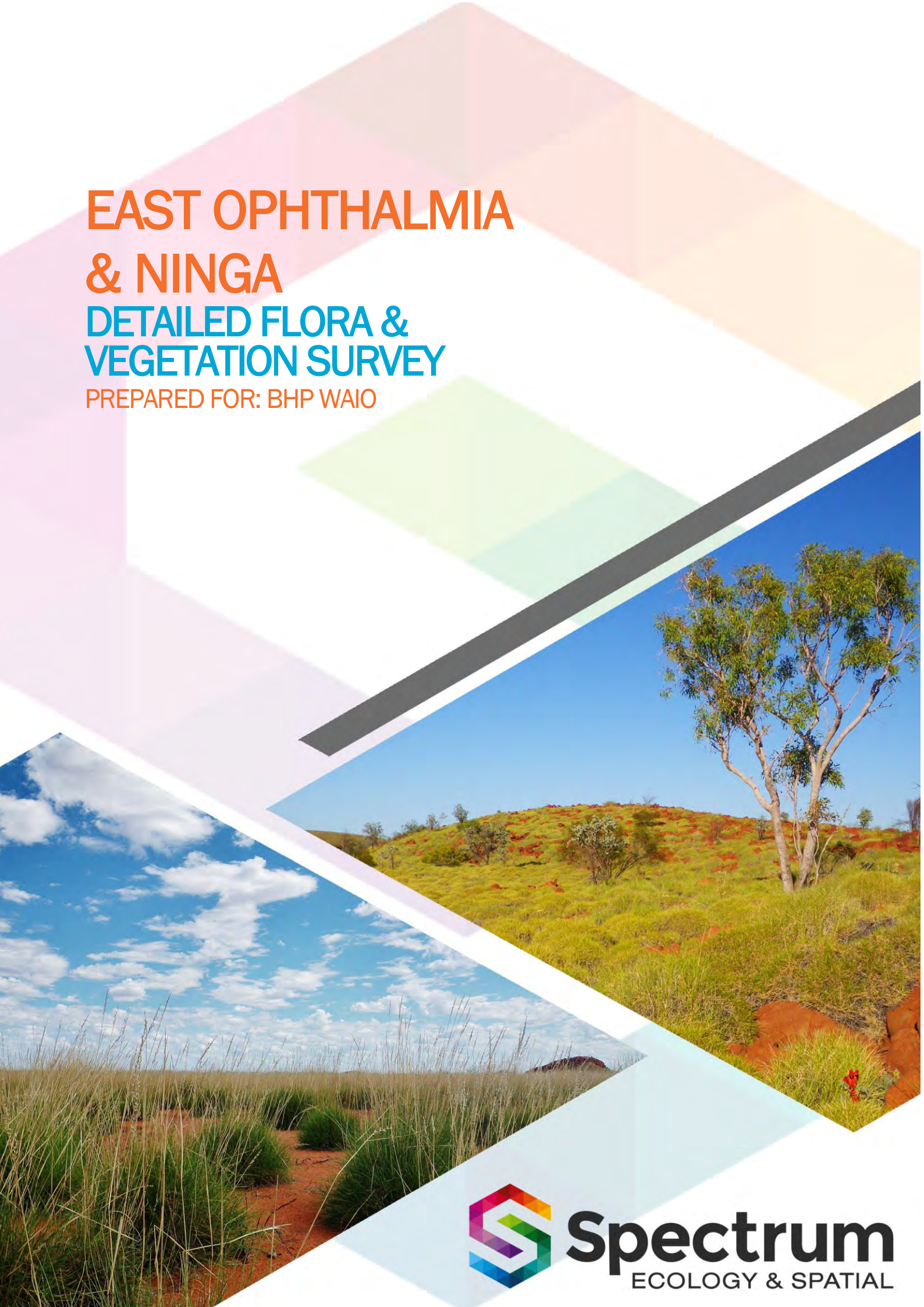


# EAST OPHTHALMIA & NINGA

## DETAILED FLORA & VEGETATION SURVEY

PREPARED FOR: BHP WAIO



**Spectrum**  
ECOLOGY & SPATIAL



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## EXECUTIVE SUMMARY

BHP Western Australian Iron Ore engaged Spectrum Ecology & Spatial to undertake a two-season detailed flora and vegetation survey covering the East Ophthalmia and Ninga general locality. This Survey Area is located approximately 15 km north-east of the Newman township in the Pilbara region of Western Australia and covers an area of approximately 5,851 ha.

The detailed flora and vegetation assessment was undertaken over two phases. The first phase was conducted over nine days from 29 March to 6 April, following marginally higher than average rainfall in the preceding three months than the long-term average (Figure 2.1). The second phase was conducted over seven days from 2 to 8 August following unseasonal winter rainfall for the three months preceding the survey. During the survey a total of 43 quadrats were installed, 33 quadrats were installed during phase 1 and 10 quadrats were installed during phase 2. Fifteen (45%) of the quadrats installed during phase 1, were re-scored in phase 2. Additionally, 20 relevés and 179 km of traverses were sampled during the assessment.

A total of 320 taxa from 46 families and 132 genera were recorded within the Survey Area. Of the total 320 taxa recorded 311 were native and nine were introduced. The most species rich family was Fabaceae, with 61 species, followed by Poaceae with 52 species. The most species rich genera were *Acacia* with 34 species.

No Threatened flora (under the federal *Environment Protection and Biodiversity Conservation Act 1999* and state *Biodiversity Conservation Act 2016*) were recorded or are likely to occur within the Survey Area. Three Priority flora taxa, one novel species and one range extension was recorded within the Survey Area:

- *Priority 3:*
  - *Gymnanthera cunninghamii*,
  - *Rhagodia* sp. Hamersley (M. Trudgen 17794),
  - *Triodia* sp. Mt Ella (M.E. Trudgen 12739),
- *Novel Species*
  - *Hibiscus* aff. *campanulatus*,
- *Range Extension*
  - *Frankenia magnifica*.

Nine introduced flora species were recorded in the Survey Area, all of which are classified as permitted s11 weeds under the *Biosecurity and Agriculture Management Act 2007*. Of the introduced flora species recorded, *\*Cenchrus ciliaris* was the most prevalent across the Survey Area, especially along drainage lines and on floodplains, and was recorded at 20 locations with 16,491 individuals within the Survey Area.

A total of nine vegetation types were described from the Survey Area. The majority of the Survey Area was mapped as *Triodia vanleeuwenii* hummock grasslands (S1 and S2), occurring on undulating plains and hills to the north, followed by *Acacia* (Mulga) shrubland (P1 and P2) occurring on stony plains to the south, and major (D1) and minor drains (D2) scattered throughout the Survey Area. None of the vegetation types recorded resembles any known Threatened or Priority Ecological Communities. Vegetation type D2a was assigned a high local and regional significance as it provides habitat for the Priority 3 flora species, *Triodia* sp. Mt Ella (M.E. Trudgen 12739), and novel species *Hibiscus* aff. *campanulatus*.

The vegetation condition of the Survey Area was predominantly classed as excellent or very good (70.0%). Vegetation condition was generally excellent in the north of the Survey Area (S1, D2b) while prevalent drill pads, tracks and grazing in the mid and southern portion of the Survey Area reduced the condition to very

good (P1, P2, P4, P3, and D2b) and good (D1, S1). Cleared areas for roads, tracks, and drill pads were considered completely degraded and accounted for 9% of the Survey Area.

No significant limitations and constraints impacted the collection of data or the outcome of the detailed flora and vegetation assessment.

# 1. INTRODUCTION

## 1.1. Project Background

BHP Western Australian Iron Ore (BHP WAIO) engaged Spectrum Ecology & Spatial (Spectrum) to undertake a two-season detailed flora and vegetation survey covering the East Ophthalmia and Ninga general locality (hereafter referred to as the Survey Area). This Survey Area is located approximately 15 km north-east of the Newman township in the Pilbara region of Western Australia and covers an area of approximately 5,851 ha (Map 1.1).

## 1.2. Project Scope

The project objective was to undertake a two-season detailed flora and vegetation assessment to describe flora and vegetation values across the Survey Area, in order to inform future environmental approvals in the area.

## 1.3. Legislation & Guidelines

Flora and vegetation in Western Australia are protected by various legislation, including:

- *Biodiversity Conservation Act 2016* – BC Act (Western Australian Government, 2016);
- *Environmental Protection Act 1986* (Western Australian Government, 1986); and
- *Environment Protection and Biodiversity Conservation Act 1999* – EPBC Act (Australian Government, 1999).

The survey was compliant with survey guidelines, as outlined in:

- Environmental Protection Authority (EPA) Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority, 2016b);
- EPA Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection (Environmental Protection Authority, 2002);
- EPA Environmental Factor Guideline: Flora and Vegetation (Environmental Protection Authority, 2016a);
- Department of Biodiversity Conservation and Attractions (DBCA) Threatened and Priority Flora Report Form – Field Manual (Department of Biodiversity Conservation and Attractions, 2017b);
- National Vegetation Information System (NVIS) Australian Vegetation Attribute Manual (ESCAVI, 2003);
- Latest version of BHP WAIO's Biological Survey Spatial Data Requirements (SPR-IEN-EMS-015); and
- Latest version of BHP WAIO's Vegetation and Flora Survey Procedure (0124627).



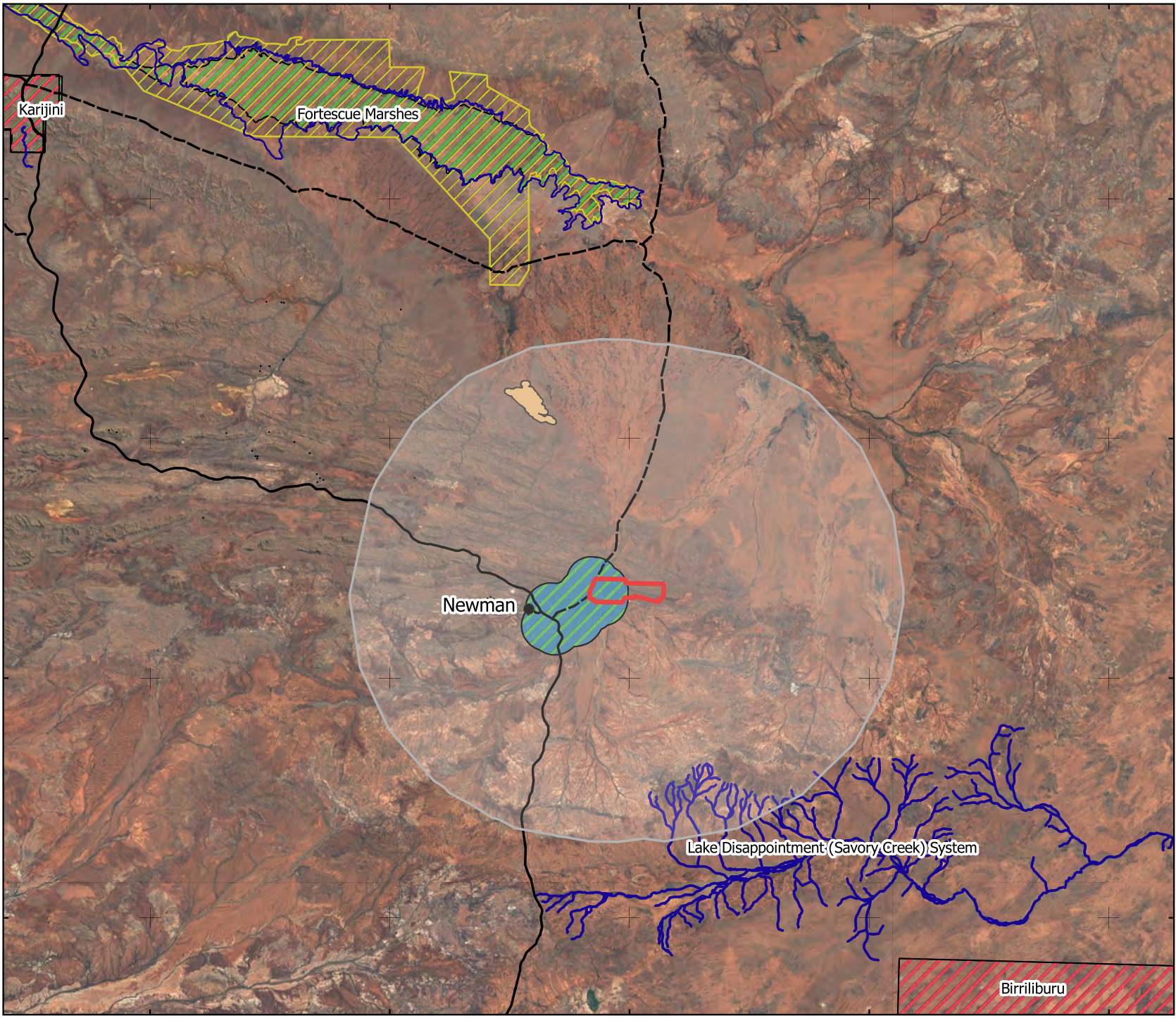
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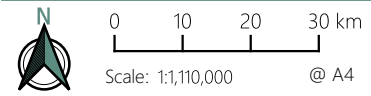
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### Legend

- Survey Area
- Study Area
- Significant Lands**
- Conservation Estates
- Directory of Important Wetlands
- Environmentally Sensitive Areas
- Ramsar Sites
- TEC/PEC**
- Ethel Gorge
- Fortescue Valley Sand Dunes



Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SB Date: 16-03-2023

## Location of the Survey Area & Significant Lands

East Ophthalmia & Ninga

Prepared for  
BHP WAIO

MAP  
**1.1**

## 1.4. Bioregion

The Interim Biogeographic Regionalisation for Australia (IBRA) classified Australia into regions based on the dominant landscape, climate, lithology, geology, landform, and vegetation (Thackway and Cresswell, 1995).

The Survey Area is located across the Pilbara and Gascoyne IBRA bioregions. The Pilbara bioregion is divided into four sub-regions: Chichester, Fortescue Plains, Hamersley, and Roebourne while the Gascoyne bioregion is divided into three subregions: Ashburton, Carnegie, and Augustus. The Survey Area covers both the Hamersley subregion (76.4%) and the Augustus subregion (23.6%) (Figure 1.1). The Hamersley subregion occurs in the southern section of the Pilbara Craton, a mountainous area of sedimentary ranges and plateaus dissected by gorges (Kendrick, 2001b). The Augustus subregion occurs in the northern section of the Gascoyne bioregion and is described as rugged, low Proterozoic sedimentary and granite ranges divided by broad, flat valleys (Kendrick, 2001b).

The climate of the Pilbara bioregion is classified as tropical, arid to semi-arid. Rainfall can be variable, falling mainly in summer cyclonic events from December to February with a median annual rainfall of 300 mm (Thackway and Cresswell, 1995). The climate of the Gascoyne bioregion is classified as an arid climate with predominantly winter rainfall in the west, and summer rainfall in the east. Spatially averaged median rainfall is 202 mm, annually (Kendrick, 2001a).

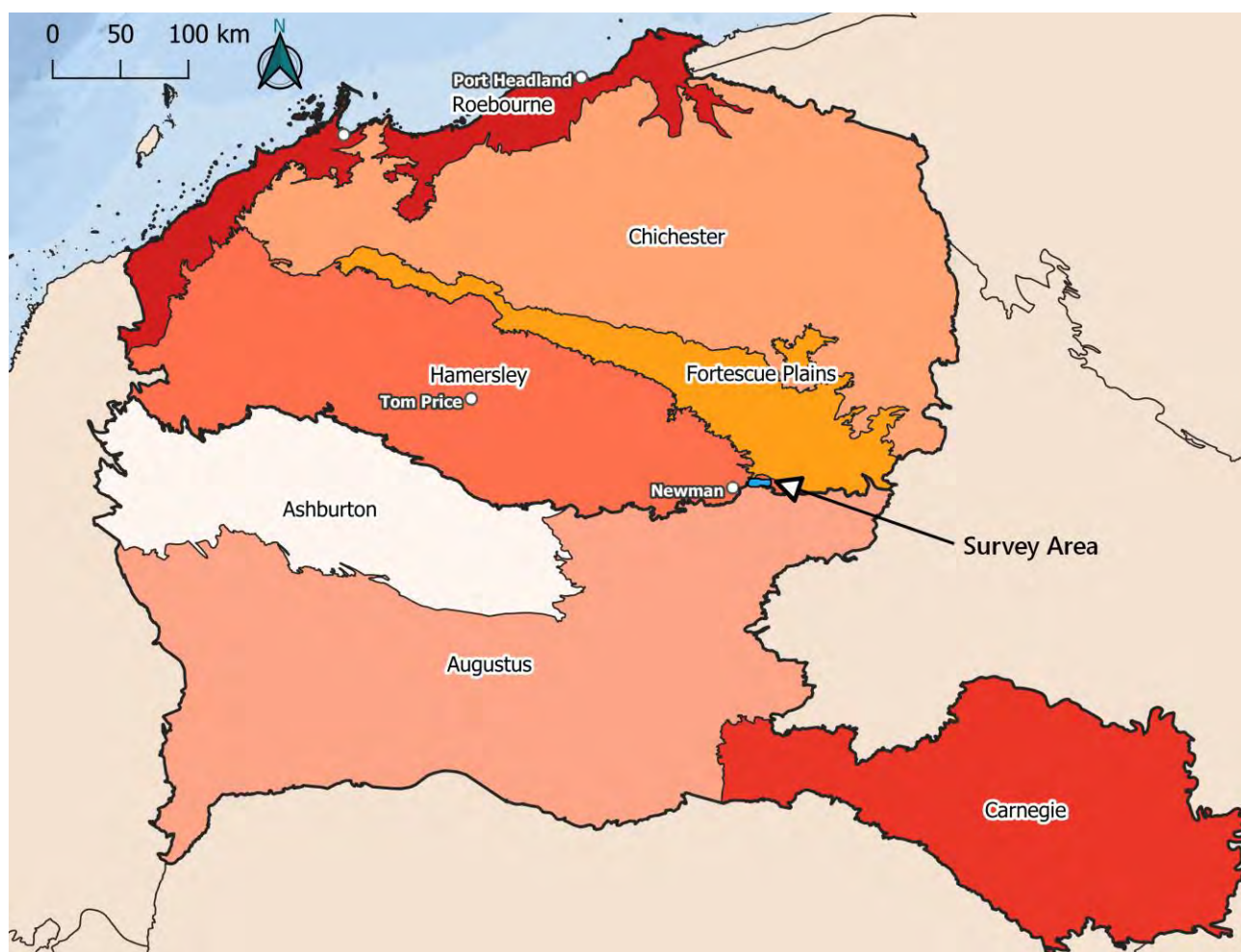


Figure 1.1: IBRA Classification

## 1.5. Disturbance History

The dominant current and historical land uses across the Pilbara region involves grazing of native pasture, conservation, crown reserves, mining leases, and Aboriginal lands, and reserves. Historically, pastoralism has been the most significant land use within the Pilbara. Mining, of predominantly iron ore, has become a significant land use since the 1960's, with much of the Pilbara now under mining tenure (Kendrick, 2001b).

The dominant current and historical land use across the Gascoyne region is the grazing of native pasture with lesser areas of unallocated crown land and crown reserves, Aboriginal lands and reserves, and conservation (Kendrick, 2001b). Land use is dominated by pastoralism occupying nearly 85% of the region, with mining common throughout. The level of degradation of much of the subregion is significant due to pastoral practices and the impacts of feral herbivores (McKenzie, May, and McKenna, 2003).

## 1.6. Geology

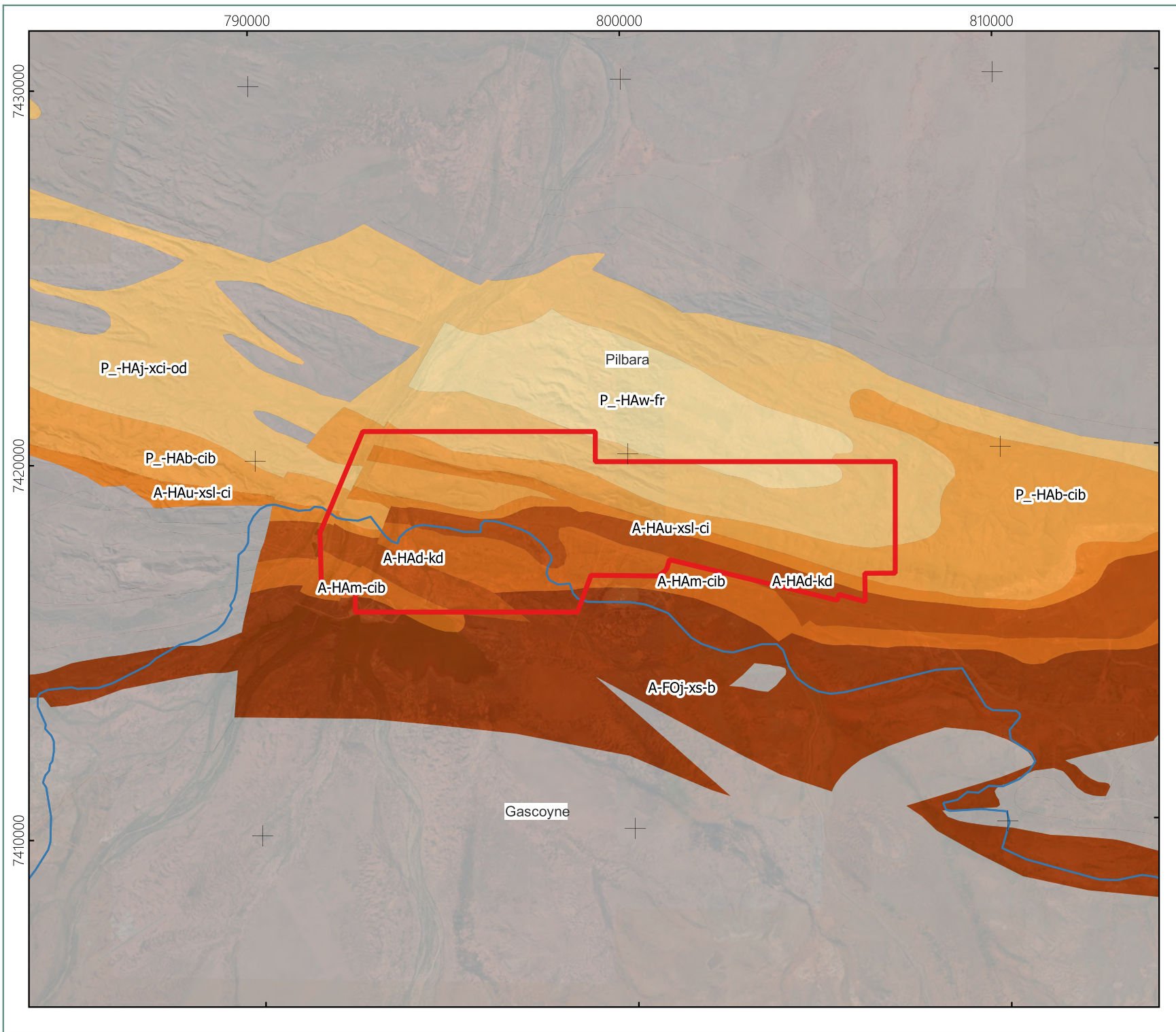
The surface geology of Western Australia has been mapped at a scale of 1:500,000 (DMIRS 2020), which is the finest-scale digital mapping available for the entirety of the Survey Area.

Seven units were mapped within the Survey Area at the 1:500,000 scale; five of which occurred across both the Gascoyne and Pilbara IBRA regions, with the remaining two units only occurring across the Pilbara IBRA region. None of the units appear restricted across the IBRA regions or Western Australia and all have low percentages of their total extents within the Survey Area (Table 1.1; Map 1.2)

**Table 1.1: Surface Geology (1:500,000)**

Unit Name (Code) & Description	Area in Survey Area (ha)	% of Survey Area	Total IBRA Extent (ha)	Total WA Extent (ha)	% of WA Extent Within Survey Area
<b>Jeerinah Formation</b> (A-FOj-xs-b) Siliciclastic sedimentary rocks, mafic volcanic rocks and minor felsic volcanic rocks; local carbonate rocks, chert, and dolerite sills.	Gascoyne: 139.9 Pilbara: 7.3 Total: 147.2	2.5	Gascoyne: 32,921.8 Pilbara: 636,003.9	523,219.7	<0.1
<b>Wittenoom Formation</b> (A-HAd-kd) Thinly bedded dolomite and dolomitic shale, with minor black chert, shale, banded iron formation and sandstone.	Gascoyne: 519.8 Pilbara: 709.5 Total: 1229.3	21.0	Gascoyne: 13,844.9 Pilbara: 1,353,161.8	1,345,403.7	0.1
<b>Marra Mamba Iron Formation</b> (A-HAm-cib) Chert, banded iron-formation, mudstone, and siltstone; minor carbonate; metamorphosed.	Gascoyne: 672.6 Pilbara: 335.4 Total: 1008	17.2	Gascoyne: 9,538.9 Pilbara: 520,665.	254,080.0	0.4
<b>Mount McRae Shale &amp; Mount Sylvia Formation</b> (AP_-HAu-xsl-ci) Mudstone, siltstone, chert, banded iron-formation, and dolomite; metamorphosed.	Gascoyne: 34.2 Pilbara: 557.9 Total 592.1	10.1	Gascoyne: 1,663.1 Pilbara: 253,658.5	652,764.1	0.1

Unit Name (Code) & Description	Area in Survey Area (ha)	% of Survey Area	Total IBRA Extent (ha)	Total WA Extent (ha)	% of WA Extent Within Survey Area
<b>Brockman Iron Formation</b> (P_-HAb-cib) Banded iron-formation, chert, mudstone, and siltstone; metamorphosed.	Gascoyne: 15.9 Pilbara: 1,244.8 Total: 1260.7	21.5	Gascoyne: 77,604.4 Pilbara: 1,338,772.7	1,355,589.6	0.1
<b>Weeli Wolli Formation</b> (P_-HAj-xci-od) Banded iron-formation (commonly jaspilitic), mudstone, siltstone, and numerous dolerite sills; metamorphosed.	Pilbara: 1,403.3 Total: 1,403.3	24.0	Pilbara: 479,458.8	484,629.0	0.3
<b>Woongarra Rhyolite</b> (P_-HAw-fr) Rhyolite, rhyodacite, rhyolitic breccia, and banded iron-formation; metamorphosed.	Pilbara: 210.3 Total: 210.3	3.6	Pilbara: 174,893.1	176,325.9	0.1




**Legend**

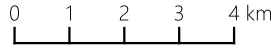
- Survey Area
- IBRA region

**Geological Units**

- A-FOj-xs-b
- A-HAd-kd
- A-HAm-cib
- A-HAu-xsl-ci
- P\_-HAb-cib
- P\_-HAj-xci-od
- P\_-HAW-fr
- Geology Not Within Survey Area

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Scale: 1:150,000 @ A4

Coordinate System: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Units: Meter

Author: SB

Date: 16-03-2023

## Surface Geology (1:500,000)

### East Ophthalmia & Ninga

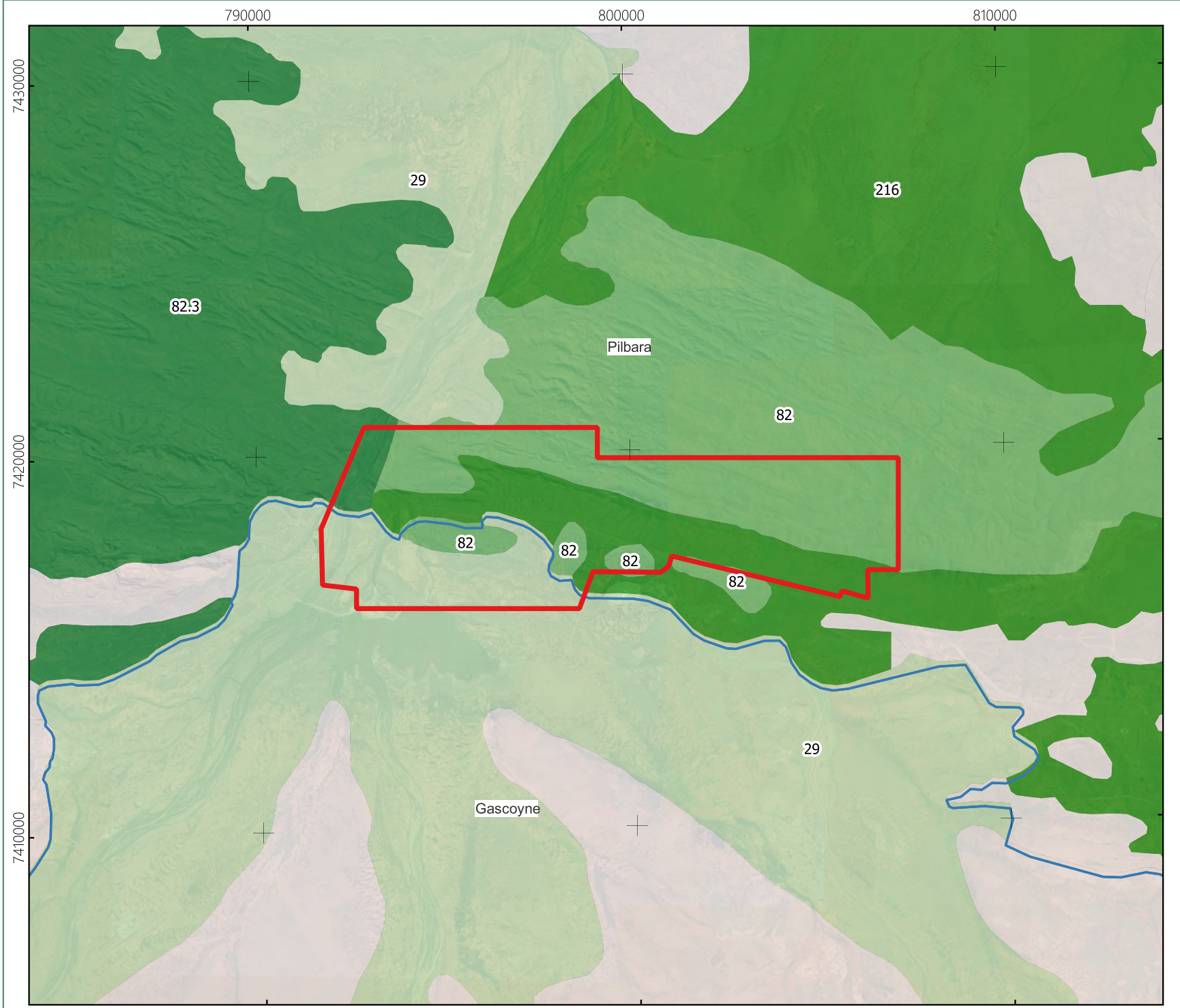
## 1.7. Beard Vegetation Mapping

Pre-European vegetation mapping was originally undertaken by Beard at various scales across the state and has since been updated to be consistent with the National Vegetation Information System (NVIS) descriptions at a scale of 1:250,000 (Department of Primary Industry and Regional Development, 2019). State-wide vegetation statistics are available from 2018 for these associations which lists pre-European extent, current extent, area in DBCA managed lands and is a useful tool to determine if a vegetation association is rare or otherwise significant (Government of Western Australia, 2019).

Four vegetation sub-associations (SAs) have been mapped within the Survey Area. SA29 occurs across two systems, Fortescue Valley and Kumarina Hills, SA82 and SA216 occurs on the Fortescue Valley system and mosaic SA82.3 occurs on the Hammersley system. The most common vegetation was SA82, which was mapped as 47.4% of the Survey Area followed by SA216 (27.7%), SA29 (21.3%), and SA82.3 (3.6%). Over 99% of the pre-European vegetation extent remains for all four sub-associations. The majority of the SAs are widespread across Western Australia, with none appearing restricted. SA82 has the lowest total current extent of 50,989 ha (Table 1.2, Map 1.3).

Table 1.2: Beard Vegetation Sub-associations

SA	System Association	NVIS Level V Description	IBRA Bioregion	Area in Survey Area (ha)	% of Survey Area	Pre-European Extent WA (ha)	Current WA Extent WA (ha)	Current IBRA Extent (ha)	% Remaining Extent WA	% of Current WA Extent in Survey Area	% of Current IBRA Extent in Survey Area
29	Kumarina Hills	<i>Acacia aneura</i> tall, isolated clumps of shrubs.	Gascoyne	1,183.4	20.2	3,530,312	3,529,440	785,062	100	<0.1	0.2
	Fortescue Valley & Kumarina Hills		Pilbara	63.9	1.1			902,864		<0.1	<0.1
82	Fortescue Valley	<i>Eucalyptus leucophloia</i> low isolated trees, over <i>Triodia wiseana</i> mid open hummock.	Gascoyne	198.9	3.4	51,202	50,989	1,023.6	99.6	0.4	19.4
			Pilbara	2,573.2	44.0			49,965		5.0	5.2
82.3	Hammersley	<i>Eucalyptus gamophylla</i> and <i>Corymbia hamersleyana</i> low open mallee woodland, over <i>Acacia pachycarpa</i> , <i>Acacia pyrifolia</i> , and <i>Senna</i> sp. tall sparse shrubland, over <i>Triodia basedowii</i> and <i>Triodia pungens</i> mid open hummock grassland, over <i>Ptilotus axillaris</i> mid open forbland.	Pilbara	211.6	3.6	2,169,997	2,157,841	2,156,547	99.4	<0.1	<0.1
		<i>Acacia aneura</i> , <i>Corymbia hamersleyana</i> , and <i>Eucalyptus</i> aff. <i>aspera</i> low open woodland.									
		<i>Eucalyptus gamophylla</i> and <i>Hakea lorea</i> low open mallee woodland, over <i>Acacia pyrifolia</i> tall sparse shrubland, over <i>Triodia basedowii</i> mid open hummock grassland.									
216	Fortescue Valley	<i>Acacia aneura</i> low woodland, over <i>Triodia</i> sp. mid sparse hummock grassland.	Pilbara	1,620.0	27.7	280,759	279,237	26,373	99.5	0.6	6.1




**Legend**

- ▭ Survey Area
- ▭ IBRA Regions

Beard Vegetation Sub-associations

- ▭ 29
- ▭ 82
- ▭ 82.3
- ▭ 216
- ▭ Unit Not Within Survey Area

---



N

0 1 2 3 4 km

Scale: 1:150,000 @ A4

Coordinate System: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Units: Meter



Author: SB Date: 16-03-2023

## Beard Vegetation Sub-associations

### East Ophthalmia & Ninga



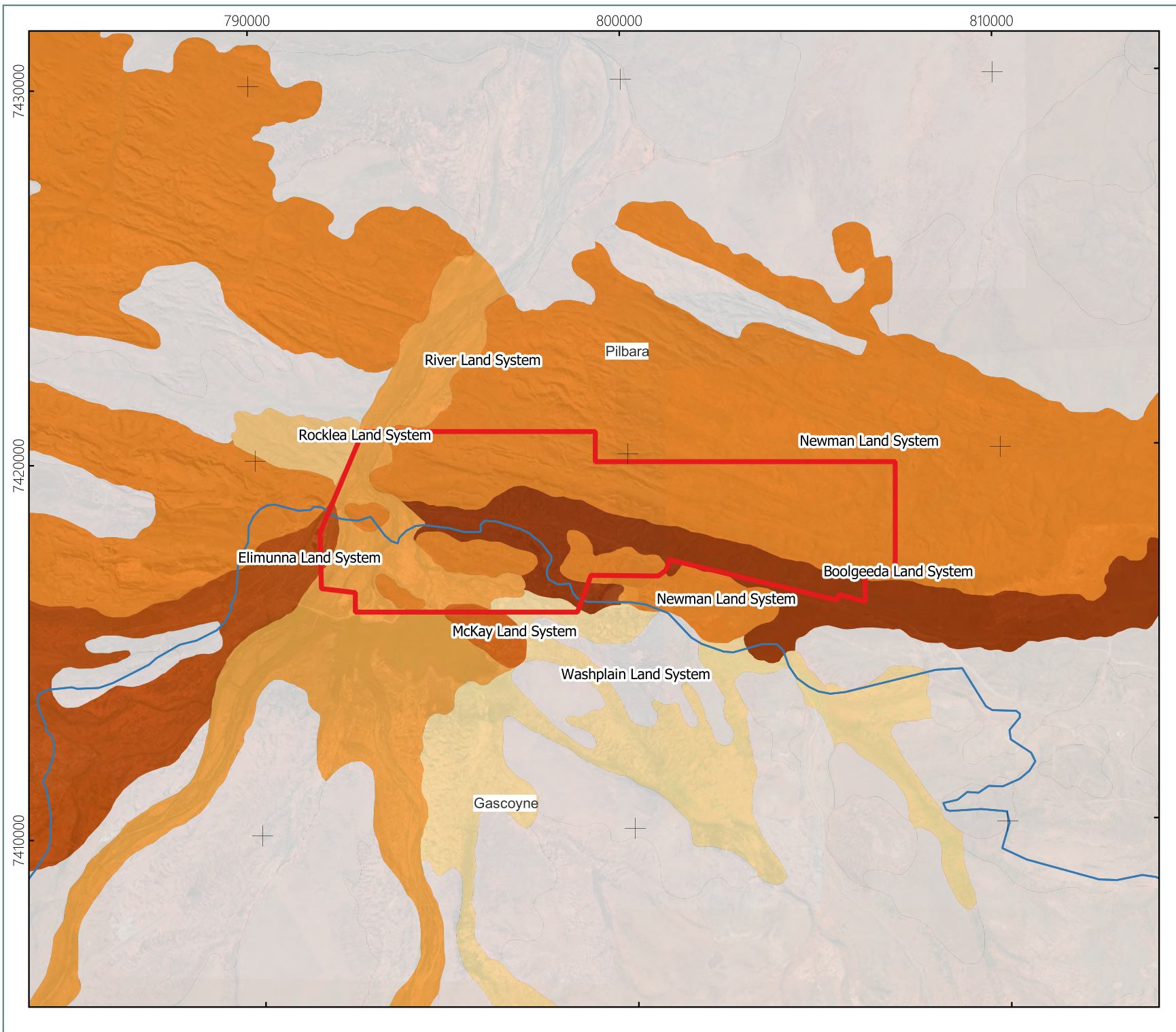
## 1.8. Land Systems

The land systems of Western Australia have been mapped at a scale of 1:250,000 (DAFWA, 2016). Seven land systems were mapped across the Survey Area, with the dominant being the Newman land system which covers 58.6% of the Survey Area, followed by Boolgeeda (22.2%) and River (16.2%).

All land systems are well represented in the region with the Survey Area covering less than 0.2% of each land systems extent in Western Australia. The majority of the land systems are widespread across Western Australia, with none appearing restricted. The Elimunna land system has the lowest total extent of 65,550 ha (Table 1.3, Map 1.4).

**Table 1.3: Land Systems**

Description	Area in Survey Area – (ha)	% of Survey Area	Total WA Extent (ha)	% of Total Extent within Survey Area
<b>Boolgeeda Land System:</b> Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	Gascoyne: 206.9 Pilbara: 1092.6 Total: 1299.5	22.2	999,836	0.1
<b>Elimunna Land System:</b> Stony plains on basalt supporting sparse acacia and cassia shrublands and patchy tussock grasslands.	Gascoyne: 52.7 Pilbara: 5.2 Total: 57.9	1.0	65,550	<0.1
<b>McKay Land System:</b> Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts.	Gascoyne: 23.2 Total: 23.2	0.4	427,290	<0.1
<b>Newman Land System:</b> Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	Gascoyne: 330.5 Pilbara: 3098.8 Total: 3429.3	58.6	2,000,377	0.2
<b>River Land System:</b> Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex.	Gascoyne: 678.2 Pilbara: 272.0 Total: 950.2	16.2	595,304	0.2
<b>Rocklea Land System:</b> Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs.	Pilbara: 1.4 Total: 1.4	<0.1	2,891,998	<0.1
<b>Washplain Land System:</b> Hardpan plains supporting grooved mulga shrublands.	Gascoyne: 89.6 Total: 89.6	1.5	91,602	0.1



- Legend**
- Survey Area
- Land System**
- Boolgeeda Land System
  - Elimunna Land System
  - McKay Land System
  - Newman Land System
  - River Land System
  - Rocklea Land System
  - Washplain Land System
  - Land System Not Within Survey Area

0 1 2 3 4 km  
 Scale: 1:150,000 @ A4  
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SB Date: 16-03-2023

## Land Systems

East Ophthalmia & Ninga

## 1.9. Significant Lands

Several significant lands are located within the Study Area (50km buffer of the Survey Area). These are listed in Table 1.4, displayed on Map 1.1, and are described in the below sections. Threatened Ecological Communities (TEC) and Priority Ecological Communities (PEC) are discussed in Section 4.1.

**Table 1.4: Environmentally Significant Lands Within and Around the Study Area**

Reserve Name (Protected Area ID)	Distance from Survey Area (km)
<b>Conservation Estate</b>	
Birriliburu Indigenous Protected Area	89 km Southeast
<b>TEC</b>	
Ethel Gorge (Endangered)	Within Survey Area
<b>PEC</b>	
Fortescue Valley Sand Dunes (Priority 3)	33 km northwest
<b>Environmentally Sensitive Areas</b>	
Ethel Gorge	Within Survey Area
<b>Wetlands &amp; Ramsar Sites</b>	
Lake Disappointment (Savory Creek) System	35 km South
Fortescue Marshes (Proposed Ramsar Addition)	63 km North

### 1.9.1. Conservation Estate

The Western Australian conservation estate includes land and waters vested in the Conservation and Parks Commission under the *Conservation and Land Management Act 1984*. The conservation estate is generally managed by the Department of Biodiversity, Conservation and Attractions (DBCA) to protect Western Australia's biodiversity and includes National Parks, Nature Reserves, Conservation Reserves, and other areas managed primarily for biodiversity conservation (Department of the Environment and Energy, 2016). No conservation estate are located within 50 kms of Survey Area (Map 1.1)

### 1.9.2. Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESA) are defined by the Department of Water and Environmental Regulation (Department of Water and Environmental Regulation, 2019) as:

- A defined wetland and the area within 50 m of a wetland;
- The area covered by vegetation within 50 m of Threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the Threatened flora is located;
- The area covered by a TEC;
- A Bush Forever site;
- Areas covered by the Gngangara Mound Crown Land Policy and Western Swamp Tortoise Policy; and
- Areas covered by lakes, wetlands, and fringing vegetation of the Swan Coastal Plain Lakes Policy, including South-west Agricultural Zone Wetlands Policy and Swan and Canning Rivers Policy.

There is one ESA located within the Survey Area; Ethel Gorge alluvium calcrete aquifer (Table 1.4; Map 1.1). This area relates to known locations of a diverse assemblage of stygofaunal species. Ethel Gorge is the only known occurrence of this community and is currently listed as Endangered.

### 1.9.3. Australian Wetlands Database

The Australian Wetlands Database includes nationally significant wetlands (as listed in the Directory of Important Wetlands), wetlands listed under the Ramsar convention, wetlands that are representative, rare, or unique, or wetlands that are considered of international importance (Department of the Environment and Energy, 2019).

No nationally significant wetlands, including Ramsar wetlands, were mapped within the Survey Area. The closest wetland of national significance is the Lake Disappointment (Savory Creek) System which is located 35 km to the south of the Survey Area (Table 1.4; Map 1.1).

### 1.9.4. Locally endemic or restricted habitat types

Habitat types which are considered locally endemic or association with a restricted habitat type, including Sheet Flow Dependent Mulga (SFD) and Groundwater Dependent Ecosystems (GDE), may be considered significant vegetation as defined by the EPA (Environmental Protection Authority, 2016b) Environmental Factor Guideline.

#### 1.9.4.1. Sheet Flow Dependent Mulga Vegetation

Sheet Flow Dependent Mulga vegetation exhibit sheet flow dependence by their aerial spatial pattern representing grove-intergrove Mulga. These communities rely on overland flow of surface water to maintain their structure (Tongway, 2001).

#### 1.9.4.2. Groundwater Dependent (Phreatophytic) Ecosystems

Groundwater Dependent (Phreatophytic) Ecosystems (GDE), is defined as any vegetation that uses groundwater as part of survival, ranging from complete survival to partial reliance such as during droughts (Eamus and Froend, 2006). *Eucalyptus camaldulensis*-dominated vegetation is considered representative of GDE. These communities may be impacted by changes to groundwater levels from mining activities (Environmental Protection Authority, 2013).

## 2. METHODS

### 2.1. Desktop Assessment

A desktop review of all relevant and available biological data sources was undertaken prior to the field survey to assess the flora and vegetation likely to occur across the Survey Area. The desktop Study Area includes a 50 km buffer surrounding the Survey Area (Map 1.1).

#### 2.1.1. Biological Database Searches

The following databases were searched and incorporated into the desktop assessment. The Data source, custodian, and search details, including the buffer supplied by the custodian, are shown in (Table 2.1).

**Table 2.1: Summary of Database Searches**

Data Source	Custodian	Details
Commonwealth Protected Matters Search Tool	Department of the Environment and Energy (currently the Department of Climate Change, Energy, the Environment and Water)	Buffer: 50 km Date: 31/01/2022
DBCA Threatened & Priority Flora Databases (Threatened and Priority Flora / WA Herbarium)	DBCA	Buffer: 100 km Date: 27/01/2022 Reference: 28-0122FL
DBCA Communities Database	DBCA	Buffer: 50 km Date: 27/01/2022 Reference: 26_0122EC
Index of Biodiversity Surveys and Assessments (IBSA) Database	Department of Water and Environmental Regulation	Buffer: 50 km

#### 2.1.2. Literature Review

Previously conducted assessments within the desktop Study Area were reviewed for significant flora and vegetation. Reports were incorporated if they were provided by BHP WAIO, or if they were publicly available. The 12 reports incorporated into the desktop assessment are listed in Table 2.2.

**Table 2.2: Previously Conducted Biological Assessments**

Reference	Survey Level	Title	Client	Distance to Survey Area
ENV Australia, 2011	Detailed – flora	Orebody 42/43 Flora, Vegetation and Fauna Assessment	BHP WAIO	Within Survey Area
Syrinx Environmental, 2012	Detailed – flora	Orebody 37 Flora and Vegetation Assessment	BHP WAIO	2 km West
ENV Australia, 2012	Detailed – flora	Eastern Ridge (OB23/24/25) Flora and Vegetation Assessment	BHP WAIO	Within Survey Area
Astron, 2013	Detailed – flora	Ninga Vegetation and Flora Assessment	BHP WAIO	Within Survey Area
Onshore Environmental Consultants, 2014	Detailed – flora	Orebody 19 Level 2 Flora and Vegetation Survey	BHP WAIO	Within Survey Area
Onshore Environmental Consultants, 2015c	Targeted – flora	Targeted Survey for <i>Acacia</i> sp. East Fortescue (surrounding OB31)	BHP WAIO	Within Survey Area
Onshore Environmental Consultants, 2015b	Reconnaissance – flora	Orebody 31 to Ophthalmia Dam Pipeline Level 1 Flora, Vegetation and Vertebrate Fauna Survey	BHP WAIO	1 km South

Reference	Survey Level	Title	Client	Distance to Survey Area
Onshore Environmental Consultants, 2015a	Detailed – flora	Fortescue River Riparian Flora and Vegetation Survey	BHP WAIO	Within Survey Area
Onshore Environmental (2016)	Detailed – flora	Cathedral Gorge Level 2 Flora and Vegetation Survey	BHP WAIO	20 km West
Onshore Environmental Consultants, 2017	Reconnaissance – flora	Flora and Vegetation and Vertebrate Fauna Survey of the Newman to MAC Powerline Corridor	BHP WAIO	1 km North
Biologic, 2021	Targeted - flora	BHP WAIO Jimblebar <i>Eremophila capricornica</i> Targeted Flora Survey	BHP WAIO	20 km Southeast
Spectrum Ecology & Spatial, 2021	Detailed - flora	Homestead Creek Flora and Vegetation Survey	BHP WAIO	Within Survey Area
Spectrum Spatial & Ecology, 2022	Targeted - flora	<i>Hibiscus</i> aff. <i>campanulatus</i> Targeted Survey – Cathedral Gorge	BHP WAIO	20 km West

### 2.1.3. Likelihood of Occurrence

The following information was collated for each significant flora taxon or TEC/PEC identified during the desktop assessment:

- Conservation status (EPBC Act, BC Act, DBCA listing);
- Description of species and flowering period (flora only);
- Description of habitat requirements;
- Description of previous records; and
- Distance of record to the Project.

A likelihood of occurrence assessment was then conducted using the criteria listed in Table 2.3. This included assessing the distance of the record from the Project (historical database records considered not accurate were excluded if required), and presence of appropriate habitats within the Survey Area (using geology, vegetation mapping, and/or aerial imagery).

Table 2.3: Likelihood of Occurrence Criteria

Likelihood	Flora & Vegetation
Recorded	Species or vegetation community accurately recorded within the Survey Area during the literature review (includes TEC/PEC buffers that intersect).
High	Species or vegetation community recorded within 10 km near the Survey Area, and suitable habitat does, or is likely, to occur.
Medium	Species or vegetation community recorded outside the Survey Area but within 30 km and suitable habitat may occur.
Low	Species or vegetation community rarely or not recorded within 50 km of the Survey Area and suitable habitat is not likely to occur within the Survey Area.

## 2.2. Survey Timing

The detailed flora and vegetation assessment was undertaken over two phases. The first phase was conducted over nine days from 29 March to 6 April 2022, following marginally higher than median rainfall in the preceding three months, than the sum of the long-term median (Figure 2.1). The second phase was conducted over seven days from 2 to 8 August 2022, following unseasonal high winter rainfall for the three months preceding the survey.

Monthly climate data was sourced from the nearest Bureau of Meteorology station with complete data (Newman Airport #7176), located approximately 10 km south-west of the Survey Area (Bureau of Meteorology, 2022). Rainfall recorded 12 months prior to the survey and median monthly rainfall are presented in Figure 2.1.

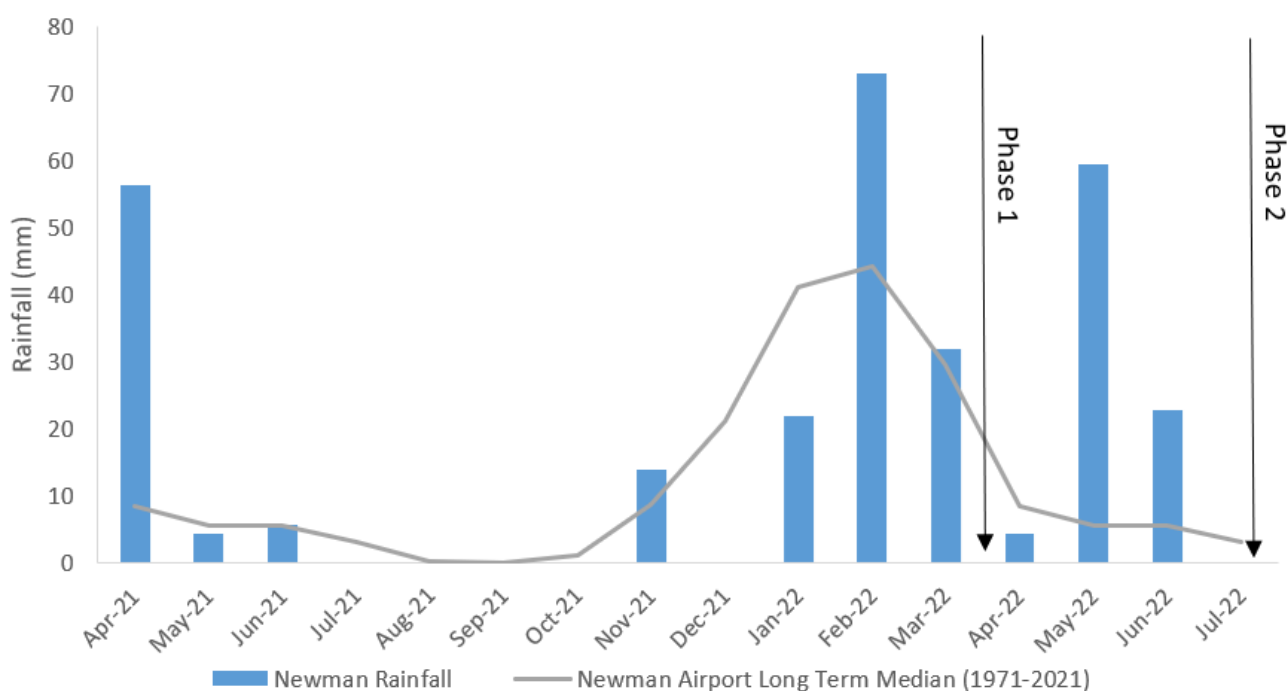


Figure 2.1: Climate Data

The following rainfall was recorded at Newman Airport prior to the first phase of the survey (Bureau of Meteorology, 2022):

- The 12 months preceding the field survey (April 2021 to March 2022) recorded 207 mm of rainfall, 116 mm lower than the sum of the long-term annual median of 323 mm; and
- The three-months preceding the field survey (January 2022 to March 2022) recorded 127 mm of rainfall, 12 mm higher than the sum of the long-term annual median of 115 mm for the same three months.

The following rainfall was recorded at Newman Airport prior to the second phase of the survey (Bureau of Meteorology, 2022):

- The 12 months preceding the field survey (August 2021 to July 2022) recorded 226 mm of rainfall, 96 mm higher than the sum of the long-term annual median of 323 mm; and
- The three-months preceding the field survey (May 2022 to July 2022) recorded 82 mm of rainfall, 68 mm higher than the sum of the long-term annual median of 14 mm for the same three months.

### 2.2.1. EPA Flora Survey Timing

The Pilbara and Gascoyne bioregions are considered part of the Eremaean Botanical province and recommendations are to conduct the primary flora and vegetation survey in Autumn from March - June and the secondary survey following winter rains (EPA, 2016b).

The field survey timing was therefore conducted in accordance with EPA recommended timing for the first phase survey in March - April following a period of slightly than median rainfall for the region, and the second phase survey following high winter rainfall.

### 2.3. Field Methods & Sampling Effort

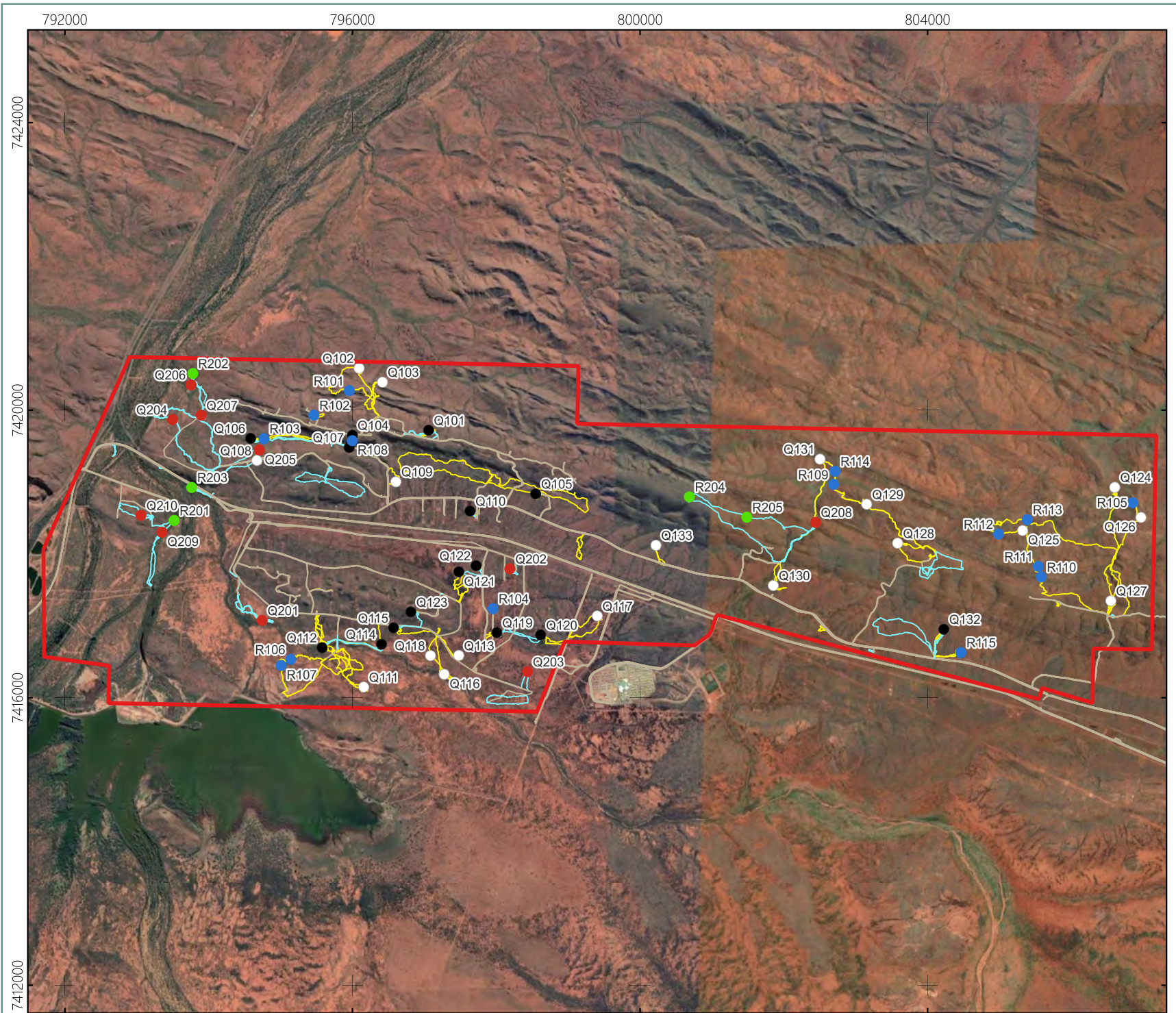
A two-phase detailed flora and vegetation assessment was undertaken at the Survey Area. The survey was completed over a 32 person-day period (18 person days phase 1, 14 person days phase 2).

There were 43 quadrats, 20 relevés, and approximately 179 km of targeted traverses sampled during the assessment (Map 2.1). Of the total 43 quadrats, 33 quadrats were installed during phase 1 and 10 quadrats were installed during phase 2. Fifteen (45%) of the quadrats installed during phase 1, were re-scored in phase 2. This was considered appropriate for a detailed level survey as stipulated in the technical guidance (Environmental Protection Authority, 2016b), and these techniques are described in Table 2.4. Comprehensive flora site data collection information is included in Appendix B.

**Table 2.4: Flora & Vegetation Survey Technique**

Survey Technique	Application & Purpose
<b>Quadrats</b>	<p>Quadrats are a comprehensive survey technique for gathering information for detailed flora and vegetation surveys. Each vegetation unit must be represented by a minimum of three quadrats where possible and have at least one corner permanently marked. Information collected at each quadrat include:</p> <ul style="list-style-type: none"> <li>• Site code, date; GPS coordinates; botanist;</li> <li>• Size and shape of quadrat (quadrats are 50 x 50 m or 2,500 m<sup>2</sup> for Pilbara and Gascoyne IBRA region);</li> <li>• Photograph from north-west corner;</li> <li>• Landform, including; slope, aspect, soil description and rock type;</li> <li>• Time since fire (quadrats are not sampled if quadrats have a recent fire history);</li> <li>• Vegetation condition (quadrats are not installed if not in a 'Good' or better condition (Table 2.5);</li> <li>• Description of disturbance types;</li> <li>• Vegetation description (NVIS Level V); and</li> <li>• Comprehensive species list, canopy cover (%) and height (m).</li> </ul>
<b>Relevés</b>	<p>Relevés are a low intensity survey technique for gathering information where vegetation is in 'Degraded' or 'Completely Degraded' vegetation condition, recently burnt areas, or where it is too unsafe to survey using a quadrat (cliff faces etc.). Information collected at each relevé includes:</p> <ul style="list-style-type: none"> <li>• Site code, date, GPS coordinates, botanist;</li> <li>• A photograph;</li> <li>• Vegetation condition and disturbances (including fire);</li> <li>• Landform including; slope, soil, rock type, aspect;</li> <li>• Vegetation description (NVIS Level V);</li> <li>• Dominant species list, canopy cover (%) and height (m); and</li> <li>• Significant flora, weeds.</li> </ul>
<b>Traverses</b>	<p>A traverse is an unmarked route along which data is collected. Traverses are useful for identifying the boundaries and characteristics of vegetation types, selecting sites for detailed survey, and targeting significant flora or vegetation. Information recorded along a traverse is as for the relevé, with the addition of noting vegetation changes and relationships between vegetation and substrate.</p>
<b>Opportunistic Sampling</b>	<p>Flora and vegetation not recorded through other sampling methods is opportunistically sampled as encountered in the Survey Area.</p>





**Legend**

- ▭ Survey Area
- Phase 1 - Traverses
- Phase 2 - Traverses
- Driving Tracks
- Phase 1 - Quadrat
- Phase 2 - Quadrat
- Phase 1 & 2 - Quadrat
- Phase 1 - Releve
- Phase 2 - Releve

0      1      2 km  
 Scale: 1:72,000      @ A4

Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SM Date: 16-03-2023

## Sampling Effort

East Ophthalmia & Ninga

## 2.4. Reporting & Data Analysis

### 2.4.1. Flora Nomenclature, Taxonomy & Lodgement

Flora nomenclature used in this report is consistent with the Western Australian Herbarium's plant census, provided on FloraBase (Western Australian Herbarium, 2022) and is current at the time of report preparation. At least one specimen of each flora taxon was collected in order to confirm all species recorded during the assessment and to investigate suspected species that are considered significant.

Specimens were identified using the appropriate taxonomic keys and where required, relevant taxonomic experts at the Western Australian Herbarium were consulted. Specimens were vouchered with the Western Australian Herbarium as per guidance: when they represent new populations of Threatened or Priority Flora, new occurrences of TECs or PECs, individuals that have atypical characteristics, or bioregional range extensions.

### 2.4.2. Vegetation Mapping

The data collected from quadrats, relevés, and traverses, as well as general field notes, observations and aerial photography were used to map the vegetation across the Survey Area. The vegetation was described to NVIS Level V – association (referred to as a 'vegetation types' for the local scale in this report). This level of description provides information on the dominant growth form, height, and cover for up to three species for each of the upper, mid, and ground strata (ESCAVI, 2003).

The vegetation types were defined floristically, where quadrats were statistically classified according to similarities in species composition. The statistical analysis was performed in R Core Team (R Core Team, 2019) using the "stats" and "vegan" (Oksanen *et al.*, 2019) packages. Dissimilarity indices were calculated using the `vegdist` function with the Jaccard index on a binary species matrix. Hierarchical clustering was performed using the `hclust` function using the 'average' or unweighted pair group with arithmetic mean (UPGMA) method. Figures of the hierarchical clustering were produced using the "dendextend" package (Galili, 2015).

Sites were excluded from the analysis if they had a recent fire history or were sampled on mosaic vegetation intersecting multiple different vegetation types. A total of 41 quadrats from the current survey and an additional two quadrats from the 2021 Homestead Creek Flora and Vegetation Survey (Spectrum Ecology & Spatial, 2021) were used in the analysis. The following data preparation steps were undertaken prior to the floristic analysis:

- Subspecies and varieties were combined if they could not be confirmed in the field;
- Only taxa with their taxonomy resolved to at least species level were included; and
- Taxa which were only recorded once (singletons) were removed.

The site by species matrix used for this analysis has been provided electronically.

In addition to statistical analyses, previous vegetation mapping and flora observations provided by BHP WAIO were used to infill information where sampling effort was impacted by fire or could not be accessed due to distance from tracks (refer to Section 2.6 for further discussion).

### 2.4.3. Vegetation Condition

Vegetation condition was recorded at quadrats, relevés, and where other areas of different vegetation condition were observed. The vegetation condition was updated during the current survey using the scale recommended for the Eremaean Botanical Province as shown in Table 2.5 (Environmental Protection Authority, 2016b).

**Table 2.5: Vegetation Condition Scale & Criteria**

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

### 2.4.4. Significant Flora & Vegetation Definitions

As defined by the EPA (Environmental Protection Authority, 2016b) Environmental Factor Guideline, flora and vegetation can be considered significant for a range of reasons (Table 2.6; Appendix A). Significant flora and vegetation recorded during the assessment are then further considered at a local and regional scale. Considerations used to determine the local and regional significance of flora and vegetation recorded at the Survey Area are listed in Table 2.6.

**Table 2.6: Flora & Vegetation Significance Definitions**

Significant Definitions (EPA, 2016a)		Local & Regional Significance	
Flora	<ul style="list-style-type: none"> <li>Being identified as Threatened (state listed BC Act and/or nationally listed EPBC Act).</li> <li>Being identified as Priority species: Priority 1 to 4, (DBCAs, 2019).</li> <li>Locally endemic or association with a restricted habitat type (e.g. surface water or groundwater dependant ecosystems).</li> <li>New species or anomalous features that indicate a potential new species.</li> <li>Representative of the range of a species (particularly, at the extremes of range recently discovered range extensions, or isolated outliers of the main range).</li> <li>Unusual species, including restricted subspecies, varieties or naturally occurring hybrids;</li> <li>Relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.</li> </ul>	<b>Local</b>	<b>Rating</b>
		<ul style="list-style-type: none"> <li>Flora taxon known from many local populations.</li> <li>Landforms/habitat the flora taxon occurs on are widespread through the local area.</li> <li>Flora taxon occurs across multiple landforms and habitats.</li> </ul>	Low
		<ul style="list-style-type: none"> <li>Flora taxon not well known from the local area.</li> <li>Landforms/habitat the flora taxon occurs are restricted through the local area.</li> <li>Flora taxon only occurs on limited habitat types that are restricted.</li> </ul>	High
		<b>Regional</b>	<b>Rating</b>
		<ul style="list-style-type: none"> <li>Flora taxon’s known distribution extends over the IBRA region or sub-region.</li> <li>Flora taxon’s known distribution may span over multiple IBRA regions.</li> </ul>	Low
		<ul style="list-style-type: none"> <li>Flora taxon’s known distribution is only known from few locations across the IBRA region.</li> </ul>	High

Significant Definitions (EPA, 2016a)		Local & Regional Significance	
		<ul style="list-style-type: none"> <li>May be common in the local area, but only known from this area within the region or sub-region.</li> </ul>	
Vegetation	<ul style="list-style-type: none"> <li>Identified as TEC (state listed BC Act and/or nationally listed EPBC Act).</li> <li>Identified as PEC (DBCA, 2017a).</li> <li>Restricted distribution.</li> <li>Degree of historical impact from threatening processes.</li> <li>A role as a refuge.</li> <li>Providing an important function required to maintain ecological integrity of a significant ecosystem.</li> </ul>	<b>Local</b>	<b>Rating</b>
		<ul style="list-style-type: none"> <li>Vegetation type's mapped extent is widespread across the Study Area or local area.</li> <li>Landforms/habitat the vegetation type occurs on are widespread in the local area.</li> </ul>	Low
		<ul style="list-style-type: none"> <li>Vegetation type's mapped extent is restricted in the Study Area.</li> <li>Landforms/habitat the vegetation type occurs on are restricted in the local area.</li> <li>Vegetation type provides habitat for locally significant flora taxa.</li> </ul>	High
		<b>Regional</b>	<b>Rating</b>
		<ul style="list-style-type: none"> <li>Determined by comparing vegetation types to the best available data source. This can include state-wide vegetation mapping (Beard), region specific (if available), land system and/or geology mapping.</li> <li>Vegetation types are matched with regional mapping units that are widespread throughout the region.</li> </ul>	Low
<ul style="list-style-type: none"> <li>Vegetation types are matched with mapping that is restricted throughout the region.</li> <li>Vegetation type provides habitat for regionally significant flora taxa.</li> </ul>	High		

### 2.4.5. Introduced Flora, Weeds of National Significance & Declared Plant Categories

The Department of Primary Industries and Regional Development (DPIRD) keeps a database of organisms that are Declared Pests in Western Australia. This database is regulated under the *Biosecurity and Agricultural Management Act 2007* (BAM Act) (Government of Western Australia, 2007). The legal status and control requirements for these environmentally significant pests are provided in Appendix A.

There are 32 Weeds of National Significance listed for Australia that have been identified based on their invasive tendencies, impact, potential for spread, and socioeconomic and environmental impacts (Invasive Plants and Animals Committee, 2017). Each species has a national management strategy and manual available.

### 2.4.6. Data for the Index of Biodiversity Surveys for Assessment (IBSA)

The EPA has given instruction that all biological surveys collecting data on biodiversity will submit the report and associated raw data to IBSA as an IBSA data package. All survey data collected at the Survey Area has been provided electronically to comply with BHP WAIO data standards, which align with the IBSA data standards.

## 2.5. Project Team & Licences

Spectrum personnel involved with this assessment are listed in Table 2.7, along with their role and years of experience.

**Table 2.7: Project Team & Licences**

Staff	Role	Years of Experience	Flora Licence
Melissa Hay	Principal Botanist – review	16 years	-
Susan Murrey	Senior Botanist – phase one and two field surveys and reporting	5 years	FB62000101-1b
Dr. Christopher Shaw	Senior Botanist – phase one field survey	7 years	FB62000241
Emily Crowther	Botanist – phase two field survey	2 years	FB62000330
Raimond Orifici	Plant identifications	15 years	-
Dr. Udani Sirisena	Plant identifications	10 years	-

## 2.6. Limitations & Constraints

Survey specific limitations and constraints for the flora and vegetation assessment at the Survey Area are discussed in Table 2.8.

**Table 2.8: Survey Limitations & Constraints**

Limitation	Constraint	Comment
Availability of the contextual information at a regional and local scale.	No	Beard vegetation, geology and land system mapping were used to determine regional significance of vegetation types. Database searches provided detailed information adequate to guide field survey design and effort for the flora and fauna survey. There were multiple assessments conducted within and in the vicinity of the Survey Area, and these have been included in the desktop assessment.
Competency/experience of the consultant carrying out the survey including experience in bioregion surveyed.	No	The field team lead Susan Murrey has suitable knowledge and experience conducting botanical surveys and leading surveys in the Pilbara region of Western Australia. Team members also have suitable experience conducting botanical surveys in the Pilbara region.
Timing/weather/season/cycle.	No	The field survey was conducted across two phases undertaken during the recommended EPA survey timing for a detailed level assessment in the Pilbara region. Above median rainfall was recorded in the three months prior to both phases, creating optimal survey conditions.
Disturbances (e.g., fire, flood, accidental human intervention) which affected results of survey.	Minor	Approximately 41.0% of the Survey Area was burnt in 2019 and some of this vegetation has not yet recovered. Where possible quadrats installed in the areas were placed in unburnt patches of vegetation. Extrapolation using aerial imagery was sufficient to map the vegetation in these areas, and previous survey data was used where possible to infill information as required.
Remoteness and/or access problems.	Minor	Large parts of the Survey Area were not accessible due to distance from tracks (areas along the northern boundary, approximately 15.0% of the Survey Area), and heritage restrictions (river in the south-west and hills in the centre, approximately 7.0% of the Survey Area). Extrapolation using aerial imagery was sufficient to map the vegetation in these areas, and previous survey data was used, where possible, to infill information where required, however no current survey work was undertaken in these areas.
Survey effort and extent.	No	A two-phase detailed level survey was undertaken at the Survey Area. The 43 quadrats (including 33 quadrats installed in phase 1, 10 installed in phase 2 and 15 phase 1 quadrats rescored in phase 2) and 20 relevés sampled were sufficient to map and classify the vegetation for a detailed level survey. Additionally significant flora searches were conducted over approximately 179 km of traverses. All vegetation types that were determined from floristic analysis had more than three quadrats sampled.
Proportion of flora recorded and/or collected, any identification issues.	No	At least one specimen of every flora species encountered was collected for formal identification and confirmation. Plants were identified by taxonomists Raimond Orifici and Dr. Udani Sirisena who have botanical and taxonomic experience throughout Western Australia and are particularly experienced in the Pilbara region. Eight specimens were unable to be conclusively identified attributed to insufficient material and plants being sterile. Species recorded across quadrats were analysed using the species accumulation curve analysis, which suggested that 79.8% of the taxa expected to be present were recorded within quadrats.

### 3. RESULTS & DISCUSSION – FLORA

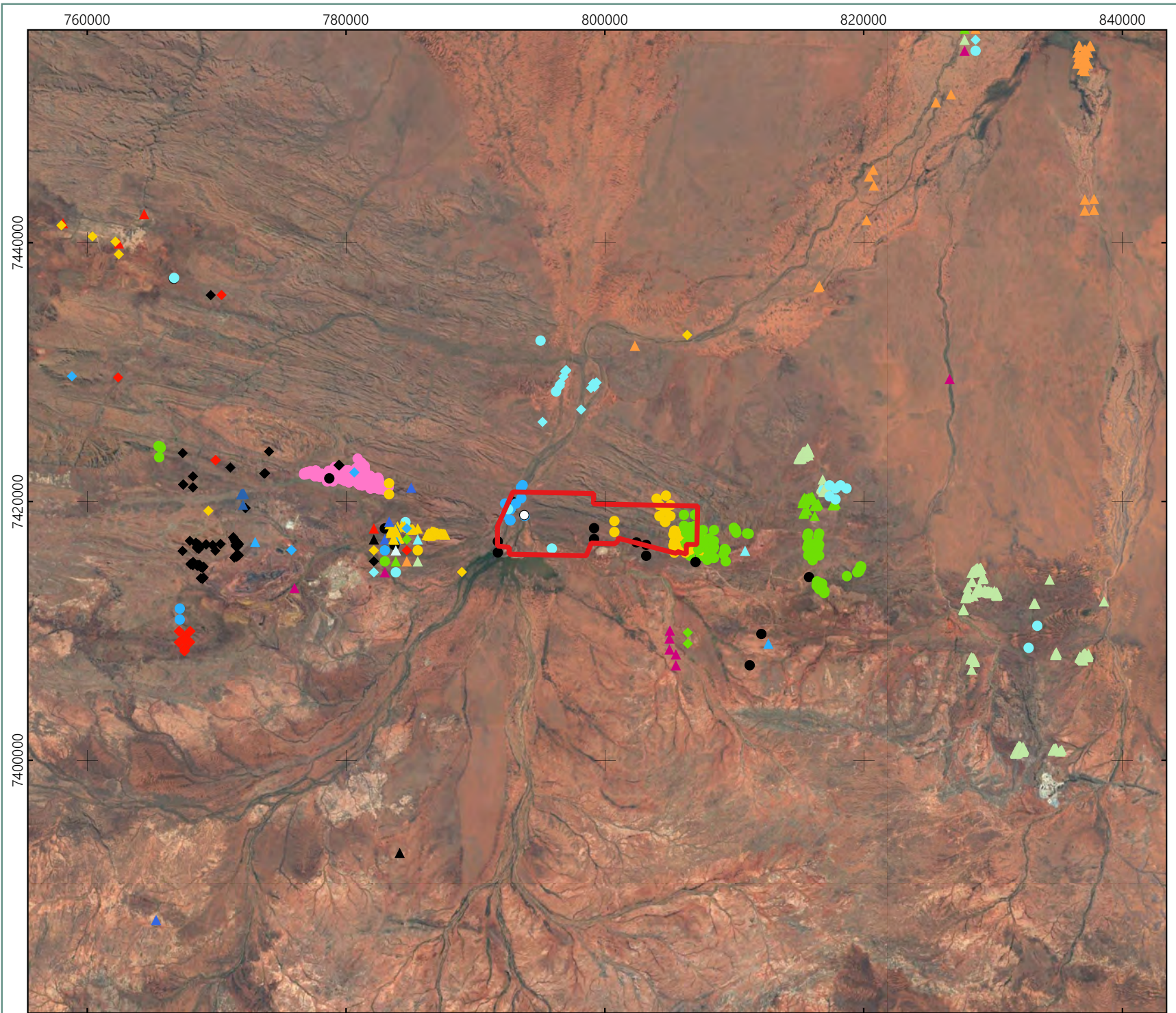
#### 3.1. Desktop Assessment

No Threatened flora species were reported from within the Study or Survey Area during the desktop assessment.

A total of 39 Priority or significant taxa were recorded with the Study Area during the desktop assessment. Five significant taxa were previously recorded in the Survey Area, 19 taxa were considered to have a 'High' likelihood and two were considered to have a 'Medium' likelihood of occurrence within the Survey Area (Table 3.1; Map 3.1; Map 3.2). The remaining 13 taxa have been assigned a 'Low' likelihood of occurrence and are listed in Appendix C.

Table 3.1: Desktop Significant Flora – Recorded, High & Medium Likelihood of Occurrence

Likelihood	Status	Taxa
Recorded	P2	<i>Isotropis parviflora</i>
	P3	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i> , <i>Gymnanthera cunninghamii</i> , <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794), <i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739)
	P4	<i>Bulbostylis burbidgeae</i>
High	P1	<i>Acacia corusca</i> , <i>Eremophila capricornica</i> , <i>Hibiscus campanulatus</i>
	P2	<i>Aristida lazaridis</i> , <i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i> , <i>Goodenia hartiana</i> , <i>Ipomoea racemigera</i>
	P3	<i>Acacia subtiliformis</i> , <i>Crotalaria smithiana</i> , <i>Eremophila magnifica</i> subsp. <i>velutina</i> , <i>Eremophila naaykensis</i> , <i>Eremophila rigida</i> , <i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727), <i>Indigofera gilesii</i>
	P4	<i>Eremophila magnifica</i> subsp. <i>magnifica</i> , <i>Eremophila youngii</i> subsp. <i>lepidota</i> , <i>Goodenia berringbinensis</i> , <i>Lepidium catapycnon</i>
	Novel	<i>Hibiscus</i> aff. <i>campanulatus</i>
Medium	P1	<i>Vittadinia</i> sp. Coondewanna Flats (S. van Leeuwen 4684)
	P3	<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)



**Legend**

- Survey Area
- Significant Flora**
- Recorded - P2 *Isotropis parviflora*
- Recorded - P3 *Aristida jerichoensis* var. *subspinulifera*
- Recorded - P3 *Gymnanthera cunninghamii*
- Recorded - P3 *Rhagodia* sp. *Hammersley* (M. Trudgen 17794)
- Recorded - P3 *Triodia* sp. Mt Ella (M.E. Trudgen 12739)
- Recorded - P4 *Bulbostylis burbridgeae*
- ▲ High - P1 *Acacia corusca*
- ▲ High - P1 *Eremophila capricornica*
- ▲ High - P1 *Hibiscus campanulatus*
- ▲ High - P2 *Aristida lazaridis*
- ▲ High - P2 *Euphorbia inappendiculata* var. *inappendiculata*
- ▲ High - P2 *Goodenia hartiana*
- ▲ High - P2 *Ipomoea racemigera*
- ▲ High - P3 *Acacia subtiliformis*
- ▲ High - P3 *Crotalaria smithiana*
- ▲ High - P3 *Eremophila magnifica* subsp. *velutina*
- ▲ High - P3 *Eremophila rigida*
- ▲ High - P3 *Eremophila naaykensis*
- ◆ High - P3 *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727)
- ◆ High - P3 *Indigofera gilesii*
- ◆ High - P4 *Eremophila magnifica* subsp. *magnifica*
- ◆ High - P4 *Eremophila youngii* subsp. *lepidota*
- ◆ High - P4 *Goodenia berringbinensis*
- ◆ High - P4 *Lepidium catapycnon*
- ◆ High - *Hibiscus* aff. *campanulatus*

0      5      10 km  
 Scale: 1:400,000      @ A4  
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SM Date: 09-12-2022

Significant Flora Recorded  
 During the Desktop Assessment  
 – Recorded & High Likelihood  
 East Ophthalmia & Ninga





**Legend**

- Survey Area
  
- Significant Flora**
- Medium - P1 Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)
- Medium - P3 Themeda sp. Hamersley Station (M.E. Trudgen 11431)
- Low - P1 Eremophila pilosa
- Low - P1 Eremophila rhexos
- Low - P1 Eremophila sp. West Angelas (S. van Leeuwen 4068)
- Low - P1 Helichrysum oligochaetum
- Low - P2 Hibiscus sp. Gurinbidy Range (M.E. Trudgen MET 15708)
- Low - P3 Amaranthus centralis
- Low - P3 Eragrostis crateriformis
- Low - P3 Maireana prosthecochaeta
- Low - P3 Sida sp. Barlee Range (S. van Leeuwen 1642)
- Low - P3 Streptoglossa sp. Cracking clays (S. van Leeuwen et al. PBS 7353)
- Low - P3 Swainsona thompsoniana
- Low - P3 Xerochrysum boreale
- Low - P4 Acacia bromilowiana

0    5    10 km  
 Scale: 1:550,000    @ A4  
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SM Date: 09-12-2022

Significant Flora Recorded  
 During the Desktop Assessment  
 - Medium & Low Likelihood  
 East Ophthalmia & Ninga

### 3.2. Flora

A total of 320 taxa from 46 families and 132 genera were recorded within the Survey Area (Appendix E). The most species rich family was Fabaceae, with 61 species, followed by Poaceae with 52 species. The most species rich genera were *Acacia* with 34 species, followed by *Sida* with 13 species. Of the 320 taxa recorded, three were significant flora species and nine were introduced flora species (Table 3.2).

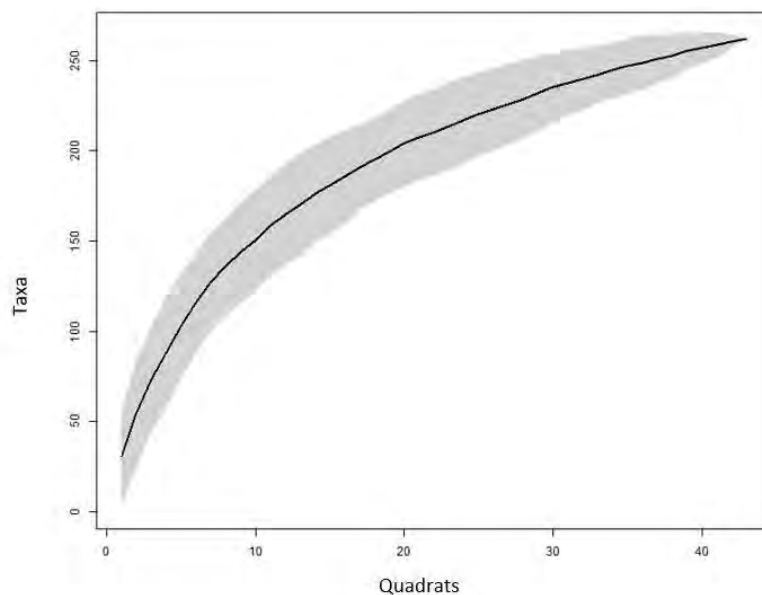
**Table 3.2: Number of Flora Taxa Recorded**

Total Taxa	Native	Introduced	Total Families	Most Common Families	Total Genera	Most Common Genera	Most Common Taxa Based on % of Quadrats
320	311	9	46	Fabaceae – 61 species Poaceae – 52 species Malvaceae – 38 species	132	<i>Acacia</i> – 34 species <i>Sida</i> – 13 species <i>Eremophila</i> – 12 species <i>Senna</i> – 12 species	<i>Paraneurachne muelleri</i> – 72.1% <i>Solanum lasiophyllum</i> – 65.1% <i>Senna artemisioides</i> subsp. <i>oligophylla</i> – 60.5% <i>Hibiscus burtonii</i> – 53.5% <i>Triodia pungens</i> – 53.5% <i>Afrohybanthus aurantiacus</i> – 48.8% <i>Senna glutinosa</i> subsp. <i>pruinosa</i> – 48.8% <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> – 48.8% <i>Triodia vanleeuwenii</i> – 48.8%

#### 3.2.1. Species Accumulation Curve - Flora

Species accumulation curves show the relationship between sampling effort and the number of species recorded and can therefore be used to discuss sampling adequacy. As sampling effort (quadrats) increases, the rate at which new species are recorded is reduced, and this is used to predict the number of species that are likely to be present within the Survey Area.

A species accumulation curve is presented in Figure 3.1, which was plotted using the *specaccum* function in the *vegan* package in R v.4 (R Core Team, 2021). The improved Chao 2 non-parametric species richness estimator (Chiu *et al.*, 2014) was determined at 341 species, suggesting that 79.8% of flora species were recorded during the survey, based on the 271 taxa recorded within the 43 quadrats. An additional 49 taxa were recorded during opportunistic collections and relevés. The results of the Species Accumulation Curve indicates that the area has been adequately surveyed.



**Figure 3.1: Species Accumulation Curve**

### 3.3. Significant Flora

No Threatened flora taxa were recorded during the assessment. Three Priority flora taxa, one novel species and one range extension was recorded within the Survey Area (Table 3.3, Map 3.3):

- Priority 3:
  - *Gymnanthera cunninghamii*;
  - *Rhagodia* sp. Hamersley (M. Trudgen 17794); and
  - *Triodia* sp. Mt Ella (M.E. Trudgen 12739);
- Novel Species:
  - *Hibiscus* aff. *campanulatus*;
- Range Extension:
  - *Frankenia magnifica*.

*Rhagodia* sp. Hamersley (M. Trudgen 17794), was a common significant flora species and was recorded as scattered shrubs on floodplains in the south of the Survey Area. Approximately 75 individuals of *Rhagodia* sp. Hamersley were recorded at 61 locations. *Triodia* sp. Mt Ella (M.E. Trudgen 12739) was recorded in clumps of approximately 5-10 individuals (totalling approximately 94 individuals at 15 locations) along gullies between rocky hills to the northeast of the Survey Area, some previous records of *Triodia* sp. Mt Ella (M.E. Trudgen 12739) were unable to be confirmed despite the locations being searched. Existing records of *Gymnanthera cunninghamii* (P3) were confirmed, with sixty individuals recorded at two locations occurring along sandy creek banks. All three Priority taxa were found to have low local and regional significance as they are well known from the local area as well as many locations across multiple bioregions.

One novel species, *Hibiscus* aff. *campanulatus*, was recorded to the west of the Survey Area. This novel taxon was recently recorded during a detailed flora and vegetation survey by Onshore Environmental (Onshore Environmental, 2016). The previously known records are located 20 km to the west of Survey Area (Spectrum Spatial & Ecology, 2022). This species was commonly recorded as dense clumps in gullies between rocky hills, with some scattered individuals recorded on nearby hills. A total of approximately 1,266 individuals at 54 locations were recorded in the Survey Area. The species was recorded across three vegetation types with some individuals also recorded along cleared tracks and drill pads indicating it may be a disturbance coloniser. *Hibiscus* aff. *campanulatus* was found to have a high local and regional significance as all currently known locations are within 20 km west of the Survey Area. The individuals recorded during the current survey may be a continuation of the most western known population or may be a secondary population.

One taxon, *Frankenia magnifica*, was identified as range extension as it was recorded 200 km east of the known population lodged with the Western Australian Herbarium. No other significant flora taxa (as listed in section 2.4.4) were recorded in the Survey Area during the field assessment. Coordinates of all significant flora taxa have been provided electronically with this report, with all locations shown on Map 3.3.

#### 3.3.1. Desktop Assessment Significant Taxa

Three Priority flora taxa: *Isotropis parviflora* (P2), *Aristida jerichoensis* var. *subspinulifera* (P3), and *Bulbostylis burbridgeae* (P4), were previously recorded within the Survey Area during the desktop assessment. However, despite visiting and searching the known locations and conducting opportunistic searches when walking between sites, these species could not be confirmed during the current survey.

*Isotropis parviflora* (P2) was assigned a post survey likelihood of high. This was based on confirmed herbarium and previous survey records occurring within the Survey Area. Suitable habitat was also

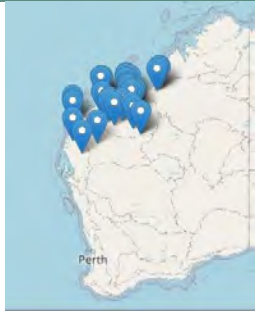

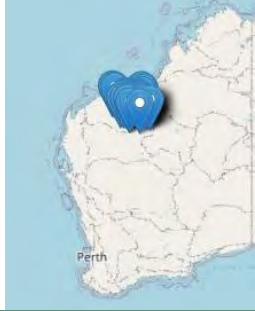

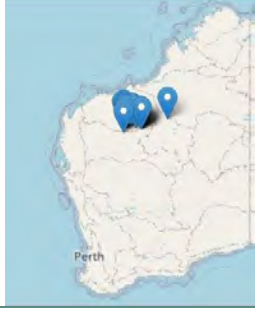

confirmed during the current survey as the taxon is likely to occur on the crests of vegetation type S1: HS TsAbEII.



*Aristida jerichoensis* var. *subspinulifera* (P3) was assigned a post survey likelihood of 'High' as this taxon has confirmed herbarium records less than 10km from the survey area, and previous survey records within the area. Additionally, vegetation type P5 UH TsSeglCh identified during the current survey is considered suitable habitat for this species.

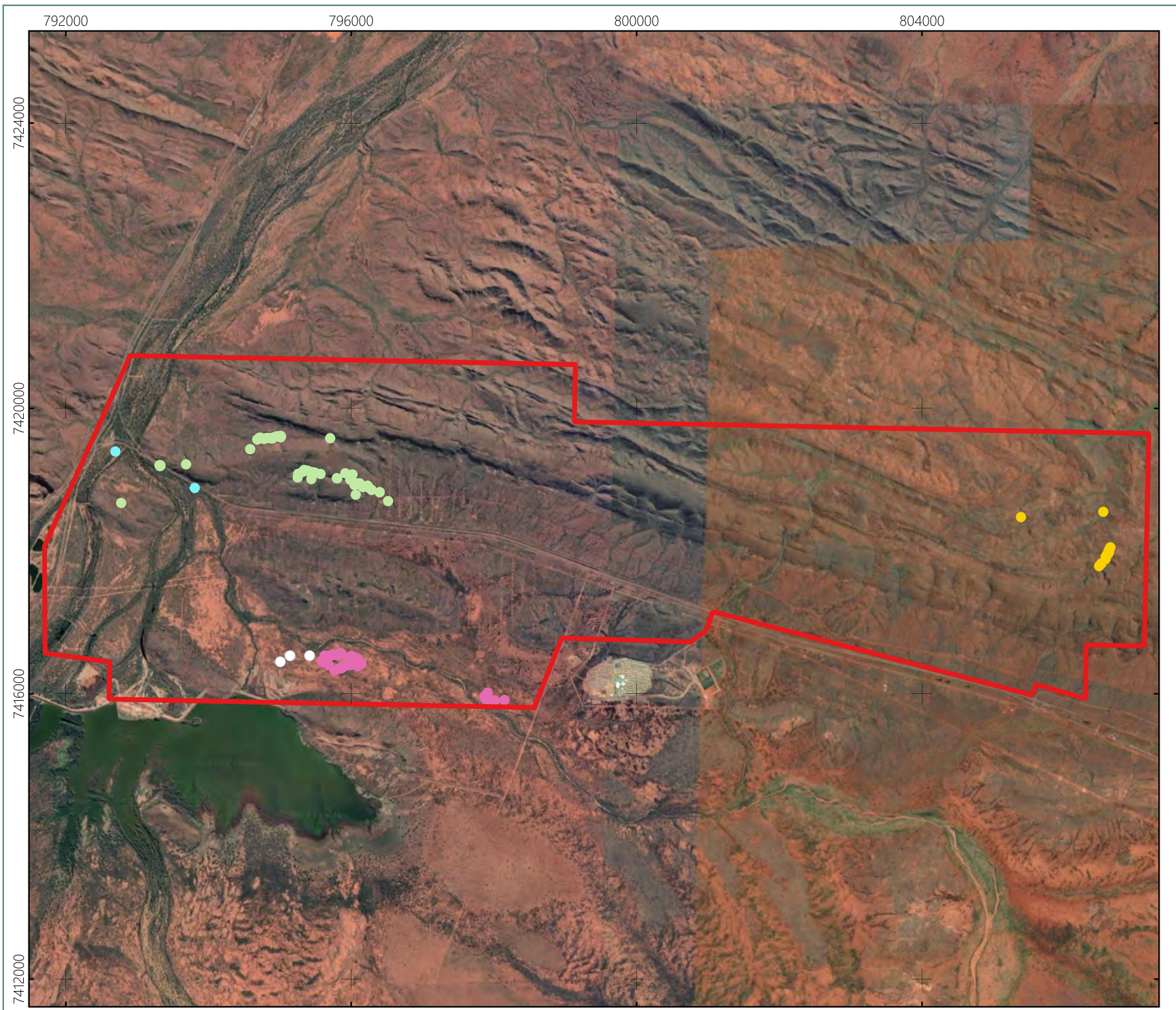
*Bulbostylis burbidgeae* was assigned a post survey likelihood of medium. Vegetation type S1: HS TsAbEII identified during the current survey is considered suitable habitat for this species, however this taxon has only been recorded from one location in 2014 and could not be confirmed during the current survey.

The remaining Priority flora taxa assigned a 'High' or 'Medium' likelihood of occurrence prior to the survey, were assigned a 'Low' likelihood of occurrence post survey. Although the northern portion of the Survey Area is still affected by a previous fire event, the 2022 survey effort in addition to previous survey data was sufficient to reduce the likelihood to 'Low'.

Table 3.3: Significant Flora

Status	Taxon	Description of Plants and habitat	Vegetation Types	Approximate No. of Individuals Within Survey Area	Map	Local & Regional Distribution	Photograph
P3	<i>Gymnanthera cunninghamii</i>	Erect shrub, 1-2 m high. Sterile during both survey phases. Grows on sandy soils, along creeks and rivers.	MA EcoAciCyix	Individuals: 60 Locations: 2		<p><b>Local:</b> Many records in the vicinity of the Survey Area and a large amount of suitable habitat present locally.</p> <p><b>Regional:</b> Known from many locations across the Pilbara, Gascoyne, and Carnarvon IBRA bioregions.</p> <p>The species is mainly restricted to mesophytic environments</p>	
P3	<i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)	Rounded, straggly shrub, to 1 m high. Grows on sandy clay soils on floodplains.	SA AaCocTb	Individuals: 75 Locations: 61		<p><b>Local:</b> Abundant local records, including two within the Survey Area</p> <p><b>Regional:</b> Common within the Gascoyne and Pilbara bioregions.</p>	
P3	<i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739)	Sprawling hard spinifex, very resinous. Grows on Light orange-brown, pebbly loam. Amongst rocks & outcrops on gully slopes.	ME EIIAcITt HS TsAbEII	Individuals: 94 Locations: 15		<p><b>Local:</b> Known from nine locations with the Survey Area and additional locations to the west and east.</p> <p><b>Regional:</b> Known from locations in the Gascoyne, Little Sandy Desert, and Pilbara bioregions.</p>	

Status	Taxon	Description of Plants and habitat	Vegetation Types	Approximate No. of Individuals Within Survey Area	Map	Local & Regional Distribution	Photograph
Novel Species	<i>Hibiscus</i> aff. <i>campanulatus</i>	Erect shrub 1- 3 m high. Flowers purple with a distinctive purple spot at base of petal/corolla. Grows in shaded areas and gullies on rocky substrates. Also recorded on disturbed/cleared areas.	ME EIIAcTt HS TsAbEII MI EgAdTp	Individuals: 1,265 Locations: 54		<p><b>Local:</b> Many records from within the survey and to the west of the Survey Area. Despite the number of records, this taxon is only known from one local population. The individuals recorded during the current survey may represent a continuation of the known population to the west or be a secondary population.</p> <p><b>Regional:</b> Only known from close proximity to the Survey Area in the Pilbara bioregion.</p>	
Range extension	<i>Frankenia magnifica</i> .	Erect or spreading shrub, 0.2-0.5 m high on Sandy clay soils,	SA AaCocTb	Individuals: 50 Locations:		<p><b>Local:</b> Closest known record 200 West of Survey Area.</p> <p><b>Regional:</b> Known from numerous locations in the Carnarvon, Gascoyne, Murchison, and Pilbara regions.</p>	



**Legend**

- Survey Area
  
- Significant Flora**
- P3 - *Gymnanthera cunninghamii*
- P3 - *Rhagodia* sp. *Hammersley* (M.E. Trudgen 17794)
- P3 - *Triodia* sp. *Mt Ella* (M.E. Trudgen 12739)
- Novel - *Hibiscus* aff. *campanulatus*
- Range Extension - *Frankenia magnifica*

N

Scale: 1:72,000 @ A4

Coordinate System: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Units: Meter

Author: SB Date: 16-03-2023

## Significant Flora

East Ophthalmia & Ninga

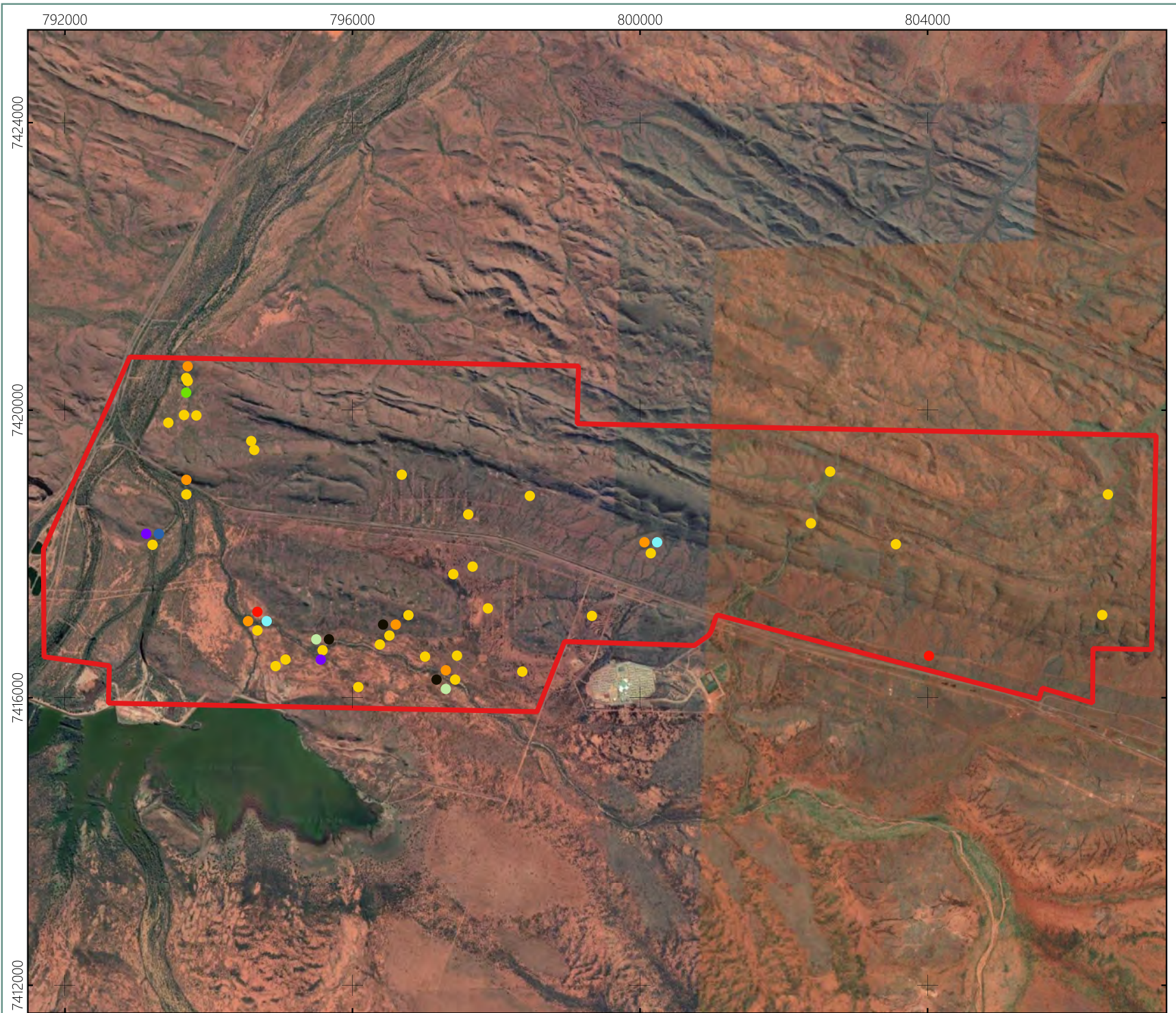
### 3.4. Introduced Flora

Nine introduced flora species were recorded at the Survey Area, all of which are classified as permitted s11 weeds under the BAM Act. Of the introduced flora species recorded, *\*Cenchrus ciliaris* was the most prevalent across the Survey Area, especially along drainage lines and on floodplains, and was recorded at 15 of the 43 quadrats. All introduced flora species recorded during the current survey are listed in Table 3.4. Locations are displayed on Map 3.4 and are provided electronically with the report.

**Table 3.4: Introduced Flora**

Species	Approximate No. of Locations	Approximate No. of Individuals	Distribution
<i>*Aerva javanica</i>	1	1	One individual recorded near a drill pad.
<i>*Bidens bipinnata</i>	1	5	Two locations recorded under trees along major drainage lines in the south of the Survey Area.
<i>*Cenchrus ciliaris</i>	20	16,491	Common along drainage lines and floodplains, recorded at various locations across the Survey Area, usually near or along watercourses or near drill pads.
<i>*Cenchrus setiger</i>	1	10	Two locations, one near a drainage line and one on a hill slope.
<i>*Cynodon dactylon</i>	1	1	Single location along drainage line.
<i>*Echinochloa colona</i>	1	5	Found in the south of the Survey Area along a watercourse.
<i>*Malvastrum americanum</i>	3	165	Found predominantly in the south of the Survey Area near drainage lines or floodplains.
<i>*Setaria verticillata</i>	2	15	Found in the south of the Survey Area near drainage lines or floodplains.
<i>*Vachellia farnesiana</i>	2	3	Two locations recorded along major drainage lines in the south of the Survey Area.





**Legend**

- Survey Area
- \*Aerva javanica
- \*Bidens bipinnata
- \*Cenchrus ciliaris
- \*Cenchrus setiger
- \*Cynodon dactylon
- \*Echinochloa colona
- \*Malvastrum americanum
- \*Setaria verticillata
- \*Vachellia farnesiana

0      1      2 km  
 Scale: 1:72,000      @ A4

Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SB Date: 16-03-2023

## Introduced Flora

East Ophthalmia & Ninga

## 4. RESULTS & DISCUSSION – VEGETATION

### 4.1. Desktop Assessment

#### 4.1.1. TEC/PECs

No TECs or PECs associated with flora and vegetation were identified within the Survey Area during the desktop assessment. One PEC associated with flora and vegetation was identified within 50 km of the Survey Area: the vegetation of the sand dunes of the Hamersley Range/Fortescue Valley (Priority 3, PEC). The known occurrence of the PEC is more than 30 km north of the Survey Area, and neither the land systems or vegetation types associated with this PEC, occur within the Survey Area. Therefore, the PEC was assigned a 'Low' likelihood of occurrence within the Survey Area (Table 4.1; Map 1.1).

The Ethel Gorge aquifer stygobiont TEC was 'Recorded' during the desktop assessment and is listed as Endangered. The Ethel Gorge TEC comprises a diverse assemblage of stygofaunal species. The Ethel Gorge TEC is not a floristic community and therefore is not within the scope of this assessment.

**Table 4.1 Threatened & Priority Ecological Communities**

Pre-survey Likelihood	Status	Name	Distance from & Area Within Survey Area (ha)
Recorded	TEC - Endangered	Ethel Gorge aquifer stygobiont community	Recorded (3,493 ha)
Low	PEC - Priority 3	Vegetation of sand dunes of the Hamersley Range/Fortescue Valley	35 km Northwest

#### 4.1.2. Literature Review Significant Vegetation

No other TEC, PEC or conservation significant vegetation types were identified during previously conducted flora and vegetation surveys within, or in the vicinity of the Survey Area.

## 4.2. Vegetation Types

A total of nine vegetation types were described from the Survey Area, including six derived from floristic analysis of quadrat data (Figure 4.1) and four structural vegetation types (Table 4.2; Map 4.1). Three structural types were derived from one floristic group and included D2a, S1, and S2 which reflected minor drainage lines, slopes, and lower slopes or plains, respectively. One structural vegetation type (D2b) was derived from relevé data and previous survey effort only and included the minor drainage flats.

The drainage lines were grouped into two floristic groups: D1 and D2a, and one structural group D2b. D1 occurred along the western boundary of the Survey Area and was characterised by *Eucalyptus camaldulensis* and *Eucalyptus victrix* low woodland and included the main river and creeks of the Survey Area. D2a was characterised by *Eucalyptus leucophloia* subsp. *leucophloia* and occasionally *Eucalyptus victrix* over *Themeda triandra* and occurred on gullies amongst rocky hills and slopes, and D2b was characterised by *Eucalyptus gamophylla* along with sparse shrubs, over *Triodia pungens* and occurred on lower slopes and flats.

The floodplains were grouped into one floristic group and vegetation type (P1), which was characterised by *Acacia aptaneura* (Mulga) over *Triodia basedowii*. This vegetation type occurred near to the major drainage line D1, predominantly in the south to southwest of the Survey Area.

Plains or flat landforms were dominated by four vegetation types: Mulga (P2) and *Triodia* plains (P3, P4, and S2). P2 was dominated by Mulga species and occurred on clay flats between the southern floodplains and the northern ranges. P3 was characterised by a hummock grassland of *Triodia basedowii* and a sparse mixed *Acacia* shrub layer. P3 occurred across two small areas near the Mulga plains in the south. P4 was a minor vegetation type within the Survey Area occurring on a calcrete rocky substrate with *Acacia sclerosperma* subsp. *sclerosperma*, mid sparse shrubland over *Triodia epactia* sparse hummock grassland. S2 was characterised by hummock grassland of *Triodia vanleeuwenii* and a sparse shrub layer. This vegetation type occurred across the centre of the Survey Area, to the south of the northern ridge line on rocky substrate.

The hills and slopes, including the range to the north of the Survey Area, were grouped into one vegetation type (S1). S1 was characterised by a low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* over *Triodia vanleeuwenii* and *Triodia pungens* hummock grassland and was recorded on mid slopes, crests, and lower slopes.

Areas which were cleared for roads or drill lines were mapped as completely degraded and not assigned a vegetation type.

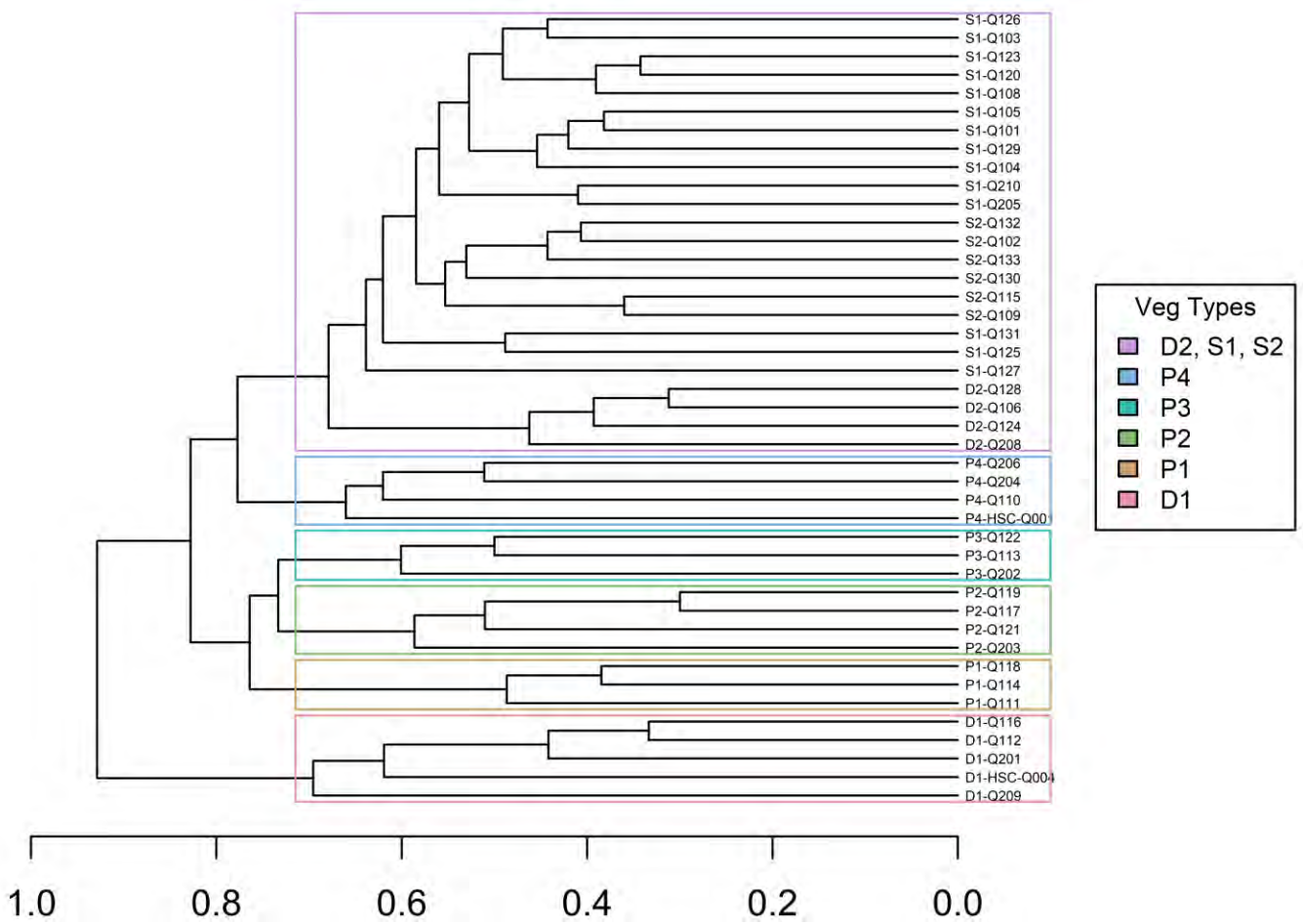











Figure 4.1: Dendrogram of Floristic Analysis

Table 4.2: Vegetation Types

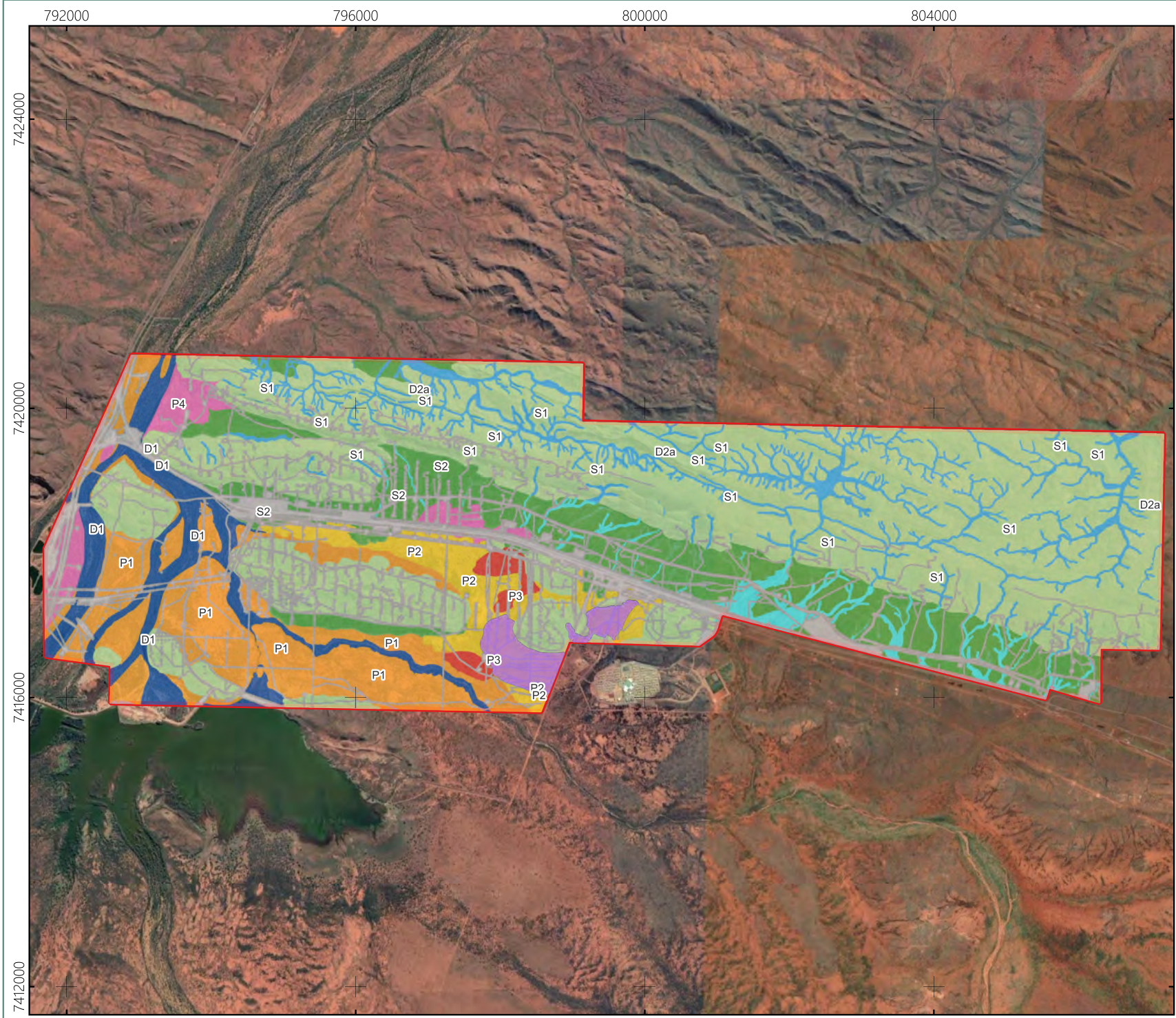
Code	Vegetation Description	Associated Species	Landform	Sites	Area & Percentage	Representative Photo
<b>Drainage</b>						
D1	<p><b>BHP: MA EcoAcCyix</b> Low open woodland of <i>Eucalyptus camaldulensis</i> and <i>Eucalyptus victrix</i> over high open shrubland of <i>Acacia citrinoviridis</i> and (+/-) <i>Melaleuca glomerata</i> over very open sedgeland of <i>Cyperus ixiocarpus</i> and <i>Cyperus vaginatus</i> with very open tussock grassland of *<i>Cenchrus ciliaris</i> on orange sandy clay in major creek lines.</p> <p><b>NVIS:</b> <i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> and <i>Eucalyptus victrix</i> low open woodland, over <i>Acacia citrinoviridis</i> and (+/-) <i>Melaleuca glomerata</i> tall sparse shrubland, over <i>Cyperus ixiocarpus</i> and (+/-) <i>Cyperus vaginatus</i> tall sparse sedgeland, with *<i>Cenchrus ciliaris</i> low sparse grassland.</p>	<p><i>Eragrostis elongata</i>  <i>Eulalia aurea</i>  <i>Isotropis iophyta</i>  <i>Paspalidium rarum</i>  <i>Petalostylis labicheoides</i>  <i>Santalum spicatum</i>  <i>Sorghum plumosum</i>  <i>Themeda triandra</i></p>	Major creek line or rivers.	Q209, Q201, Q112, Q116, R201, R203	299.8 ha 5.1%	
D2a	<p><b>BHP: ME EIIAcTt</b> Low open woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Eucalyptus victrix</i> over high open shrubland of <i>Acacia citrinoviridis</i>, <i>Acacia monticola</i>, and <i>Gossypium robinsonii</i> over very open tussock grassland of <i>Themeda triandra</i>, and *<i>Cenchrus ciliaris</i> tall sparse grassland with open hummock grassland of <i>Triodia pungens</i> on orange sandy clay in medium drainage line.</p> <p><b>NVIS:</b> <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and (+/-) <i>Eucalyptus victrix</i> low sparse woodland, over <i>Acacia citrinoviridis</i>, <i>Acacia monticola</i>, and <i>Gossypium robinsonii</i> tall sparse to open shrubland, over <i>Themeda triandra</i> and *<i>Cenchrus ciliaris</i> tall sparse grassland with <i>Triodia pungens</i> low sparse hummock grassland.</p>	<p><i>Afrohybanthus aurantiacus</i>  <i>Androcalva luteiflora</i>  <i>Corchorus incanus</i> subsp. <i>lithophilus</i>  <i>Hibiscus sturtii</i> var. <i>platychlams</i>  <i>Indigofera monophylla</i>  <i>Petalostylis labicheoides</i>  <i>Senna artemisioides</i> subsp. <i>oligophylla</i></p>	Creek line or gullies on or near rocky hill slopes.	Q208, Q124, Q106, Q128, R111, R114	208.5 ha 3.6%	

Code	Vegetation Description	Associated Species	Landform	Sites	Area & Percentage	Representative Photo
D2b	<p><b>BHP: MI EgAdTp</b> Low open woodland of <i>Eucalyptus gamophylla</i> over tall shrubland of <i>Acacia dictyophleba</i>, <i>Petalostylis labicheoides</i> and <i>Grevillea wickhamii</i> over hummock grassland of <i>Triodia pungens</i> on orange sandy clay in minor drainage line.</p> <p><b>NVIS:</b> <i>Eucalyptus gamophylla</i> low open woodland over <i>Acacia dictyophleba</i>, <i>Petalostylis labicheoides</i> and <i>Grevillea wickhamii</i> mid sparse shrubland over <i>Triodia pungens</i> sparse hummock grassland.</p>	<p><i>Gompholobium oreophilum</i> *<i>Cenchrus ciliaris</i></p>	Minor creek line or gullies on foot slopes	R115	111.4 ha 1.9%	
<b>Plains</b>						
P1	<p><b>BHP: SA AaCocTb</b> Open shrubland of <i>Acacia aptaneura</i> with lower shrubland of <i>Grevillea striata</i>, <i>Eremophila forrestii</i> subsp. <i>forrestii</i> with low open woodland of <i>Corymbia candida</i> over very open hummock grassland of <i>Triodia basedowii</i> and very open tussock grassland of <i>Aristida pruinosa</i>, and *<i>Cenchrus ciliaris</i> on orange sandy clay plains.</p> <p><b>NVIS:</b> (+/-) <i>Corymbia candida</i> low open woodland and <i>Acacia aptaneura</i> tall sparse shrubland, over <i>Grevillea striata</i> and <i>Eremophila forrestii</i> subsp. <i>forrestii</i> mid sparse shrubland, over <i>Triodia basedowii</i> low sparse hummock grassland, with <i>Aristida pruinosa</i> and *<i>Cenchrus ciliaris</i> low sparse grassland.</p>	<p><i>Acacia tetragonophylla</i> <i>Corymbia candida</i> <i>Eragrostis setifolia</i> <i>Eremophila latrobei</i> <i>Senna glutinosa</i> subsp. <i>x luerssenii</i></p>	Sandy flat plains.	Banded Mulga-Q111, Q114, Q118, R106, R107	670.3 ha 11.5%	
P2	<p><b>BHP: SA AinErer</b> High open shrubland of <i>Acacia incurvaneura</i>, (+/-) <i>Acacia catenulata</i> subsp. <i>occidentalis</i>, and <i>Acacia ayersiana</i> over scattered tussock grasses of <i>Eragrostis eriopoda</i>, <i>Eriachne helmsii</i>, and or <i>Digitaria brownii</i> on orange sandy clay plains.</p> <p><b>NVIS:</b> <i>Acacia incurvaneura</i>, (+/-) <i>Acacia catenulata</i> subsp. <i>occidentalis</i>, and <i>Acacia ayersiana</i> tall open shrubland, over (+/-) <i>Eragrostis eriopoda</i>, <i>Eriachne helmsii</i>, and/or <i>Digitaria brownii</i> low sparse grassland.</p>	<p><i>Acacia aptaneura</i> <i>Acacia pruinocarpa</i> <i>Acacia tetragonophylla</i> <i>Enchylaena tomentosa</i> <i>Eremophila forrestii</i> subsp. <i>forrestii</i> <i>Eremophila fraseri</i> subsp. <i>fraseri</i> <i>Eremophila latrobei</i> <i>Senna ferraria</i> <i>Triodia basedowii</i></p>	Mulga on sandy flat plains.	Q121,	77.8 ha 1.3%	
			Banded Mulga on sandy flat plains.	Q203, Q117, Q119	192.2 ha 3.3 %	

Code	Vegetation Description	Associated Species	Landform	Sites	Area & Percentage	Representative Photo
P3	<b>BHP: SS TbApaCh</b> Hummock grassland of <i>Triodia basedowii</i> with scattered tussock grasses of <i>Paraneurachne muelleri</i> and <i>Eragrostis eriopoda</i> under open shrubland of <i>Acacia pachyacra</i> , <i>Acacia aptaneura</i> , and <i>Hakea chordophylla</i> and scattered tall <i>Corymbia hamersleyana</i> trees on orange sandy stone plains. <b>NVIS:</b> (+/-) <i>Corymbia hamersleyana</i> low open woodland and <i>Acacia aptaneura</i> tall sparse shrubland, over <i>Acacia pachyacra</i> and <i>Hakea chordophylla</i> mid sparse shrubland, over <i>Triodia basedowii</i> low open hummock grassland with <i>Paraneurachne muelleri</i> and <i>Eragrostis eriopoda</i> low sparse grassland.	<i>Acacia pruinocarpa</i> <i>Acacia tetragonophylla</i> <i>Aristida inaequiglumis</i> <i>Hakea loreus</i> subsp. <i>loreus</i>	Sandy/ stony flat plains.	Q202, Q113 Q122, R104	51.3 ha 0.9%	
P4	<b>BHP: SS TeAsEse</b> open hummock grassland of <i>Triodia epactia</i> and <i>Triodia angusta</i> with very open tussock grassland of <i>*Cenchrus ciliaris</i> under Open shrubland of <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> , <i>Stylobasium spathulatum</i> , and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> . over and low open woodland of <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> or <i>Corymbia hamersleyana</i> on orange sandy stone plains. <b>NVIS:</b> (+/-) <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> and/or <i>Corymbia hamersleyana</i> low open woodland, over <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> , <i>Stylobasium spathulatum</i> , and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> mid sparse shrubland, over <i>Triodia epactia</i> and +/- <i>Triodia angusta</i> low sparse hummock grassland with (+/-) <i>*Cenchrus ciliaris</i> low sparse grassland.	<i>*Cenchrus ciliaris</i> <i>Acacia ancistrocarpa</i> <i>Acacia synchronica</i>	Sandy/ stony flat plains.	Q206, Q110, Q204	118.9 ha 2.0%	
<b>Slopes</b>						
S1	<b>BHP: HS TsAbEII</b> Hummock grassland of <i>Triodia vanleeuwenii</i> and <i>Triodia pungens</i> with very open tussock grassland of <i>Eriachne lanata</i> under open shrubland of <i>Acacia bivenosa</i> and or <i>Acacia hilliana</i> and woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on stony hillslopes. <b>NVIS:</b> <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland with <i>Hakea chordophylla</i> and <i>Acacia pruinocarpa</i> tall sparse shrubland, over (+/-) <i>Acacia bivenosa</i> and <i>Acacia hilliana</i> mid sparse shrubland, over <i>Triodia vanleeuwenii</i> and <i>Triodia pungens</i> low hummock grassland with <i>Eriachne lanata</i> low sparse grassland.	<i>Acacia inaequilatera</i> <i>Acacia orthocarpa</i> <i>Acacia pruinocarpa</i> <i>Eremophila exilifolia</i> <i>Eriachne lanata</i> <i>Grevillea berryana</i> <i>Grevillea wickhamii</i> <i>Hakea chordophylla</i>	Stony hillslopes.	Q101, Q103, Q104, Q105, Q108, Q120, Q123, Q125, Q126, Q127, Q129, Q131, Q205, Q210, R101, R102, R105, R108, R109, R110, R112, R113, R202	2818.1 ha 48.2%	

Code	Vegetation Description	Associated Species	Landform	Sites	Area & Percentage	Representative Photo
S2	<p><b>BHP: UH TsSegICh</b> Hummock grassland of <i>Triodia vanleeuwenii</i>, and <i>Triodia pungens</i> with very open tussock grassland of <i>Paraneurachne muelleri</i> under open shrubland of <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>, (+/-) <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>aprica</i> and woodland of <i>Corymbia deserticola</i> subsp. <i>deserticola</i>, <i>Corymbia hamersleyana</i>, and <i>Eucalyptus gamophylla</i> on orange sandy stone undulating low hills.</p> <p><b>NVIS:</b> (+/-) <i>Corymbia deserticola</i> subsp. <i>deserticola</i>, <i>Corymbia hamersleyana</i>, and <i>Eucalyptus gamophylla</i> low open woodland, over <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>, (+/-) <i>Acacia bivenosa</i>, and <i>Grevillea wickhamii</i> subsp. <i>aprica</i> mid sparse shrubland, over <i>Triodia vanleeuwenii</i> and <i>Triodia pungens</i> low hummock grassland with <i>Paraneurachne muelleri</i> low sparse grassland.</p>	<p><i>Acacia aptaneura</i>  <i>Acacia dictyophleba</i>  <i>Acacia inaequilatera</i>  <i>Acacia incurvaneura</i>  <i>Acacia monticola</i>  <i>Acacia trudgeniana</i>  <i>Hakea chordophylla</i></p>	Undulating low hills, and foot slopes.	Q102, Q109, Q115, Q130, Q132, Q133, R103	779.1 ha 13.3%	





**Legend**

- Survey Area
- Vegetation Mapping**
- D1 MA EcoAciCyix
- D2a ME EIIAciTt
- D2b MI EgAdTp
- P1 SA AaCocTb
- P2 SA AinErer
- P2 SA AinErer - Banded Mulga
- P3 SS TbApaCh
- P4 SS TeAsEse
- P5 UH TsSeglCh
- S1 HS TsAbEII
- Completely Degraded

0      1      2 km  
 Scale: 1:72,000      @ A4  
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Units: Meter

Author: SB      Date: 16-03-2023

## Vegetation Types

East Ophthalmia & Ninga

### 4.3. Significant Vegetation

No vegetation recorded within the Survey Area resembles any known TEC or PEC communities.

Based on the definitions of significant vegetation listed in section 2.4.4 (Environmental Protection Authority, 2016b) only one vegetation type within the Survey Area is considered to be of high significance (Table 4.3). Vegetation type D2a appears to be the preferred habitat for the novel species *Hibiscus* aff. *campanulatus* and priority species *Triodia* sp. Mt Ella (M.E. Trudgen 12739). *Hibiscus* aff. *campanulatus* is considered locally and regionally significant and occurs on the rocky drainage lines, gullies and gorges associated with this vegetation type. This is supported by previous surveys which recorded this taxon on similar landforms (Onshore Environmental, 2016; Spectrum Spatial & Ecology, 2022).

Vegetation type D1 contains *Gymnanthera cunninghamii* and vegetation type P1 contains *Rhagodia* sp. Hamersley (M. Trudgen 17794), these vegetation types may be considered significant as they could act as refuge for Priority 3 taxa. *Gymnanthera cunninghamii* was only recorded within D1, however, it is a very widespread taxon across the Pilbara and other bioregions. For this reason, *Gymnanthera cunninghamii* is likely to be recorded in other local creek line vegetation communities surrounding the Survey Area and D1 is not considered a significant vegetation type. Similarly, *Rhagodia* sp. Hamersley (M. Trudgen 17794), was only recorded from vegetation type P1, but is a widespread species within the Pilbara and is likely to occur on other floodplains in the region.

Vegetation types D1 and P2 represent groundwater dependent ecosystems (GDEs) and Banded Mulga sheet flow dependent vegetation (SFDV), respectively. Both of which are considered vegetation at risk from mining activities. The major creek line (D1) vegetation type is characterised by groundwater dependent taxon *Eucalyptus camaldulensis*. *Eucalyptus camaldulensis* is widespread across the length of the major creek line in the Survey Area and may be impacted in local areas close to drawdown activities. The P4 vegetation type is associated with patches of Banded Mulga and may be at risk from alterations to surface water flow.

**Table 4.3: Potential Significant Vegetation Summary**

Significant Vegetation	Vegetation Types	Discussion	Significance Rating
<b>EPA (2016a)</b>			
Identified as TEC (BC Act and/or EPBC Act)	-	-	-
Identified as PEC (Department of Biodiversity Conservation and Attractions/DBCA, 2017a)	-	-	-
Restricted distribution	-	-	-
Degree of historical impact from threatening processes	-	-	-
A role as a refuge	D1	Provides a role as refuge for Priority 3 flora taxon <i>Gymnanthera cunninghamii</i> (P3). However, <i>Gymnanthera cunninghamii</i> is not considered restricted to this vegetation type or the Survey Area as it's known from many locations locally and regionally.	Low
	D2a	Provides a role as refuge for Priority 3 flora <i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739) and the locally and regionally significant flora, novel taxon <i>Hibiscus</i> aff. <i>campanulatus</i> . This taxon was also recorded on surrounding hills (S1) and drill pads, however the majority of individuals occurred on D2a suggesting it is the preferred habitat.	High
	P1	Provides a role as refuge Priority 3 flora taxon <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794) (P3). However, <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794) is not considered restricted to this vegetation type of the Survey Area as it's known from many locations locally and regionally.	Low

Significant Vegetation	Vegetation Types	Discussion	Significance Rating
Providing an important function required to maintain ecological integrity of a significant ecosystem	-	-	-
<b>Other</b>			
vegetation at risk from mining activities	D1	D1 is a GDE as it contains the phreatophytic species <i>Eucalyptus camaldulensis</i> . No <i>Melaleuca argentea</i> was recorded at the Survey Area. GDEs are susceptible to impacts associated with groundwater draw down.	Low
	P2	P2 has some areas that have Banded Mulga patterning. Banded Mulga is a SFDV community and may be susceptible to impacts associated with alteration to surface water flow.	Low

#### 4.4. Vegetation Condition

The majority of the Survey Area was mapped as 'Excellent' (34.2%) and 'Very Good' (35.8%). The hillslopes in the northern part of the Survey Area were mostly mapped as 'Excellent'. The floodplains to the south, the undulating hills below the northern range, and the minor drainage lines within the northern range were mapped as 'Very Good'. Disturbances included scattered drill lines, minor grazing, and occasional weeds.

Areas mapped as 'Good' (21.1%) included drainage lines which had high weed levels and grazing, particularly towards the south of the Survey Area, and the hillslopes with extensive clearing undertaken for exploration activities. Areas cleared for drill lines and roads were mapped as 'Completely Degraded' (9.0%).

The vegetation condition of the Survey Area is presented in Table 4.4 and displayed on Map 4.2.

**Table 4.4: Vegetation Condition**

Condition	Area (ha)	%	Disturbance Detail in Survey Area
<b>Excellent</b>	2,002.1	34.2	No obvious disturbance.
<b>Very Good</b>	2,092.7	35.8	Includes areas with scattered weeds, low levels of grazing, and low levels of clearing for tracks and drill lines within areas of undisturbed native vegetation.
<b>Good</b>	1,232.0	21.1	Moderate weed cover and low levels of grazing or common clearing for tracks and drill lines intersecting areas of undisturbed native vegetation.
<b>Completely Degraded</b>	524.1	9.0	Includes the parkland cleared and developed areas, including drill lines, sealed roads, roadsides and tracks with no vegetation present. Mapped as ' Completely Degraded ' in vegetation mapping and vegetation condition for this project.

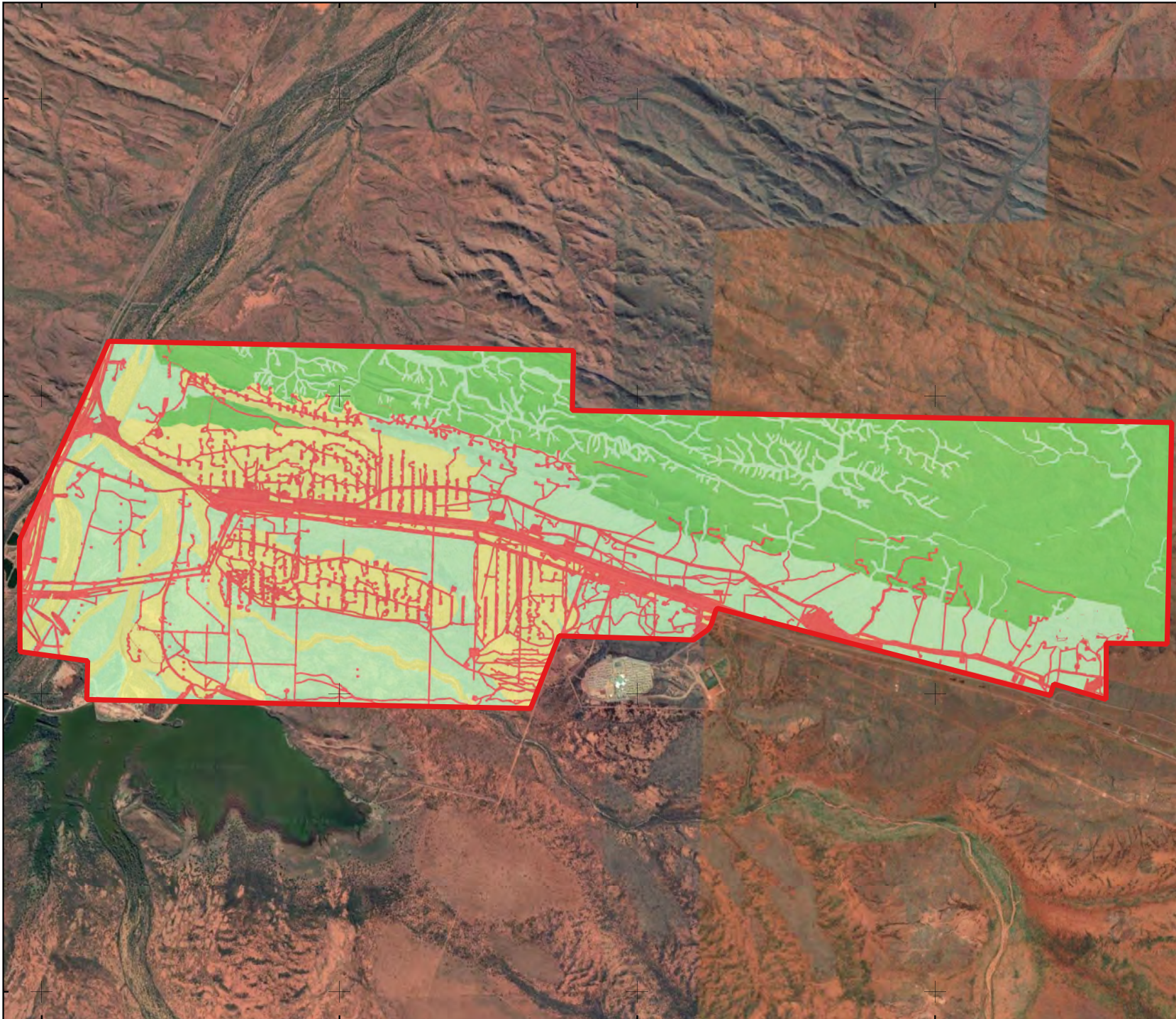
792000 796000 800000 804000

7424000


7420000

7416000


7412000



### Legend

 Survey Area

### Vegetation Condition

 Excellent

 Very Good

 Good

 Completely Degraded



0 1 2 km

Scale: 1:72,000

@ A4

Coordinate System: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Units: Meter



Author: SB

Date: 16-03-2023

## Vegetation Condition

East Ophthalmia & Ninga

MAP

4.2

Prepared for  
BHP WAIO

## 5. CONCLUSION

### 5.1. Flora

No Threatened flora were recorded or considered likely to occur within the Survey Area. Five significant flora species were recorded:

- Priority 3:
  - *Gymnanthera cunninghamii*;
  - *Rhagodia* sp. Hamersley (M. Trudgen 17794); and
  - *Triodia* sp. Mt Ella (M.E. Trudgen 12739).
- Novel Species:
  - *Hibiscus* aff. *campanulatus*;
- Range Extension:
  - *Frankenia magnifica*.

*Hibiscus* aff. *campanulatus* was assigned a high local and regional significance at the Survey Area due to its limited distribution in close proximity to the Survey Area and across the Pilbara. The remaining three Priority 3 flora taxa: *Gymnanthera cunninghamii*, *Rhagodia* sp. Hamersley (M. Trudgen 17794), and *Triodia* sp. Mt Ella (M.E. Trudgen 12739), have been assigned a low local and regional significance as they are widespread in the vicinity of the Survey Area and known from multiple locations across multiple IBRA regions. Range extension *Frankenia magnifica*. was assigned a low significance as it's known from numerous locations in the Carnarvon, Gascoyne, Murchison, and Pilbara regions.

The post survey likelihood assessment of Priority flora species known from the area found that *Isotropis parviflora* and *Aristida jerichoensis* var. *subspinulifera* were considered to have a 'High' post-survey likelihood and *Bulbostylis burbidgeae* was assigned a 'Medium' post survey likelihood of occurrence within the Survey Area.

*Isotropis parviflora* (P2) was assigned a post survey likelihood of high. This was based on confirmed herbarium and previous survey records occurring within the survey area, Suitable habitat was also confirmed during the current survey as the taxon is likely to occur on the crests of vegetation type S1: HS TsAbEII.

*Aristida jerichoensis* var. *subspinulifera* (P3) was assigned a post survey likelihood of 'High' as this taxon has confirmed herbarium records less than 10km from the survey area, and previous survey records within the area. Additionally, vegetation type P5 UH TsSeglCh identified during the current survey is considered suitable habitat for this species.

*Bulbostylis burbidgeae* was assigned a post survey likely of medium. Vegetation type S1: HS TsAbEII identified during the current survey is considered suitable habitat for this species, however this taxon has only been recorded from one location in 2014 and could not be confirmed during the current survey.

### 5.2. Vegetation

A total of nine vegetation types were described from the Survey Area. The majority of the Survey Area was mapped as *Triodia vanleeuwenii* hummock grasslands (S1, S2, P3 and P4; approximately 64.4% of the Survey Area), occurring on undulating plains and hills to the north, followed by *Acacia* (Mulga) shrublands (P1 and P2; approximately 16.1%) occurring on stony plains to the south, and major (D1; approximately 5.1%) and minor drains (D2; approximately 5.5%) scattered throughout the Survey Area.

No vegetation recorded within the Survey Area resembles any known TEC or PEC communities. Based on the definitions of significant vegetation listed in section 2.4.4 (Environmental Protection Authority, 2016b), vegetation type D2a is considered significant as it provides habitat for the locally and regionally significant novel species, *Hibiscus* aff. *campanulatus*, along with the Priority 3 flora species, *Triodia* sp. Mt Ella (M.E. Trudgen 12739). Vegetation type D2a was recorded on gullies between rocky hills and slopes and accounted for approximately 3.6% of Survey Area. Priority flora were also recorded within vegetation type D1 and P1, however as the priority taxa within these vegetation types isn't considered locally or regionally significant these vegetation types were assigned low significance.

Two vegetation types are considered sensitive and at risk from mining activities; D1 and P2 represent GDEs and Banded Mulga SFDV, respectively. The major creek line (D1) vegetation type is characterised by groundwater dependent taxon *Eucalyptus camaldulensis*. *Eucalyptus camaldulensis* is widespread across the length of the major creek line in the Survey Area and may be impacted in local areas close to drawdown activities. The P2 vegetation type is associated with patches of Banded Mulga and may be at risk from alterations to surface water flow.

Vegetation condition at the Survey Area was 'Excellent' in the north of the Survey Area (S1) while prevalent drill pads, tracks, and grazing in the mid and southern portion of the Survey Area reduced the condition to 'Very Good' (P1, P2, P3, P4, D2a and D2b) and 'Good' (S1, D1). Cleared areas for roads, tracks, and drill pads was considered 'Completely Degraded' and accounted for 9.0% of the Survey Area.

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## Appendix A: Conservation Codes



## Appendix A1: Definitions of Conservation Categories under the EPBC Act

Category	Definition
<b>Extinct</b>	A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
<b>Extinct in the Wild</b>	A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time: <ul style="list-style-type: none"> <li>(a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or</li> <li>(b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</li> </ul>
<b>Critically Endangered</b>	A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
<b>Endangered</b>	A native species is eligible to be included in the endangered category at a particular time if, at that time: <ul style="list-style-type: none"> <li>(a) it is not critically endangered; and</li> <li>(b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.</li> </ul>
<b>Vulnerable</b>	A native species is eligible to be included in the vulnerable category at a particular time if, at that time: <ul style="list-style-type: none"> <li>(a) it is not critically endangered or endangered; and</li> <li>(b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.</li> </ul>
<b>Conservation Dependent</b>	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: <ul style="list-style-type: none"> <li>(a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered, or critically endangered; or</li> <li>(b) the following subparagraphs are satisfied: <ul style="list-style-type: none"> <li>(i) the species is a species of fish;</li> <li>(ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;</li> <li>(iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;</li> <li>(iv) cessation of the plan of management would adversely affect the conservation status of the species.</li> </ul> </li> </ul>

## Appendix A2: Definitions of Conservation Categories under the BC Act

Code	Definition
<b>Threatened Species (T)</b>	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 <i>Biodiversity Conservation Act 2016</i> (BC Act). <b>Threatened fauna</b> is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for Threatened Fauna. <b>Threatened flora</b> is that subset of 'Rare Flora' listed under schedules 1 to 3 of the Wildlife Conservation (Rare Flora) Notice 2018 for Threatened Flora. The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.
Critically Endangered (CR)	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". 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 <b>schedule 1</b> 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.
Endangered (EN)	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". 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 <b>schedule 2</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.
Vulnerable (VU)	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". 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 <b>schedule 3</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.

Code	Definition
<b>Extinct species</b>	
Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.	
Extinct species (EX)	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). Published as presumed extinct under <b>schedule 4</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for extinct fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for extinct flora.
Extinct in the wild species (EW)	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). 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.
<b>Specially protected species</b>	
Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.	
Migratory species (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species. Published as migratory birds protected under an international agreement under <b>schedule 5</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
Conservation Dependent (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Published as conservation dependent fauna under <b>schedule 6</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018
Other specially protected fauna (OS)	Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Published as other specially protected fauna under <b>schedule 7</b> of the Wildlife Conservation (Specially Protected Fauna) Notice 2018
<b>Priority species (P)</b>	
Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.	
Priority 1: Poorly-known species (P1)	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.


Code	Definition
Priority 2: Poorly-known species (P2)	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.
Priority 3: Poorly-known species (P3)	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 are in need of further survey.
Priority 4: Rare, Near Threatened and other species in need of monitoring (P4)	(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. (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. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

### Appendix A3: Legal Status Definition of Listed Plants in Western Australia

Legal Status	Definition
Declared Pest, Prohibited – s12	Prohibited organisms are declared pests by virtue of section 22(1) and may only be imported and kept subject to permits.
Declared Pest – s22(2)	Declared pests must satisfy any applicable import requirements when imported and may be subject to control keeping requirements.
Permitted – s11	Permitted organisms must satisfy applicable import requirements and import permits (where required).
Permitted, Requires Permit – r73	Regulation 73 permitted organisms may be subject to restriction under legislation other than the BAM Act 2007.
Unlisted	Unlisted organisms are prohibited in WA.
Control Categories	Definition
C1 Exclusion	Organisms should be excluded from parts or all of WA.
C2 Eradication	Organisms should be eradicated from all or parts of WA.
C3 Management	Organisms should have some form of management applied that will alleviate the harmful impact of the organism, reduce the numbers or distribution of the organism or prevent or contain the spread of the organism.
Unassigned	Declared pest that are recognised as having a harmful impact under certain circumstances where their subsequent control requirements are determined by a plan or other legislative arrangements under the Act.
Keeping Categories	Definition
Prohibited keeping	Can only be kept under a permit for public display, education or scientific purposes.
Restricted keeping	Kept under a permit by private individuals due to a low risk of becoming a problem for the environment.
Exempt keeping	No permit or conditions are required for keeping. Organism may be subject to restrictions under the Wildlife Conservation Act (WCA, 1950).

## Appendix B: Flora Site Data




Site: Q101		Type: Quadrat		Size: 50 x 50		Date: 29/03/2022 4/08/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Moderate North								
Soil:	Medium clay, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 797095 mE, 7417240 mS								
									
Species	Height	Cover	Species	Height	Cover				
<i>Dampiera candidans</i>	0.4	0.1	<i>Hakea chordophylla</i>	0.7	0.1				
<i>Gompholobium oreophilum</i>	0.5	0.2	<i>Hibiscus coatesii</i>	0.3	0.1				
<i>Triodia pungens</i>	0.6	1	<i>Paraneurachne muelleri</i>	0.5	0.2				
<i>Acacia adoxa</i> var. <i>adoxo</i>	0.5	0.1	<i>Ptilotus calostachyus</i>	0.5	0.1				
<i>Amphipogon sericeus</i>	0.3	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.5	0.1				
<i>Corchorus ?tectus</i>	0.3	0.1	<i>Senna ferraria</i>	0.3	0.1				
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.5	0.2	<i>Seringia exastia</i>	0.3	0.1				
<i>Eriachne lanata</i>	0.5	5	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	0.2	0.1				
<i>Eriachne mucronata</i>	0.5	0.1	<i>Solanum lasiophyllum</i>	0.3	0.1				
<i>Goodenia stobbsiana</i>	0.2	0.1	<i>Triodia vanleeuwenii</i>	0.5	30				
<i>Goodenia triodiophila</i>	0.3	0.1							
Additional Species Phase 2									
<i>Fimbristylis simulans</i>	0.1	0.1	<i>Trianthema glossostigmum</i>	0.1	0.2				
<i>Goodenia stobbsiana</i>	0.3	0.1							

Site: Q102		Type: Quadrat		Size: 50 x 50		Date: 30/03/2022		Botanist: Chris Shaw	
Landform:	Hillslope								
Slope, aspect:	Low North								
Soil:	Medium clay, Brown								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S2								
Location (NW):	50 S 796118 mE, 7418709 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia adsurgens</i>			1	0.3	<i>Maireana planifolia</i>			0.4	0.1
<i>Acacia hilliana</i>			0.3	0.2	<i>Paraneurachne muelleri</i>			0.5	0.5
<i>Acacia inaequilatera</i>			3	5	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Afrohybanthus aurantiacus</i>			1	0.6	<i>Ptilotus calostachyus</i>			0.3	0.1
<i>Amphipogon sericeus</i>			0.2	1	<i>Ptilotus obovatus</i>			0.3	0.1
<i>Aristida holathera</i> var. <i>holathera</i>			0.3	0.1	<i>Ptilotus rotundifolius</i>			1	0.25
<i>Aristida inaequiglumis</i>			1	0.5	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.5	0.2
<i>Bonamia media</i>			0.1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.3	0.1
<i>Calytrix carinata</i>			0.5	2	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1	0.3
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			1	0.3	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	0.1
<i>Eriachne lanata</i>			0.2	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	1
<i>Eriachne mucronata</i>			0.3	0.2	<i>Sida echinocarpa</i>			0.3	0.1
<i>Fimbristylis simulans</i>			0.1	0.01	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			0.5	0.1
<i>Gomphrena kanisii</i>			0.2	0.1	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)			1	0.1
<i>Goodenia muelleriana</i>			0.3	0.1	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Goodenia stobbsiana</i>			0.2	0.1	<i>Tribulus suberosus</i>			0.7	0.2
<i>Gossypium robinsonii</i>			1	0.2	<i>Triodia pungens</i>			0.5	3
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			1	0.3	<i>Triodia schinzii</i>			0.4	0.1
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			0.5	0.2	<i>Triodia vanleeuwenii</i>			0.3	40
<i>Indigofera monophylla</i>			0.4	0.2					







Site: Q103		Type: Quadrat		Size: 50 x 50		Date: 30/03/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Steep North								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 796416 mE, 7416530 mS								
Species	Height	Cover	Species	Height	Cover				
<i>Acacia hilliana</i>	0.5	2	<i>Hakea chordophylla</i>	0.8	0.2				
<i>Acacia pruinocarpa</i>	3	1	<i>Hibiscus burtonii</i>	0.3	0.1				
<i>Bonamia media</i>	0.2	0.1	<i>Indigofera monophylla</i>	0.5	0.1				
<i>Calytrix carinata</i>	0.6	1	<i>Paraneurachne muelleri</i>	0.5	0.5				
<i>Dampiera candidans</i>	0.3	0.1	<i>Ptilotus astrolasius</i>	0.6	0.2				
<i>Dicrastylis cordifolia</i>	0.6	0.2	<i>Ptilotus calostachyus</i>	0.6	0.1				
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	0.8	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.5	0.1				
<i>Eriachne helmsii</i>	0.4	2	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1	0.2				
<i>Eriachne lanata</i>	0.5	3	<i>Solanum lasiophyllum</i>	0.3	0.1				
<i>Eriachne mucronata</i>	0.5	0.1	<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)	0.2	0.1				
<i>Fimbristylis simulans</i>	0.15	0.1	<i>Tribulus suberosus</i>	0.8	0.2				
<i>Goodenia triodiophila</i>	0.5	0.1	<i>Triodia pungens</i>	0.5	3				
<i>Grevillea berryana</i>	4	2	<i>Triodia vanleeuwenii</i>	0.5	35				
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	1	0.2							

Site: Q104		Type: Quadrat		Size: 50 x 50		Date: 30/03/2022 4/08/2022		Botanist: Chris Shaw, Emily Crowther	
Landform:	Hillcrest/ Upper Hillslope								
Slope, aspect:	Low North								
Soil:	Medium clay, Brown								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	6-20 mm - Medium gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 795997 mE, 7416449 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia hilliana</i>			0.5	2					
<i>Acacia pruinoarpa</i>			1.3	2	<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			3	0.3
<i>Amphipogon sericeus</i>			0.2	0.1	<i>Hakea chordophylla</i>			3	2
<i>Calytrix carinata</i>			0.5	4	<i>Ptilotus calostachyus</i>			0.7	0.1
<i>Clerodendrum tomentosum</i>			0.3	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			1	0.1
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>			0.5	1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.5	0.2
<i>Corymbia hamersleyana</i>			2	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	0.2
<i>Cymbopogon ambiguus</i>			1	0.1	<i>Seringia exastia</i>			0.4	1
<i>Dampiera candicans</i>			0.5	0.2	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)			0.3	0.1
<i>Dicrastylis cordifolia</i>			0.2	0.1	<i>Solanum lasiophyllum</i>			0.1	0.1
<i>Eriachne lanata</i>			0.5	0.4	<i>Trianthesa glossostigmum</i>			0.1	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			2	0.3	<i>Triodia pungens</i>			0.5	0.2
<i>Goodenia stobbsiana</i>			0.4	0.1	<i>Triodia vanleeuwenii</i>			0.3	55
Additional Species Phase 2									
<i>Clerodendrum tomentosum</i>			0.3	0.1	<i>Trianthesa glossostigmum</i>			0.03	0.1

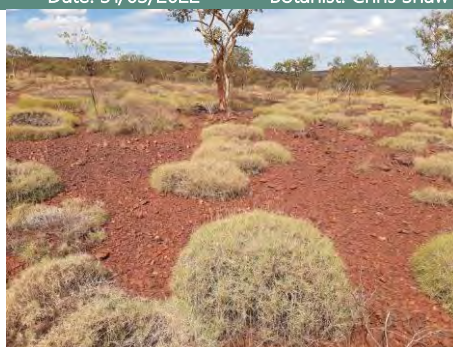



Site: Q105		Type: Quadrat		Size: 50 x 50		Date: 30/03/2022 4/08/2022		Botanist: Susan Murrey, Emily Crowther	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Low South								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	6-20 mm - Medium gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 798556 mE, 7418967 mS								
									
Species	Height	Cover	Species	Height	Cover	Species	Height	Cover	
<i>Acacia aptaneura</i>	0.8	0.1	<i>Hakea chordophylla</i>	1.2	0.2				
<i>Acacia bivenosa</i>	2	3	<i>Paraneurachne muelleri</i>	0.5	0.1				
<i>Acacia trudgeniana</i>	0.5	0.1	<i>Ptilotus calostachyus</i>	0.5	0.1				
<i>Afrohybanthus aurantiacus</i>	0.2	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1.3	0.2				
<i>Amphipogon sericeus</i>	0.3	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.5	0.1				
<i>Cymbopogon ambiguus</i>	0.6	0.1	<i>Senna ferraria</i>	0.3	0.1				
<i>Dampiera candicans</i>	0.3	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	1	0.1				
<i>Duperreya commixta</i>	0.5	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1	0.2				
<i>Eriachne lanata</i>	0.3	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1	0.1				
<i>Eriachne mucronata</i>	0.3	0.2	<i>Seringia exastia</i>	0.5	0.1				
<i>Eucalyptus gamophylla</i>	5	2	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	0.1	0.1				
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	3	1	<i>Solanum cleistogamum</i>	0.3	0.1				
<i>Fimbristylis simulans</i>	0.15	0.1	<i>Solanum lasiophyllum</i>	0.3	0.1				
<i>Goodenia triodiophila</i>	0.4	0.1	<i>Triodia pungens</i>	0.5	1				
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	0.5	0.1	<i>Triodia vanleeuwenii</i>	0.3	25				
Additional Species Phase 2									
<i>Acacia adsurgens</i>	2	0.2	<i>Goodenia stobbsiana</i>	1.5	0.1				
<i>Acacia hilliana</i>	0.3	0.1							

Site: Q106		Type: Quadrat		Size: 30 x 83.3		Date: 31/03/2022 5/08/2022		Botanist: Chris Shaw, Emily Crowther	
Landform:	Major Drainage Line								
Slope, aspect:	Flat								
Soil:	Clay loam, Orange								
Rocks:	Ironstone								
Abundance:	50-90% Abundant								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Weed Invasion								
Veg Unit:	D2a								
Location (NW):	50 S 794660 mE, 7418271 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.7	8	<i>Hibiscus aff. campanulatus</i>			1	0.5
<i>Abutilon</i> sp. Dioicum (A.A. Mitchell PRP 1618)			2	0.1	<i>Indigofera monophylla</i>			0.5	2
<i>Acacia ancistrocarpa</i>			2	2	<i>Isotropis atropurpurea</i>			0.3	0.1
<i>Acacia bivenosa</i>			2	0.75	<i>Jasminum didymum</i> subsp. <i>lineare</i>			0.1	0.1
<i>Acacia monticola</i>			4	15	<i>Lepidium pedicellsum</i>			0.3	0.1
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			2	5	<i>Nellica maderaspatensis</i>			0.4	0.1
<i>Acacia synchronicia</i>			0.1	0.1	<i>Paraneurachne muelleri</i>			0.4	0.3
<i>Afrohybanthus aurantiacus</i>			0.5	3.1	<i>Petalostylis labicheoides</i>			2	6
<i>Amphipogon sericeus</i>			0.3	0.1	<i>Ptilotus astrolasius</i>			0.5	0.2
<i>Androcalva luteiflora</i>			2	1	<i>Ptilotus calostachyus</i>			0.5	0.1
<i>Aristida holathera</i> var. <i>holathera</i>			0.5	0.3	<i>Ptilotus obovatus</i>			0.5	0.1
<i>Aristida inaequiglumis</i>			0.4	0.3	<i>Rhynchosia minima</i>			0.1	0.1
<i>Cassytha capillaris</i>			0.1	0.1	<i>Santalum lanceolatum</i>			0.7	0.1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.5	1.3	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>			0.3	0.1
<i>Cucumis variabilis</i>			0.1	0.1	<i>Sclerolaena cornishiana</i>			0.3	0.1
<i>Dampiera candicans</i>			0.3	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			1	0.1
<i>Duperreya commixta</i>			0.1	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			1.5	0.5
<i>Enneapogon robustissimus</i>			0.4	0.2	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1	0.1
<i>Eragrostis eriopoda</i>			0.4	0.2	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			2	0.3
<i>Eriachne mucronata</i>			0.5	3	<i>Sida fibulifera</i>			0.2	0.3
<i>Eucalyptus gamophylla</i>			2.5	2	<i>Solanum ?ferocissimum</i>			0.4	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			5	6	<i>Solanum cleistogamum</i>			0.2	0.1
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.2	0.2	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Gomphrena kanisii</i>			0.1	0.1	<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)			1	10
<i>Gossypium australe</i>			0.4	0.1	<i>Themeda triandra</i>			0.7	4
<i>Gossypium robinsonii</i>			2	0.5	<i>Triodia angusta</i>			0.3	0.1
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			1	3	<i>Triodia epactia</i>			0.4	6
<i>Hakea loreus</i> subsp. <i>loreus</i>			3	0.1	<i>Triodia vanleeuwenii</i>			0.3	0.2
<i>Hibiscus coatesii</i>			0.3	0.1	<i>Triumfetta chaetocarpa</i>			0.5	0.2
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>			0.3	0.2					
Additional Species Phase 2									
<i>Androcalva luteiflora</i>			2.5	1.5	<i>Ptilotus exaltatus</i>			0.3	0.1
<i>Lepidium pedicellsum</i>			0.5	0.1	<i>Ptilotus polystachyus</i>			0.5	0.1
<i>Nellica maderaspatensis</i>			0.2	0.1	<i>Sida arenicola</i>			1.2	0.1
<i>Pterocaulon sphacelatum</i>			0.5	0.1					

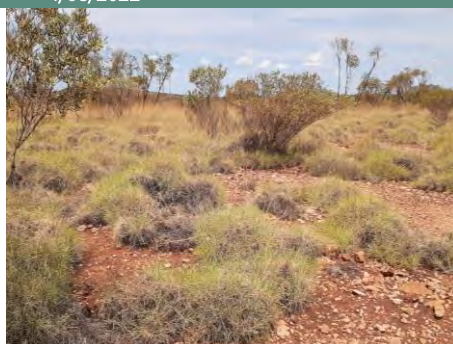
Site: Q107		Type: Quadrat		Size: 50 x 50		Date: 31/03/2022 4/08/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Very Steep North/ East								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	-								
Location (NW):	50 S 795937 mE, 7419129 mS								
									
Species	Height	Cover	Species	Height	Cover	Species	Height	Cover	
<i>Afrohybanthus aurantiacus</i>	0.3	0.1	<i>Ptilotus exaltatus</i>	0.5	0.1				
<i>Dampiera candidans</i>	0.5	0.1	<i>Sclerolaena eriacantha</i>	0.15	0.1				
<i>Eriachne mucronata</i>	0.3	0.5	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	0.8	0.2				
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	4	1							
<i>Goodenia stobbsiana</i>	0.1	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	0.5	0.1				
<i>Hibiscus coatesii</i>	0.5	0.1	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	0.3	0.2				
<i>Lepidium pedicellosum</i>	0.5	0.1	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)	0.3	0.1				
<i>Ptilotus astrolasius</i>	0.3	0.1	<i>Solanum lasiophyllum</i>	0.3	0.1				
<i>Ptilotus clementii</i>	0.4	0.1	<i>Triodia wiseana</i>	0.5	40				
Additional Species Phase 2									
<i>Cymbopogon ambiguus</i>	0.8	0.1	<i>Maireana georgei</i>	0.3	0.1				
<i>Goodenia muelleriana</i>	0.5	0.1	<i>Sclerolaena eriacantha</i>	0.3	0.1				
<i>Hibiscus coatesii</i>	0.5	0.2	<i>Triodia angusta</i>	0.5	30				

ite: Q108		Type: Quadrat		Size: 50 x 50		Date: 31/03/2022		Botanist: Chris Shaw	
Landform:	Hillslope								
Slope, aspect:	Low South/ West								
Soil:	Medium clay, Brown								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 794669 mE, 7416629 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia bivenosa</i>			1	0.1	<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			0.4	0.2
<i>Acacia hilliana</i>			0.5	0.2	<i>Hakea chordophylla</i>			2	2.5
<i>Acacia pruinocarpa</i>			2.5	4	<i>Hibiscus burtonii</i>			0.2	0.1
<i>Acacia synchronicia</i>			0.2	0.1	<i>Hibiscus sturtii</i>			0.4	0.1
<i>Afrohybanthus aurantiacus</i>			0.2	0.1	<i>Indigofera monophylla</i>			0.4	0.2
<i>Amphipogon sericeus</i>			0.3	0.4	<i>Paraneurachne muelleri</i>			0.4	0.25
<i>Aristida holathera</i> var. <i>holathera</i>			0.4	0.5	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Calytrix carinata</i>			0.5	2	<i>Ptilotus calostachyus</i>			0.4	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.2	0.1	<i>Scaevola browniana</i> subsp. <i>browniana</i>			0.4	0.1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1	0.1
<i>Dampiera candidans</i>			0.3	0.2	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			2	1
<i>Eragrostis eriopoda</i>			0.3	0.3	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			2.5	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1.5	0.1	<i>Sida brownii</i>			0.4	0.2
<i>Eriachne lanata</i>			0.3	2	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)			0.4	0.1
<i>Eriachne mucronata</i>			0.3	0.2	<i>Solanum centrale</i>			0.3	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			4	5	<i>Solanum centrale</i>			0.3	0.1
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>			0.4	0.1	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Fimbristylis ?depauperata</i>			0.3	0.2	<i>Tribulus suberosus</i>			0.4	0.2
<i>Gompholobium oreophilum</i>			0.4	0.1	<i>Triodia pungens</i>			0.3	4
<i>Goodenia stobbsiana</i>			0.3	0.1	<i>Triodia vanleeuwenii</i>			0.3	50
<i>Grevillea berryana</i>			1	0.3					



Site: Q109		Type: Quadrat		Size: 50 x 50		Date: 31/03/2022		Botanist: Susan Murrey		
Landform:	Sandy/ Stony Plain									
Slope, aspect:	Flat									
Soil:	Sandy clay loam, Red									
Rocks:	Ironstone									
Abundance:	>90% Continuous									
Size:	6-20 mm - Medium gravel									
Fire:	Old (6+ yr)									
Condition:	Excellent									
Disturbances:	None Discernible									
Veg Unit:	S2									
Location (NW):	50 S 796656 mE, 7417228 mS									
Species	Height	Cover	Species	Height	Cover	Species	Height	Cover		
<i>Abutilon lepidum</i>	0.3	0.1	<i>Hibiscus coatesii</i>	0.5	0.1					
<i>Acacia ayersiana</i>	3	1	<i>Indigofera monophylla</i>	0.5	0.1					
<i>Acacia bivenosa</i>	2	5	<i>Paraneurachne muelleri</i>	0.5	2					
<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>	1.2	0.2	<i>Petalostylis labicheoides</i>	1.3	0.2					
<i>Acacia dictyophleba</i>	1.5	2	<i>Psyrax latifolia</i>	1.4	0.2					
<i>Acacia pruinocarpa</i>	2	1	<i>Ptilotus astrolasius</i>	0.3	0.1					
<i>Acacia synchronicia</i>	1.2	0.2	<i>Ptilotus calostachyus</i>	0.5	0.2					
<i>Acacia tenuissima</i>	2	0.2	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	0.3	0.1					
<i>Afrohybanthus aurantiacus</i>	0.3	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.8	0.1					
<i>Amphipogon sericeus</i>	0.3	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	1	0.1					
<i>Aristida latifolia</i>	0.5	0.5	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1	0.2					
<i>Bonamia erecta</i>	0.4	0.1	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	1.2	0.1					
<i>Cassutha capillaris</i>	0.5	0.1	<i>Seringia exastia</i>	1.2	0.1					
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.3	0.1	<i>Sida arenicola</i>	0.4	0.1					
<i>Dicrasyllis cordifolia</i>	0.3	0.1	<i>Sida fibulifera</i>	0.5	0.1					
<i>Duperreya commixta</i>	0.3	0.1	<i>Solanum lasiophyllum</i>	0.3	0.1					
<i>Eragrostis ?eriopoda/setifolia</i>	0.3	0.1	<i>Triodia pungens</i>	0.5	20					
<i>Eucalyptus gamophylla</i>	4	7	<i>Triodia vanleeuwenii</i>	0.4	10					
<i>Hibiscus burtonii</i>	0.8	0.1								

Site: Q110		Type: Quadrat		Size: 50 x 50		Date: 31/03/2022 4/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Medium clay, Red								
Rocks:	Calcrete								
Abundance:	20-50% Many								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P4								
Location (NW):	50 S 797631 mE, 7417838 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia bivenosa</i>			1.4	10	<i>Petalostylis labicheoides</i>			1	0.2
<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>			1.2	0.2	<i>Ptilotus clementii</i>			0.4	0.1
<i>Acacia pruinocarpa</i>			1	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.2	0.1
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			1.5	0.5	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Cassutha capillaris</i>			0.4	0.1	<i>Stylobasium spathulatum</i>			1	0.5
<i>Eragrostis eriopoda</i>			0.3	0.1	<i>Triodia angusta</i>			0.5	30
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>			4	5	<i>Triodia pungens</i>			0.5	2
Additional Species Phase 2									
<i>Paraneurachne muelleri</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			0.3	0.1





Site: Q111		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	20-50% Many								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Weed Invasion								
Veg Unit:	P1								
Location (NW):	50 S 796157 mE, 7417067 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.4	1	<i>Grevillea striata</i>			2	1
<i>Acacia aptaneura</i>			1.7	5	<i>Hakea chordophylla</i>			0.5	0.1
<i>Acacia paraneura</i>			1.6	0.2	<i>Hibiscus burtonii</i>			0.3	0.1
<i>Acacia synchronicia</i>			1	0.2	<i>Maireana planifolia</i>			1	0.2
<i>Acacia tetragonophylla</i>			1.2	2	<i>Rhagodia eremaea</i>			1	0.1
<i>Anthobolus leptomerioides</i>			1.4	0.2	<i>Sclerolaena cornishiana</i>			0.3	0.1
<i>Aristida pruinosa</i>			0.3	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			1	0.5
<i>Corymbia candida</i>			5	2	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1.2	0.5
<i>Eragrostis setifolia</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1.5	1
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>			1	1	<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)			1	0.2
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1	5	<i>Sida echinocarpa</i>			0.3	0.1
<i>Gomphrena kanisii</i>			0.3	0.1	<i>Triodia ?basedowii/angusta</i>			0.5	0.5



Site: Q112		Type: Quadrat		Size: 20 x 125		Date: 1/04/2022 5/08/2022		Botanist: Chris Shaw, Susan Murrey	
Landform:	Drainage Area/ Floodplain								
Slope, aspect:	Flat								
Soil:	Sand, Orange								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	D1								
Location (NW):	50 S 795670 mE, 7417749 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.7	2	<i>Glycine canescens</i>			0.1	0.1
* <i>Setaria verticillata</i>			1	0.3	<i>Goodenia lamprosperma</i>			0.3	0.1
<i>Acacia citrinoviridis</i>			8	1	<i>Ipomoea muelleri</i>			0.1	0.1
<i>Arivela viscosa</i>			-	-	<i>Isotropis atropurpurea</i>			0.3	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.1	0.1	<i>Melaleuca glomerata</i>			3	1
<i>Cyperus ixiocarpus</i>			0.75	13	<i>Pluchea dentex</i>			0.2	0.1
<i>Eragrostis elongata</i>			0.4	0.2	<i>Synaptantha tillaeacea</i>			0.2	0.1
<i>Eucalyptus victrix</i>			10	10	<i>Themeda triandra</i>			0.5	0.3
<i>Eulalia aurea</i>			1	0.1	<i>Waltheria indica</i>			0.2	0.1
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.1	0.1					
Additional Species Phase 2									
<i>Alternanthera nana</i>			0.1	0.1	<i>Euphorbia biconvexa</i>			0.1	0.1
<i>Dicladantha forrestii</i>			0.5	0.1					




Site: Q113		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	10 -20% Common								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P3								
Location (NW):	50 S 797527 mE, 7419429 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia aneura</i>			1.4	0.5	<i>Hibiscus burtonii</i>			0.4	0.1
<i>Acacia aptaneura</i>			2	5	<i>Paraneurachne muelleri</i>			0.3	0.1
<i>Acacia pachyacra</i>			1.4	0.5	<i>Petalostylis labicheoides</i>			1.5	0.2
<i>Acacia pruinocarpa</i>			1.5	2	<i>Psydrax latifolia</i>			1.2	0.1
<i>Acacia tetragonophylla</i>			1.7	0.5	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Afrohybanthus aurantiacus</i>			0.2	0.1	<i>Ptilotus calostachyus</i>			0.6	0.1
<i>Aristida latifolia</i>			0.5	0.2	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>			0.3	0.1
<i>Corymbia hamersleyana</i>			5	0.5	<i>Sida arenicola</i>			1	0.1
<i>Dicrastylis cordifolia</i>			0.2	0.1	<i>Sida cardiophylla</i>			0.3	0.1
<i>Dodonaea coriacea</i>			0.3	0.1	<i>Sida fibulifera</i>			0.5	0.1
<i>Eragrostis eriopoda</i>			0.3	0.1	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			0.4	0.1
<i>Hakea chordophylla</i>			3	1	<i>Triodia basedowii</i>			0.4	30



Site: Q114		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022 5/08/2022		Botanist: Chris Shaw, Emily Crowther	
Landform:	Drainage Area/ Floodplain								
Slope, aspect:	Flat								
Soil:	Medium clay, Red								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Moderate (3 to 5 yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	P1								
Location (NW):	50 S 796437 mE, 7419444 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.3	2	<i>Hakea chordophylla</i>			3	0.2
<i>Acacia aptaneura</i>			2	10	<i>Hakea loreus</i> subsp. <i>loreus</i>			2	0.4
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			2	2	<i>Hibiscus burtonii</i>			0.2	0.1
<i>Acacia tetragonophylla</i>			2	0.5	<i>Ipomoea muelleri</i>			0.1	0.1
<i>Aristida ?pruinosa/latifolia</i>			1	1	<i>Isotropis iophyta</i>			0.4	0.1
<i>Boerhavia coccinea</i>			0.1	0.1	<i>Ptilotus obovatus</i>			0.8	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.1	0.1	<i>Rhynchosia minima</i>			0.1	0.1
<i>Chrysopogon fallax</i>			0.5	1	<i>Sclerolaena cornishiana</i>			0.1	0.1
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.4	0.1	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>			1	0.2
<i>Enneapogon polyphyllus</i>			0.3	0.2	<i>Sida cardiophylla</i>			0.4	0.25
<i>Eragrostis setifolia</i>			0.3	1.5	<i>Sida echinocarpa</i>			0.3	0.1
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>			0.75	0.1	<i>Sida fibulifera</i>			0.3	0.2
<i>Eulalia aurea</i>			0.4	0.4	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.2	0.1	<i>Tribulus ?forrestii</i>			0.1	0.1
<i>Grevillea striata</i>			7	1	<i>Triodia basedowii</i>			0.3	0.5
<i>Calocephalus knappii</i>			0.05	0.1	<i>Ptilotus gaudichaudii</i>			0.1	0.1
<i>Calotis multicaulis</i>			0.1	0.1	<i>Roebuckiella similis</i>			0.1	0.1
<i>Eremophila lanceolata</i>			0.3	0.1	<i>Goodenia microptera</i>			0.25	0.1
<i>Euphorbia boophthona</i>			0.3	0.1					



Site: Q115		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022 5/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	6-20 mm - Medium gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S2								
Location (NW):	50 S 796570 mE, 7419651 mS								
									
Species	Height	Cover	Species	Height	Cover				
<i>Acacia ayersiana</i>	2.5	1	<i>Indigofera monophylla</i>	0.5	0.1				
<i>Acacia bivenosa</i>	1.5	5	<i>Maireana planifolia</i>	0.5	0.1				
<i>Acacia incurvaneura</i>	2	3	<i>Paraneurachne muelleri</i>	0.5	0.2				
<i>Acacia pruinocarpa</i>	1.2	1	<i>Ptilotus astrolasius</i>	0.5	0.1				
<i>Acacia tetragonophylla</i>	1.2	0.2	<i>Ptilotus calostachyus</i>	0.8	0.1				
<i>Afrohybanthus aurantiacus</i>	0.3	0.1	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	0.3	0.1				
<i>Amphipogon sericeus</i>	0.3	0.2	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1	0.2				
<i>Bonamia erecta</i>	0.5	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.8	0.2				
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.7	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1.2	1				
<i>Duperreya commixta</i>	1	0.1	<i>Seringia exastia</i>	0.5	0.1				
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	1	0.5	<i>Sida arenicola</i>	0.5	0.1				
<i>Eucalyptus gamophylla</i>	1.7	1	<i>Solanum cleistogamum</i>	0.2	0.1				
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	1.2	0.1	<i>Solanum lasiophyllum</i>	0.3	0.1				
<i>Hibiscus coatesii</i>	0.5	0.1	<i>Triodia pungens</i>	0.6	5				
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	0.2	0.1	<i>Triodia vanleeuwenii</i>	0.3	20				
<i>Acacia tenuissima</i>	1.5	0.2	<i>Goodenia muelleriana</i>	0.3	0.1				
<i>Aristida inaequiglumis</i>	0.5	0.1	<i>Goodenia vilmorinae</i>	0.3	0.1				
<i>Cymbopogon obtectus</i>	0.5	0.1	<i>Isotropis iophyta</i>	1	0.2				
<i>Dicrasyli cordifolia</i>	0.3	0.1	<i>Rhagodia eremaea</i>	1	0.2				

ite: Q116		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022		Botanist: Chris Shaw	
Landform:	Major Drainage Line								
Slope, aspect:	Flat								
Soil:	Sand, Red								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Good								
Disturbances:	Weed Invasion								
Veg Unit:	D1								
Location (NW):	50 S 797374 mE, 7419569 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Bidens bipinnata</i>			0.1	0.1	<i>Glycine canescens</i>			0.1	0.2
* <i>Cenchrus ciliaris</i>			0.3	6	<i>Goodenia lamprosperma</i>			0.7	1
* <i>Malvastrum americanum</i>			0.3	0.1	<i>Ipomoea muelleri</i>			0.1	0.5
* <i>Setaria verticillata</i>			0.3	0.1	<i>Isotropis iophyta</i>			0.4	0.2
<i>Abutilon amplum</i>			1	0.3	<i>Melaleuca glomerata</i>			3	10
<i>Acacia citrinoviridis</i>			4	15	<i>Nelica maderaspatensis</i>			0.3	0.1
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			0.3	0.1	<i>Paspalidium rarum</i>			0.5	0.2
<i>Aeschynomene indica</i>			0.1	0.1	<i>Pluchea dentex</i>			0.4	0.1
<i>Arivela viscosa</i>			0.4	0.2	<i>Sida echinocarpa</i>			0.5	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.1	0.1	<i>Sida fibulifera</i>			0.25	0.1
<i>Chrysopogon fallax</i>			0.5	0.2	<i>Solanum lasiophyllum</i>			0.5	0.1
<i>Cyperus ixiocarpus</i>			1	15	<i>Sorghum plumosum</i>			1	0.3
<i>Duperreya commixta</i>			0.1	0.1	<i>Stemodia grossa</i>			0.3	0.1
<i>Enteropogon ramosus</i>			0.7	0.2	<i>Synaptantha tillaeacea</i>			0.1	0.1
<i>Eragrostis elongata</i>			0.5	0.2	<i>Themeda triandra</i>			0.7	0.5
<i>Eragrostis speciosa</i>			1	0.5	<i>Trichodesma zeylanicum</i>			0.1	0.1
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i>			9	5	<i>Triodia epactia</i>			0.1	0.1
<i>Eucalyptus victrix</i>			9	5	<i>Triumfetta chaetocarpa</i>			0.4	0.2
<i>Eulalia aurea</i>			0.5	4	<i>Waltheria indica</i>			0.5	0.2
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.2	0.1					



Site: Q117		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	10 -20% Common								
Size:	6-20 mm - Medium gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P2								
Location (NW):	50 S 799404 mE, 7419612 mS								
Species			Height	Cover	Species			Height	Cover
<i>?Cynanchum floribundum</i>			0.6	0.1	<i>Hibiscus burtonii</i>			0.4	0.1
<i>Acacia ayersiana</i>			1.4	1	<i>Hibiscus sturtii</i>			0.2	0.1
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>			4	15	<i>Psydrax latifolia</i>			1.5	0.2
<i>Acacia incurvaneura</i>			4	15	<i>Psydrax suaveolens</i>			0.8	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.2	0.1	<i>Ptilotus calostachyus</i>			0.4	0.2
<i>Digitaria brownii</i>			0.3	0.5	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.2	0.1
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.2	0.1	<i>Sida cardiophylla</i>			0.3	0.1
<i>Eragrostis eriopoda</i>			0.5	1	<i>Sida ectogama</i>			0.9	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1	0.1	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Eriachne helmsii</i>			0.5	0.5	<i>Triodia basedowii</i>			0.4	0.2



Site: Q118		Type: Quadrat		Size: 50 x 50		Date: 1/04/2022		Botanist: Chris Shaw	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Low South								
Soil:	Medium clay, Brown								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	P1								
Location (NW):	50 S 797116 mE, 7419578 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.3	0.1	<i>Hakea loreus</i> subsp. <i>loreus</i>			1	0.4
<i>Acacia aptaneura</i>			4	23	<i>Hibiscus burtonii</i>			0.3	0.4
<i>Acacia citrinoviridis</i>			2	0.2	<i>Ipomoea diamantinensis</i>			0.1	0.1
<i>Acacia pruinocarpa</i>			2	1.5	<i>Isotropis iophyta</i>			0.4	0.1
<i>Acacia tetragonophylla</i>			2.5	2	<i>Ptilotus obovatus</i>			0.5	0.2
<i>Anthobolus leptomerioides</i>			1	0.2	<i>Sclerolaena cornishiana</i>			0.2	0.2
<i>Aristida ?pruinosa/latifolia</i>			0.3	1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.7	0.2
<i>Aristida contorta</i>			0.2	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	0.2
<i>Corymbia candida</i>			6	0.4	<i>Sida cardiophylla</i>			0.5	0.3
<i>Duperreya commixta</i>			0.1	0.1	<i>Sida echinocarpa</i>			0.2	0.1
<i>Eragrostis setifolia</i>			0.1	0.1	<i>Sida fibulifera</i>			0.2	0.2
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>			1	2	<i>Solanum lasiophyllum</i>			0.4	0.1
<i>Eucalyptus xerothermica</i>			5	0.2	<i>Tribulus ?forrestii</i>			0.2	0.1
<i>Eulalia aurea</i>			0.2	0.1	<i>Tribulus suberosus</i>			0.3	0.1
<i>Gomphrena canescens</i> subsp. <i>canescens</i>			0.3	0.1	<i>Trigastrotheca molluginea</i>			0.2	0.1
<i>Grevillea striata</i>			3	0.25	<i>Triodia basedowii</i>			0.3	4





Site: Q119		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022 7/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	20-50% Many								
Size:	6-20 mm - Medium gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P2								
Location (NW):	50 S 798010 mE, 7419936 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>			4	10	<i>Psyrdrax latifolia</i>			1	0.2
<i>Acacia incurvaneura</i>			5	10	<i>Psyrdrax suaveolens</i>			0.5	0.1
<i>Acacia pruinocarpa</i>			4	1	<i>Ptilotus calostachyus</i>			0.3	0.2
<i>Acacia tetragonophylla</i>			0.8	1	<i>Ptilotus roei</i>			0.1	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.2	0.2	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			1	0.1
<i>Digitaria brownii</i>			0.3	0.2	<i>Senna sericea</i>			0.8	0.1
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.2	0.1	<i>Seringia exastia</i>			1.6	0.2
<i>Eragrostis eriopoda</i>			0.3	0.2	<i>Sida</i> sp. L (A.M. Ashby 4202)			0.2	0.1
<i>Eremophila galeata</i>			1	0.5	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>			0.8	0.1	<i>Hibiscus sturtii</i> var. <i>truncatus</i>			0.3	0.1
<i>Eriachne helmsii</i>			0.5	0.2	<i>Ipomoea ?diamantinensis</i>			0.1	0.1
<i>Hibiscus burtonii</i>			0.3	0.1					



Site: Q120		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022 7/08/2022		Botanist: Chris Shaw, Emily Crowther	
Landform:	Hillslope								
Slope, aspect:	Moderate South								
Soil:	Medium clay, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 798659 mE, 7418596 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia aneura</i>			3	0.3	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			5	3
<i>Acacia aptaneura</i>			1.5	1	<i>Goodenia stobbsiana</i>			0.2	0.1
<i>Acacia aptaneura</i>			2.5	5	<i>Hakea chordophylla</i>			2	0.25
<i>Acacia bivenosa</i>			2	10	<i>Hibiscus burtonii</i>			0.3	0.1
<i>Acacia citrinoviridis</i>			2	0.1	<i>Hibiscus coatesii</i>			0.3	0.1
<i>Acacia marramamba</i>			2	3	<i>Indigofera monophylla</i>			0.4	0.25
<i>Acacia pruinocarpa</i>			2	0.5	<i>Paraneurachne muelleri</i>			0.9	0.1
<i>Acacia tetragonophylla</i>			2	0.5	<i>Ptilotus calostachyus</i>			0.4	0.1
<i>Amphipogon sericeus</i>			0.1	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1	0.2
<i>Anthobolus leptomerioides</i>			1	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1.4	2.1
<i>Calytrix carinata</i>			0.75	1	<i>Senna stricta</i>			1	0.5
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.3	0.1	<i>Seringia exastia</i>			0.4	1.5
<i>Duperreya commixta</i>			0.1	0.1	<i>Sida brownii</i>			0.3	0.25
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.2	0.1	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)			0.6	0.1
<i>Eremophila galeata</i>			1	0.1	<i>Solanum centrale</i>			0.2	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			2	0.5	<i>Triodia pungens</i>			0.4	5
<i>Eriachne lanata</i>			0.3	0.1	<i>Triodia vanleeuwenii</i>			0.3	60
<i>Eriachne mucronata</i>			0.3	0.2					




Site: Q121		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022 3/08/2022		Botanist: Susan Murrey, Emily Crowther	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	50-90% Abundant								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P2								
Location (NW):	50 S 797484 mE, 7419478 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia aptaneura</i>			4	2.5	<i>Eragrostis eriopoda</i>			0.5	0.2
<i>Acacia ayersiana</i>			4	8.5	<i>Eremophila latrobei</i> subsp. <i>filiformis</i>			1	0.2
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>			2	1	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>			0.1	0.1
<i>Acacia tetragonophylla</i>			1	0.2	<i>Hibiscus burtonii</i>			0.4	0.1
<i>Aristida pruinosa</i>			0.7	0.2	<i>Paraneurachne muelleri</i>			0.1	0.1
<i>Digitaria brownii</i>			-	-	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			1	0.2
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.5	1	<i>Triodia basedowii</i>			0.3	0.2
Additional Species Phase 2									
<i>Aristida inaequiglumis</i>			0.5	0.1	<i>Psydrax suaveolens</i>			1.5	0.1
<i>Hibiscus burtonii</i>			0.2	0.1	<i>Ptilotus obovatus</i>			0.5	0.1
<i>Maireana villosa</i>			0.1	0.1	<i>Sida</i> sp. L (A.M. Ashby 4202)			0.1	0.1



Site: Q122		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022 3/08/2022		Botanist: Chris Shaw, Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Orange								
Rocks:	Ironstone								
Abundance:	<2% Very few								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P3								
Location (NW):	50 S 797718 mE, 7419949 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.4	0.2	<i>Hakea chordophylla</i>			2	0.5
<i>Acacia aptaneura</i>			2	0.5	<i>Hibiscus burtonii</i>			0.3	0.1
<i>Acacia pachyacra</i>			2	0.5	<i>Maireana planifolia</i>			0.3	0.2
<i>Acacia pruinocarpa</i>			2.5	1	<i>Paraneurachne muelleri</i>			0.4	0.2
<i>Afrohybanthus aurantiacus</i>			0.3	0.1	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Aristida inaequiglumis</i>			0.5	4	<i>Ptilotus obovatus</i>			0.3	0.1
<i>Bonamia erecta</i>			0.4	0.3	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.3	0.1
<i>Cymbopogon obtectus</i>			1	0.75	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			1	0.7
<i>Eragrostis eriopoda</i>			0.4	5	<i>Solanum centrale</i>			0.4	0.1
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>			0.3	0.1	<i>Solanum lasiophyllum</i>			0.5	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1	0.2	<i>Triodia basedowii</i>			0.3	50
<i>Eulalia aurea</i>			0.7	0.25					
Additional Species Phase 2									
<i>Dicrastylis cordifolia</i>			0.3	0.1	<i>Ptilotus polystachyus</i>			0.2	0.1
<i>Maireana villosa</i>			0.3	0.2					



Site: Q123		Type: Quadrat		Size: 50 x 50		Date: 2/04/2022 5/08/2022		Botanist: Chris Shaw, Emily Crowther	
Landform:	Hillslope								
Slope, aspect:	Moderate South								
Soil:	Medium clay, Orange								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 796809 mE, 7416977 mS								
									
Species	Height	Cover	Species	Height	Cover				
<i>Abutilon lepidum</i>	0.3	0.1	<i>Hibiscus burtonii</i>	0.3	0.1				
<i>Acacia aneura</i>	3	4	<i>Hibiscus coatesii</i>	0.1	0.1				
<i>Acacia bivenosa</i>	1.4	2	<i>Indigofera monophylla</i>	0.4	0.1				
<i>Acacia hilliana</i>	0.4	0.4	<i>Paraneurachne muelleri</i>	0.3	0.1				
<i>Acacia incurvaneura</i>	2	0.5	<i>Psydrax latifolia</i>	0.3	0.1				
<i>Acacia maitlandii</i>	3	0.1	<i>Ptilotus calostachyus</i>	0.4	0.1				
<i>Acacia pruinocarpa</i>	3	3	<i>Scaevola browniana</i> subsp. <i>browniana</i>	0.1	0.1				
<i>Anthobolus leptomerioides</i>	1	0.2	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1	0.5				
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	0.2	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1	0.1				
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.3	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1.5	1				
<i>Duperreya commixta</i>	0.2	0.1	<i>Senna sericea</i>	0.7	0.1				
<i>Eragrostis eriopoda</i>	0.2	0.1	<i>Seringia exastia</i>	0.4	0.2				
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	1.5	0.2	<i>Sida brownii</i>	0.2	0.1				
<i>Eucalyptus gamophylla</i>	0.5	0.1	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.3	0.1				
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	3	5	<i>Solanum lasiophyllum</i>	0.2	0.1				
<i>Gompholobium oreophilum</i>	0.4	0.1	<i>Triodia pungens</i>	0.4	1				
<i>Grevillea berryana</i>	3	8	<i>Triodia vanleeuwenii</i>	0.3	50				
<i>Hakea chordophylla</i>	3	1							
Additional Species Phase 2									
<i>Acacia tetragonophylla</i>	0.5	0.1	<i>Maireana planifolia</i>	0.4	0.1				
<i>Goodenia triodiophila</i>	0.3	0.2							

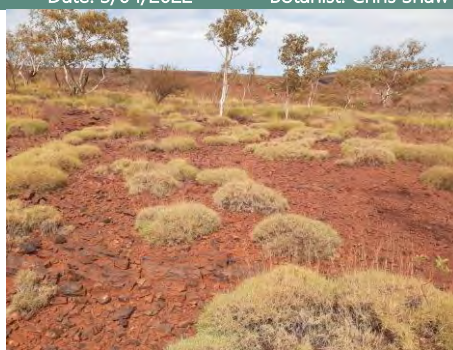
Site: Q124		Type: Quadrat		Size: 25 x 100		Date: 3/04/2022		Botanist: Chris Shaw	
Landform:	Major Drainage Line								
Slope, aspect:	Flat								
Soil:	Sandy clay loam, Orange								
Rocks:	Ironstone								
Abundance:	10 -20% Common								
Size:	60-200 mm - Cobbles								
Fire:	Moderate (3 to 5 yr)								
Condition:	Very Good								
Disturbances:	Weed Invasion								
Veg Unit:	D2a								
Location (NW):	50 S 806582 mE, 7420083 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.5	14	<i>Eulalia aurea</i>			0.5	3
<i>Abutilon</i> sp. Dioicum (A.A. Mitchell PRP 1618)			1	1.1	<i>Euphorbia biconvexa</i>			0.2	0.1
<i>Acacia bivenosa</i>			0.5	0.2	<i>Indigofera rugosa</i>			1.2	0.2
<i>Acacia citrinoviridis</i>			4	6	<i>Paraneurachne muelleri</i>			0.4	2
<i>Acacia maitlandii</i>			2	1	<i>Petalostylis labicheoides</i>			2	2
<i>Acacia monticola</i>			2	10	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			2	0.5	<i>Rhynchosia minima</i>			0.1	0.2
<i>Afrohybanthus aurantiacus</i>			0.5	1.1	<i>Santalum lanceolatum</i>			1	0.75
<i>Alternanthera nana</i>			0.1	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.7	0.2
<i>Androcalva luteiflora</i>			2	1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			1	0.2
<i>Arivela viscosa</i>			0.1	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			2	0.1
<i>Boerhavia coccinea</i>			0.1	0.1	<i>Senna notabilis</i>			0.3	1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			1	0.5	<i>Sida arenicola</i>			1.5	1
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>			0.3	0.1	<i>Sida echinocarpa</i>			0.3	0.1
<i>Corchorus tridens</i>			0.1	0.1	<i>Sida fibulifera</i>			0.3	0.5
<i>Corymbia hamersleyana</i>			5	4	<i>Sida rohlena</i> subsp. <i>rohlena</i>			0.4	0.1
<i>Cymbopogon ambiguus</i>			1	0.6	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			0.5	0.2
<i>Digitaria brownii</i>			0.7	2	<i>Solanum cleistogamum</i>			0.3	0.1
<i>Duperreya commixta</i>			0.1	0.1	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.3	0.1	<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)			1	5
<i>Enneapogon polyphyllus</i>			0.3	0.1	<i>Themeda triandra</i>			0.75	15
<i>Eragrostis desertorum</i>			0.5	2	<i>Trichodesma zeylanicum</i>			0.5	0.5
<i>Eremophila galeata</i>			0.5	0.1	<i>Triodia angusta</i>			0.2	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			2	1	<i>Triodia pungens</i>			0.5	5
<i>Eriachne mucronata</i>			0.5	1	<i>Triumfetta chaetocarpa</i>			0.5	0.5
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			1	0.1					



Site: Q125		Type: Quadrat		Size: 50 x 50		Date: 3/04/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Very Steep North								
Soil:	Medium clay, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	>600 mm - Boulders								
Fire:	Moderate (3 to 5 yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 805387 mE, 7420190 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia bivenosa</i>			-	-	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Acacia orthocarpa</i>			1.5	1	<i>Ptilotus calostachyus</i>			0.5	0.2
<i>Boerhavia coccinea</i>			0.2	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.5	0.1
<i>Bonamia media</i>			0.1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.5	0.1
<i>Cassylia capillaris</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1	0.2
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.5	1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1	0.1
<i>Eriachne lanata</i>			0.4	0.5	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	0.5
<i>Eriachne mucronata</i>			0.5	0.5	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)			0.4	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			4	2	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			0.5	0.1
<i>Goodenia stobbsiana</i>			0.2	0.1	<i>Tribulus suberosus</i>			1	0.3
<i>Gossypium australe</i>			0.3	0.1	<i>Triodia pungens</i>			0.5	15
<i>Hibiscus coatesii</i>			0.5	0.1	<i>Triodia vanleeuwenii</i>			0.4	1
<i>Indigofera rugosa</i>			0.5	0.2					



Site: Q126		Type: Quadrat		Size: 50 x 50		Date: 3/04/2022		Botanist: Chris Shaw	
Landform:	Hillcrest/ Upper Hillslope								
Slope, aspect:	Low South								
Soil:	Medium clay, Orange								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	51 S 193363 mE, 7420282 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia bivenosa</i>			2	3	<i>Hibiscus coatesii</i>			0.1	0.1
<i>Acacia maitlandii</i>			4	0.4	<i>Maireana planifolia</i>			0.4	0.2
<i>Acacia tenuissima</i>			1.3	0.1	<i>Paraneurachne muelleri</i>			0.3	0.2
<i>Acacia tetragonophylla</i>			2	0.5	<i>Ptilotus astrolasius</i>			0.4	0.3
<i>Amphipogon sericeus</i>			0.3	2	<i>Ptilotus calostachyus</i>			1	0.25
<i>Aristida holathera</i> var. <i>holathera</i>			0.3	0.1	<i>Ptilotus obovatus</i>			0.5	0.1
<i>Bonamia pilbarensis</i>			0.1	0.1	<i>Scaevola acacioides</i>			1	0.3
<i>Calytrix carinata</i>			0.5	1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.3	0.1
<i>Dampiera candidans</i>			0.5	0.3	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			0.3	0.2
<i>Dicrastylis cordifolia</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1	0.6
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			2	0.2	<i>Senna stricta</i>			1	0.2
<i>Eriachne lanata</i>			0.3	2	<i>Sida brownii</i>			0.2	0.3
<i>Eriachne mucronata</i>			0.4	4	<i>Solanum cleistogamum</i>			0.2	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			4	10	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Goodenia stobbsiana</i>			0.3	0.1	<i>Tribulus suberosus</i>			0.5	0.2
<i>Goodenia triodiophila</i>			0.2	0.1	<i>Triodia pungens</i>			0.5	8
<i>Grevillea berryana</i>			2	0.2	<i>Triodia vanleeuwenii</i>			0.3	40
<i>Hakea chordophylla</i>			3	0.2					





Site: Q127		Type: Quadrat		Size: 50 x 50		Date: 3/04/2022		Botanist: Chris Shaw	
Landform:	Hillslope								
Slope, aspect:	Steep South								
Soil:	Medium clay, Orange								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 806551 mE, 7420447 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia adoxa</i> var. <i>adoxo</i>			0.3	0.1	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.1	0.1
<i>Acacia aptaneura</i>			4	16	<i>Fimbristylis ?depauperata</i>			0.3	0.1
<i>Acacia pruinocarpa</i>			3	2	<i>Gomphrena kanisii</i>			0.2	0.1
<i>Acacia rhodophloia</i>			4	7	<i>Goodenia microptera</i>			0.3	0.1
<i>Afrohybanthus aurantiacus</i>			0.2	0.1	<i>Hibiscus burtonii</i>			0.4	0.2
<i>Amphipogon sericeus</i>			0.2	0.1	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			0.3	0.5
<i>Aristida contorta</i>			0.2	0.1	<i>Indigofera monophylla</i>			0.3	0.2
<i>Bulbostylis barbata</i>			0.1	0.1	<i>Maireana planifolia</i>			0.3	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.1	0.1	<i>Paraneurachne muelleri</i>			0.3	0.1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.5	0.2	<i>Psydrax latifolia</i>			2	0.3
<i>Cymbopogon ambiguus</i>			0.4	0.1	<i>Ptilotus calostachyus</i>			0.5	0.1
<i>Dampiera candicans</i>			0.4	0.1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			1	0.1
<i>Digitaria brownii</i>			0.3	0.1	<i>Senna ferraria</i>			0.3	0.2
<i>Enneapogon polyphyllus</i>			0.2	0.1	<i>Sida brownii</i>			0.3	0.1
<i>Eragrostis eriopoda</i>			0.3	0.1	<i>Solanum cleistogamum</i>			0.2	0.1
<i>Eremophila exilifolia</i>			0.75	8	<i>Solanum lasiophyllum</i>			0.4	0.1
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>			0.2	0.1	<i>Tribulus suberosus</i>			0.5	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			0.3	0.1	<i>Triodia pungens</i>			0.4	20
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>			0.2	0.1	<i>Triodia vanleeuwenii</i>			0.3	20



Site: Q128		Type: Quadrat		Size: 20 x 125		Date: 4/04/2022		Botanist: Chris Shaw	
Landform:	Major Drainage Line								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	20-50% Many								
Size:	60-200 mm - Cobbles								
Fire:	Moderate (3 to 5 yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	D2a								
Location (NW):	50 S 803580 mE, 7420489 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.5	0.1	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			0.3	0.1
<i>Abutilon</i> sp. <i>Dioicum</i> (A.A. Mitchell PRP 1618)			0.5	0.2	<i>Hibiscus sturtii</i> var. <i>platychlamys</i>			0.3	0.1
<i>Acacia adoxa</i> var. <i>adoxo</i>			0.3	0.1	<i>Indigofera monophylla</i>			0.5	0.5
<i>Acacia ancistrocarpa</i>			1	3	<i>Indigofera rugosa</i>			0.3	0.1
<i>Acacia bivenosa</i>			0.4	0.2	<i>Isotropis atropurpurea</i>			0.5	0.1
<i>Acacia citrinoviridis</i>			1	1	<i>Lepidium pedicellsum</i>			0.4	0.1
<i>Acacia dictyophleba</i>			1	0.1	<i>Nelica maderaspatensis</i>			0.4	0.1
<i>Acacia hilliana</i>			0.2	0.1	<i>Paraneurachne muelleri</i>			0.4	0.2
<i>Acacia maitlandii</i>			0.5	1	<i>Petalostylis labicheoides</i>			1	3
<i>Acacia monticola</i>			0.3	0.5	<i>Pluchea dentex</i>			0.4	0.2
<i>Acacia pruinocarpa</i>			0.3	0.1	<i>Ptilotus astrolasius</i>			0.3	0.2
<i>Afrohybanthus aurantiacus</i>			0.5	0.3	<i>Ptilotus calostachyus</i>			0.5	0.1
<i>Androcalva luteiflora</i>			0.4	0.3	<i>Rhynchosia minima</i>			0.1	0.1
<i>Aristida holathera</i> var. <i>holathera</i>			0.3	0.1	<i>Santalum lanceolatum</i>			1	0.1
<i>Aristida inaequiglumis</i>			0.5	0.3	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.5	0.1
<i>Bonamia pilbarensis</i>			0.1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.5	0.3
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.75	1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1	0.1
<i>Corymbia hamersleyana</i>			1	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			0.5	0.1
<i>Cymbopogon ambiguus</i>			0.5	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1	0.2
<i>Dampiera candicans</i>			0.3	0.1	<i>Senna notabilis</i>			0.3	0.1
<i>Digitaria brownii</i>			0.5	0.2	<i>Sida arenicola</i>			1	0.1
<i>Duperreya commixta</i>			0.1	0.1	<i>Sida echinocarpa</i>			0.3	0.1
<i>Eragrostis eriopoda</i>			0.5	3	<i>Sida fibulifera</i>			0.2	0.3
<i>Eriachne benthamii</i>			0.5	20	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			1	0.1
<i>Eriachne mucronata</i>			0.4	20.3	<i>Solanum centrale</i>			0.3	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			4	2	<i>Solanum cleistogamum</i>			0.3	0.1
<i>Eulalia aurea</i>			0.5	0.75	<i>Themeda triandra</i>			0.5	5
<i>Euploca pachyphylla</i>			0.3	0.1	<i>Triodia pungens</i>			0.5	5
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			0.1	0.1	<i>Triumfetta chaetocarpa</i>			0.5	1
<i>Goodenia stobbsiana</i>			0.2	0.1	<i>Hibiscus coatesii</i>			0.2	0.1
<i>Gossypium australe</i>			0.5	0.1	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			0.3	0.1
<i>Gossypium robinsonii</i>			1	2	<i>Hibiscus sturtii</i> var. <i>platychlamys</i>			0.3	0.1
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			1.5	5	<i>Indigofera monophylla</i>			0.5	0.5
<i>Hakea chordophylla</i>			0.3	0.1	<i>Indigofera rugosa</i>			0.3	0.1
<i>Hakea loreus</i> subsp. <i>loreus</i>			2	0.1	<i>Isotropis atropurpurea</i>			0.5	0.1
<i>Hibiscus coatesii</i>			0.2	0.1					



Site: Q129		Type: Quadrat		Size: 50 x 50		Date: 4/04/2022		Botanist: Susan Murrey	
Landform:	Hillcrest/ Upper Hillslope								
Slope, aspect:	Flat								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 803151 mE, 7420544 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia hilliana</i>			0.5	0.5	<i>Hibiscus sturtii</i>			0.3	0.1
<i>Afrohybanthus aurantiacus</i>			0.3	0.1	<i>Paraneurachne muelleri</i>			0.5	0.1
<i>Calytrix carinata</i>			1	0.5	<i>Petalostylis labicheoides</i>			1	0.5
<i>Dampiera candicans</i>			0.3	0.1	<i>Ptilotus calostachyus</i>			1	0.1
<i>Eragrostis eriopoda</i>			0.4	0.1	<i>Ptilotus obovatus</i>			0.4	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			0.8	0.1	<i>Scaevola browniana</i> subsp. <i>browniana</i>			0.25	0.1
<i>Eriachne lanata</i>			0.3	1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			1	0.2
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			1.5	1	<i>Senna ferraria</i>			0.3	0.1
<i>Gompholobium oreophilum</i>			0.8	0.5	<i>Senna ferraria</i>			2	0.1
<i>Goodenia stobbsiana</i>			0.4	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1	0.3
<i>Goodenia triodiophila</i>			0.4	0.1	<i>Seringia exastia</i>			0.3	0.5
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			1	1	<i>Triodia pungens</i>			0.4	1
<i>Hakea chordophylla</i>			3	5	<i>Triodia vanleeuwenii</i>			0.5	35
<i>Hibiscus coatesii</i>			0.3	0.1	<i>Waltheria virgata</i>			0.5	0.1




Site: Q130		Type: Quadrat		Size: 50 x 50		Date: 4/04/2022		Botanist: Chris Shaw	
Landform:	Hillslope								
Slope, aspect:	Steep West								
Soil:	Medium clay, Orange								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	Road/ Access Track								
Veg Unit:	S2								
Location (NW):	50 S 801852 mE, 7419325 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia aptaneura</i>			2	4	<i>Indigofera monophylla</i>			0.3	0.1
<i>Acacia bivenosa</i>			2	0.5	<i>Paraneurachne muelleri</i>			0.3	0.1
<i>Acacia pruinocarpa</i>			2	0.3	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Acacia rhodophloia</i>			2	0.5	<i>Ptilotus calostachyus</i>			0.4	0.1
<i>Acacia tenuissima</i>			2	2	<i>Ptilotus obovatus</i>			0.5	0.2
<i>Acacia trudgeniana</i>			1	0.3	<i>Ptilotus rotundifolius</i>			0.5	0.2
<i>Aristida holathera</i> var. <i>holathera</i>			0.3	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.2	0.3
<i>Aristida inaequiglumis</i>			0.4	0.2	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			1.5	1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.3	0.1	<i>Sida arenicola</i>			1	0.1
<i>Corymbia hamersleyana</i>			4	2	<i>Themeda triandra</i>			0.4	0.3
<i>Eriachne mucronata</i>			0.3	0.1	<i>Tribulus suberosus</i>			1	1.5
<i>Gomphrena kanisii</i>			0.1	0.1	<i>Trigastrotheca molluginea</i>			0.2	0.1
<i>Goodenia triodiophila</i>			0.3	0.1	<i>Triodia pungens</i>			0.5	3
<i>Hakea chordophylla</i>			3	1	<i>Triodia vanleeuwenii</i>			0.3	55
<i>Hakea loreus</i> subsp. <i>loreus</i>			1.5	0.5					



Site: Q131		Type: Quadrat		Size: 50 x 50		Date: 4/04/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Moderate South								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	60-200 mm - Cobbles								
Fire:	Recent (0 to 2 yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 802510 mE, 7417198 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia bivenosa</i>			0.5	0.1	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Acacia inaequilatera</i>			2	5	<i>Ptilotus calostachyus</i>			1	0.1
<i>Aristida contorta</i>			0.1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.3	0.1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.5	0.5	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1	0.1
<i>Enneapogon caerulescens</i>			0.1	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			0.3	0.1
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>			0.5	0.1	<i>Sida cardiophylla</i>			0.4	0.1
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			0.8	0.3	<i>Tribulus suberosus</i>			0.4	0.2
<i>Hibiscus coatesii</i>			0.4	0.1	<i>Triodia pungens</i>			0.3	20
<i>Indigofera monophylla</i>			0.3	0.1	<i>Triodia vanleeuwenii</i>			0.2	0.5
<i>Paraneurachne muelleri</i>			0.3	0.2					



Site: Q132		Type: Quadrat		Size: 50 x 50		Date: 5/04/2022 6/8/2022		Botanist: Chris Shaw, Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Low South								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	50-90% Abundant								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S2								
Location (NW):	50 S 804228 mE, 7416742 mS								
									
Species	Height	Cover	Species	Height	Cover				
<i>Acacia adoxa</i> var. <i>adoxo</i>	0.3	0.1	<i>Goodenia stobbsiana</i>	0.5	0.1				
<i>Acacia ancistrocarpa</i>	0.5	0.1	<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	2	4				
<i>Acacia bivenosa</i>	3	3	<i>Hibiscus coatesii</i>	1	0.1				
<i>Acacia hilliana</i>	0.4	0.1	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	0.3	0.1				
<i>Acacia monticola</i>	2	4	<i>Hibiscus sturtii</i> var. <i>platychlamys</i>	0.4	0.2				
<i>Acacia pruinocarpa</i>	0.5	0.2	<i>Indigofera monophylla</i>	0.4	0.2				
<i>Acacia rhodophloia</i>	2.5	0.1	<i>Paraneurachne muelleri</i>	0.4	0.5				
<i>Acacia trachycarpa</i>	0.4	0.1	<i>Petalostylis labicheoides</i>	1	0.3				
<i>Acacia trudgeniana</i>	0.5	0.1	<i>Ptilotus astrolasius</i>	0.5	0.2				
<i>Afrohybanthus aurantiacus</i>	0.5	0.3	<i>Ptilotus calostachyus</i>	0.75	0.4				
<i>Amphipogon sericeus</i>	0.4	0.2	<i>Ptilotus obovatus</i>	0.4	0.1				
<i>Aristida holathera</i> var. <i>holathera</i>	0.3	0.1	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	0.3	0.1				
<i>Aristida inaequiglumis</i>	0.4	0.2	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1	0.2				
<i>Bonamia pilbarensis</i>	0.1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.3	0.1				
<i>Codonocarpus cotinifolius</i>	3	0.5							
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.4	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1.5	0.3				
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	0.4	0.2	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1	0.2				
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	4	1	<i>Seringia exastia</i>	0.5	0.1				
<i>Corymbia hamersleyana</i>	4	1	<i>Sida arenicola</i>	2	0.2				
<i>Dampiera candidans</i>	0.3	0.1	<i>Solanum centrale</i>	0.3	0.1				
<i>Duperreya commixta</i>	0.3	0.1	<i>Solanum cleistogamum</i>	0.4	0.1				
<i>Eragrostis eriopoda</i>	0.3	0.1	<i>Solanum lasiophyllum</i>	1	0.1				
<i>Eriachne lanata</i>	0.4	0.2	<i>Streptoglossa macrocephala</i>	0.3	0.1				
<i>Eriachne mucronata</i>	0.3	0.2	<i>Themeda triandra</i>	0.4	0.2				
<i>Eucalyptus gamophylla</i>	4	2	<i>Tribulus suberosus</i>	0.1	0.1				
<i>Gompholobium oreophilum</i>	0.4	0.2	<i>Triodia pungens</i>	0.5	10				
<i>Gomphrena kanisii</i>	0.2	0.1	<i>Triodia vanleeuwenii</i>	0.3	50				
<i>Goodenia muelleriana</i>	0.4	0.1							
Additional Species Phase 2									
<i>Acacia maitlandii</i>	2	0.2	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1	0.2				
<i>Dicrastylis cordifolia</i>	0.3	0.1							

Site: Q133		Type: Quadrat		Size: 50 x 50		Date: 5/04/2022		Botanist: Susan Murrey	
Landform:	Hillcrest/ Upper Hillslope								
Slope, aspect:	Low South								
Soil:	Sandy clay loam, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	200-600 mm - Stones								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	S2								
Location (NW):	50 S 800222 mE, 7416653 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia hilliana</i>			0.8	0.5	<i>Hibiscus sturtii</i> var. <i>truncatus</i>			0.5	0.1
<i>Acacia trudgeniana</i>			2.5	3	<i>Indigofera monophylla</i>			0.5	0.2
<i>Afrohybanthus aurantiacus</i>			0.4	0.1	<i>Paraneurachne muelleri</i>			0.5	0.1
<i>Amphipogon sericeus</i>			0.5	1	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Bonamia pilbarensis</i>			0.1	0.1	<i>Ptilotus calostachyus</i>			0.6	0.1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>			0.4	0.2	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.6	0.1
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>			3	3	<i>Senna ferraria</i>			1	0.2
<i>Cymbopogon ambiguus</i>			1	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1.5	0.1
<i>Dampiera candidans</i>			0.3	0.1	<i>Solanum centrale</i>			0.3	0.1
<i>Eragrostis eriopoda</i>			0.3	0.5	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Eriachne mucronata</i>			0.3	0.1	<i>Streptoglossa macrocephala</i>			0.3	0.1
<i>Goodenia triodiophila</i>			0.3	0.1	<i>Triodia pungens</i>			0.5	0.2
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>			1	0.1	<i>Triodia vanleeuwenii</i>			0.3	10



Site: Q201		Type: Quadrat		Size: 16 x 150		Date: 3/08/2022		Botanist: Emily Crowther	
Landform:	Major Drainage Line								
Slope, aspect:	Flat Flat								
Soil:	Sand, Red								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Good								
Disturbances:	Cattle Grazing								
Veg Unit:	D1								
Location (NW):	50 S 794752 mE, 7419395 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.3	0.5	<i>Eucalyptus victrix</i>			8	1
* <i>Cenchrus setiger</i>			0.3	0.2	<i>Eulalia aurea</i>			0.4	0.2
* <i>Echinochloa colona</i>			0.05	0.1	<i>Fimbristylis microcarya</i>			0.05	0.1
* <i>Malvastrum americanum</i>			0.5	0.1	<i>Glycine canescens</i>			0.3	0.1
<i>Acacia aptaneura</i>			4	1.5	<i>Goodenia lamprosperma</i>			0.15	0.3
<i>Acacia citrinoviridis</i>			5	1	<i>Goodenia lamprosperma</i>			0.1	0.1
<i>Acacia coriacea</i> subsp. <i>pendens</i>			5	0.8	<i>Grevillea striata</i>			4	0.2
<i>Alternanthera denticulata</i>			0.1	0.1	<i>Ipomoea coptica</i>			0.1	0.1
<i>Calandrinia Ptychosperma</i>			0.1	0.1	<i>Ipomoea muelleri</i>			0.1	0.1
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.1	0.1	<i>Isotropis iophyta</i>			0.5	0.4
<i>Chrysopogon fallax</i>			1.1	0.1	<i>Marsilea exarata</i>			0.05	0.1
<i>Cucumis ?picrocarpus</i>			0.1	0.1	Missing Specimen			0.1	0.1
<i>Cyperus iria</i>			0.1	0.1	<i>Nellica maderaspatensis</i>			0.15	0.1
<i>Cyperus ixiocarpus</i>			0.5	0.1	<i>Nicotiana occidentalis</i>			0.15	0.1
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.15	0.1	<i>Peplidium</i> sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge & A. Kanis 8158)			0.01	0.1
<i>Eragrostis elongata</i>			0.5	0.7	<i>Pluchea dentex</i>			0.4	0.1
<i>Eragrostis tenellula</i>			0.05	0.1	<i>Santalum spicatum</i>			3	0.2
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i>			8	5	<i>Sesbania cannabina</i>			0.12	0.1





Site: Q202		Type: Quadrat		Size: 50 x 50		Date: 3/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	2-10% Few								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	P3								
Location (NW):	50 S 798243 mE, 7418425 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia aptaneura</i>			1.5	0.2	<i>Hibiscus burtonii</i>			0.2	0.1
<i>Acacia pachyacra</i>			1.5	1	<i>Hibiscus sturtii</i> var. <i>truncatus</i>			0.2	0.1
<i>Acacia sibirica</i>			2	0.2	<i>Maireana planifolia</i>			0.3	0.1
<i>Acacia trudgeniana</i>			2	0.2	<i>Paraneurachne muelleri</i>			0.5	0.2
<i>Aristida holathera</i> var. <i>holathera</i>			0.5	0.1	<i>Petalostylis labicheoides</i>			1.2	0.5
<i>Bonamia erecta</i>			0.4	0.2	<i>Santalum lanceolatum</i>			0.5	0.1
<i>Codonocarpus cotinifolius</i>			0.3	0.1	<i>Sida cardiophylla</i>			0.4	0.2
<i>Cymbopogon obtectus</i>			0.3	0.1	<i>Sida</i> sp. L (A.M. Ashby 4202)			0.6	0.1
<i>Dicrasyllis cordifolia</i>			0.3	0.1	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Gomphrena canescens</i> subsp. <i>canescens</i>			0.3	0.1	<i>Triodia ?basedowii</i>			0.5	30
<i>Goodenia vilmoriniae</i>			0.3	0.1	<i>Vincetoxicum lineare</i>			0.5	0.1
<i>Hakea loreus</i> subsp. <i>loreus</i>			2	0.2					



Site: Q203		Type: Quadrat		Size: 50 x 50		Date: 3/08/2022		Botanist: Emily Crowther	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Low None								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	<2% Very few								
Size:	20-60 mm - Coarse gravel								
Fire:	Old (6+ yr)								
Condition:	Good								
Disturbances:	Cattle Grazing								
Veg Unit:	P2								
Location (NW):	50 S 798437 mE, 7416910 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia ayersiana</i>			5	5	<i>Hibiscus burtonii</i>			0.2	0.3
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>			4	0.3	<i>Hibiscus sturtii</i> var. <i>truncatus</i>			0.2	0.1
<i>Acacia incurvaneura</i>			5	1.5	<i>Ipomoea</i> sp.			0.5	0.1
<i>Acacia pachyacra</i>			0.5	0.1	<i>Maireana villosa</i>			0.1	0.1
<i>Acacia rhodophloia</i>			1.2	0.2	<i>Monachather paradoxus</i>			0.2	0.3
<i>Acacia tetragonophylla</i>			1.5	0.2	<i>Psyrax latifolia</i>			0.5	0.1
<i>Aristida contorta</i>			0.15	0.1	<i>Ptilotus schwartzii</i>			-	-
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			0.15	0.1	<i>Senna ferraria</i>			1.2	0.3
<i>Eragrostis setifolia</i>			0.2	0.2	<i>Senna glaucifolia</i>			0.3	0.2
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>			0.6	0.3	<i>Sida platycalyx</i>			0.2	0.1
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>			1.1	0.5	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)			0.2	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1.2	0.1	<i>Solanum lasiophyllum</i>			0.2	0.1
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>			0.15	0.1					



Site: Q204		Type: Quadrat		Size: 50 x 50		Date: 4/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Red								
Rocks:	Calcrete								
Abundance:	20-50% Many								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Weed Invasion								
Veg Unit:	P4								
Location (NW):	50 S 793501 mE, 7417799 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.5	1	<i>Hibiscus burtonii</i>			0.3	0.1
<i>Acacia ancistrocarpa</i>			2	0.5	<i>Hibiscus sturtii</i> var. ? <i>campylochlamys</i>			0.1	0.1
<i>Acacia pruinocarpa</i>			2	0.2	<i>Paraneurachne muelleri</i>			0.5	1
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			1.5	10	<i>Petalostylis labicheoides</i>			1	0.1
<i>Acacia synchronicia</i>			1	0.1	<i>Ptilotus astrolasius</i>			0.3	0.2
<i>Aristida holathera</i> var. <i>holathera</i>			0.3	0.1	<i>Ptilotus calostachyus</i>			1	0.1
<i>Corymbia hamersleyana</i>			6	2	<i>Roepera eichleri</i>			0.2	0.1
<i>Duperreya sericea</i>			1	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			1	0.1
<i>Enneapogon robustissimus</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			0.3	0.1
<i>Eragrostis setifolia</i>			0.5	1	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Euphorbia tannensis</i> subsp. <i>Eremophila</i>			0.3	0.1	<i>Stylobasium spathulatum</i>			1	1
<i>Gomphrena canescens</i> subsp. <i>canescens</i>			0.3	0.1	<i>Triodia epactia</i>			0.5	15



Site: Q205		Type: Quadrat		Size: 50 x 50		Date: 4/08/2022		Botanist: Emily Crowther	
Landform:	Hillslope								
Slope, aspect:	Steep North/ West								
Soil:	Medium clay, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	200-600 mm - Stones								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	None Discernible								
Veg Unit:	S1								
Location (NW):	50 S 794723 mE, 7417789 mS								
Species			Height	Cover	Species			Height	Cover
<i>Abutilon lepidum</i>			0.3	0.2	<i>Grevillea wickhamii</i>			0.5	0.1
<i>Acacia adoxa</i> var. <i>adoxo</i>			0.3	0.2	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>			1.3	0.2
<i>Acacia hilliana</i>			0.3	0.5	<i>Hakea chordophylla</i>			1.6	0.1
<i>Acacia monticola</i>			0.4	0.1	<i>Hakea loreus</i> subsp. <i>loreus</i>			1	0.1
<i>Acacia pruinocarpa</i>			1	0.1	<i>Indigofera monophylla</i>			0.3	0.1
<i>Afrohybanthus aurantiacus</i>			0.6	0.1	<i>Paraneurachne muelleri</i>			0.3	0.1
<i>Calytrix carinata</i>			0.5	0.5	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>			0.6	0.1	<i>Ptilotus calostachyus</i>			0.5	0.2
<i>Cymbopogon obtectus</i>			0.8	0.1	<i>Ptilotus clementii</i>			0.2	0.1
<i>Dampiera candidans</i>			0.4	0.1	<i>Ptilotus rotundifolius</i>			0.6	0.2
<i>Dicrastylis cordifolia</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			1.5	0.4
<i>Eriachne lanata</i>			0.2	0.2	<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)			0.4	0.1
<i>Eriachne mucronata</i>			0.2	0.2	<i>Solanum centrale</i>			0.4	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			2	1.5	<i>Tephrosia densa</i>			0.2	0.1
<i>Gompholobium oreophilum</i>			7	0.3	<i>Triodia vanleeuwenii</i>			0.3	10
<i>Goodenia stobbsiana</i>			0.6	0.2	<i>Triodia wiseana</i>			0.5	45
<i>Goodenia triodiophila</i>			0.4	0.1					



Site: Q206		Type: Quadrat		Size: 50 x 50		Date: 5/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	10 -20% Common								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Good								
Disturbances:	Cattle Grazing								
Veg Unit:	P4								
Location (NW):	50 S 793760 mE, 7418231 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.5	5	<i>Ptilotus exaltatus</i>			0.3	0.1
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			1.8	15	<i>Ptilotus obovatus</i>			0.5	0.1
<i>Acacia synchronicia</i>			2	1	<i>Roepera eichleri</i>			0.1	0.1
<i>Arivela viscosa</i>			0.2	0.1	<i>Sclerolaena cornishiana</i>			0.2	0.2
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>			0.3	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.5	0.2
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.2	0.1	<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)			0.5	0.2
<i>Enneapogon robustissimus</i>			0.2	0.1	<i>Sida fibulifera</i>			0.1	0.1
<i>Eragrostis dielsii</i>			0.2	0.1	<i>Sporobolus australasicus</i>			0.1	0.1
<i>Eragrostis setifolia</i>			0.5	0.1	<i>Stylobasium spathulatum</i>			1.2	10.1
<i>Paraneurachne muelleri</i>			0.5	0.1	<i>Triodia epactia</i>			0.5	2
<i>Ptilotus astrolasius</i>			0.3	0.1					



Site: Q207		Type: Quadrat		Size: 50 x 50		Date: 5/08/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Brown								
Rocks:	N/A								
Abundance:	No rocks								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	-								
Location (NW):	50 S 793904 mE, 7418134 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Aerva javanica</i>			0.5	0.1	<i>Rhagodia eremaea</i>			0.5	0.1
* <i>Cenchrus ciliaris</i>			0.5	5	<i>Sclerolaena cornishiana</i>			0.3	0.1
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			2	5	<i>Sclerolaena cuneata</i>			0.3	3
<i>Aristida contorta</i>			0.3	0.1	<i>Sclerolaena densiflora</i>			0.2	0.2
<i>Eragrostis dielsii</i>			0.1	0.1	<i>Sclerolaena eriacantha</i>			0.2	0.2
<i>Eragrostis setifolia</i>			0.5	0.2	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.5	0.2
<i>Eremophila margarethae</i>			0.6	0.5	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.8	0.5
<i>Lepidium pedicellosum</i>			0.3	0.2	<i>Sida fibulifera</i>			0.5	0.1



Site: Q208		Type: Quadrat		Size: 25 x 100		Date: 6/08/2022		Botanist: Susan Murrey	
Landform:	Drainage Area/ Floodplain								
Slope, aspect:	Flat Flat								
Soil:	Sand, Orange								
Rocks:	N/A								
Abundance:	50-90% Abundant								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Weed Invasion								
Veg Unit:	D2a								
Location (NW):	50 S 802449 mE, 7418792 mS								
Species			Height	Cover	Species			Height	Cover
<i>*Cenchrus ciliaris</i>			0.6	3	<i>Gossypium robinsonii</i>			1.5	2
<i>Abutilon ?oxycarpum</i>			0.6	0.1	<i>Grevillea wickhamii</i>			1	0.1
<i>Abutilon cunninghamii</i>			0.3	0.2	<i>Hibiscus coatesii</i>			0.3	0.1
<i>Acacia bivenosa</i>			1.4	0.5	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			0.5	0.2
<i>Acacia citrinoviridis</i>			5	2	<i>Indigofera monophylla</i>			0.5	0.1
<i>Acacia elachantha</i>			1	0.2	<i>Indigofera rugosa</i>			0.3	0.1
<i>Acacia maitlandii</i>			0.5	0.1	<i>Melaleuca glomerata</i>			0.5	0.1
<i>Acacia monticola</i>			1	1	<i>Paraneurachne muelleri</i>			0.6	0.3
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			1.2	0.2	<i>Petalostylis labicheoides</i>			1	0.5
<i>Afrohybanthus aurantiacus</i>			1	0.1	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Amaranthus cuspidifolius</i>			0.1	0.1	<i>Rhynchosia minima</i>			0.1	0.1
<i>Androcalva luteiflora</i>			1	0.2	<i>Santalum lanceolatum</i>			1.3	1
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>			0.5	1	<i>Senna artemisioides</i> subsp. <i>helmsii</i>			0.5	0.1
<i>Cymbopogon ambiguus</i>			0.6	0.1	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			0.5	0.2
<i>Dicrastylis cordifolia</i>			0.3	0.1	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>			-	-
<i>Duperreya sericea</i>			0.5	0.1	<i>Sida</i> sp. L (A.M. Ashby 4202)			0.3	0.2
<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>			0.1	0.1	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)			0.5	0.1
<i>Eriachne benthamii</i>			0.6	0.1	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)			1	0.2
<i>Eucalyptus victrix</i>			8	5	<i>Tephrosia densa</i>			0.4	0.1
<i>Eulalia aurea</i>			0.5	0.2	<i>Themeda triandra</i>			0.8	3
<i>Glycine canescens</i>			0.5	0.1	<i>Triodia epactia</i>			0.5	4
<i>Goodenia muelleriana</i>			0.3	0.1					





Site: Q209		Type: Quadrat		Size: 25 x 100		Date: 7/08/2022		Botanist: Susan Murrey	
Landform:	Drainage Area/ Floodplain								
Slope, aspect:	Flat Flat								
Soil:	Sand, Orange								
Rocks:	N/A								
Abundance:	>90% Continuous								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	D1								
Location (NW):	50 S 793296 mE, 7418726 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.3	0.1	<i>Leptochloa digitata</i>			1.6	0.1
* <i>Cynodon dactylon</i>			0.4	0.6	<i>Lotus cruentus</i>			0.1	0.1
* <i>Vachellia farnesiana</i>			1	0.1	<i>Melaleuca glomerata</i>			1.2	1
<i>Cyperus</i> sp.			0.5	0.1	<i>Missing Specimen</i>			0.1	0.1
<i>Cyperus vaginatus</i>			0.5	0.5	<i>Missing Specimen</i>			0.4	0.1
<i>Dichanthium sericeum</i> subsp. <i>humilius</i>			0.3	0.2	<i>Nelica maderaspatensis</i>			0.1	0.1
<i>Eragrostis dielsii</i>			0.2	0.1	<i>Petalostylis labicheoides</i>			1.6	0.2
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i>			10	5	<i>Pterocaulon sphacelatum</i>			0.3	0.1
<i>Glycine canescens</i>			1	0.1	<i>Stemodia grossa</i>			0.4	0.1
<i>Ipomoea muelleri</i>			0.1	0.1					



Site: Q210		Type: Quadrat		Size: 50 x 50		Date: 7/08/2022		Botanist: Emily Crowther	
Landform:	Hillcrest/ Upper Hillslope								
Slope, aspect:	Low North								
Soil:	Clay loam, Red								
Rocks:	N/A								
Abundance:	>90% Continuous								
Size:	N/A								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	S1								
Location (NW):	50 S 793061 mE, 7418614 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia adoxa</i> var. <i>adoxo</i>			0.4	0.1	<i>Fimbristylis simulans</i>			0.05	0.1
<i>Acacia hilliana</i>			0.4	0.2	<i>Goodenia triodiophila</i>			0.5	0.1
<i>Acacia inaequilatera</i>			1.6	0.2	<i>Hakea chordophylla</i>			2.5	0.5
<i>Afrohybanthus aurantiacus</i>			0.5	0.1	<i>Paraneurachne muelleri</i>			0.4	0.1
<i>Aristida holathera</i> var. <i>holathera</i>			0.4	0.1	<i>Ptilotus astrolasius</i>			0.3	0.1
<i>Calytrix carinata</i>			0.5	0.3	<i>Ptilotus calostachyus</i>			0.5	0.2
<i>Corchorus ?lasiocarpus</i>			0.5	0.1	<i>Ptilotus rotundifolius</i>			0.6	0.1
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>			0.6	0.1	<i>Senna ferraria</i>			1.3	0.2
<i>Cymbopogon obtectus</i>			0.8	0.1	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			1.8	0.2
<i>Digitaria brownii</i>			0.4	0.1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			2	0.2
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			0.3	0.1	<i>Sida arenicola</i>			1	0.1
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>			1.2	0.3	<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)			0.4	0.1
<i>Eriachne lanata</i>			0.4	0.2	<i>Solanum centrale</i>			0.4	0.1
<i>Eriachne mucronata</i>			0.3	0.2	<i>Solanum lasiophyllum</i>			0.3	0.1
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			5	3.5	<i>Triodia vanleeuwenii</i>			0.5	40



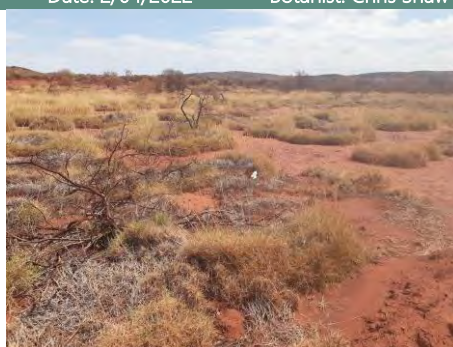
Site: R101		Type: Releve	Size: 50 x 50	Date: 30/03/2022	Botanist: Chris Shaw	
Landform:	Hillcrest/ Upper Hillslope					
Slope, aspect:	Low North					
Soil:	Medium clay, Brown					
Rocks:	Ironstone					
Abundance:	>90% Continuous					
Size:	20-60 mm - Coarse gravel					
Fire:	Recent (0 to 2 yr)					
Condition:	Excellent					
Disturbances:	None Discernible					
Veg Unit:	-					
Location (NW):	50 S 795957 mE, 7416889 mS					
Species	Height	Cover	Species	Height	Cover	
<i>Dampiera candidans</i>	0.4	0.3	<i>Ptilotus astrolasius</i>	0.3	0.5	
<i>Eriachne lanata</i>	0.5	1	<i>Ptilotus obovatus</i>	0.5	0.1	
<i>Eriachne mucronata</i>	0.4	4	<i>Tribulus suberosus</i>	0.5	0.3	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	3	3	<i>Triodia pungens</i>	0.3	3	

Site: R102		Type: Releve	Size: 50 x 50	Date: 30/03/2022	Botanist: Chris Shaw	
Landform:	Hillcrest/ Upper Hillslope					
Slope, aspect:	Low North					
Soil:	Medium clay, Brown					
Rocks:	Ironstone					
Abundance:	>90% Continuous					
Size:	60-200 mm - Cobbles					
Fire:	Old (6+ yr)					
Condition:	Excellent					
Disturbances:	None Discernible					
Veg Unit:	-					
Location (NW):	50 S 795461 mE, 7418947 mS					
Species	Height	Cover	Species	Height	Cover	
<i>Calytrix carinata</i>	0.4	1	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1.5	0.3	
<i>Eriachne lanata</i>	0.4	2	<i>Senna sericea</i>	1.3	1.5	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	3	10	<i>Triodia pungens</i>	0.5	1	
<i>Hakea chordophylla</i>	3	0.5	<i>Triodia vanleeuwenii</i>	0.3	45	
<i>Ptilotus rotundifolius</i>	1	1				

Site: R103		Type: Releve	Size: 50 x 50	Date: 31/03/2022	Botanist: Chris Shaw	
Landform:	Drainage Area/ Floodplain					
Slope, aspect:	Low West					
Soil:	Medium clay, Brown					
Rocks:	Ironstone					
Abundance:	20-50% Many					
Size:	6-20 mm - Medium gravel					
Fire:	Old (6+ yr)					
Condition:	Very Good					
Disturbances:	Weed Invasion					
Veg Unit:	-					
Location (NW):	50 S 794768 mE, 7418931 mS					
Species	Height	Cover	Species	Height	Cover	
<i>Acacia incurvaneura</i>	3	30	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1	0.3	
<i>Acacia pruinocarpa</i>	2	1	<i>Triodia epactia</i>	0.3	15	
<i>Hakea loreus</i> subsp. <i>loreus</i>	3	1	<i>Triodia vanleeuwenii</i>	0.3	5	



Site: R104		Type: Releve	Size: 50 x 50	Date: 2/04/2022	Botanist: Chris Shaw		
Landform:	Sandy/ Stony Plain						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay, Orange						
Rocks:	Ironstone						
Abundance:	<2% Very few						
Size:	<6 mm - Fine gravel						
Fire:	Old (6+ yr)						
Condition:	Very Good						
Disturbances:	Weed Invasion						
Veg Unit:	-						
Location (NW):	50 S 797957 mE, 7418215 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia aptaneura</i>		2	2	<i>Eragrostis eriopoda</i>		0.3	2
<i>Acacia pachyacra</i>		1.5	1	<i>Triodia basedowii</i>		0.3	50
<i>Acacia pruinocarpa</i>		2	2				



Site: R105		Type: Releve	Size: 50 x 50	Date: 3/04/2022	Botanist: Chris Shaw		
Landform:	Hillslope						
Slope, aspect:	Moderate West						
Soil:	Medium clay, Orange						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	20-60 mm - Coarse gravel						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	51 S 193194 mE, 7416902 mS						
Species		Height	Cover	Species		Height	Cover
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>		0.3	0.5	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>		0.5	0.5
<i>Eriachne mucronata</i>		0.3	5	<i>Triodia pungens</i>		0.3	5
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		4	15	<i>Triodia vanleeuwenii</i>		0.3	5



Site: R106		Type: Releve	Size: 50 x 50	Date: 6/04/2022	Botanist: Chris Shaw		
Landform:	Sandy/ Stony Plain						
Slope, aspect:	Low West						
Soil:	Sandy clay loam, Orange						
Rocks:	N/A						
Abundance:	No rocks						
Size:	N/A						
Fire:	Moderate (3 to 5 yr)						
Condition:	Very Good						
Disturbances:	Cattle Grazing						
Veg Unit:	-						
Location (NW):	50 S 795143 mE, 7418124 mS						
Species		Height	Cover	Species		Height	Cover
* <i>Cenchrus ciliaris</i>		0.5	1	<i>Eriochloa procera</i>		0.3	1
<i>Acacia paraneura</i>		3	10	<i>Frankenia magnifica</i>		0.3	5
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>		2	4	<i>Hakea preissii</i>		2	2
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>		1	5	<i>Sclerolaena eriacantha</i>		0.3	2



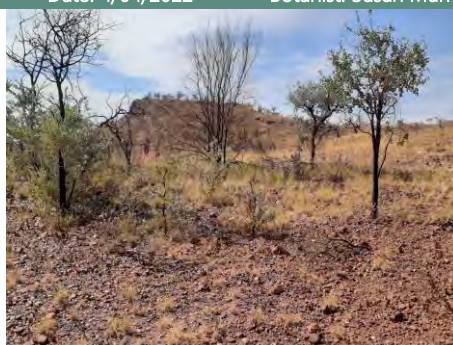
Site: R107		Type: Releve	Size: 50 x 50	Date: 6/04/2022	Botanist: Chris Shaw		
Landform:	Sandy/ Stony Plain						
Slope, aspect:	Low North						
Soil:	Sandy clay loam, Orange						
Rocks:	N/A						
Abundance:	No rocks						
Size:	N/A						
Fire:	Moderate (3 to 5 yr)						
Condition:	Very Good						
Disturbances:	Cattle Grazing						
Veg Unit:	-						
Location (NW):	50 S 795005 mE, 7417878 mS						
Species		Height	Cover	Species		Height	Cover
* <i>Cenchrus ciliaris</i>		0.5	0.4	<i>Frankenia magnifica</i>		0.3	10
<i>Acacia paraneura</i>		3	0.5	<i>Hakea preissii</i>		2	2
<i>Dissocarpus paradoxus</i>		0.3	2	<i>Sclerolaena eriacantha</i>		0.3	10



Site: R108		Type: Releve	Size: 50 x 50	Date: 30/03/2022	Botanist: Susan Murrey		
Landform:	Hillslope						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	20-60 mm - Coarse gravel						
Fire:	Old (6+ yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 795994 mE, 7418011 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia hamersleyensis</i>		2	10	<i>Eucalyptus kingsmillii</i>		3	1
<i>Calytrix carinata</i>		0.5	1	<i>Triodia pungens</i>		0.5	20



Site: R109		Type: Releve	Size: 50 x 50	Date: 4/04/2022	Botanist: Susan Murrey		
Landform:	Sandy/ Stony Plain						
Slope, aspect:	Low North						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	60-200 mm - Cobbles						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 802692 mE, 7418232 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia inaequilatera</i>		3	5	<i>Senna artemisioides</i> subsp. <i>helmsii</i>		0.5	0.5
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>		0.5	1	<i>Triodia pungens</i>		0.2	10



Site: R110		Type: Releve	Size: 50 x 50	Date: 3/04/2022	Botanist: Susan Murrey		
Landform:	Hillcrest/ Upper Hillslope						
Slope, aspect:	Low South						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	200-600 mm - Stones						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 805579 mE, 7418539 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia aptaneura</i>		3	5	<i>Triodia pungens</i>		0.4	2
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		4	5	<i>Triodia wiseana</i>		0.3	5



Site: R111		Type: Releve	Size: 50 x 50	Date: 3/04/2022	Botanist: Susan Murrey		
Landform:	Drainage Area/ Floodplain						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	200-600 mm - Stones						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 805542 mE, 7416829 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia inaequilatera</i>		3	1	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		2	1
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>		0.5	10	<i>Triodia pungens</i>		0.3	15



Site: R112		Type: Releve	Size: 50 x 50	Date: 3/04/2022	Botanist: Susan Murrey		
Landform:	Hillcrest/ Upper Hillslope						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	20-50% Many						
Size:	20-60 mm - Coarse gravel						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 804987 mE, 7415946 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia inaequilatera</i>		-	1	<i>Triodia pungens</i>		0.5	10
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>		0.8	0.1				



Site: R113		Type: Releve	Size: 50 x 50	Date: 3/04/2022	Botanist: Susan Murrey		
Landform:	Hillslope						
Slope, aspect:	Steep West						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	60-200 mm - Cobbles						
Fire:	Moderate (3 to 5 yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 805389 mE, 7415984 mS						
Species		Height	Cover	Species		Height	Cover
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		3	1	<i>Triodia wiseana</i>		0.2	10



Site: R114		Type: Releve	Size: 50 x 50	Date: 4/04/2022	Botanist: Susan Murrey		
Landform:	Drainage Area/ Floodplain						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	>90% Continuous						
Size:	200-600 mm - Stones						
Fire:	Moderate (3 to 5 yr)						
Condition:	Very Good						
Disturbances:	Weed Invasion						
Veg Unit:	-						
Location (NW):	50 S 802713 mE, 7419083 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia citrinoviridis</i>		3	5	<i>Eucalyptus victrix</i>		10	10
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>		1	5	<i>Gossypium robinsonii</i>		1	0.5
<i>Eriachne tenuiculmis</i>		0.5	20				



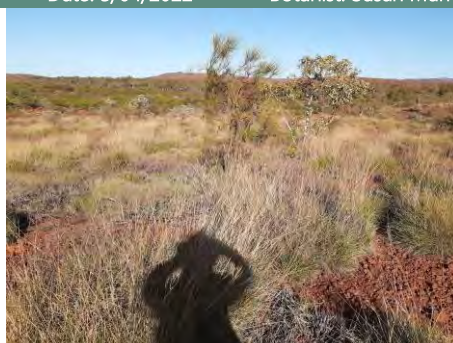
Site: R115		Type: Releve	Size: 50 x 50	Date: 4/04/2022	Botanist: Susan Murrey		
Landform:	Sandy/ Stony Plain						
Slope, aspect:	Flat Flat						
Soil:	Sandy clay loam, Red						
Rocks:	Ironstone						
Abundance:	20-50% Many						
Size:	20-60 mm - Coarse gravel						
Fire:	Old (6+ yr)						
Condition:	Excellent						
Disturbances:	None Discernible						
Veg Unit:	-						
Location (NW):	50 S 804467 mE, 7419193 mS						
Species		Height	Cover	Species		Height	Cover
<i>Acacia dictyophleba</i>		1.2	5	<i>Grevillea wickhamii</i> subsp. <i>aprica</i>		1.2	2
<i>Eucalyptus gamophylla</i>		4	15	<i>Petalostylis labicheoides</i>		1.6	1
<i>Gompholobium oreophilum</i>		1	0.5				



Site: R201		Type: Releve		Size: 50 x 50		Date: 4/04/2022		Botanist: Susan Murrey	
Landform:	Sandy/ Stony Plain								
Slope, aspect:	Flat Flat								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	<2% Very few								
Size:	<6 mm - Fine gravel								
Fire:	Old (6+ yr)								
Condition:	Very Good								
Disturbances:	Cattle Grazing								
Veg Unit:	-								
Location (NW):	50 S 793730 mE, 7418510 mS								
Species			Height	Cover	Species			Height	Cover
* <i>Cenchrus ciliaris</i>			0.2	0.1	<i>Sclerolaena eriacantha</i>			0.3	0.1
<i>Sclerolaena cuneata</i>			0.3	10					



Site: R202		Type: Releve		Size: 50 x 50		Date: 5/04/2022		Botanist: Susan Murrey	
Landform:	Hillslope								
Slope, aspect:	Moderate South								
Soil:	Sandy clay, Red								
Rocks:	Ironstone								
Abundance:	>90% Continuous								
Size:	60-200 mm - Cobbles								
Fire:	Old (6+ yr)								
Condition:	Excellent								
Disturbances:	None Discernible								
Veg Unit:	-								
Location (NW):	50 S 793780 mE, 7418495 mS								
Species			Height	Cover	Species			Height	Cover
<i>Acacia citrinoviridis</i>			3	0.5	<i>Halgania solanacea</i>			0.5	0.1
<i>Acacia inaequilatera</i>			2	1	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>			2	0.2
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			2.5	1	<i>Triodia epactia</i>			0.5	20
<i>Hakea chordophylla</i>			2	1	<i>Triodia vanleeuwenii</i>			0.4	10



Site: R203		Type: Releve	Size: 50 x 50	Date: 7/08/202	Botanist: Susan Murrey	
Landform:	Major Drainage Line					
Slope, aspect:	Flat Flat					
Soil:	Sandy clay, Orange					
Rocks:	N/A					
Abundance:	No rocks					
Size:	N/A					
Fire:	Old (6+ yr)					
Condition:	Poor					
Disturbances:	Cattle Grazing					
Veg Unit:	-					
Location (NW):	50 S 793762 mE, 7416900 mS					
Species			Height	Cover	Species	
* <i>Cenchrus ciliaris</i>			0.5	60	<i>Leptochloa digitata</i>	
* <i>Malvastrum americanum</i>			0.5	2	<i>Typha domingensis</i>	
<i>Eucalyptus victrix</i>			8	5		



Site: R204		Type: Releve	Size: 50 x 50	Date: 6/08/2022	Botanist: Emily Crowther	
Landform:	Hillcrest/ Upper Hillslope					
Slope, aspect:	Low North					
Soil:	Sandy clay, Red					
Rocks:	N/A					
Abundance:	>90% Continuous					
Size:	N/A					
Fire:	Old (6+ yr)					
Condition:	Very Good					
Disturbances:	None Discernible					
Veg Unit:	-					
Location (NW):	50 S 800686 mE, 7420270 mS					
Species			Height	Cover	Species	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			2.5	0.5	<i>Hakea chordophylla</i>	
<i>Gompholobium oreophilum</i>			0.2	0.2	<i>Ptilotus calostachyus</i>	
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>			0.3	0.1	<i>Triodia vanleeuwenii</i>	



Site: R205		Type: Releve	Size: 50 x 50	Date: 6/08/2022	Botanist: Emily Crowther	
Landform:	Hillcrest/ Upper Hillslope					
Slope, aspect:	Low North					
Soil:	Clay loam, Red					
Rocks:	N/A					
Abundance:	>90% Continuous					
Size:	N/A					
Fire:	Old (6+ yr)					
Condition:	Very Good					
Disturbances:	None Discernible					
Veg Unit:	-					
Location (NW):	50 S 801488 mE, 7419930 mS					
Species			Height	Cover	Species	
<i>Calytrix carinata</i>			0.3	0.2	<i>Ptilotus calostachyus</i>	
<i>Eriachne lanata</i>			0.3	0.1	<i>Seringia exastia</i>	
<i>Goodenia stobbsiana</i>			0.3	0.1	<i>Triodia vanleeuwenii</i>	
<i>Hakea chordophylla</i>			2	0.2		



## Appendix C: Likelihood of Occurrence Assessment – Flora



Likelihood	Status	Taxon	Longevity	Flowering Period	Description	Habitat	Closest Record (km)
Recorded	P2	<i>Isotropis parviflora</i>	Perennial	Mar	Shrub, 0.1 m high. Fl. white/pink, Mar.	Low rocky hill. Red-brown loam soils and ironstone gravel.	0
	P3	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>	Perennial	Unknown	Compactly tufted perennial, grass-like or herb, 0.3-0.8 m high, lemma groove muricate.	Flat terrain. Red clay loam, low in landscape. Hardpan plains.	0
		<i>Gymnanthera cunninghamii</i>	Perennial	Unknown	Erect shrub, 1-2 m high. Fl. cream-yellow-green	Sandy soils. Drainage lines.	0
		<i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)	Perennial	Unknown	Erect shrub to 1.5 m.	Flat plain. Floodplain. Hillslope. Red sandy loam with surface cobbles.	0
	Triodia sp. Mt Ella (M.E. Trudgen 12739)	Perennial	Unknown	Perennial, grass-like or herb, 0.4 m high.	Gullies. Hill slopes. Drainage lines.	0	
P4	<i>Bulbostylis burbridgeae</i>	Annual	Unknown	Tufted, erect to spreading annual, grass-like or herb (sedge), 0.03-0.25 m high, spikelets in a simple umbel or rarely solitary; stamens 3; involucre bracts long, hairy. Fl. Brown, Mar or Jun to Aug.	Rocky outcrops and boulders.	0	
High	P1	<i>Acacia corusca</i>	Perennial	Unknown	Rounded to broadly rounded, robust, multi-stemmed shrub or small tree 1.5-4.0 (-5.0) m high, 1.5-5 (-6.0) m wide	<i>Acacia corusca</i> grows in red-brown sandy-loam soils on hill crests, ridges, slopes and minor drainage lines upon low, subdued and undulating stony hills. It rarely grows on hill summits and the largest populations appear to prefer exposed hill ridges, outcrops and rocky hill slopes composed of Boolgeeda Iron Formation overlying Woongarra Rhyolite	8
		<i>Eremophila capricornica</i>	Perennial	Unknown	A small shrub 50–75 cm high, 50–75 cm wide. Branches terete, with woolly dendritic hairs; Leaves alternate, clustered towards the ends of branches, sessile, oblanceolate, grey, 8–12 mm long, 3–4 mm wide, acute with a prominent ridge, upper and lower surfaces with dendritic hairs, the margins entire. Flowers 1 per axil; pedicel 2–3 mm long, straight, rounded in cross section, with woolly dendritic indumentum	Found from east of Newman across to Jigalong, growing in sandy clay loams in open mulga shrubland with an understory of <i>Triodia</i> spp. and other grasses	9
	<i>Hibiscus campanulatus</i>	Perennial	Unknown	Shrub or tree. Stems hairy.	Gully running through low hills. Minor drainage line through ironstone hills with brown sandy loam soil.	9	



Likelihood	Status	Taxon	Longevity	Flowering Period	Description	Habitat	Closest Record (km)
	P2	<i>Aristida lazaridis</i>	Perennial	Apr.	Tufted perennial, grass-like or herb, 0.4-1.5 m high. Fl. green/purple, Apr.	Clay plains of an ephemeral lake. Floodplain/drainage zone. Sand or loam.	9
		<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	Annual	Unknown	Herb to 2 cm.	Flat, red brown loam. Cracking clay.	9
		<i>Goodenia hartiana</i>	Perennial	Unknown	Erect to spreading, multistemmed perennial, herb or shrub (sub-shrub).	Sand. Sand dune swales, sandhills.	4
		<i>Ipomoea racemigera</i>	Annual	Unknown	Creeping annual, herb or climber. Fl. white.	Fringing vegetation of river.	6
	P3	<i>Acacia subtiliformis</i>	Perennial	Jun	Spindly, slender, erect shrub, to 3.5 m high, phyllodes green, new growth slightly viscid, resinous, aromatic; inflorescence in heads to 6 mm diameter; peduncles red. Fl. yellow, Jun.	Rocky calcrete plateau.	9
		<i>Crotalaria smithiana</i>	Annual	Unknown	Annual, herb, to 0.4 m high. Fl. yellow,	Regeneration site on floodplain.	9
		<i>Eremophila magnifica</i> subsp. <i>velutina</i>	Perennial	Aug to Sep.	Shrub, 0.5-1.5 m high. Fl. blue-purple, Aug to Sep.	Skeletal soils over ironstone. Summits.	4
		<i>Eremophila naaykensis</i>	Perennial	Unknown	Shrub to 2m tall. Rounded crowded canopy. Flowers white-cream-yellow-pink-purple.	Hill crest. Creek embankments. Gullies.	
		<i>Eremophila rigida</i>	Perennial	Sep.	Bushy shrub, 0.3-4 m high. Fl. cream, Sep.	Red sand alluvium. Hardpan plains, stony clay depressions.	9
		<i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727)	Annual	Unknown	Open, erect annual or biennial, herb, to 0.2 m high. Fl. yellow.	Red-brown clay soil. Calcrete pebbles. Low undulating plain, swampy plains.	4
		<i>Indigofera gilesii</i>	Perennial	May or Aug.	Shrub, to 1.5 m high. Fl. purple-pink, May or Aug.	Pebbly loam. Amongst boulders & outcrops, hills.	9
	P4	<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	Perennial	Aug to Nov.	Shrub, 0.5-1.5 m high. Fl. blue, Aug to Nov.	Skeletal soils over ironstone. Rocky screes.	9
		<i>Eremophila youngii</i> subsp. <i>lepidota</i>	Perennial	Unknown	<i>Eremophila youngii</i> is an erect, highly branched, shrub which grows to a height of between 1 and 4 m.	Stony red sandy loam. Flats plains. Floodplains, sometimes semi-saline. Clay flats.	6
		<i>Goodenia berringbinensis</i>	Annual	Unknown	Ascending annual, herb, 0.1-0.3 m high. Fl. yellow,	Red sandy loam. Along watercourses.	6
		<i>Lepidium catapycnon</i>	Perennial	Oct.	Open, woody perennial, herb or shrub, 0.2-0.3 m high, stems zigzag. Fl. white, Oct.	Skeletal soils. Hillsides.	9
Novel		<i>Hibiscus</i> aff. <i>campanulatus</i>	Perennial	Unknown	Tall shrub to 3.0m bright purple flower,	Gullies and hillsides	9
Medium	P1	<i>Vittadinia</i> sp. Coondewanna Flats (S. van Leeuwen 4684)	Annual	Unknown	Tall daisy to 1 m , open canopy, in late flower and dehiscent fruit, cream/white flowers.	Flat terrain, low in landscape. Red clay loam with some stone. Gilgai. Drainage lines.	9

Likelihood	Status	Taxon	Longevity	Flowering Period	Description	Habitat	Closest Record (km)
	P3	<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	Annual	Unknown	Tussock grass.	Flat terrain, low in landscape. Red loamy soil with some alluvial sand material and stones.	7
Low	P1	<i>Eremophila pilosa</i>	Perennial	Unknown	Shrub, ca 0.8 m high. Fl. Purple	Grows in red-brown clay loam on sandy plains between Jigalong and Roy Hill	43
	P2	<i>Eremophila rhegos</i>	Perennial	Unknown	Erect shrub, ca 1 m high. Fl. blue-purple-white	Skeletal stony loam over granite.	46
		<i>Eremophila</i> sp. West Angelas (S. van Leeuwen 4068)	Perennial	Unknown	Spindly shrub to 3 m high.	Summits of hills. Slopes.	55
		<i>Helichrysum oligochaetum</i>	Annual	Unknown	Erect annual, herb, to ca 0.25 m high. Fl. yellow,	Red clay. Alluvial plains.	43
		<i>Hibiscus</i> sp. Gurinbidy Range (M.E. Trudgen MET 15708)	Perennial	Unknown	Spindly upright shrub to 3 m tall, purple flower.	Rocky (boulder) slope below low cliffs. Gully. Gravelly, pebbly red-brown loam.	44
	P3	<i>Amaranthus centralis</i>	Annual	Unknown	Erect, to 60 cm high. Stems angular, sometimes reddish, sparsely hairy with glandular or multicellular hairs or becoming glabrous.	Red sand in ephemeral watercourses. Sandy to clayey loam. River banks. Edges of permanent pools in eucalypt lined channels.	41
		<i>Eragrostis crateriformis</i>	Annual	Unknown	Annual, grass-like or herb, 0.17-0.42 m high.	Clayey loam or clay. Creek banks. Depressions.	43
		<i>Maireana prosthocochaeta</i>	Perennial	Unknown	Open, densely-leaved shrub, 0.3-0.6 m high.	Laterite. Hills, salty places.	57
		<i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)	Perennial	Unknown	Spreading shrub, to 0.5 m high. Fl. Yellow.	Skeletal red soils pockets. Steep slope.	44
		<i>Streptoglossa</i> sp. Cracking clays (S. van Leeuwen et al. PBS 7353)	Annual	Unknown	Annual herb, leaves slightly greyish-green. flowers dark pink. Bracts green, dark reddish green near tops.	Moderately-drained, red clay loam extensive sub-saline flat. Annual herbland (mostly) part of an area of a cracking clay mosaic part of which includes areas of <i>Astrebala pectinata</i> grassland and a flowline. Soil: Red-brown (dark) cracking clay with some gravel, pebbles and a few cobbles.	24
		<i>Swainsona thompsoniana</i>	Annual	Unknown	Erect, herb. Stems terete, not spiny, glabrous.	Flat crabhole plain.	16
		<i>Xerochrysum boreale</i>	Perennial	Unknown	Erect perennial, branched herb to 50 cm high. Stems glandular-hirtellus.	Stony surface. Red brown clay loam.	56
	P4	<i>Acacia bromilowiana</i>	Perennial	Jul to Aug.	Tree or shrub, to 12 m high, bark dark grey, fibrous; phyllodes more or less glaucous & slightly pruinose; inflorescence in spikes	High in landscape. Edge of cliff. Rocky ironstone scree. Skeletal soil.	55

## Appendix D: Species List



Family	Genus	Taxa
Acanthaceae	Dicladantha	<i>Dicladantha forrestii</i>
Aizoaceae	Trianthema	<i>Trianthema glossostigmum</i>
		<i>Trianthema triquetrum</i>
Amaranthaceae	Aerva	* <i>Aerva javanica</i>
	Alternanthera	<i>Alternanthera denticulata</i>
		<i>Alternanthera nana</i>
	Amaranthus	<i>Amaranthus cuspidifolius</i>
	Gomphrena	<i>Gomphrena canescens</i> subsp. <i>canescens</i>
		<i>Gomphrena kanisii</i>
	Ptilotus	<i>Ptilotus astrolasius</i>
		<i>Ptilotus calostachyus</i>
		<i>Ptilotus clementii</i>
		<i>Ptilotus exaltatus</i>
		<i>Ptilotus gaudichaudii</i>
		<i>Ptilotus helipteroides</i>
		<i>Ptilotus obovatus</i>
		<i>Ptilotus polystachyus</i>
		<i>Ptilotus roei</i>
		<i>Ptilotus rotundifolius</i>
		<i>Ptilotus schwartzii</i>
Apocynaceae	Cynanchum	<i>Cynanchum viminalis</i> subsp. <i>australe</i>
	Gymnanthera	<i>Gymnanthera cunninghamii</i>
	Vincetoxicum	<i>Vincetoxicum lineare</i>
Araliaceae	Astrotricha	<i>Astrotricha hamptonii</i>
	Trachymene	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>
Asteraceae	Bidens	* <i>Bidens bipinnata</i>
	Calocephalus	<i>Calocephalus knappii</i>
	Calotis	<i>Calotis hispidula</i>
		<i>Calotis multicaulis</i>
	Pluchea	<i>Pluchea dentex</i>
	Pterocaulon	<i>Pterocaulon sphacelatum</i>
	Roebuckiella	<i>Roebuckiella similis</i>
	Streptoglossa	<i>Streptoglossa macrocephala</i>
Boraginaceae	Euploca	<i>Euploca chrysocarpa</i>
		<i>Euploca pachyphylla</i>
	Halgania	<i>Halgania solanacea</i>
		<i>Halgania solanacea</i> var. <i>Mt Doreen</i>
	Trichodesma	<i>Trichodesma zeylanicum</i>
Brassicaceae	Lepidium	<i>Lepidium muelleri-ferdinandii</i>
		<i>Lepidium pedicellosum</i>
	Stenopetalum	<i>Stenopetalum anfractum</i>

Family	Genus	Taxa	
Campanulaceae	Wahlenbergia	<i>Wahlenbergia tumidifruta</i>	
Chenopodiaceae	Dissocarpus	<i>Dissocarpus paradoxus</i>	
	Dysphania	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	
	Enchylaena	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	
	Maireana	<i>Maireana georgei</i>	
		<i>Maireana planifolia</i>	
		<i>Maireana thesioides</i>	
		<i>Maireana villosa</i>	
	Rhagodia	<i>Rhagodia eremaea</i>	
		<i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)	
	Salsola	<i>Salsola australis</i>	
	Sclerolaena	<i>Sclerolaena cuneata</i>	
		<i>Sclerolaena densiflora</i>	
		<i>Sclerolaena ericantha</i>	
	Sclerolaena	<i>Sclerolaena cornishiana</i>	
Cleomaceae	Arivela	<i>Arivela viscosa</i>	
Convolvulaceae	Bonamia	<i>Bonamia erecta</i>	
		<i>Bonamia media</i>	
		<i>Bonamia pilbarensis</i>	
	Duperreya	<i>Duperreya commixta</i>	
		<i>Duperreya sericea</i>	
	Evolvulus	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	
		<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	
	Ipomoea	<i>Ipomoea coptica</i>	
		<i>Ipomoea diamantinensis</i>	
		<i>Ipomoea muelleri</i>	
		<i>Ipomoea</i> sp.	
Cucurbitaceae	Cucumis	<i>Cucumis picrocarpus</i>	
		<i>Cucumis variabilis</i>	
Cyperaceae	Bulbostylis	<i>Bulbostylis barbata</i>	
	Cyperus	<i>Cyperus cunninghamii</i> subsp. <i>cunninghamii</i>	
		<i>Cyperus iria</i>	
		<i>Cyperus ixiocarpus</i>	
		<i>Cyperus vaginatus</i>	
	Fimbristylis	<i>Fimbristylis depauperata</i>	
		<i>Fimbristylis microcarya</i>	
		<i>Fimbristylis simulans</i>	
		Schoenoplectus	<i>Schoenoplectus subulatus</i>
	Euphorbiaceae	Euphorbia	<i>Euphorbia biconvexa</i>
<i>Euphorbia boophthona</i>			
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>			

Family	Genus	Taxa
Fabaceae	Acacia	<i>Acacia adoxa</i> var. <i>adoxo</i>
		<i>Acacia adsurgens</i>
		<i>Acacia ancistrocarpa</i>
		<i>Acacia aneura</i>
		<i>Acacia aptaneura</i>
		<i>Acacia ayersiana</i>
		<i>Acacia bivenosa</i>
		<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>
		<i>Acacia catenulata</i> subsp. <i>occidentalis</i>
		<i>Acacia citrinoviridis</i>
		<i>Acacia coriacea</i> subsp. <i>pendens</i>
		<i>Acacia dictyophleba</i>
		<i>Acacia elachantha</i>
		<i>Acacia hamersleyensis</i>
		<i>Acacia hilliana</i>
		<i>Acacia inaequilatera</i>
		<i>Acacia incurvaneura</i>
		<i>Acacia maitlandii</i>
		<i>Acacia marramamba</i>
		<i>Acacia monticola</i>
		<i>Acacia orthocarpa</i>
		<i>Acacia pachyacra</i>
		<i>Acacia paraneura</i>
		<i>Acacia pruinocarpa</i>
		<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
		<i>Acacia rhodophloia</i>
		<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>
		<i>Acacia sibirica</i>
		<i>Acacia synchronicia</i>
		<i>Acacia tenuissima</i>
		<i>Acacia tetragonophylla</i>
		<i>Acacia trachycarpa</i>
		<i>Acacia trudgeniana</i>
		<i>Acacia victoriae</i>
	Aeschynomene	<i>Aeschynomene indica</i>
	Glycine	<i>Glycine canescens</i>
	Gompholobium	<i>Gompholobium oreophilum</i>
	Indigofera	<i>Indigofera monophylla</i>
		<i>Indigofera rugosa</i>
	Isotropis	<i>Isotropis atropurpurea</i>
		<i>Isotropis iophyta</i>

Family	Genus	Taxa
	Lotus	<i>Lotus cruentus</i>
	Mirbelia	<i>Mirbelia viminalis</i>
	Petalostylis	<i>Petalostylis labicheoides</i>
	Rhynchosia	<i>Rhynchosia minima</i>
	Senna	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
		<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
		<i>Senna ferraria</i>
		<i>Senna glaucifolia</i>
		<i>Senna glutinosa</i> subsp. <i>glutinosa</i>
		<i>Senna glutinosa</i> subsp. <i>pruinosa</i>
		<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>
		<i>Senna notabilis</i>
		<i>Senna sericea</i>
		<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)
		<i>Senna stricta</i>
		<i>Senna venusta</i>
	Sesbania	<i>Sesbania cannabina</i>
	Tephrosia	<i>Tephrosia densa</i>
		<i>Tephrosia rosea</i> var. Fortescue creeks (M.I.H. Brooker 2186)
	Vachellia	* <i>Vachellia farnesiana</i>
Frankeniaceae	Frankenia	<i>Frankenia magnifica</i>
Goodeniaceae	Dampiera	<i>Dampiera candicans</i>
	Goodenia	<i>Goodenia lamprosperma</i>
		<i>Goodenia microptera</i>
		<i>Goodenia muelleriana</i>
		<i>Goodenia prostrata</i>
		<i>Goodenia scaevolina</i>
		<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)
		<i>Goodenia stobbsiana</i>
		<i>Goodenia tenuiloba</i>
		<i>Goodenia triodiophila</i>
		<i>Goodenia vilmoriniae</i>
	Scaevola	<i>Scaevola acacioides</i>
		<i>Scaevola browniana</i> subsp. <i>browniana</i>
		<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>
Gyrostemonaceae	Codonocarpus	<i>Codonocarpus cotinifolius</i>
Haloragaceae	Haloragis	<i>Haloragis gossei</i>
Lamiaceae	Clerodendrum	<i>Clerodendrum tomentosum</i>
		<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>
	Dicrasyllis	<i>Dicrasyllis cordifolia</i>
Lauraceae	Cassytha	<i>Cassytha capillaris</i>

Family	Genus	Taxa
Loranthaceae	Amyema	<i>Amyema fitzgeraldii</i>
	Lysiana	<i>Lysiana casuarinae</i>
Malvaceae	Abutilon	<i>Abutilon oxycarpum</i>
		<i>Abutilon amplum</i>
		<i>Abutilon cunninghamii</i>
		<i>Abutilon lepidum</i>
		<i>Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)</i>
	Androcalva	<i>Androcalva luteiflora</i>
	Corchorus	<i>Corchorus tectus</i>
		<i>Corchorus incanus</i> subsp. <i>lithophilus</i>
		<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>
		<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>
		<i>Corchorus sidoides</i> subsp. <i>sidoides</i>
		<i>Corchorus tridens</i>
	Gossypium	<i>Gossypium australe</i>
		<i>Gossypium robinsonii</i>
	Hibiscus	<i>Hibiscus burtonii</i>
		<i>Hibiscus coatesii</i>
		<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>
		<i>Hibiscus sturtii</i> var. <i>platychlamys</i>
		<i>Hibiscus sturtii</i> var. <i>truncatus</i>
	Hibiscus	<i>Hibiscus aff. campanulatus</i>
	Malvastrum	* <i>Malvastrum americanum</i>
	Seringia	<i>Seringia exastia</i>
	Sida	<i>Sida arenicola</i>
		<i>Sida brownii</i>
		<i>Sida cardiophylla</i>
		<i>Sida echinocarpa</i>
		<i>Sida ectogama</i>
		<i>Sida fibulifera</i>
		<i>Sida platycalyx</i>
		<i>Sida rohlenae</i> subsp. <i>rohlenae</i>
		<i>Sida sp. Excedentifolia (J.L. Egan 1925)</i>
		<i>Sida sp. Golden calyces glabrous (H.N. Foote 32)</i>
		<i>Sida sp. L (A.M. Ashby 4202)</i>
		<i>Sida sp. Pilbara (A.A. Mitchell PRP 1543)</i>
		<i>Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)</i>
	Triumfetta	<i>Triumfetta chaetocarpa</i>
	Waltheria	<i>Waltheria indica</i>
		<i>Waltheria virgata</i>
Marsileaceae	Marsilea	<i>Marsilea exarata</i>



Family	Genus	Taxa
Molluginaceae	Trigastrotheca	<i>Trigastrotheca molluginea</i>
Montiaceae	Calandrinia	<i>Calandrinia ptychosperma</i>
Moraceae	Ficus	<i>Ficus platypoda</i>
Myrtaceae	Calytrix	<i>Calytrix carinata</i>
	Corymbia	<i>Corymbia candida</i>
		<i>Corymbia deserticola</i> subsp. <i>deserticola</i>
		<i>Corymbia hamersleyana</i>
	Eucalyptus	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i>
		<i>Eucalyptus gamophylla</i>
		<i>Eucalyptus kingsmillii</i>
		<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
		<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>
		<i>Eucalyptus victrix</i>
		<i>Eucalyptus xerothermica</i>
	Melaleuca	<i>Melaleuca glomerata</i>
Nyctaginaceae	Boerhavia	<i>Boerhavia coccinea</i>
Oleaceae	Jasminum	<i>Jasminum didymum</i> subsp. <i>lineare</i>
Phrymaceae	Peplidium	<i>Peplidium</i> sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge & A. Kanis 8158)
Phyllanthaceae	Nellica	<i>Nellica maderaspatensis</i>
Plantaginaceae	Stemodia	<i>Stemodia grossa</i>
		<i>Stemodia viscosa</i>
Poaceae	Amphipogon	<i>Amphipogon sericeus</i>
	Aristida	<i>Aristida contorta</i>
		<i>Aristida holathera</i> var. <i>holathera</i>
		<i>Aristida inaequiglumis</i>
		<i>Aristida latifolia</i>
		<i>Aristida pruinosa</i>
	Cenchrus	* <i>Cenchrus ciliaris</i>
		* <i>Cenchrus setiger</i>
	Chrysopogon	<i>Chrysopogon fallax</i>
	Cymbopogon	<i>Cymbopogon ambiguus</i>
		<i>Cymbopogon obtectus</i>
	Cynodon	* <i>Cynodon dactylon</i>
	Dactyloctenium	<i>Dactyloctenium radulans</i>
	Dichanthium	<i>Dichanthium sericeum</i> subsp. <i>humilius</i>
	Digitaria	<i>Digitaria brownii</i>
	Echinochloa	* <i>Echinochloa colona</i>
	Enneapogon	<i>Enneapogon caerulescens</i>
		<i>Enneapogon polyphyllus</i>
		<i>Enneapogon robustissimus</i>
	Enteropogon	<i>Enteropogon ramosus</i>

Family	Genus	Taxa
	Eragrostis	<i>Eragrostis desertorum</i>
		<i>Eragrostis dielsii</i>
		<i>Eragrostis elongata</i>
		<i>Eragrostis eriopoda</i>
		<i>Eragrostis setifolia</i>
		<i>Eragrostis speciosa</i>
		<i>Eragrostis tenellula</i>
	Eriachne	<i>Eriachne benthamii</i>
		<i>Eriachne helmsii</i>
		<i>Eriachne lanata</i>
		<i>Eriachne mucronata</i>
		<i>Eriachne pulchella</i> subsp. <i>pulchella</i>
		<i>Eriachne tenuiculmis</i>
	Eriochloa	<i>Eriochloa procera</i>
	Eulalia	<i>Eulalia aurea</i>
	Leptochloa	<i>Leptochloa digitata</i>
	Monachather	<i>Monachather paradoxus</i>
	Paraneurachne	<i>Paraneurachne muelleri</i>
	Paspalidium	<i>Paspalidium rarum</i>
	Setaria	* <i>Setaria verticillata</i>
	Sorghum	<i>Sorghum plumosum</i>
	Sporobolus	<i>Sporobolus australasicus</i>
	Sporobolus	<i>Sporobolus actinocladius</i>
	Themeda	<i>Themeda triandra</i>
	Triodia	<i>Triodia angusta</i>
		<i>Triodia basedowii</i>
		<i>Triodia epactia</i>
		<i>Triodia pungens</i>
		<i>Triodia schinzii</i>
		<i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739)
		<i>Triodia vanleeuwenii</i>
		<i>Triodia wiseana</i>
Proteaceae	Grevillea	<i>Grevillea berryana</i>
		<i>Grevillea striata</i>
		<i>Grevillea wickhamii</i>
		<i>Grevillea wickhamii</i> subsp. <i>aprica</i>
		<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
	Hakea	<i>Hakea chordophylla</i>
		<i>Hakea loreus</i> subsp. <i>loreus</i>
		<i>Hakea preissii</i>
Pteridaceae	Cheilanthes	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>

Family	Genus	Taxa
Rubiaceae	Psydrax	<i>Psydrax latifolia</i>
		<i>Psydrax suaveolens</i>
	Synaptantha	<i>Synaptantha tillaeacea</i>
Santalaceae	Anthobolus	<i>Anthobolus leptomerioides</i>
	Santalum	<i>Santalum lanceolatum</i>
		<i>Santalum spicatum</i>
Sapindaceae	Dodonaea	<i>Dodonaea coriacea</i>
		<i>Dodonaea pachyneura</i>
Scrophulariaceae	Eremophila	<i>Eremophila cuneifolia</i>
		<i>Eremophila exilifolia</i>
		<i>Eremophila forrestii</i> subsp. <i>forrestii</i>
		<i>Eremophila fraseri</i> subsp. <i>fraseri</i>
		<i>Eremophila galeata</i>
		<i>Eremophila lanceolata</i>
		<i>Eremophila latrobei</i> subsp. <i>filiformis</i>
		<i>Eremophila latrobei</i> subsp. <i>latrobei</i>
		<i>Eremophila maculata</i> subsp. <i>brevifolia</i>
		<i>Eremophila magnifica</i>
		<i>Eremophila margarethae</i>
		<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>
Solanaceae	Nicotiana	<i>Nicotiana benthamiana</i>
		<i>Nicotiana occidentalis</i>
		<i>Nicotiana rosulata</i>
	Solanum	<i>Solanum feroxissimum</i>
		<i>Solanum centrale</i>
		<i>Solanum cleistogamum</i>
		<i>Solanum lasiophyllum</i>
Surianaceae	Stylobasium	<i>Stylobasium spathulatum</i>
Typhaceae	Typha	<i>Typha domingensis</i>
Violaceae	Afrohybanthus	<i>Afrohybanthus aurantiacus</i>
Zygophyllaceae	Roepera	<i>Roepera eichleri</i>
	Tribulus	<i>Tribulus ?forrestii</i>
		<i>Tribulus suberosus</i>

## Appendix E: Site by Species Matrix



Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Abutilon amplum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-
<i>Abutilon cunninghamii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Abutilon lepidum</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Abutilon oxycarpum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Abutilon</i> sp. Dioicum (A.A. Mitchell PRP 1618)	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-
<i>Acacia adoxa</i> var. <i>adoxo</i>	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia adsurgens</i>	-	0.3	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia ancistrocarpa</i>	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia aneura</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	0.3	-	-	4	-	-
<i>Acacia aptaneura</i>	-	-	-	-	0.1	-	-	-	-	-	5	-	5	9	-	-	-	23	-	6	2.5	0.5	-	-	-
<i>Acacia ayersiana</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-	8.5	-	-	-	-
<i>Acacia bivenosa</i>	-	-	-	-	3	0.7	-	0.1	5	10	-	-	-	-	5	-	-	-	-	10	-	-	2	0.2	0
<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>	-	-	-	-	-	-	-	-	0.4	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	10	-	1	-	-	-	-
<i>Acacia citrinoviridis</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	15	-	0.2	-	0.1	-	-	6	-
<i>Acacia coriacea</i> subsp. <i>pendens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia dictyophleba</i>	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia elachantha</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia hilliana</i>	-	0.2	2	2	0.1	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-
<i>Acacia inaequilatera</i>	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia incurvaneura</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	15	-	10	-	-	-	0.5	-	-
<i>Acacia maitlandii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	1	-
<i>Acacia marramamba</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
<i>Acacia monticola</i>	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-
<i>Acacia orthocarpa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Acacia pachyacra</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	0.5	-	-	-
<i>Acacia paraneura</i>	-	-	-	-	-	-	-	-	-	-	0.2	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia pruinocarpa</i>	-	-	1	2	-	-	-	4	1	0.2	-	-	2	-	1	-	-	1.5	1	0.5	-	1	3	-	-
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.5	-
<i>Acacia rhodophloia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	-	-	-	-	-	-	-	-	-	0.5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia sibirica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia synchronica</i>	-	-	-	-	-	0.1	-	0.1	0.2	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia tenuissima</i>	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-
<i>Acacia tetragonophylla</i>	-	-	-	-	-	-	-	-	-	-	2	-	0.5	0.5	0.2	-	-	2	1	0.5	0.2	-	0.1	-	-
<i>Acacia trachycarpa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia trudgeniana</i>	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Aerva javanica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Aeschynomene indica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Afrohybanthus aurantiacus</i>	-	0.6	-	-	0.1	3.1	0.1	0.1	0.1	-	-	-	0.1	-	0.1	-	-	-	-	-	-	0.1	-	1.1	-
<i>Alternanthera denticulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Alternanthera nana</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Amaranthus cuspidifolius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Amphipogon sericeus</i>	0.2	1	-	0.1	0.1	0.1	-	0.4	0.1	-	-	-	-	-	0.2	-	-	-	-	0.1	-	-	-	-	-
<i>Androcalva luteiflora</i>	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Anthobolus leptomerioides</i>	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	0.2	-	0.2	-	-	0.2	-	-
<i>Aristida contorta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Aristida holathera</i> var. <i>holathera</i>	-	0.1	-	-	-	0.3	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Aristida inaequiglumis</i>	-	0.5	-	-	-	0.3	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.1	4	-	-	-
<i>Aristida latifolia</i>	-	-	-	-	-	-	-	-	0.5	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
<i>Aristida pruinosa</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	1	-	-	-	1	-	-	0.2	-	-	-	-
<i>Arivela viscosa</i>	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	0.2	-	-	-	-	-	-	-	0.1	-
<i>Bidens bipinnata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Boerhavia coccinea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	0.1	0.1
<i>Bonamia erecta</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.2	-	-	-	-	-	-	0.3	-	-	-
<i>Bonamia media</i>	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Bonamia pilbarensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Bulbostylis barbata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calandrinia Ptychosperma</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calocephalus knappii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Calotis multicaulis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Calytrix carinata</i>	-	2	1	4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Cassytha capillaris</i>	-	-	-	-	-	0.1	-	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Cenchrus ciliaris</i>	-	-	-	-	-	8	-	-	-	1	2	-	2	-	6	-	0.1	-	-	-	0.2	-	14	-	-
<i>Cenchrus setiger</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	-	-	-	-	-	-	0.1	-	-	-	0.1	-	0.1	-	0.1	0.1	-	0.2	-	-	-	0.1	-	-
<i>Chrysopogon fallax</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	0.2	-	-	-	-	-	-	-	-	-
<i>Clerodendrum tomentosum</i>	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Codonocarpus cotinifolius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	0.2	0.3	-	-	-	1.3	-	0.1	0.1	-	-	-	-	-	0.2	-	-	-	-	0.1	-	-	0.1	0.5	1
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Corchorus tectus</i>	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus tridens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Corymbia candida</i>	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corymbia hamersleyana</i>	-	-	-	0.1	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	4	-
<i>Cucumis picrocarpus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cucumis variabilis</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cymbopogon ambiguus</i>	-	-	-	0.1	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-
<i>Cymbopogon obtectus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.75	-	-	-
<i>Cynanchum floribundum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-
<i>Cynodon dactylon</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cyperus iria</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cyperus ixiocarpus</i>	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	15	-	-	-	-	-	-	-	-	-
<i>Cyperus</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cyperus vaginatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dampiera candidans</i>	0.1	-	0.1	0.2	0.1	0.1	0.1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dichanthium sericeum</i> subsp. <i>humilius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dicladantha forrestii</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dicrastylis cordifolia</i>	-	-	0.2	0.1	-	-	-	-	0.1	-	-	-	0.1	-	0.1	-	-	-	-	-	-	0.1	-	-	-
<i>Digitaria brownii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	0.2	-	0	-	-	2	-	-
<i>Dodonaea coriacea</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Duperreya commixta</i>	-	-	-	-	0.1	0.2	-	-	0.1	-	-	-	-	-	0.1	0.1	-	0.1	-	0.1	-	-	0.1	0.1	-
<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Echinochloa colona</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	0.1	-	0.1	0.1	1	-	-	0.1	-
<i>Enneapogon caeruleus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Enneapogon polyphyllus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0.1	-
<i>Enneapogon robustissimus</i>	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Enteropogon ramosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Eragrostis desertorum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
<i>Eragrostis dielsii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eragrostis elongata</i>	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Eragrostis eriopoda</i>	-	-	-	-	-	0.2	-	0.3	0.1	0.1	-	-	0.1	-	-	-	1	-	0.2	-	0.2	5	0.1	-	-
<i>Eragrostis setifolia</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	1.5	-	-	-	0.1	-	-	-	-	-	-	-
<i>Eragrostis speciosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-
<i>Eragrostis tenellula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila exilifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	-	-	0.2	-	-	-	-	-	-	-	1	-	-	0.1	-	-	-	2	-	-	-	-	-	-	-
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila galeata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.1	-	-	-	0.1	-
<i>Eremophila lanceolata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.2	0.1	-	-	-
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	-	-	-	-	-	-	-	0.1	-	-	5	-	-	-	0.5	-	0.1	-	-	0.5	-	0.2	0.2	1	-
<i>Eremophila margarethae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eriachne benthamii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eriachne helmsii</i>	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	0.2	-	-	-	-	-	-
<i>Eriachne lanata</i>	5	0.1	3	0.4	0.1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.5
<i>Eriachne mucronata</i>	0.1	0.2	0.1	-	0.2	3	0.5	0.2	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	1	0.5
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
<i>Eucalyptus gamophylla</i>	-	-	-	-	2	2	-	-	7	-	-	-	-	-	1	-	-	-	-	-	-	-	0.1	-	-
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	-	-	-	0.3	1	6	1	5	-	-	-	-	-	-	-	-	-	-	-	3	-	-	5	0.1	2
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eucalyptus victrix</i>	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	5	-	-	-	-	-	-	-	-	-
<i>Eucalyptus xerothermica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-
<i>Eulalia aurea</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.4	-	4	-	0.1	-	-	-	0.25	-	3	-
<i>Euphorbia biconvexa</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Euphorbia boophthona</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-
<i>Euploca pachyphylla</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	-	-	-	-	-	0.2	-	-	-	-	-	0.1	-	0.1	-	0.1	-	-	-	-	-	-	-	0.1	-
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fimbristylis depauperata</i>	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fimbristylis microcarya</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fimbristylis simulans</i>	0.1	0.01	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Glycine canescens</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	0.1	-
<i>Gompholobium oreophilum</i>	0.2	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.1	-
<i>Gomphrena kanisii</i>	-	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Goodenia lamprosperma</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Goodenia microptera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Goodenia muelleriana</i>	-	0.1	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-
<i>Goodenia stobbsiana</i>	0.2	0.1	-	0.1	0.2	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
<i>Goodenia triodiophila</i>	0.1	-	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	0.2	-	-
<i>Goodenia vilmorinae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-
<i>Gossypium australe</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Gossypium robinsonii</i>	-	0.2	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-
<i>Grevillea berryana</i>	-	-	2	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	8	-	-
<i>Grevillea striata</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	1.7	-	-	-	0.25	-	-	-	-	-	-	-



Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	-	0.3	0.2	0.3	0.1	3	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hakea chordophylla</i>	0.1	-	0.2	2	0.2	-	-	2.5	-	-	0.1	-	1	0.2	-	-	-	-	-	0.25	-	0.5	1	-	-
<i>Hakea loreus</i> subsp. <i>loreus</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.4	-	-	-	0.4	-	-	-	-	-	-	-
<i>Hibiscus aff. campanulatus</i>	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hibiscus burtonii</i>	-	-	0.1	-	-	-	-	0.1	0.2	-	0.1	-	0.1	0.1	-	-	0.1	0.4	0.1	0.1	0.2	0.1	0.1	-	-
<i>Hibiscus coatesii</i>	0.1	-	-	-	-	0.1	0.3	-	0.1	-	-	-	-	-	0.1	-	-	-	-	0.1	-	-	0.1	-	0.1
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	-	0.2	-	-	-	-	-	0.1	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-
<i>Indigofera monophylla</i>	-	0.2	0.1	-	-	2	-	0.2	0.1	-	-	-	-	-	0.1	-	-	-	-	0.25	-	-	0.1	0.1	-
<i>Indigofera rugosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2
<i>Ipomoea coptica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ipomoea diamantinensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	-	-	-	-	-	-
<i>Ipomoea muelleri</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	0.5	-	-	-	-	-	-	-	-	-
<i>Ipomoea</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Isotropis atropurpurea</i>	-	-	-	-	-	0.1	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Isotropis iophyta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	0.2	-	0.1	-	-	-	-	-	-	-
<i>Jasminum didymum</i> subsp. <i>lineare</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lepidium pedicellosum</i>	-	-	-	-	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptochloa digitata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lotus cruentus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Maireana georgei</i>	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Maireana planifolia</i>	-	0.1	-	-	-	-	-	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	-	0.2	0.1	-	-
<i>Maireana villosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	-	-	-
<i>Malvastrum americanum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Marsilea exarata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Melaleuca glomerata</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	10	-	-	-	-	-	-	-	-	-
<i>Monachather paradoxus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Nellica maderaspatensis</i>	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Nicotiana occidentalis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Paraneurachne muelleri</i>	0.2	0.5	0.5	-	0.1	0.3	-	0.25	2	0.1	-	-	0.1	-	0.2	-	-	-	-	0.2	0.1	0.2	0.1	2	-
<i>Paspalidium rarum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Peplidium</i> sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge & A. Kanis 8158)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Petalostylis labicheoides</i>	-	-	-	-	-	6	-	-	0.2	0.2	-	-	0.2	-	-	-	-	-	-	-	-	-	-	2	-
<i>Pluchea dentex</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Psyrdrax latifolia</i>	-	-	-	-	-	-	-	-	0.2	-	-	-	0.1	-	-	-	0.2	-	0.2	-	-	-	0.1	-	-

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Psudras suaveolens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	0.1	-	-	-	-	-
<i>Pterocaulon sphacelatum</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus astrolasius</i>	-	0.1	0.2	-	-	0.2	0.1	0.1	0.1	-	-	-	0.1	-	0.1	-	-	-	-	-	-	0.1	-	0.1	0.1
<i>Ptilotus calostachyus</i>	0.1	0.1	0.1	0.1	0.1	0.1	-	0.1	0.2	-	-	-	0.1	-	0.1	-	0.2	-	0.2	0.1	-	-	0.1	-	0.2
<i>Ptilotus clementii</i>	-	-	-	-	-	-	0.1	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus exaltatus</i>	-	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus gaudichaudii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus obovatus</i>	-	0.1	-	-	-	0.1	-	-	-	-	-	-	-	0.2	-	-	-	0.3	-	-	0.1	0.1	-	-	-
<i>Ptilotus polystachyus</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-
<i>Ptilotus roei</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-
<i>Ptilotus rotundifolius</i>	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus schwartzii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Rhagodia eremaea</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-
<i>Rhynchosia minima</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	0.2	-
<i>Roebuckiella similis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Roepera eichleri</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Santalum lanceolatum</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	-
<i>Santalum spicatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Scaevola acacioides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Scaevola browniana</i> subsp. <i>browniana</i>	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	-	-	-	-	-	0.1	-	-	0.1	-	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-
<i>Sclerolaena cornishiana</i>	-	-	-	-	-	0.1	-	-	-	-	0.1	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-
<i>Sclerolaena cuneata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sclerolaena densiflora</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sclerolaena eriacantha</i>	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	-	0.2	-	0.1	0.2	0.1	-	-	-	-	0.5	-	-	-	0.2	-	0.1	0.2	-	-	0.2	-	0.5	0.2	0.1
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.1	0.1	0.1	0.2	0.1	0.5	-	-	0.1	0.2	-	-	-	-	0.2	-	-	-	0.1	-	-	0.1	-	0.2	0.1
<i>Senna ferraria</i>	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna glaucifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	-	-	-	-	0.1	0.1	0.2	-	0.1	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	-	0.3	0.2	-	0.2	0.1	-	1.1	0.2	0.1	-	-	-	-	-	-	-	-	-	0.2	-	-	0.1	-	0.1
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	-	1.1	-	0.2	0.1	0.3	0.1	0.1	0.1	-	1	-	-	0.2	1	-	-	0.2	-	2.1	-	-	1	-	0.5
<i>Senna notabilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Senna sericea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1	-	-
<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna stricta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-
<i>Seringia exastia</i>	0.1	-	-	1	0.1	-	-	-	0.1	-	-	-	-	-	0.1	-	-	-	0.2	1.5	-	-	0.2	-	-
<i>Sesbania cannabina</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Setaria verticillata</i>	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Sida arenicola</i>	-	-	-	-	-	0.1	-	-	0.1	-	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-	1	-
<i>Sida brownii</i>	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	0.25	-	-	0.1	-	-
<i>Sida cardiophylla</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.25	-	-	0.1	0.3	-	-	-	-	-	-	-
<i>Sida echinocarpa</i>	-	0.1	-	-	-	-	-	-	-	-	0.1	-	-	0.1	-	0.1	-	0.1	-	-	-	-	-	0.1	-
<i>Sida ectogama</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-
<i>Sida fibulifera</i>	-	-	-	-	-	0.3	-	-	0.1	-	-	-	0.1	0.2	-	0.1	-	0.2	-	-	-	-	-	0.5	-
<i>Sida platycalyx</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida rohlenae</i> subsp. <i>rohlenae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	0.1	-	-	-	0.1	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Sida</i> sp. <i>L</i> (A.M. Ashby 4202)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-
<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)	-	0.1	-	-	-	-	0.1	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.7	-	0.2	0.1
<i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/90)	-	0.1	-	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1	-	-
<i>Solanum centrale</i>	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.2	-	-	-
<i>Solanum cleistogamum</i>	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.1	-
<i>Solanum ferocissimum</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Solanum lasiophyllum</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	-	-	0.1	0.1	0.1	-
<i>Sorghum plumosum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-
<i>Sporobolus australasicus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stemodia grossa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Streptoglossa macrocephala</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stylobasium spathulatum</i>	-	-	-	-	-	-	-	-	-	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Synaptantha tillaeacea</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Tephrosia densa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)	-	-	0.1	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-
<i>Themeda triandra</i>	-	-	-	-	-	4	-	-	-	-	-	0.3	-	-	-	0.5	-	-	-	-	-	-	-	15	-
<i>Trianthema glossostigmum</i>	0.2	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tribulus forrestii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1	-	-	-	-	-	-	-
<i>Tribulus suberosus</i>	-	0.2	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.3
<i>Trichodesma zeylanicum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.5
<i>Trigastrotheca molluginea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Triodia angusta</i>	-	-	-	-	-	0.1	31	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Triodia basedowii</i>	-	-	-	-	-	-	-	-	-	-	0.5	-	30	0.5	-	-	0.2	4	-	-	0.2	50	-	-	-
<i>Triodia epactia</i>	-	-	-	-	-	6	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-
<i>Triodia pungens</i>	1	3	3	0.2	1	-	-	4	20	2	-	-	-	-	5	-	-	-	-	5	-	-	1	5	15
<i>Triodia schinzii</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triodia vanleeuwenii</i>	30	40	35	55	25	0.2	-	50	10	-	-	-	-	-	20	-	-	-	-	60	-	-	50	-	1

Taxon	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125
<i>Triodia wiseana</i>	-	-	-	-	-	-	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triumfetta chaetocarpa</i>	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	0.5	-
<i>Vachellia farnesiana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Vincetoxicum lineare</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Waltheria indica</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Waltheria virgata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Taxon	Q126	Q127	Q128	Q129	Q130	Q131	Q132	Q133	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210
<i>Abutilon amplum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Abutilon cunninghamii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-
<i>Abutilon lepidum</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-
<i>Abutilon oxycarpum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Abutilon</i> sp. Dioicum (A.A. Mitchell PRP 1618)	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia adoxa</i> var. <i>adoxo</i>	-	0.1	0.1	-	-	-	0.1	-	-	-	-	-	0.2	-	-	-	-	0.1
<i>Acacia adsurgens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia ancistrocarpa</i>	-	-	3	-	-	-	0.1	-	-	-	-	0.5	-	-	-	-	-	-
<i>Acacia aneura</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia aptaneura</i>	-	16	-	-	4	-	-	-	1.5	0.2	-	-	-	-	-	-	-	-
<i>Acacia ayersiana</i>	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
<i>Acacia bivenosa</i>	3	-	0.2	-	0.5	0.1	3	-	-	-	-	-	-	-	-	0.5	-	-
<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-
<i>Acacia citrinoviridis</i>	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-
<i>Acacia coriacea</i> subsp. <i>pendens</i>	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-
<i>Acacia dictyophleba</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia elachantha</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-
<i>Acacia hilliana</i>	-	-	0.1	0.5	-	-	0.1	0.5	-	-	-	-	0.5	-	-	-	-	0.2
<i>Acacia inaequilatera</i>	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	0.2
<i>Acacia incurvaneura</i>	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-
<i>Acacia maitlandii</i>	0.4	-	1	-	-	-	0.2	-	-	-	-	-	-	-	-	0.1	-	-
<i>Acacia marramamba</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia monticola</i>	-	-	0.5	-	-	-	4	-	-	-	-	-	0.1	-	-	1	-	-
<i>Acacia orthocarpa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia pachyacra</i>	-	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	-	-	-
<i>Acacia paraneura</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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<i>Acacia pruinocarpa</i>	-	2	0.1	-	0.3	-	0.2	-	-	-	-	0.2	0.1	-	-	-	-	-
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-
<i>Acacia rhodophloia</i>	-	7	-	-	0.5	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	-	-	-	-	-	-	-	-	-	-	-	10	-	15	5	-	-	-
<i>Acacia sibirica</i>	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-
<i>Acacia synchronica</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	1	-	-	-	-
<i>Acacia tenuissima</i>	0.1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia tetragonophylla</i>	0.5	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-
<i>Acacia trachycarpa</i>	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Acacia trudgeniana</i>	-	-	-	-	0.3	-	0.1	3	-	0.2	-	-	-	-	-	-	-	-
<i>Aerva javanica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-
<i>Aeschynomene indica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Afrohybanthus aurantiacus</i>	-	0.1	0.3	0.1	-	-	0.3	0.1	-	-	-	-	0.1	-	-	0.1	-	0.1
<i>Alternanthera denticulata</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Alternanthera nana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Amaranthus cuspidifolius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Amphipogon sericeus</i>	2	0.1	-	-	-	-	0.2	1	-	-	-	-	-	-	-	-	-	-
<i>Androcalva luteiflora</i>	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-
<i>Anthobolus leptomerioides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Aristida contorta</i>	-	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	0.1	-	-	-
<i>Aristida holathera</i> var. <i>holathera</i>	0.1	-	0.1	-	0.1	-	0.1	-	-	0.1	-	0.1	-	-	-	-	-	0.1
<i>Aristida inaequiglumis</i>	-	-	0.3	-	0.2	-	0.2	-	-	-	-	-	-	-	-	-	-	-
<i>Aristida latifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Aristida pruinosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arivela viscosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
<i>Bidens bipinnata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Boerhavia coccinea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Bonamia erecta</i>	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-
<i>Bonamia media</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Bonamia pilbarensis</i>	0.1	-	0.1	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-
<i>Bulbostylis barbata</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calandrinia Ptychosperma</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Calocephalus knappii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calotis multicaulis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calytrix carinata</i>	1	-	-	0.5	-	-	-	-	-	-	-	-	0.5	-	-	-	-	0.3
<i>Cassytha capillaris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cenchrus ciliaris</i>	-	-	0.1	-	-	-	-	-	0.5	-	-	1	-	5	5	3	0.1	-
<i>Cenchrus setiger</i>	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-

Taxon	Q126	Q127	Q128	Q129	Q130	Q131	Q132	Q133	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	0.1	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-	-	-	-
<i>Chrysopogon fallax</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Clerodendrum tomentosum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Codonocarpus cotinifolius</i>	-	-	-	-	-	-	0.5	-	-	0.1	-	-	-	-	-	-	-	-
<i>Corchorus incanus</i> subsp. <i>lithophilus</i>	-	0.2	1	-	0.1	0.5	0.1	0.2	-	-	-	-	-	-	-	-	-	-
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.2
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	1	-	-
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus tectus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corchorus tridens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corymbia candida</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-
<i>Corymbia hamersleyana</i>	-	-	0.1	-	2	-	1	-	-	-	-	2	-	-	-	-	-	-
<i>Cucumis picrocarpus</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Cucumis variabilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cymbopogon ambiguus</i>	-	0.1	0.1	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-	-
<i>Cymbopogon obtectus</i>	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1	-	-	-	-	0.1
<i>Cynanchum floribundum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cynodon dactylon</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-
<i>Cyperus iria</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Cyperus ixiocarpus</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Cyperus</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Cyperus vaginatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-
<i>Dampiera candidans</i>	0.3	0.1	0.1	0.1	-	-	0.1	0.1	-	-	-	-	0.1	-	-	-	-	-
<i>Dichanthium sericeum</i> subsp. <i>humilius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-
<i>Dicladantha forrestii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dicrastylis cordifolia</i>	0.1	-	-	-	-	-	0.1	-	-	0.1	-	-	0.1	-	-	0.1	-	-
<i>Digitaria brownii</i>	-	0.1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Dodonaea coriacea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Duperreya commixta</i>	-	-	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	0.1	-	-
<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Echinochloa colona</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1	-	-	-	0.1
<i>Enneapogon caeruleascens</i>	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Enneapogon polyphyllus</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Enneapogon robustissimus</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-
<i>Enteropogon ramosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eragrostis desertorum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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<i>Eragrostis dielsii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	-	0.1	-
<i>Eragrostis elongata</i>	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-
<i>Eragrostis eriopoda</i>	-	0.1	3	0.1	-	-	0.1	0.5	-	-	-	-	-	-	-	-	-	-
<i>Eragrostis setifolia</i>	-	-	-	-	-	-	-	-	-	-	0.2	1	-	0.1	0.2	-	-	-
<i>Eragrostis speciosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eragrostis tenellula</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Eremophila exilifolia</i>	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-
<i>Eremophila galeata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila lanceolata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	0.2	0.1	-	0.1	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.3
<i>Eremophila margarethae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
<i>Eriachne benthamii</i>	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Eriachne helmsii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eriachne lanata</i>	2	-	-	1	-	-	0.2	-	-	-	-	-	0.2	-	-	-	-	0.2
<i>Eriachne mucronata</i>	4	-	20.3	-	0.1	-	0.2	0.1	-	-	-	-	0.2	-	-	-	-	0.2
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i>	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	5	-
<i>Eucalyptus gamophylla</i>	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Eucalyptus leucophloia</i> subsp. <i>Leucophloia</i>	10	-	2	1	-	-	-	-	-	-	-	-	1.5	-	-	-	-	3.5
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eucalyptus victrix</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	5	-	-
<i>Eucalyptus xerothermica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eulalia aurea</i>	-	-	0.75	-	-	-	-	-	0.2	-	-	-	-	-	-	0.2	-	-
<i>Euphorbia biconvexa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Euphorbia boophthona</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	-	0.1	-	-	-	0.1	-	-	-	-	-	0.1	-	-	-	-	-	-
<i>Euploca pachyphylla</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Fimbristylis depauperata</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fimbristylis microcarya</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Fimbristylis simulans</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
<i>Glycine canescens</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.1	0.1	-
<i>Gompholobium oreophilum</i>	-	-	-	0.5	-	-	0.2	-	-	-	-	-	0.3	-	-	-	-	-
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-	-	-

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<i>Gomphrena kanisii</i>	-	0.1	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Goodenia lamprosperma</i>	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-
<i>Goodenia microptera</i>	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Goodenia muelleriana</i>	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.1	-	-
<i>Goodenia stobbsiana</i>	0.1	-	0.1	0.1	-	-	0.1	-	-	-	-	-	0.2	-	-	-	-	-
<i>Goodenia triodiophila</i>	0.1	-	-	0.1	0.1	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0.1
<i>Goodenia vilmoriniae</i>	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-
<i>Gossypium australe</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gossypium robinsonii</i>	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
<i>Grevillea berryana</i>	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Grevillea striata</i>	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	-	-	5	1	-	0.3	4	0.1	-	-	-	-	0.1	-	-	0.1	-	-
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-
<i>Hakea chordophylla</i>	0.2	-	0.1	5	1	-	-	-	-	-	-	-	0.1	-	-	-	-	0.5
<i>Hakea loreus</i> subsp. <i>loreus</i>	-	-	0.1	-	0.5	-	-	-	-	0.2	-	-	0.1	-	-	-	-	-
<i>Hibiscus</i> aff. <i>campanulatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hibiscus burtonii</i>	-	0.2	0.3	-	-	-	-	-	-	0.1	0.3	0.1	-	-	-	-	-	-
<i>Hibiscus coatesii</i>	0.1	-	0.1	0.1	-	0.1	0.1	-	-	-	-	-	-	-	-	0.1	-	-
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	-	0.5	0.1	0.1	-	-	0.1	-	-	-	-	0.1	-	-	-	0.2	-	-
<i>Hibiscus sturtii</i> var. <i>platychlams</i>	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	-	-	-	-	-	-	-	0.1	-	0.1	0.1	-	-	-	-	-	-	-
<i>Indigofera monophylla</i>	-	0.2	0.5	-	0.1	0.1	0.2	0.2	-	-	-	-	0.1	-	-	0.1	-	-
<i>Indigofera rugosa</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Ipomoea coptica</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Ipomoea diamantinensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ipomoea muelleri</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-
<i>Ipomoea</i> sp.	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Isotropis atropurpurea</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Isotropis iophyta</i>	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-
<i>Jasminum didymum</i> subsp. <i>lineare</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lepidium pedicellosum</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-
<i>Leptochloa digitata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Lotus cruentus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Maireana georgei</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Maireana planifolia</i>	0.2	0.1	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-
<i>Maireana villosa</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Malvastrum americanum</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Marsilea exarata</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-



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<i>Melaleuca glomerata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	1	-
<i>Monachather paradoxus</i>	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-
<i>Nelica maderaspatensis</i>	-	-	0.1	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-
<i>Nicotiana occidentalis</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Paraneurachne muelleri</i>	0.2	0.1	0.2	0.1	0.1	0.2	0.5	0.1	-	0.2	-	1	0.1	0.1	-	0.3	-	0.1
<i>Paspalidium rarum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Peplidium</i> sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge & A. Kanis 8158)	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Petalostylis labicheoides</i>	-	-	3	0.5	-	-	0.3	-	-	0.5	-	0.1	-	-	-	0.5	0.2	-
<i>Pluchea dentex</i>	-	-	0.2	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Psyrax latifolia</i>	-	0.3	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Psyrax suaveolens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pterocaulon sphacelatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Ptilotus astrolasius</i>	0.3	-	0.2	-	0.1	0.1	0.2	0.1	-	-	-	0.2	0.1	0.1	-	0.1	-	0.1
<i>Ptilotus calostachyus</i>	0.25	0.1	0.1	0.1	0.1	0.1	0.4	0.1	-	-	-	0.1	0.2	-	-	-	-	0.2
<i>Ptilotus clementii</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-
<i>Ptilotus exaltatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
<i>Ptilotus gaudichaudii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus obovatus</i>	0.1	-	-	0.1	0.2	-	0.1	-	-	-	-	-	-	0.1	-	-	-	-
<i>Ptilotus polystachyus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus roei</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ptilotus rotundifolius</i>	-	-	-	-	0.2	-	-	-	-	-	-	-	0.2	-	-	-	-	0.1
<i>Ptilotus schwartzii</i>	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-
<i>Rhagodia eremaea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-
<i>Rhynchosia minima</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Roebuckiella similis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Roepora eichleri</i>	-	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-
<i>Santalum lanceolatum</i>	-	-	0.1	-	-	-	-	-	-	0.1	-	-	-	-	-	1	-	-
<i>Santalum spicatum</i>	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-
<i>Scaevola acacioides</i>	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Scaevola browniana</i> subsp. <i>browniana</i>	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Sclerolaena cornishiana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.1	-	-	-
<i>Sclerolaena cuneata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
<i>Sclerolaena densiflora</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-
<i>Sclerolaena eriacantha</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	-	0.1	0.1	-	-	-	0.2	0.1	-	-	-	-	-	-	0.2	0.1	-	-
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.1	-	0.3	0.2	0.3	0.1	0.1	-	-	-	-	0.1	-	0.2	0.5	0.2	-	-
<i>Senna ferraria</i>	-	0.2	-	0.2	-	-	-	0.2	-	-	0.3	-	-	-	-	-	-	0.2

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<i>Senna glaucifolia</i>	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	0.2	-	0.1	0.3	-	0.1	-	-	-	-	-	-	0.4	-	-	0	-	-
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	0.6	-	0.1	-	-	0.1	0.5	0.1	-	-	-	0.1	-	-	-	0.1	-	0.2
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	-	-	0.2	-	1	-	0.2	-	-	-	-	-	-	-	-	-	-	0.2
<i>Senna notabilis</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna sericea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Senna</i> sp. <i>Meekatharra</i> (E. Bailey 1-26)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-
<i>Senna stricta</i>	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Seringia exastia</i>	-	-	-	0.5	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Sesbania cannabina</i>	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Setaria verticillata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida arenicola</i>	-	-	0.1	-	0.1	-	0.2	-	-	-	-	-	-	-	-	-	-	0.1
<i>Sida brownii</i>	0.3	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida cardiophylla</i>	-	-	-	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	-
<i>Sida echinocarpa</i>	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida ectogama</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida fibulifera</i>	-	-	0.3	-	-	-	-	-	-	-	-	-	-	0.1	0.1	-	-	-
<i>Sida platycalyx</i>	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Sida rohlenae</i> subsp. <i>rohlenae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-
<i>Sida</i> sp. <i>L</i> (A.M. Ashby 4202)	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	0.2	-	-
<i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
<i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/90)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-
<i>Solanum centrale</i>	-	-	0.1	-	-	-	0.1	0.1	-	-	-	-	0.1	-	-	-	-	0.1
<i>Solanum cleistogamum</i>	0.1	0.1	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Solanum ferocissimum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Solanum lasiophyllum</i>	0.1	0.1	-	-	-	-	0.1	0.1	-	0.1	0.1	0.1	-	-	-	-	-	0.1
<i>Sorghum plumosum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sporobolus australasicus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
<i>Stemodia grossa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Streptoglossa macrocephala</i>	-	-	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-
<i>Stylobasium spathulatum</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	10.1	-	-	-	-
<i>Synaptantha tillaeacea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tephrosia densa</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1	-	-
<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Themeda triandra</i>	-	-	5	-	0.3	-	0.2	-	-	-	-	-	-	-	-	3	-	-
<i>Trianthema glossostigmum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Taxon	Q126	Q127	Q128	Q129	Q130	Q131	Q132	Q133	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210
<i>Tribulus forrestii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tribulus suberosus</i>	0.2	0.1	-	-	1.5	0.2	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Trichodesma zeylanicum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Trigastrotheca molluginea</i>	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triodia angusta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triodia basedowii</i>	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-
<i>Triodia epactia</i>	-	-	-	-	-	-	-	-	-	-	-	15	-	2	-	4	-	-
<i>Triodia pungens</i>	8	20	5	1	3	20	10	0.2	-	-	-	-	-	-	-	-	-	-
<i>Triodia schinzii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triodia vanleeuwenii</i>	40	20	-	35	55	0.5	50	10	-	-	-	-	10	-	-	-	-	40
<i>Triodia wiseana</i>	-	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-
<i>Triumfetta chaetocarpa</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Vachellia farnesiana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
<i>Vincetoxicum lineare</i>	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-
<i>Waltheria indica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Waltheria virgata</i>	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-