosa</i>		+
<i>Monachather paradoxus</i>		+
<i>Poranthera leiosperma</i>		+
<i>Ptilotus drummondii</i>		+
<i>Ptilotus obovatus</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i>		+

Site MG032

Date	12/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	512776 mE 6708232 mN
Vegetation Unit	12 - <i>Eucalyptus salubris</i> woodland over <i>Acacia erinacea</i> , <i>Rhagdoia drummondii</i> low sparse shrubland over mixed species sparse herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Clay loam
Litter	4%
Bare Ground	55%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Standing Fire , soil crust contiguous.



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	12	12
<i>Acacia erinacea</i>	0.8	5
<i>Rhagodia drummondii</i>	0.8	3
<i>Senecio glossanthus</i>	0.3	1
<i>Cephalopterum drummondii</i>	0.2	1
<i>Crassula colorata</i> var. <i>colorata</i>	0.2	1
<i>Acacia andrewsii</i>		+
<i>Acacia saligna</i>		+
<i>Arthropodium dyeri</i>		+
<i>Calandrinia eremaea</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		+
<i>Erodium cygnorum</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>		+
<i>Maireana marginata</i>		+
<i>Maireana thesioides</i>		+
<i>Maireana trichoptera</i>		+
<i>Olearia muelleri</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Plantago debilis</i>		+
<i>Pterostylis setulosa</i>		+
<i>Ptilotus eremita</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus obovatus</i>		+
<i>Roepera eremaea</i>		+
<i>Scaevola</i> sp.		+
<i>Sclerolaena diacantha</i>		+
<i>Senna stowardii</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene cyanopetala</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG033

Date	13/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	514099 mE 6708813 mN
Vegetation Unit	28 - <i>Melaleuca nematophylla</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> tall closed shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Clay loam
Litter	5%
Bare Ground	35%
Fire Age	1-3yrs
Vegetation Condition	Excellent
Disturbances/impacts	Fire



Species	Height (m)	Cover (%)
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	3	65
<i>Melaleuca nematophylla</i>	3	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	8
<i>Aluta aspera</i> subsp. <i>hesperia</i>		+
<i>Brunonia australis</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera subhirtella</i>		+
<i>Ecdeiocolea monostachya</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Hakea invaginata</i>		+
<i>Hibbertia arcuata</i>		+
<i>Hibbertia gracilipes</i>		+
<i>Melaleuca cordata</i>		+
<i>Olearia muelleri</i>		+
<i>Poranthera microphylla</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Tricoryne tuberosa</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG035

Date	27/09/2021
Botanist	Megan Gray and Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	516459 mE 6704372 mN
Vegetation Unit	1 - <i>Callitris columellaris</i> low woodland over <i>Acacia acuaria</i> , <i>Acacia acuminata</i> , <i>Alyxia buxifolia</i> tall open shrubland over <i>Olearia pimeleoides</i> , <i>Eremophila decipiens</i> subsp. <i>decipiens</i> sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland and mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Redish brown
Soil Type	Sandy loam
Litter	15%
Bare Ground	60%
Fire Age	>10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	6	20
<i>Acacia acuminata</i>	5	3
<i>Acacia acuaria</i>	2.5	8
<i>Alyxia buxifolia</i>	2	2.5
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>	1.2	1.5
<i>Olearia pimeleoides</i>	1	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	2
<i>Lomandra effusa</i>	0.2	1
<i>Acacia obtecta</i>		+
<i>Actinobole uliginosum</i>		+
<i>Arthropodium dyeri</i>		+
<i>Austrostipa scabra</i>		+
<i>Blennospora drummondii</i>		+
<i>Caladenia</i> sp.		+
<i>Chthonocephalus pseudevax</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Cyanicula</i> sp.		+
<i>Dodonaea</i> ? <i>pinifolia</i>		+
<i>Erodium cygnorum</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Goodenia rosea</i>		+
<i>Hakea recurva</i> subsp. <i>recurva</i>		+
<i>Menkea australis</i>		+
<i>Podolepis aristata</i> subsp. <i>affinis</i>		+
<i>Rhagodia drummondii</i>		+
<i>Rhodanthe citrina</i>		+
<i>Rhodanthe laevis</i>		+
<i>Siemssenia capillaris</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Trachymene pilosa</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG039

Date	13/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	517537 mE 6714079 mN
Vegetation Unit	1 - <i>Callitris columellaris</i> low woodland over <i>Acacia acuminata</i> , <i>Hakea recurva</i> subsp. <i>recurva</i> , <i>Acacia obtecta</i> tall sparse shrubland over <i>Austrostipa scabra</i> sparse tussock grasses and mixed species herbland..
Slope	Flat
Landform	Plain
Soil Colour	Red to brown
Soil Type	Clay loam
Litter	2%
Bare Ground	45%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Fire



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	10	25
<i>Acacia acuminata</i>	3	5
<i>Acacia obtecta</i>	2.5	2
<i>Hakea recurva</i> subsp. <i>recurva</i>	2.5	2
<i>Austrostipa scabra</i>	0.2	2
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.2	4
<i>Hyalosperma zacchaeus</i>	0.1	3
<i>Acacia tetragonophylla</i>		+
ASTERACEAE sp.		+
<i>Bellida graminea</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>		+
<i>Eremophila eriocalyx</i>		+
<i>Eremophila granitica</i>		+
* <i>Erodium moschatum</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Feldstonia nitens</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Goodenia rosea</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Nicotiana rotundifolia</i>		+
<i>Olearia pimeleoides</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhodanthe laevis</i>		+
<i>Solanum</i> aff. <i>ashbyae</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene cyanopetala</i>		+

Site MG049

Date	13/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	519755 mE 6714005 mN
Vegetation Unit	12 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> open forest over <i>Exocarpos aphyllus</i> , <i>Acacia effusifolia</i> tall sparse shrubland over <i>Olearia muellerii</i> , <i>Sclerolaena diacantha</i> low open shrubland over <i>Austrostipa nitida</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Clay loam
Litter	4%
Bare Ground	55%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Fire



Species	Height (m)	Cover (%)
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	16	35
<i>Exocarpos aphyllus</i>	2.5	2
<i>Acacia effusifolia</i>	2	2
<i>Olearia muelleri</i>	0.5	10
<i>Austrostipa nitida</i>	0.4	2
<i>Sclerolaena diacantha</i>	0.3	4
? <i>Dampiera</i> sp.		+
<i>Acacia andrewsii</i>		+
<i>Acacia obtecta</i>		+
<i>Actinobole uliginosum</i>		+
<i>Aristida contorta</i>		+
<i>Arthropodium dyeri</i>		+
ASTERACEAE sp. 1		+
<i>Austrostipa nitida</i>		+
<i>Brachyscome iberidifolia</i>		+
<i>Calandrinia baccata</i>		+
<i>Calandrinia granulifera</i>		+
<i>Calandrinia</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>		+
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		+
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>		+
<i>Erodium cygnorum</i>		+
* <i>Erodium moschatum</i>		+
<i>Exocarpos aphyllus</i>		+
<i>Gnephosis tenuissima</i>		+
<i>Hydrocotyle intertexta</i>		+
* <i>Hypochaeris glabra</i>		+
<i>Lomandra effusa</i>		+
<i>Maireana thesioides</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Phlegmatospermum drummondii</i>		+
<i>Plantago debilis</i>		+
<i>Podotheca gnaphalioides</i>		+

<i>Pterostylis</i> sp.		+
<i>Ptilotus eremita</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Ptilotus obovatus</i>		+
<i>Rhagodia drummondii</i>		+
<i>Rhodanthe laevis</i>		+
<i>Roepera eremaea</i>		+
<i>Siemssenia capillaris</i>		+
<i>Solanum nummularium</i>		+
* <i>Sonchus oleraceus</i>		+
<i>Tetragonia diptera</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene pilosa</i>		+
<i>Tripterooccus brunonis</i>		+
<i>Eucalyptus salubris</i>		Associated

Site MG051

Date	16/09/2021
Botanist	Daniel Roberts and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	514321 mE 6716447 mN
Vegetation Unit	12 - <i>Eucalyptus salubris</i> low open forest over <i>Mairena trichoptera</i> , <i>Rhagodia eremaea</i> , <i>Olearia muellerii</i> , <i>Acacia erinacea</i> low open shrubland over mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sand Clay
Litter	4%
Bare Ground	30%
Fire Age	>10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Drill lines, fragmented.



Species	Height (m)	Cover (%)
<i>Eucalyptus salubris</i>	5	40
<i>Acacia erinacea</i>	0.5	2
<i>Olearia muelleri</i>	0.5	6
<i>Rhagodia eremaea</i>	0.5	4
<i>Maireana trichoptera</i>	0.3	12
<i>Myriocephalus</i> sp.	0.1	7
<i>Menkea australis</i>	0.05	2
<i>Acacia anthochaera</i>		+
* <i>Alyssum linifolium</i>		+
<i>Austrostipa</i> sp. 3		+
<i>Calandrinia baccata</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Daucus glochidiatus</i>		+
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>		+
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>		+
<i>Eremophila deserti</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		+
<i>Eriochiton sclerolaenoides</i>		+
* <i>Erodium moschatum</i>		+
<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>		+
<i>Hemigenia macphersonii</i>		+
<i>Hydrocotyle intertexta</i>		+
* <i>Mesembryanthemum nodiflorum</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Ptilotus holosericeus</i>		+
<i>Ptilotus obovatus</i>		+
<i>Roepera eremaea</i>		+
* <i>Rostraria pumila</i>		+
<i>Scaevola</i> sp.		+
<i>Sclerolaena ? fusiformis</i>		+
<i>Sclerolaena fusiformis</i>		+
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		+
<i>Senna stowardii</i>		+
* <i>Sisymbrium erysimoides</i>		+
<i>Solanum nummularium</i>		+

Site MG052

Date	16/09/2021
Botanist	Daniel Roberts and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	515623 mE 6716716 mN
Vegetation Unit	24 - <i>Acacia acuminata</i> , <i>Melaleuca</i> sp. 3 tall shrubland over <i>Dodonaea inaequifolia</i> low sparse shrubland over <i>Austrostipa elegantissima</i> isolate tussock grasses and mixed species herbland.
Slope	Gentle
Landform	Low-rise
Soil Colour	Brown
Soil Type	Sandy Clay
Litter	4%
Bare Ground	10%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Acacia acuminata</i>	5	30
<i>Melaleuca</i> sp. 3	5	3
<i>Dodonaea inaequifolia</i>	1	3
<i>Trachymene ornata</i>	1	4
<i>Austrostipa elegantissima</i>	0.8	1
<i>Cephalopterum drummondii</i>	0.2	5
<i>Goodenia rosea</i>	0.2	10
<i>Podolepis aristata</i> subsp. <i>affinis</i>	0.2	15
<i>Acacia tetragonophylla</i>		+
<i>Arthropodium dyeri</i>		+
<i>Austrostipa blackii</i>		+
<i>Austrostipa trichophylla</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Comesperma integerrimum</i>		+
<i>Daucus glochidiatus</i>		+
<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		+
<i>Eremophila</i> sp.		+
<i>Exocarpos aphyllus</i>		+
<i>Haloragis trigonocarpa</i>		+
<i>Hemigenia macphersonii</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>		+
<i>Maireana trichoptera</i>		+
<i>Parietaria cardiostegia</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Ptilotus eremita</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Roepera eremaea</i>		+
<i>Schoenia cassiniana</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Wurmbea flavanthera</i>		+

Site MG054

Date	15/09/2021
Botanist	Daniel Roberts and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	513588 mE 6710721 mN
Vegetation Unit	33 - <i>Acacia effusifolia</i> tall sparse shrubland over <i>Thryptomene cuspidata</i> open shrubland over <i>Borya sphaerocephala</i> herbland and <i>Aristida contorta</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy
Litter	1%
Bare Ground	70%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	4	2
<i>Thryptomene cuspidata</i>	1.5	25
<i>Aristida contorta</i>	0.2	2
<i>Borya sphaerocephala</i>	0.2	35
<i>Acacia acuminata</i>		+
<i>Actinobole uliginosum</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Brunonia australis</i>		+
<i>Calandrinia</i> sp.		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera</i> ? <i>menziesii</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Hakea invaginata</i>		+
<i>Hemigenia ciliata</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Podotheca gnaphalioides</i>		+
<i>Podotheca gnaphalioides</i>		+
<i>Schoenia cassiniana</i>		+
<i>Stackhousia monogyna</i>		+
<i>Stylidium induratum</i>		+
<i>Thelymitra antennifera</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG055

Date	15/09/2021
Botanist	Daniel Roberts and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	513776 mE 6710460 mN
Vegetation Unit	30 - <i>Melaleuca hamata</i> , <i>Acacia resinimarginea</i> , <i>Allocasuarina tessellata</i> (P3) tall closed shrubland over <i>Phebalium tuberculosum</i> , <i>Hibbertia arctuata</i> low open shrubland over mixed species sparse herbland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy
Litter	15%
Bare Ground	15%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Shrub fall ? natural



Species	Height (m)	Cover (%)
<i>Acacia resinimarginea</i>	5	10
<i>Allocasuarina tessellata</i> P3	5	2
<i>Melaleuca hamata</i>	5	70
<i>Hibbertia arcuata</i>	0.5	2
<i>Phebalium tuberosum</i>	0.5	20
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	2
<i>Acacia stereophylla</i> var. <i>stereophylla</i>		+
<i>Aluta aspera</i> subsp. <i>hesperia</i>		+
ASTERACEAE sp.		+
<i>Blennospora drummondii</i>		+
<i>Crassula closiana</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Lawrencella rosea</i>		+

Site MG058

Date	16/09/2021
Botanist	Daniel Roberts and Jacob Jone
Quadrat Size	20m x 20m
NW Corner Coordinates	515612 mE 6717776 mN
Vegetation Unit	23 - <i>Acacia effusifolisa</i> tall closed shrubland over <i>Eremophila clarkei</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> sparse shrubland <i>Enekbatus stowardii</i> , <i>Olearia humilis</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland and mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	30%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	5	35
<i>Eremophila clarkei</i>	1.8	5
<i>Philotheca brucei</i> subsp. <i>brucei</i>	1.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	3
<i>Enekbatus stowardii</i>	0.5	1
<i>Olearia humilis</i>	0.5	1
<i>Brunonia australis</i>	0.1	4
<i>Gilberta tenuifolia</i>	0.1	15
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	6
<i>Austrostipa elegantissima</i>		+
<i>Brachyscome iberidifolia</i>		+
<i>Cheilanthes adiantoides</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Dianella revoluta</i>		+
<i>Erodium cygnorum</i>		+
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>		+
<i>Goodenia glabrata</i>		+
<i>Hakea recurva</i> subsp. <i>recurva</i>		+
<i>Hemigenia benthamii</i>		+
<i>Hyalosperma zacchaeus</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Lawrencella davenportii</i>		+
<i>Monachather paradoxus</i>		+
<i>Parietaria cardiostegia</i>		+
<i>Prostanthera campbellii</i>		+
<i>Senecio lacustrinus</i>		+
<i>Trachymene ornata</i>		+

Site MG060

Date	15/09/2021
Botanist	Daniel Roberts and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	514986 mE 6714346 mN
Vegetation Unit	7 - <i>Eucalyptus ewartiana</i> isolated mallee trees over <i>Acacia effusifolia</i> , <i>Melaleuca leiocarpa</i> tall shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> isolated tussock grasses and mixed species sparse herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy loam
Litter	2%
Bare Ground	30%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Drill lines, fragmented.



Species	Height (m)	Cover (%)
<i>Eucalyptus ewartiana</i>	6	1
<i>Melaleuca leiocarpa</i>	4.5	5
<i>Acacia effusifolia</i>	3.5	30
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	1
<i>Enekbatus stowardii</i>	0.5	2
<i>Gilberta tenuifolia</i>	0.1	1
<i>Goodenia rosea</i>	0.1	1
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	2
<i>Acacia acuaria</i>		+
<i>Acacia obtecta</i>		+
<i>Austrostipa scabra</i>		+
<i>Bossiaea walkeri</i>		+
<i>Calotis hispidula</i>		+
<i>Cheilanthes adiantoides</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Daucus glochidiatus</i>		+
<i>Erodium cygnorum</i>		+
<i>Goodenia rosea</i>		+
<i>Hyalosperma zacchaeus</i>		+
<i>Philothea nutans</i> P1		+
<i>Plantago debilis</i>		+
<i>Rhodanthe laevis</i>		+
<i>Schoenia cassiniana</i>		+
<i>Stenopetalum filifolium</i>		+
<i>Thysanotus manglesianus</i>		+

Site MG063

Date	16/09/2021
Botanist	Megan Gray and Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	513947 mE 6704371 mN
Vegetation Unit	25 - <i>Grevillea eriostachya</i> , <i>Acacia resinimarginea</i> tall sparse shrubland over <i>Acacia sibina</i> , <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i> open shrubland over <i>Philotheca thryptomenoides</i> , <i>Hakea invaginata</i> , <i>Euryomyrtus recurva</i> (P3) low open shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Yellow orange
Soil Type	Loamy sand
Litter	5%
Bare Ground	50%
Fire Age	>10yrs
Vegetation Condition	Excellent - pristine
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Grevillea eriostachya</i>	3	6
<i>Acacia resinimarginea</i>	2	1.5
<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>	1.5	3
<i>Acacia sibina</i>	1.3	12
<i>Hakea invaginata</i>	0.7	6
<i>Euryomyrtus recurva</i> P3	0.3	8
<i>Philotheca thryptomenoides</i>	0.3	15
<i>Acacia effusifolia</i>		+
<i>Acacia longispinea</i>		+
<i>Allocasuarina spinosissima</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Calothamnus aridus</i>		+
<i>Calytrix plumulosa</i> P3		+
<i>Ecdeiocolea monostachya</i>		+
<i>Enekbatus stowardii</i>		+
<i>Eucalyptus</i> sp.		+
<i>Goodenia pinifolia</i>		+
<i>Grevillea huegelii</i>		+
<i>Grevillea paradoxa</i>		+
<i>Hemigenia ciliata</i>		+
<i>Homalocalyx thryptomenoides</i>		+
<i>Neurachne alopecuroidea</i>		+
<i>Thryptomene kochii</i>		+

Site MG064

Date	13/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	515043 mE 6708065 mN
Vegetation Unit	9 - <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> isolated mallee trees over <i>Acacia effusifolia</i> , <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> tall shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> low open shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	35%
Fire Age	3-5yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>	7	1
<i>Acacia effusifolia</i>	3	50
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	2.5	5
<i>Aluta aspera</i> subsp. <i>hesperia</i>	1	10
<i>Acacia longispinea</i>		+
<i>Bellida graminea</i>		+
<i>Philothea deserti</i>		+
<i>Thysanotus</i> sp.		+
<i>Waitzia acuminata</i>		+

Site MG065

Date	13/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	513693 mE 6709059 mN
Vegetation Unit	33 - <i>Melaleuca hamata</i> , <i>Thryptomene cuspidata</i> tall open shrubland over <i>Eremophila serrulata</i> low sparse shrubland over <i>Borya sphaerocephala</i> open herbland.
Slope	Gentle
Landform	Plain
Soil Colour	Dark brown
Soil Type	Sandy loam
Litter	1%
Bare Ground	75%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Melaleuca hamata</i>	3	15
<i>Thryptomene cuspidata</i>	2	2
<i>Eremophila serrulata</i>	0.5	2
<i>Borya sphaerocephala</i>	0.3	10
<i>Austrostipa elegantissima</i>		+
<i>Brachyscome iberidifolia</i>		+
<i>Brunonia australis</i>		+
<i>Cephalopterum drummondii</i>		+
<i>Cheilanthes adiantoides</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera</i> sp.		+
<i>Gonocarpus nodulosus</i>		+
<i>Goodenia rosea</i>		+
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>		+
<i>Lawrencella rosea</i>		+
<i>Mirbelia microphylla</i>		+
<i>Pimelea avonensis</i>		+
<i>Plantago debilis</i>		+
<i>Podotrochea gnaphalioides</i>		+
<i>Pogonolepis muelleriana</i>		+
<i>Ptilotus eremita</i>		+
<i>Thelymitra petrophila</i>		+
<i>Tricoryne tuberosa</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG066

Date	14/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	514368 mE 6718253 mN
Vegetation Unit	23- <i>Eucalyptus</i> sp. 1 isolated trees <i>Acacia effusifolia</i> , <i>Acacia resinimarginea</i> , <i>Acacia longispinea</i> tall shrubland over <i>Enekbatus stowardii</i> sparse shrubland over <i>Ecdeiocolea monostachya</i> sparse rushland and mixed species herbland.
Slope	Moderate
Landform	Plain
Soil Colour	Light red brown
Soil Type	Sand clay
Litter	10%
Bare Ground	60%
Fire Age	5-10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Drill lines, fragmented.



Species	Height (m)	Cover (%)
<i>Eucalyptus</i> sp. 1	6	0.5
<i>Acacia resinimarginea</i>	4	5
<i>Acacia effusifolia</i>	3	60
<i>Acacia longispinea</i>	2.5	0.5
<i>Enekbatus stowardii</i>	1	5
<i>Ecdeiocola monostachya</i>	0.5	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Bellida graminea</i>		+
<i>Blennospora drummondii</i>		+
<i>Brunonia australis</i>		+
<i>Ceratogyne obionoides</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Erodium cygnorum</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis tenuissima</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Hibbertia gracilipes</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Nicotiana rotundifolia</i>		+
<i>Olearia humilis</i>		+
<i>Plantago debilis</i>		+
<i>Rhodanthe laevis</i>		+
<i>Thysanotus</i> sp.		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG066a

Date	15/09/2021
Botanist	Daniel Roberts and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	514359 mE 6711141 mN
Vegetation Unit	9 - <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> isolated mallee trees over <i>Acacia sibina</i> , <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i> , <i>Melaleuca hamata</i> tall open shrubland <i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i> , <i>Philotheca thryptomenoides</i> low sparse shrubland over <i>Triodia rigidissima</i> open hummock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy clay
Litter	4%
Bare Ground	30%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Drill lines, fragmented.



Species	Height (m)	Cover (%)
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>	5	1
<i>Melaleuca hamata</i>	3	2
<i>Acacia sibina</i>	2	5
<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>	1.5	6
<i>Triodia rigidissima</i>	0.5	15
<i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i>	0.3	3
<i>Philotheca thryptomenoides</i>	0.3	2
<i>Acacia effusifolia</i>		+
<i>Acacia consanguinea</i>		+
<i>Balaustion pulcherrimum</i>		+
<i>Borya constricta</i>		+
<i>Cryptandra apetala</i> var. <i>apetala</i>		+
<i>Euryomyrtus recurva</i> P3		+
<i>Hakea invaginata</i>		+
<i>Hemigenia botryphylla</i>		+
<i>Melaleuca calyptroides</i>		+
<i>Mirbelia depressa</i>		+
<i>Petrophile incurvata</i>		+
<i>Platysace</i> ? <i>trachymenioides</i>		+
<i>Podotheca gnaphalioides</i>		+
<i>Psammomoya choretroides</i>		+
<i>Stylidium limbatum</i>		+
<i>Styphelia hamulosa</i>		+
<i>Trachymene ornata</i>		+
<i>Verticordia venusta</i> P3		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG067

Date	14/09/2021
Botanist	Daniel Roberts and Julie Roberts
Quadrat Size	20m x 20m
NW Corner Coordinates	514090 mE 6718442 mN
Vegetation Unit	5 - <i>Callitris columellaris</i> open forest over <i>Acacia resinimarginea</i> , <i>Acacia acuaria</i> tall sparse shrubland over <i>Westringia cephalantha</i> , <i>Alyxia buxifolia</i> , <i>Olearia pimeleoides</i> low sparse shrubland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy clay
Litter	3%
Bare Ground	35%
Fire Age	5-10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Callitris columellaris</i>	9	40
<i>Acacia acuaria</i>	4	1
<i>Acacia resinimarginea</i>	4	7
<i>Alyxia buxifolia</i>	2	3
<i>Westringia cephalantha</i>	1.5	11
<i>Olearia pimeleoides</i>	0.5	1
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Bellida graminea</i>		+
<i>Comesperma integerrimum</i>		+
<i>Dianella revoluta</i>		+
<i>Lawrencella rosea</i>		+
<i>Rhodanthe citrina</i>		+
<i>Trachymene pilosa</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG068

Date	14/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	514107 mE 6718869 mN
Vegetation Unit	11 - <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> open woodland over <i>Eremophila caperata</i> , <i>Acacia saligna</i> tall sparse shrubland over <i>Olearia pimeleoides</i> , <i>Ptilotus obovatus</i> , <i>Sclerolaena fusiformis</i> low open shrubland over mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Sandy clay
Litter	3%
Bare Ground	40%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	11	8
<i>Eremophila caperata</i>	3	5
<i>Acacia saligna</i>	2	2
<i>Olearia pimeleoides</i>	0.7	2
<i>Ptilotus obovatus</i>	0.5	2
<i>Sclerolaena fusiformis</i>	0.2	3
<i>Austrostipa elegantissima</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Goodenia rosea</i>		+
<i>Gunniopsis rubra</i>		+
<i>Hakea recurva</i>		+
<i>Hyalosperma zacchaeus</i>		+
<i>Maireana carnosia</i>		+
<i>Maireana marginata</i>		+
<i>Maireana thesioides</i>		+
<i>Maireana trichoptera</i>		+
<i>Monachather paradoxus</i>		+
<i>Ptilotus eremita</i>		+
<i>Scaevola spinescens</i>		+
<i>Schoenia cassiniana</i>		+
<i>Senna stowardii</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene pilosa</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG069

Date	14/09/2021
Botanist	Daniel Roberts and Julie Fielder
Quadrat Size	20m x 20m
NW Corner Coordinates	514038 mE 6718634 mN
Vegetation Unit	23 - <i>Acacia longispinea</i> , <i>Acacia effusifolia</i> , <i>Melaleuca leiocarpa</i> tall open shrubland over <i>Phebalium canaliculatum</i> , <i>Phebalium tuberosum</i> , <i>Enekbatus stowardii</i> tall shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse grassland.
Slope	Flat
Landform	Plain
Soil Colour	cream brown
Soil Type	Sand clay
Litter	4%
Bare Ground	40%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Acacia longispinea</i>	6	25
<i>Melaleuca leiocarpa</i>	4	2
<i>Acacia effusifolia</i>	3	2
<i>Phebalium canaliculatum</i>	2	30
<i>Phebalium tuberosum</i>	1.5	3
<i>Enekbatus stowardii</i>	1	5
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.5	3
<i>Crassula closiana</i>		+
<i>Cyanicula amplexans</i>		+
<i>Hyalosperma zacchaeus</i>		+
<i>Philothea tomentella</i>		+
<i>Prostanthera prostantheroides</i>		+
<i>Rhodanthe citrina</i>		+
<i>Rhodanthe laevis</i>		+
<i>Thysanotus</i> sp.		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+
<i>Callitris columellaris</i>		Associated

Site MG070

Date	15/09/2021
Botanist	Julie Fielder And Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	514857 mE 6711915 mN
Vegetation Unit	15 - <i>Eucalyptus subangusta</i> subsp. <i>pusilla</i> low open woodland over <i>Melaleuca eleuterostachya</i> , <i>Acacia kalgoorliensis</i> , <i>Acacia sibina</i> tall open shrub land over <i>Cryptandra apetala</i> var. <i>apetala</i> , <i>Microcorys tenuifolia</i> (P3) low spruce shrubland over <i>Triodia rigidissima</i> open hummock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Pale orange brown
Soil Type	Loamy sand
Litter	5%
Bare Ground	75%
Fire Age	> 10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Long unburnt, cryptogamic crust in excellent condition.



Species	Height (m)	Cover (%)
<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>	8	8
<i>Acacia</i> sp. 4	4	2
<i>Melaleuca eleuterostachya</i>	4	12
<i>Acacia kalgoorliensis</i>	3	6
<i>Microcorys tenuifolia</i> P3	0.9	1
<i>Cryptandra apetala</i> var. <i>apetala</i>	0.8	4
<i>Triodia rigidissima</i>	0.3	15
<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>		+
<i>Actinobole uliginosum</i>		+
<i>Alyxia buxifolia</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Chrysitrix distigmatosa</i>		+
<i>Crassula closiana</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Dampiera lavandulacea</i>		+
<i>Dianella revoluta</i>		+
<i>Dodonaea bursariifolia</i>		+
<i>Ecdeiocolea monostachya</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia rosea</i>		+
<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>		+
<i>Lepidosperma sanguinolentum</i>		+
<i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)		+
RUTACEAE sp.		+
<i>Schoenus subaphyllus</i>		+
<i>Thysanotus</i> sp.		+
<i>Trachymene cyanopetala</i>		+
<i>Tripterococcus brunonis</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG071

Date	15/09/2021
Botanist	Julie Fielder And Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	514631 mE 6712146 mN
Vegetation Unit	15 - <i>Eucalyptus</i> sp. 2 isolated trees over <i>Acacia</i> sp. 4, <i>Melaleuca hamata</i> , <i>Acacia acuminata</i> tall open shrubland over <i>Hemigenia ciliata</i> , <i>Euryomyrtus recurva</i> (P3), RUTACEAE sp low sprase shrubland over <i>Ecdeiocolea monostachya</i> open rushland and <i>Amphipogon caricinus</i> var. <i>caricinus</i> isolated tussock grasses.
Slope	Flat
Landform	Plain
Soil Colour	Pale orange brown
Soil Type	Sandy loam
Litter	1%
Bare Ground	75%
Fire Age	> 10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Long unburnt, cryptogamic crust in excellent condition.



Species	Height (m)	Cover (%)
<i>Eucalyptus</i> sp. 2	5	0.5
<i>Acacia acuminata</i>	3	2
<i>Acacia</i> sp. 4	3	5
<i>Melaleuca hamata</i>	1.8	8
<i>Ecdeiocolea monostachya</i>	0.8	11
RUTACEAE sp.	0.8	2
<i>Euryomyrtus recurva</i> P3	0.5	1
<i>Hemigenia ciliata</i>	0.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.4	1
<i>Austrostipa hemipogon</i>		+
<i>Borya constricta</i>		+
<i>Brunonia australis</i>		+
<i>Calytrix glutinosa</i>		+
<i>Chamaexeros fimbriata</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera andersoniana</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis tenuissima</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Grevillea yorkkrakinensis</i>		+
<i>Lepidobolus preissianus</i>		+
<i>Philotheca deserti</i> subsp. <i>deserti</i>		+
<i>Psammomoya choretroides</i>		+
<i>Rhodanthe laevis</i>		+
<i>Stylidium arenicola</i>		+
<i>Thysanotus</i> sp.		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG072

Date	15/09/2021
Botanist	Julie Fielder And Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	514198 mE 6712572 mN
Vegetation Unit	15 - <i>Eucalyptus subangusta</i> subsp. <i>pusilla</i> tall isolated mallee trees over <i>Acacia</i> sp. 4, <i>Acacia acuminata</i> , <i>Hakea invaginata</i> tall sparse shrubland over <i>Euryomyrtus recurva</i> (P3), <i>Homalocalyx thryptomenoides</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i> open rushland.
Slope	Flat
Landform	Plain
Soil Colour	Pale orange brown
Soil Type	Sandy loam
Litter	1%
Bare Ground	75%
Fire Age	> 10yrs
Vegetation Condition	Excellent - pristine
Disturbances/impacts	Long unburnt, cryptogamic crust in excellent condition, dead acacia.



Species	Height (m)	Cover (%)
<i>Eucalyptus subangusta</i> subsp. <i>pusilla</i>	12	0.2
<i>Acacia acuminata</i>	3	1
<i>Acacia</i> sp. 4	2.5	3
<i>Hakea invaginata</i>	2.5	2
<i>Schoenus subaphyllus</i>	0.8	5
<i>Ecdeiocolea monostachya</i>	0.6	5
<i>Euryomyrtus recurva</i> P3	0.4	2
<i>Homalocalyx thryptomenoides</i>	0.4	1
<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Borya constricta</i>		+
<i>Calandrinia baccata</i>		+
<i>Chamaexeros fimbriata</i>		+
<i>Chrysitrix distigmata</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Enekbatus longistylus</i> P3		+
<i>Gnephosis tenuissima</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Goodenia rosea</i>		+
<i>Grevillea yorkrakinensis</i>		+
<i>Hemigenia botryphylla</i>		+
<i>Lepidobolus preissianus</i>		+
<i>Melaleuca hamata</i>		+
<i>Stylidium arenicola</i>		+
<i>Thysanotus</i> sp.		+
<i>Tricoryne</i> sp.		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG073r

Date	15/09/2021
Botanist	Julie Fielder And Olga Nazarova
Quadrat Size	Relevé
NW Corner Coordinates	514712 mE 6711392 mN
Vegetation Unit	32 - <i>Melaleuca eleuterostachya</i> , <i>Acacia resinimarginea</i> tall open shrubland over <i>Melaleuca stereophloia</i> , <i>Acacia colletioides</i> , <i>Acacia effusifolia</i> shrubland over mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Loamy sand
Litter	1%
Bare Ground	80%
Fire Age	>10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Track running through the site



Species	Height (m)	Cover (%)
<i>Acacia resinimarginea</i>	3	10
<i>Melaleuca eleuterostachya</i>	3	10
<i>Acacia colletioides</i>	1.2	15
<i>Acacia effusifolia</i>	1.2	10
<i>Melaleuca stereophloia</i>	1.2	15
<i>Goodenia rosea</i>	0.1	5
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	1

Site MG074

Date	15/09/2021
Botanist	Julie Fielder And Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	514955 mE 6716072 mN
Vegetation Unit	23 - <i>Acacia effusifolia</i> , <i>Melaleuca hamata</i> tall open shrubland over <i>Enekbatus stowardii</i> , <i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207) low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland and mixed species sparse herbland.
Slope	Flat
Landform	Plain
Soil Colour	Red brown
Soil Type	Silty loam
Litter	3%
Bare Ground	65%
Fire Age	> 10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Cryptogamic crust in excellent condition



Species	Height (m)	Cover (%)
<i>Melaleuca hamata</i>	6	6
<i>Acacia effusifolia</i>	4	15
<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)	0.8	1
<i>Enekbatus stowardii</i>	0.6	3
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	10
<i>Amphipogon strictus</i>		+
<i>Austrostipa hemipogon</i>		+
<i>Brunonia australis</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Cheiranthra simplicifolia</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula closiana</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)		+
<i>Erodium cygnorum</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Gnephosis</i> sp.		+
<i>Goodenia cycnopotamica</i>		+
<i>Goodenia glabrata</i>		+
<i>Goodenia rosea</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Panaetia lessonii</i>		+
<i>Schoenia cassiniana</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG075

Date	16/09/2021
Botanist	Julie Fielder and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	518942 mE 6708527 mN
Vegetation Unit	24 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> tall sparse shrubland over <i>Eremophila clarkei</i> , <i>Melaleuca nematophylla</i> tall sparse shrubland over <i>Philotheca brucei</i> subsp. <i>brucei</i> low sparse shrubland over mixed species sparse herbland.
Slope	Moderate
Landform	Residual rise granite outcrop
Soil Colour	Pale grey/brown
Soil Type	Skeletal clay
Litter	1%
Bare Ground	0%
Fire Age	>10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Road adjacent



Species	Height (m)	Cover (%)
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	4	7
<i>Melaleuca nematophylla</i>	3	2
<i>Eremophila clarkei</i>	2.5	3
<i>Philotheca brucei</i> subsp. <i>brucei</i>	1	2
<i>Acacia acuminata</i>		+
<i>Acacia andrewsii</i>		+
<i>Acacia stereophylla</i> var. <i>stereophylla</i>		+
<i>Alyxia buxifolia</i>		+
<i>Arthropodium dyeri</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Blennospora drummondii</i>		+
<i>Calandrinia eremaea</i>		+
<i>Calotis hispidula</i>		+
<i>Calycopeplus paucifolius</i>		+
<i>Cheilanthes sieberi</i>		+
* <i>Cleretum papulosum</i>		+
<i>Comesperma integerrimum</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dodonaea inaequifolia</i>		+
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>		+
<i>Erodium cygnorum</i>		+
<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>		+
<i>Goodenia berardiana</i>		+
<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>		+
<i>Hibbertia cockertoniana</i> P3		+
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>		+
<i>Hydrocotyle intertexta</i>		+
<i>Maireana planifolia</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Phyllangium sulcatum</i>		+
<i>Plantago debilis</i>		+
<i>Ptilotus exaltatus</i>		+
<i>Rhagodia drummondii</i>		+
<i>Rhodanthe laevis</i>		+
<i>Rhodanthe laevis</i>		+

<i>Rytidosperma setaceum</i>		+
<i>Schoenia cassiniana</i>		+
<i>Sida ? calyxhymenia</i>		+
<i>Solanum</i> aff. <i>ashbyae</i>		+
<i>Thysanotus</i> sp.		+
<i>Trachymene ornata</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+
<i>Wurmbea flavanthera</i>		+

Site MG076

Date	16/09/2021
Botanist	Julie Fielder and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	519506 mE 6707913 mN
Vegetation Unit	24 - <i>Melaleuca atroviridis</i> tall shrubland over <i>Dodonaea inaequifolia</i> , <i>Xerolirion divaricata</i> low sparse shrubland over mixed species herbland.
Slope	Flat
Landform	Residual rise
Soil Colour	Pinkish grey white
Soil Type	Clay - weathered from feldspar component
Litter	75%
Bare Ground	20%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Melaleuca atroviridis</i>	6	40
<i>Dodonaea inaequifolia</i>	0.5	1
<i>Xerolirion divaricata</i>	0.5	3
<i>Arthropodium dyeri</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Blennospora drummondii</i>		+
<i>Calandrinia eremaea</i>		+
<i>Cheilanthes adiantoides</i>		+
<i>Cyanicula amplexans</i>		+
<i>Drosera</i> sp.		+
<i>Enchylaena lanata</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Rhagodia drummondii</i>		+
<i>Rhodanthe citrina</i>		+
<i>Rhodanthe laevis</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+
<i>Wurmbea flavanthera</i>		+

Site MG077

Date	16/09/2021
Botanist	Julie Fielder and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	519501 mE 6707790 mN
Vegetation Unit	24 - <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Melaleuca atroviridis</i> tall isolated shrubs over <i>Calytrix glutinosa</i> , <i>Calytrix leschenaultii</i> , <i>Melaleuca atroviridis</i> low sparse shrubland over mixed species sparse herbland.
Slope	Gentle
Landform	Residual rise
Soil Colour	Pale orange grey
Soil Type	Skeletal clay
Litter	1%
Bare Ground	15%
Fire Age	> 10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Melaleuca atroviridis</i>	3	1
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2	1
MYRTACEAE sp.	0.8	3
<i>Calytrix glutinosa</i>	0.3	3
<i>Calytrix leschenaultii</i>	0.2	3
<i>Alyxia buxifolia</i>		+
<i>Arthropodium dyeri</i>		+
ASTERACEAE sp. 2		+
<i>Blennospora drummondii</i>		+
<i>Borya constricta</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dodonaea</i> sp.		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Pogonolepis muelleriana</i>		+
<i>Rhodanthe laevis</i>		+
<i>Stylidium decipiens</i>		+
<i>Styphelia serratifolia</i>		+
<i>Thelymitra petrophila</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+
<i>Wurmbea flavanthera</i>		+
<i>Xerolirion divaricata</i>		+

Site MG078

Date	16/09/2021
Botanist	Julie Fielder and Kelly Hopkinson
Quadrat Size	20m x 20m
NW Corner Coordinates	519420 mE 6707705 mN
Vegetation Unit	24 - <i>Eucalyptus stowardii</i> isolated mallee trees over mixed species tall closed shrubland.
Slope	Gentle
Landform	Residual rise
Soil Colour	Pale orange grey
Soil Type	Skeletal clay
Litter	2%
Bare Ground	75%
Fire Age	>10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	NIL



Species	Height (m)	Cover (%)
<i>Eucalyptus</i> sp.	4.5	+
<i>Acacia andrewsii</i>	2.2	8
<i>Acacia tetragonophylla</i>	2.2	8
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	2.2	8
<i>Alyxia buxifolia</i>	2.2	8
<i>Comesperma integerrimum</i>	2.2	8
<i>Dodonaea inaequifolia</i>	2.2	8
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	2.2	8
<i>Exocarpos aphyllus</i>	2.2	8
<i>Mirbelia</i> sp. <i>Bursarioides</i> (T.R. Lally 760)	2.2	8
MYRTACEAE sp.	2.2	8
<i>Santalum spicatum</i>	2.2	8
<i>Acacia acuminata</i>		+
<i>Arthropodium dyeri</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Cheilanthes sieberi</i>		+
* <i>Cleretum papulosum</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Drosera subhirtella</i>		+
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>		+
<i>Eremophila clarkei</i>		+
<i>Erodium cygnorum</i>		+
<i>Eucalyptus stowardii</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>		+
<i>Lepidium oxytrichum</i>		+
<i>Melaleuca atroviridis</i>		+
<i>Philothea brucei</i> subsp. <i>brucei</i>		+
<i>Plantago debilis</i>		+
<i>Podotheca gnaphalioides</i>		+
<i>Rhodanthe laevis</i>		+
<i>Wurmbea flavanthera</i>		+
<i>Xerolirion divaricata</i>		+

Site MG079r

Date	16/09/2021
Botanist	Julie Fielder, Kelly Hopkinson and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	517872 mE 6708382 mN
Vegetation Unit	20- <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Acacia effusifolia</i> , <i>Acacia resinimarginea</i> , <i>Hakea invaginata</i> , <i>Hakea francisiana</i> tall open shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> , <i>Phebalium canaliculatum</i> shrubland over mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Pale yellow to brown
Soil Type	Sandy loam
Litter	5%
Bare Ground	80%
Fire Age	> 10yrs
Vegetation Condition	Very Good
Disturbances/impacts	Mining impacts adjacent to borrowing
No image available	

Species	Height (m)	Cover (%)
<i>Acacia effusifolia</i>	3	5
<i>Acacia resinimarginea</i>	3	5
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	3	5
<i>Hakea francisiana</i>	3	5
<i>Hakea invaginata</i>	3	5
<i>Aluta aspera</i> subsp. <i>hesperia</i>	1.5	20
<i>Phebalium canaliculatum</i>	1.5	20
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.1	0.5
<i>Bellida graminea</i>	0.1	0.5
<i>Thysanotus</i> sp.	0.1	0.5
<i>Trachymene ornata</i>	0.1	0.5
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	0.5

Site MG080

Date	15/09/2021
Botanist	Megan Gray
Quadrat Size	20m x 20m
NW Corner Coordinates	515179 mE 6705051 mN
Vegetation Unit	22 - <i>Acacia sibina</i> , <i>Hakea invaginata</i> , <i>Grevillea acacioides</i> shrubland over <i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i> , <i>Grevillea yorkrakinensis</i> low open shrubland over <i>Ecdeiocolea monostachya</i> open rushland.
Slope	Flat
Landform	Drainage floodplain
Soil Colour	Dark yellow
Soil Type	Sand
Litter	5%
Bare Ground	55%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	Fire



Species	Height (m)	Cover (%)
<i>Hakea invaginata</i>	1.4	10
<i>Acacia sibina</i>	1.2	18
<i>Grevillea acacioides</i>	1	2
<i>Ecdeiocolea monostachya</i>	0.8	25
<i>Chamelaucium pauciflorum</i> subsp. <i>pauciflorum</i>	0.6	8
<i>Grevillea yorkkrakinensis</i>	0.3	4
<i>Acacia dielsii</i>		+
<i>Amphipogon caricinus</i> var. <i>caricinus</i>		+
<i>Borya sphaerocephala</i>		+
<i>Dampiera lavandulacea</i>		+
<i>Euryomyrtus recurva</i> P3		+
<i>Gahnia drummondii</i>		+
<i>Homalocalyx thryptomenoides</i>		+
<i>Lepidosperma</i> sp. 1		+
<i>Lepidosperma</i> sp. 2		+
<i>Melaleuca atroviridis</i>		+
<i>Melaleuca cordata</i>		+
<i>Stylidium arenicola</i>		+
<i>Hibbertia drummondii</i>		Associated

Site MG081

Date	16/09/2021
Botanist	Megan Gray and Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	516029 mE 6704977 mN
Vegetation Unit	16 - <i>Eucalyptus</i> sp. open mallee woodland over <i>Acacia resinimarginea</i> tall sparse shrubland over <i>Melaleuca stereophloia</i> , <i>Acacia effusifolia</i> , <i>Daviesia benthamii</i> open shrubland over <i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098) low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland and mixed species herbland.
Slope	Flat
Landform	Plain
Soil Colour	Pale orange brown
Soil Type	Loamy sand
Litter	5%
Bare Ground	85%
Fire Age	> 10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Cryptogamic crust in excellent condition



Species	Height (m)	Cover (%)
<i>Eucalyptus</i> sp.	5	8
<i>Acacia resinimarginea</i>	4	3.5
<i>Acacia effusifolia</i>	1.2	12
<i>Daviesia benthamii</i>	1.2	3
<i>Melaleuca stereophloia</i>	1.2	9
<i>Microcorys</i> sp. Mt Gibson (S. Patrick 2098)	0.8	5
<i>Lomandra effusa</i>	0.5	2
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.4	3
? <i>Tricoryne tuberosa</i>		+
<i>Acacia prairii</i>		+
<i>Actinobole uliginosum</i>		+
<i>Aristida contorta</i>		+
<i>Austrostipa scabra</i>		+
<i>Borya sphaerocephala</i>		+
<i>Brunonia australis</i>		+
<i>Calandrinia</i> sp.		+
<i>Calotis hispidula</i>		+
<i>Chthonocephalus pseudevax</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Crassula exserta</i>		+
<i>Dianella revoluta</i>		+
<i>Erodium cygnorum</i>		+
<i>Gilberta tenuifolia</i>		+
<i>Goodenia berardiana</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Gunniopsis rubra</i>		+
<i>Levenhookia leptantha</i>		+
<i>Lomandra effusa</i>		+
<i>Menkea australis</i>		+
<i>Monachather paradoxus</i>		+
<i>Nicotiana rosulata</i>		+
<i>Olearia</i> ? <i>pimeleoides</i>		+
* <i>Pentameris airoides</i> subsp. <i>airoides</i>		+
<i>Philothea tomentella</i>		+
<i>Podotrochea gnaphalioides</i>		+

<i>Ptilotus drummondii</i>		+
<i>Ptilotus eremita</i>		+
<i>Schoenia cassiniana</i>		+
<i>Siemssenia capillaris</i>		+
<i>Stenopetalum</i> sp.		+
<i>Thysanotus manglesianus</i>		+
<i>Thysanotus speckii</i>		+
<i>Trachymene pilosa</i>		+
<i>Tripterococcus brunonis</i>		+
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+

Site MG082r

Date	16/09/2021
Botanist	Megan Gray and Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	515709 mE 6703860 mN
Vegetation Unit	34 - <i>Myriophyllum decussatum</i> , <i>Calandrinia granulifera</i> , <i>Pogonolepis muelleriana</i> sparse aquatic herbland.
Slope	Gentle
Landform	Depression, lake
Soil Colour	Orange brown
Soil Type	Light clay
Litter	0.1%
Bare Ground	98%
Fire Age	>10yrs
Vegetation Condition	Excellent-Pristine
Disturbances/impacts	Salty water



Species	Height (m)	Cover (%)
<i>Calandrinia granulifera</i>	0.1	0.5
<i>Myriophyllum decussatum</i>	0.1	15
<i>Pogonolepis muelleriana</i>	0.1	0.5
<i>Calandrinia eremaea</i>		+
<i>Calandrinia sculpta</i>		+
<i>Calotis multicaulis</i>		+
* <i>Cleretum papulosum</i>		+
<i>Crassula colorata</i> var. <i>colorata</i>		+
<i>Goodenia glabrata</i>		+
<i>Goodenia rosea</i>		+
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>		+
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>		+
<i>Maireana trichoptera</i>		+
<i>Menkea australis</i>		+
<i>Rytidosperma setaceum</i>		+
<i>Sclerolaena eurotioides</i>		+
<i>Sclerolaena obliquicuspis</i>		+
* <i>Spergula pentandra</i>		+

Site MG100

Date	16/09/2022
Botanist	Daniel Roberts and Jacob Jones
Quadrat Size	20m x 20m
NW Corner Coordinates	513902 mE 6716625 mN
Vegetation Unit	23 - <i>Acacia effusifolia</i> , <i>Hysterobaeckea setifera</i> subsp. <i>setifera</i> tall shrubland over <i>Enekbatus stowardii</i> , <i>Hemigenia benthamii</i> open shrubland over <i>Prostanthera prostantheroides</i> low sparse shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> sparse tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Cream brown
Soil Type	Sandy loam
Litter	10%
Bare Ground	30%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (cm)	Cover (%)
<i>Acacia effusifolia</i>	4	30
<i>Hysterobaeckea setifera</i> subsp. <i>setifera</i>	3	15
<i>Enekbatus stowardii</i>	1	15
<i>Hemigenia benthamii</i>	1	8
<i>Prostanthera prostantheroides</i>	0.3	3
<i>Gilberta tenuifolia</i>	0.1	0.5
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	1
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		+
<i>Brunonia australis</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Comesperma ?integerrimum</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera</i> sp.		+
<i>Gnephosis tenuissima</i>		+
<i>Goodenia glabrata</i>		+
<i>Hakea minyma</i>		+
<i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)		+
<i>Melaleuca cordata</i>		+
<i>Stylidium induratum</i>		+
<i>Trachymene ornata</i>		+

Site MG101

Date	17/09/2021
Botanist	Daniel Roberts, Megan Gray and Olga Nazarova
Quadrat Size	20m x 20m
NW Corner Coordinates	513986 mE 6708921 mN
Vegetation Unit	29 - <i>Acacia effusifolia</i> , <i>Melaleuca</i> sp. 1, <i>Melaleuca leiocarpa</i> tall closed shrubland over <i>Aluta aspera</i> subsp. <i>hesperia</i> open shrubland over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland.
Slope	Flat
Landform	Plain
Soil Colour	Brown
Soil Type	Sandy loam
Litter	10%
Bare Ground	10%
Fire Age	>10yrs
Vegetation Condition	Excellent
Disturbances/impacts	NIL



Species	Height (cm)	Cover (%)
<i>Acacia effusifolia</i>	6	40
<i>Melaleuca leiocarpa</i>	6	15
<i>Melaleuca</i> sp. 1	5	25
<i>Aluta aspera</i> subsp. <i>hesperia</i>	1.5	25
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	0.3	15
<i>Gilberta tenuifolia</i>	0.1	3
<i>Waitzia acuminata</i> var. <i>acuminata</i>	0.1	3
? <i>Tricoryne tuberosa</i>		+
<i>Acacia acuaria</i>		+
<i>Acacia stereophylla</i> var. <i>stereophylla</i>		+
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		+
<i>Austrostipa elegantissima</i>		+
<i>Balaustion pulcherrimum</i>		+
<i>Blennospora drummondii</i>		+
<i>Borya constricta</i>		+
<i>Ceratogyne obionoides</i>		+
<i>Cheilanthes sieberi</i>		+
<i>Crassula closiana</i>		+
<i>Cyanicula amplexans</i>		+
<i>Dianella revoluta</i>		+
<i>Drosera</i> sp. Branched styles (S.C. Coffey 193)		+
<i>Gonocarpus nodulosus</i>		+
<i>Goodenia cycnopotamica</i>		+
<i>Goodenia occidentalis</i>		+
<i>Goodenia rosea</i>		+
<i>Hakea invaginata</i>		+
<i>Lawrencella rosea</i>		+
<i>Phebalium tuberculosum</i>		+
<i>Thysanotus manglesianus</i>		+
<i>Trachymene ornata</i>		+
<i>Tricoryne tuberosa</i>		+

APPENDIX F – WHEATBELT WOODLANDS KEY AND ASSOCIATED CANOPY SPECIES (TSSC 2015)

Key Species

Scientific Name	Common Name/s
<i>Eucalyptus accedens</i>	powder-bark; powder-bark wandoo
<i>Eucalyptus aequioperta</i>	Welcome Hill gum
<i>Eucalyptus alipes</i>	Hyden mallet
<i>Eucalyptus astringens</i> subsp. <i>astringens</i>	brown mallet
<i>Eucalyptus capillosa</i>	wheatbelt wandoo
<i>Eucalyptus densa</i> subsp. <i>densa</i>	narrow-leaved blue mallet
<i>Eucalyptus extensa</i>	yellow mallet
<i>Eucalyptus falcata</i>	silver mallet
<i>Eucalyptus gardneri</i> subsp. <i>gardneri</i>	blue mallet
<i>Eucalyptus goniocarpa</i>	Lake King mallet
<i>Eucalyptus kondininensis</i>	Kondinin blackbutt
<i>Eucalyptus longicornis</i>	red morrel
<i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i>	York gum
<i>Eucalyptus melanoxydon</i>	black morrel
<i>Eucalyptus mimica</i> subsp. <i>continens</i>	hooded mallet
<i>Eucalyptus mimica</i> subsp. <i>mimica</i>	Newdegate mallet
<i>Eucalyptus myriadena</i>	small-fruited gum; blackbutt
<i>Eucalyptus occidentalis</i>	flat-topped yate
<i>Eucalyptus ornata</i>	ornamental silver mallet; ornate mallet
<i>Eucalyptus recta</i>	Mt Yule silver mallet; Cadoux mallet
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	flooded gum
<i>Eucalyptus salicola</i>	salt gum; salt salmon gum
<i>Eucalyptus salmonophloia</i>	salmon gum
<i>Eucalyptus salubris</i>	gimlet
<i>Eucalyptus sargentii</i> subsp. <i>sargentii</i>	salt river gum
<i>Eucalyptus singularis</i>	ridge-top mallet
<i>Eucalyptus spathulata</i> subsp. <i>spathulata</i>	swamp mallet
<i>Eucalyptus spathulata</i> subsp. <i>salina</i>	Salt River mallet
<i>Eucalyptus urna</i>	merrit
<i>Eucalyptus wandoo</i> subsp. <i>pulverea</i>	wandoo
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	wandoo

Associated Species

Scientific Name	Common Name/s
<i>Acacia acuminata</i>	jam
<i>Allocasuarina huegeliana</i>	rock sheoak
<i>Corymbia calophylla</i>	marri
<i>Eucalyptus annulata</i>	prickly-fruited mallee
<i>Eucalyptus arachnaea</i> subsp. <i>arachnaea</i>	black-stemmed mallee
<i>Eucalyptus arachnaea</i> subsp. <i>arrecta</i>	black-stemmed mallet
<i>Eucalyptus armillata</i>	flanged mallee
<i>Eucalyptus calycogona</i> subsp. <i>calycogona</i>	square-fruited mallee
<i>Eucalyptus camaldulensis</i> subsp. <i>arida</i>	river red gum
<i>Eucalyptus celastroides</i> subsp. <i>virella</i>	wheatbelt mallee
<i>Eucalyptus cylindriflora</i>	Goldfields white mallee
<i>Eucalyptus decipiens</i>	redheart; moit
<i>Eucalyptus drummondii</i>	Drummond's mallee
<i>Eucalyptus eremophila</i>	sand mallee
<i>Eucalyptus erythronema</i> subsp. <i>erythronema</i>	red-flowered mallee
<i>Eucalyptus erythronema</i> subsp. <i>inornata</i>	yellow-flowered mallee
<i>Eucalyptus eudesmioides</i>	Kalbarri mallee
<i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i>	Flockton's mallee
<i>Eucalyptus gittinsii</i> subsp. <i>illucida</i>	northern sandplain mallee
<i>Eucalyptus incrassata</i>	ridge-fruited mallee
<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>	Trayning mallee
<i>Eucalyptus leptopoda</i> subsp. <i>leptopoda</i>	Merredin mallee; Tammin mallee
<i>Eucalyptus loxophleba</i> subsp. <i>gratiae</i>	Lake Grace mallee
<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>	smooth-barked York gum
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	blackbutt York gum
<i>Eucalyptus macrocarpa</i>	mottlecah
<i>Eucalyptus marginata</i>	jarrah
<i>Eucalyptus moderata</i>	redwood mallee
<i>Eucalyptus obtusiflora</i>	Dongara mallee
<i>Eucalyptus olivina</i>	olive-leaved mallee
<i>Eucalyptus orthostemon</i>	diverse mallee
<i>Eucalyptus perangusta</i>	fine-leaved mallee
<i>Eucalyptus phaenophylla</i>	common southern mallee
<i>Eucalyptus phenax</i> subsp. <i>phenax</i>	white mallee
<i>Eucalyptus pileata</i>	capped mallee
<i>Eucalyptus platypus</i> subsp. <i>platypus</i>	moort
<i>Eucalyptus polita</i>	Parker Range mallet
<i>Eucalyptus sheathiana</i>	ribbon-barked mallee
<i>Eucalyptus sporadica</i>	Burngup mallee
<i>Eucalyptus subangusta</i> subsp. <i>subangusta</i>	grey mallee