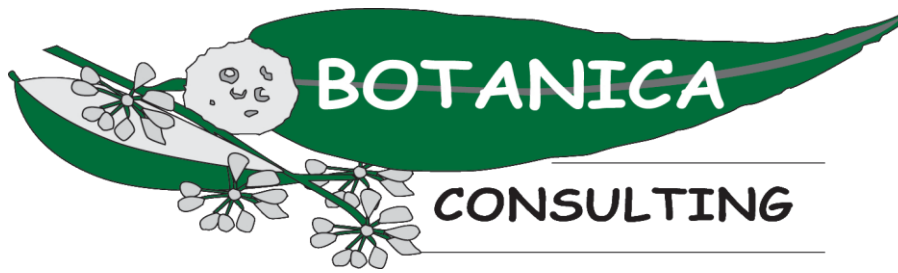


Appendix H: Supporting Biodiversity Survey (Detailed Flora/ Vegetation Survey and Basic Fauna Survey 2021)



Castle Hill Project Detailed Flora/ Vegetation Survey and Basic Fauna Survey

Prepared for Evolution Mining Ltd.



March 2021
FINAL

Prepared by:
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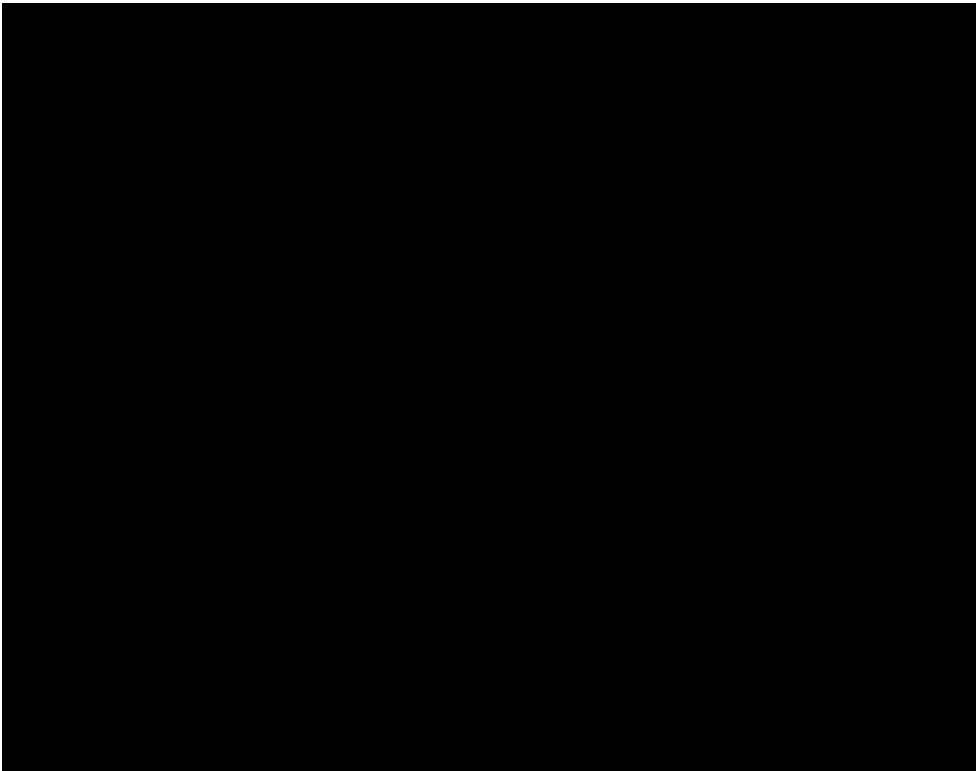
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Glossary

Acronym	Description
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i> , WA Government.
BC Act	<i>Biodiversity Conservation Act 2016</i> , WA Government.
Botanica	Botanica Consulting Pty Ltd.
BoM	Bureau of Meteorology.
DAFWA	Department of Agriculture and Food (now DPIRD), WA Government.
DAWE	Department of the Agriculture, Water and Environment (formerly known as DotEE), Australian Government.
DBCA	Department of Biodiversity, Conservation and Attractions (formerly DPaW), WA Government.
DEC	Department of Environment and Conservation (now DBCA), WA Government.
DER	Department of Environment Regulation (now DWER), WA Government.
DMIRS	Department of Mines, Industry Regulation and Safety (formerly DMP), WA Government
DotEE	Department of the Environment and Energy (now known as DAWE), Australian Government.
DoW	Department of Water (now DWER), WA Government.
DPaW	Department of Parks and Wildlife (now DBCA), WA Government.
DPIRD	Department of Primary Industries and Regional Development, WA Government
DWER	Department of Water and Environmental Regulation (formerly EPA, DER and DoW), WA Government
EP Act	Environmental Protection Act 1986, WA Government.
EP Regulations	Environmental Protection (Clearing of Native Vegetation) Regulations 2004, WA Government.
EPA	Environmental Protection Authority, WA Government.
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> , Australian Government.
ESA	Environmentally Sensitive Area.
Ha	Hectare (10,000 square meters).
IBRA	Interim Biogeographic Regionalization for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union.
JAMBA	<i>Japan Australia Migratory Bird Agreement 1981</i> .
Km	Kilometer (1,000 meters).
LGA	Local Government Area
NVIS	National Vegetation Information System.
PEC	Priority Ecological Community.
TEC	Threatened Ecological Community.
WA	Western Australia.
WAHERB	Western Australian Herbarium.
WAM	Western Australian Museum, WA Government.

Executive Summary

Botanica Consulting Pty Ltd (Botanica) was commissioned by Evolution Mining Ltd. (Evolution) to undertake the following flora/ vegetation and fauna surveys within the Castle Hill Project area (collectively referred to as the 'survey area'):

- Detailed flora/ vegetation survey encompassing an area of 968 ha;
- Basic fauna survey encompassing an area of 968 ha;
- Targeted flora and fauna survey encompassing an area of 1,540 ha.

The survey area is 2,508 ha in extent and is located approximately 40 km north-west of Kalgoorlie-Boulder, Western Australia. The survey was conducted to support a Native Vegetation Clearing Permit (NVCP) application and Mining Proposal with regards to the further development of the Castle Hill Project.

The survey area lies within the Eastern Goldfield (COO3) subregion of the Coolgardie Bioregion, as defined by the Interim Biogeographic Regionalisation of Australia (IBRA).

The Eastern Goldfield subregion (5,102,428 ha) lies on the Yilgarn Craton's Eastern Goldfields Terrain, which is described as gently undulating plains with a subdued relief, interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas. A series of large playa lakes in the western half are the remnants of an ancient major drainage line (Cowan 2001).

The vegetation consists of Mallees, Acacia thickets and shrub-heaths on sandplains, with diverse *Eucalyptus* woodlands occurring around salt lakes, on ranges, and in valleys. Salt lake support dwarf shrublands of samphire. Woodlands and *Dodonaea* shrubland occur on basic granulite of the Fraser Range, and the area is rich in endemic Acacias.

The dominant land uses of the Eastern Goldfield subregion includes Unallocated Crown Land (UCL) and Crown reserves and pastoral grazing, with conservation areas and mining leases also present (Cowan, 2001). The survey area is located within the Mt Burges Pastoral Lease.

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

- Botanica (2011). *Level 1 Flora & Vegetation Survey: Proposed Anthill open pit operation*. Prepared for Metaliko Resources Ltd, 2011.
- Botanica (2013). *Level 2 Flora & Vegetation Survey for the Castle Hill Project*. Prepared for Phoenix Gold Ltd, September 2013.
- Botanica (2014). *Level 2 Flora & Vegetation Survey for the Burgundy Project*. Prepared for Phoenix Gold Ltd, September 2014.
- Botanica (2020). *Ant Hill Reconnaissance Flora/ Vegetation Survey and Basic Fauna Survey*. Prepared for Northern Star Resources Ltd, December 2020.
- Harewood (2013). *Terrestrial vertebrate Fauna Assessment of the Castle Hill Project Area*, . Prepared for Phoenix Gold Ltd, October 2013.
- Harewood (2014a) *Fauna Assessment, Burgundy Project Area*. Prepared for Phoenix Gold Ltd, October 2014.
- Harewood (2014b). *Clearing Permit CPS5675/2 Malleefowl Assessment, Castle Hill Project Area*. Prepared for Phoenix Gold Ltd, October 2014.

- Harewood (2014c). Clearing Permit CPS6152/1 *Malleefowl Assessment, Burgundy Project Area*. Prepared for Phoenix Gold Ltd, October 2014.
- Phoenix Environmental Services (2019a). *Flora and vegetation survey for Mungari Gold Operations: Cutters Ridge Project*. Prepared for Evolution Mining Ltd, May 2019.
- Phoenix Environmental Services (2019b). *Fauna survey for Mungari Gold Operations: Cutters Ridge Project*. Prepared for Evolution Mining Ltd, May 2019.

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

- DBCA Threatened/ Priority Flora spatial data (DBCA, 2019);
- DBCA NatureMap database (DBCA, 2020); and
- EPBC Protected Matters search tool (DAWE, 2020a).

The NatureMap species search and EPBC Protected Matters search were conducted with a 40 km buffer from the survey area.

The desktop review identified 780 vascular flora species as occurring within 40 km of the survey area, representing 303 genera from 76 families. The most diverse families were Asteraceae (104 species), Fabaceae (99 species) and Myrtaceae (88 species). Significant genera include *Acacia* (54 species), *Eucalyptus* (47 species) and *Eremophila* (35 species). This total includes 71 introduced (weed) species (9.1%).

The desktop review identified 71 introduced flora (weed) species as potentially occurring in the vicinity of the survey area. These species consist of 26 families, with the most commonly represented being Asteraceae (14 species), Poaceae (13 species) and Fabaceae (six species). Of these, two are listed as a Declared Pest on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management (BAM) Act 2007*, with one also listed as a Weed of National Significance.

The assessment of the DBCA Priority/ Threatened flora data (DBCA, 2019), NatureMap search (DBCA, 2020), Protected Matters searches (DAWE, 2020a) and previous relevant literature identified 49 significant flora species recorded within a 40 km radius of the survey area. These are comprised of three Endangered, 16 Priority 1, seven Priority 2, 19 Priority 3 and four Priority 4 taxa.

These taxa were assessed for distribution and known habitat to determine their likelihood of occurrence within the survey area. The assessment identified one Priority 2 flora species as previously recorded within the survey area. Five taxa were assessed as possibly occurring in the survey area, consisting of one Priority 1, two Priority 2 and two Priority 3 taxa.

The Protected Matters search (DAWE, 2020a) did not identify any Threatened Ecological Communities recorded within 40 km of the survey area. Analysis of the Priority Ecological Communities within the Goldfields region (DBCA, 2017) did not identify any significant vegetation assemblages as likely or possibly occurring within the survey area.

A total of 261 terrestrial vertebrate fauna taxa have been recorded within a 40 km radius of the survey area, consisting of 158 bird, 26 mammal, 71 reptile and six amphibian taxa. This total includes seven introduced (feral) species (2.7%).

The NatureMap and EPBC database searches identified 13 feral fauna species from nine families as potentially occurring in the survey area.

The desktop review identified 22 terrestrial vertebrate fauna species of conservation significance as previously being recorded in the regional area, consisting of seven Threatened, one Priority 3, one Priority 4, and three migratory or otherwise protected species. In addition, ten migratory wading/shorebird species were assessed collectively due to their similar habitat requirements. Habitat and distribution data was used to determine the likelihood of occurrence within the survey area. The assessment identified three significant fauna species as potentially occurring in the survey area.

There are no vested Conservation Reserves located within the survey area.

There are no DBCA managed lands located within the survey area.

There are no Environmentally Sensitive Areas located within the survey area.

There are no Nationally Important or RAMSAR wetlands located within the survey area.

The closest significant environmental feature is the Rowles Lagoon Conservation Park, which is DBCA-managed land located approximately 25 km north-west of the survey area. Disturbances within the survey area are unlikely to impact these areas.

Botanica conducted a detailed flora/ vegetation and basic fauna survey on the 30th October, 3rd to 5th November and 9th November 2020, with the area traversed on foot and ATV by three Botanica staff members; Jennifer Jackson (Senior Botanist, BSc (Honours) Environmental Management), Greg Harewood (Zoologist, BSc Zoology) and Matthew Newlands (Environmental Technician).

The field survey identified 145 flora taxa within the survey area. These taxa represented 70 genera across 32 families, with the most diverse genera being *Eremophila* (15 species), *Eucalyptus* (10 species) and *Acacia* (8 species). Dominant families include Chenopodiaceae (26 species), Asteraceae (17 species), Scrophulariaceae (15 species) and Fabaceae (14 species). Eleven introduced (weed) species were recorded, representing 8% of the total species richness.

No Threatened flora species were recorded within the survey area. One Priority 2 flora species (*Eremophila praecox*) was previously recorded within and adjacent to the survey area by Phoenix Environmental Services (2019a). An additional potential record of this taxon was recorded by Botanica within the survey area however due to absence of flowering material (despite the survey being conducted during the known flowering period for this taxon), this specimen could not be positively identified or formally lodged with the Western Australian Herbarium. Given this taxon has been previously recorded within/ adjacent to the survey area this record is tentatively considered as a Priority 2 flora record.

A total of twelve broad vegetation types were identified within the survey area. Vegetation type descriptions and extents were determined from field survey results, aerial imagery interpretation, statistical analysis of quadrat data and extrapolation of the communities. Native vegetation within the survey area ranged from 'good' to 'very good'.

The survey found CLP-EW1 was the most widespread community in the survey area, occupying 814 ha (32.5%), while RH-CFW1 was the most restricted with 10 ha (0.4%). CLP-EW1 and RH-MWS1 were the most diverse community, with 67 flora species recorded, and RH-AFW1 was the least diverse with 23 flora species recorded.

No Threatened or Priority Ecological Communities or otherwise significant vegetation were identified within the survey area.

Based on vegetation and associated landforms identified during the flora and vegetation assessment, six broad scale terrestrial fauna habitats were identified as occurring within the survey area. Two inactive malleefowl mounds were recorded within the survey area however no evidence of current malleefowl activity (active mounds, tracks, feathers or bird observations etc.) were observed within the survey area. No evidence of any other significant fauna species was observed during the survey.

Based on the outcomes from the survey undertaken, Botanica assessed the results of the desktop and field survey with regards to the native vegetation clearing principles listed under Schedule 5 of the EP Act. The assessment found that the proposed vegetation clearing activities may be at variance with clearing principle (f).

1 INTRODUCTION

1.1 Project Description

Botanica Consulting Pty Ltd (Botanica) was commissioned by Evolution Mining Ltd. (Evolution) to undertake the following flora/ vegetation and fauna surveys (Figure 1-1) within the Castle Hill Project area (collectively referred to as the 'survey area'):

- Detailed flora/ vegetation survey encompassing an area of 968 ha;
- Basic fauna survey encompassing an area of 968 ha;
- Targeted flora and fauna survey encompassing an area of 1,540 ha.

The total survey area is 2,508 ha in extent and is located approximately 40 km north-west of Kalgoorlie in the City of Kalgoorlie-Boulder LGA, Western Australia (Figure 1-2). The survey was conducted to support a Native Vegetation Clearing Permit (NVCP) application and mining proposal with regards to the further development of the Castle Hill Project.

As shown in Figure 1-1, previous detailed flora/ vegetation surveys and basic fauna surveys were conducted in the survey area by Botanica in 2013 and 2014. Results of these previous assessments have been included in the current survey findings.

1.2 Objectives

The flora assessment was conducted in accordance with *Technical Guide - Flora and Vegetation Surveys for Environmental Impact Assessment – December 2016* (EPA, 2016a). The objectives of the assessment were to:

- Conduct a desktop review of available technical reports, relevant databases and spatial data to identify the potential flora and vegetation that may be present;
- Identify significant flora, vegetation/ecological communities potentially occurring in the area;
- Conduct a detailed flora and vegetation survey and targeted searches for populations of significant flora;
- Undertake floristic community mapping to a scale appropriate for the bioregion and described according to the National Vegetation Information System (NVIS) structure and floristics;
- Undertake vegetation condition mapping;
- Review the local and regional significance of flora and vegetation within the survey area;
- Assess the survey area's plant species diversity, density, composition, structure and weed cover, using NVIS classification system for vegetation description; and

Assess Matters of National Environmental Significance (MNES) and indicate whether potential impacts on MNES as protected under the EPBC Act are likely to require referral to the Commonwealth Department of Agriculture, Water and the Environment (DAWE).

The fauna assessment was conducted in accordance with the requirements for a basic terrestrial fauna survey as defined in *Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment – June 2020* (EPA, 2020). The objectives of the assessment were to:

- Gather background information on fauna in the survey area (literature review, database and map-based searches);
- Delineate and characterise the faunal assemblages and fauna habitats present in the survey area; and
- Assess the likelihood of significant fauna occurring within the survey area.

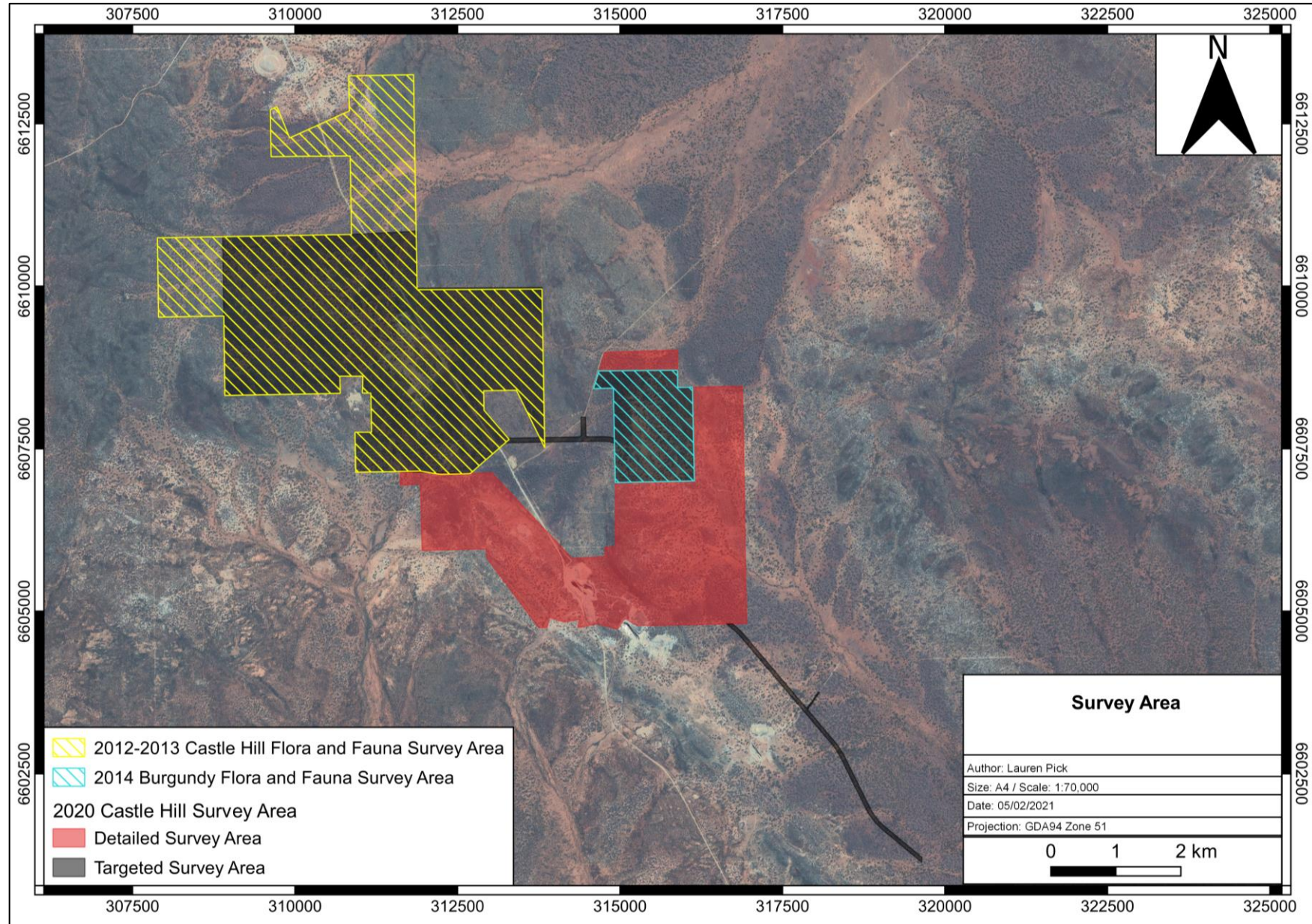


Figure 1-1: Castle Hill Project survey area

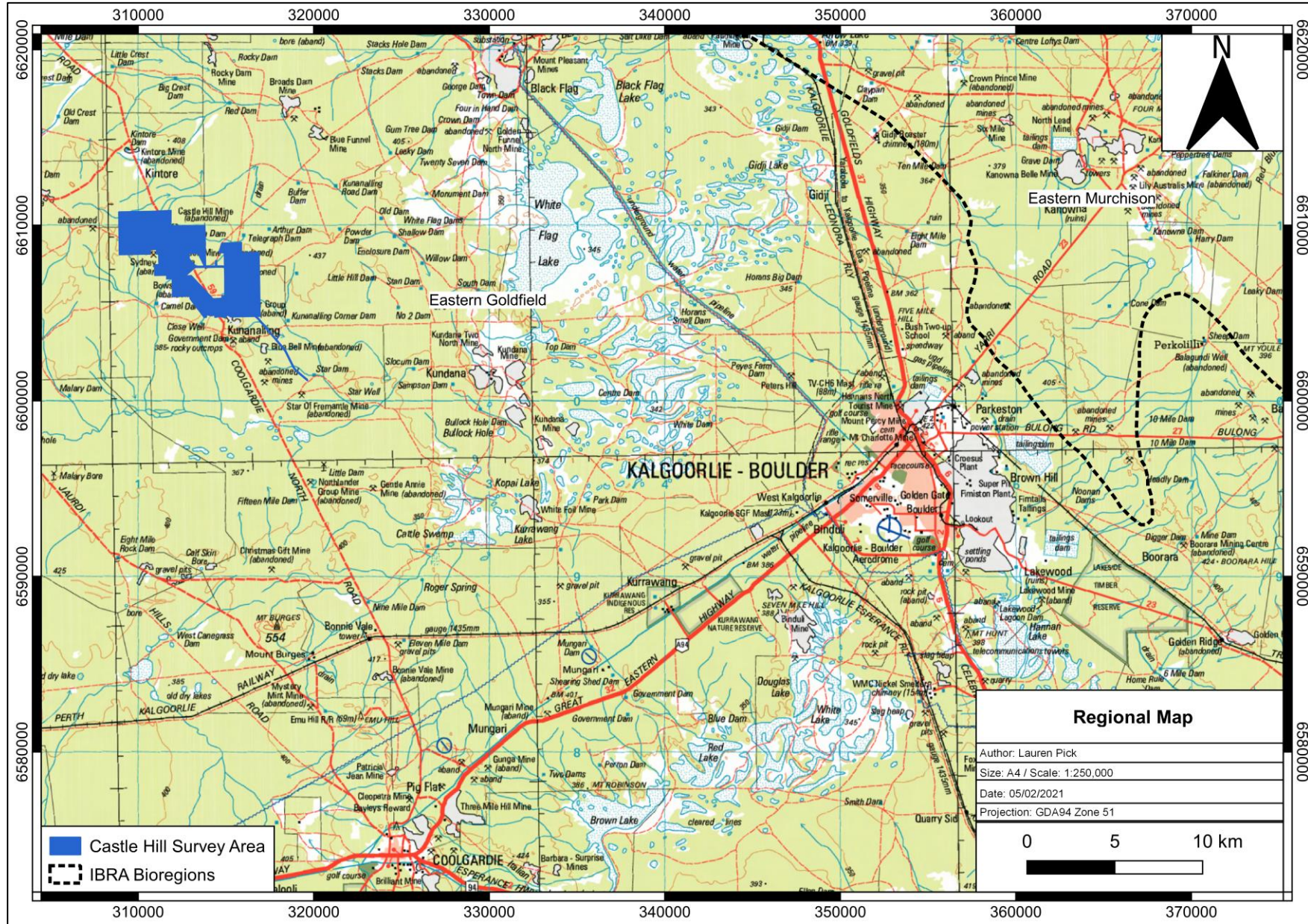


Figure 1-2: Regional map of the survey area

2 BIOPHYSICAL ENVIRONMENT

2.1 Regional Environment

The survey area lies within the Eastern Goldfield (COO3) subregion of the Coolgardie Bioregion, as defined by the Interim Biogeographic Regionalisation of Australia (IBRA).

The Eastern Goldfield subregion (5,102,428 ha) lies on the Yilgarn Craton's Eastern Goldfields Terrain, which is described as gently undulating plains with a subdued relief, interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas. A series of large playa lakes in the western half are the remnants of an ancient major drainage line (Cowan 2001).

The vegetation consists of Mallees, Acacia thickets and shrub-heaths on sandplains, with diverse *Eucalyptus* woodlands occurring around salt lakes, on ranges, and in valleys. Salt lake support dwarf shrublands of samphire. Woodlands and *Dodonaea* shrubland occur on basic granulite of the Fraser Range, and the area is rich in endemic Acacias.

In accordance with Beard (1990) the survey area is located in the Coolgardie Botanical District of the Southwestern Interzone Province. The landscape is described as gently undulating with occasional ranges of low hills, with sandplains in the western part and some large playa lakes. Soils are principally brown calcareous earths, which overlays the Proterozoic granite and gneiss of the Fraser Range block and Archaean granite, with infolded volcanics and meta-sediments, of the Yilgarn block. Vegetation is predominately *Eucalyptus* woodlands, with slopes and flats containing *E. longicornis* alongside *E. salubris* and *E. salmonophloia*. Woodland understories range from tall sclerophyll shrubland dominated by *Melaleuca pauperiflora* to soft-leaved saltbush shrubland of *Atriplex vesicaria* and *A. nummularia*. Some hill slopes contain mallees of *E. livida* or *E. loxophleba*, while ironstone ridges are covered in thickets of *Acacia quadrimarginea*, *Allocasuarina acutivalvis* and *A. campestris*. Other vegetation assemblages include species-rich scrub-heaths and *Allocasuarina* thickets on sandplains, merging into *Acacia* thickets and Kwongan vegetation to the north.

2.2 Land Use

The dominant land uses of the Eastern Goldfield subregion includes Unallocated Crown Land (UCL) and Crown reserves and pastoral grazing, with conservation areas and mining leases also present (Cowan, 2001). The survey area is located predominately within the Mt Burges Pastoral Lease, with a small portion within the Black Flag Pastoral Lease.

2.3 Soils and Landscape Systems

The survey area lies within the Kalgoorlie Province, located in the southern Goldfield between Paynes Find, Menzies, Southern Cross and Balladonia. The landscape consists of undulating plains (with some sandplains, hills and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton. Soils range from calcareous loamy earths and red loamy earths with some salt lake soils to red deep sands, yellow sandy earths, shallow loams and loamy duplexes. Vegetation communities are predominately Eucalypt woodlands with some acacia-casuarina thickets, mulga shrublands, halophytic shrublands and spinifex grasslands.

The Kalgoorlie Province is further divided into six soil-landscape zones, with the survey area located on the boundary of the Kambalda Zone (265), and Norseman Zone (266). The survey area lies predominately within the Kambalda Zone, which is located in the south-eastern Goldfield between Menzies, Norseman and the Fraser Range. It contains flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton. Soils consist of calcareous loamy earths and red loamy earths with salt lakes soils and some redbrown hardpan shallow loams and red sandy duplexes. Vegetation includes red mallee, blackbutt-salmon gum-gimlet woodlands with mulga and halophytic shrublands (and some spinifex grasslands).

The Norseman zone is located in the southern Goldfields between Koolyanobbing, Menzies, Zanthus (Trans-Australian Railway), Norseman and Lake Hope. The landscape consists of undulating plains and uplands (with some sandplains and salt lakes) on granitic rocks of the Yilgarn Craton. Soils include calcareous loamy earths, yellow sandy and loamy earths, red loamy earths, red deep sands and salt lake soils. Vegetation consists of salmon gum-redwood-merritt-red mallee-gimlet woodland with acacia/casuarina thickets (and some mulga shrublands and spinifex grasslands).

In accordance with soil landscape system mapping data (Government of Western Australia, 2019), the Kambalda and Norseman Zone are further divided into soil landscape systems, with the survey area located within three soil landscape systems, as listed in Table 2-1 and shown spatially in Figure 2-1.

Table 2-1: Soil Landscape Systems within the survey area

Soil Landscape System	Description	Extent within Survey Area ha (%)
BB5	Rocky ranges and hills of greenstones-basic igneous rocks	2038 ha (81%)
Mx40	Flat to undulating valley plains and pediments; some rock outcrop	335 ha (14%)
Mx43	Gently undulating valley plains and pediments; some outcrop of basic rock	135 ha (5%)

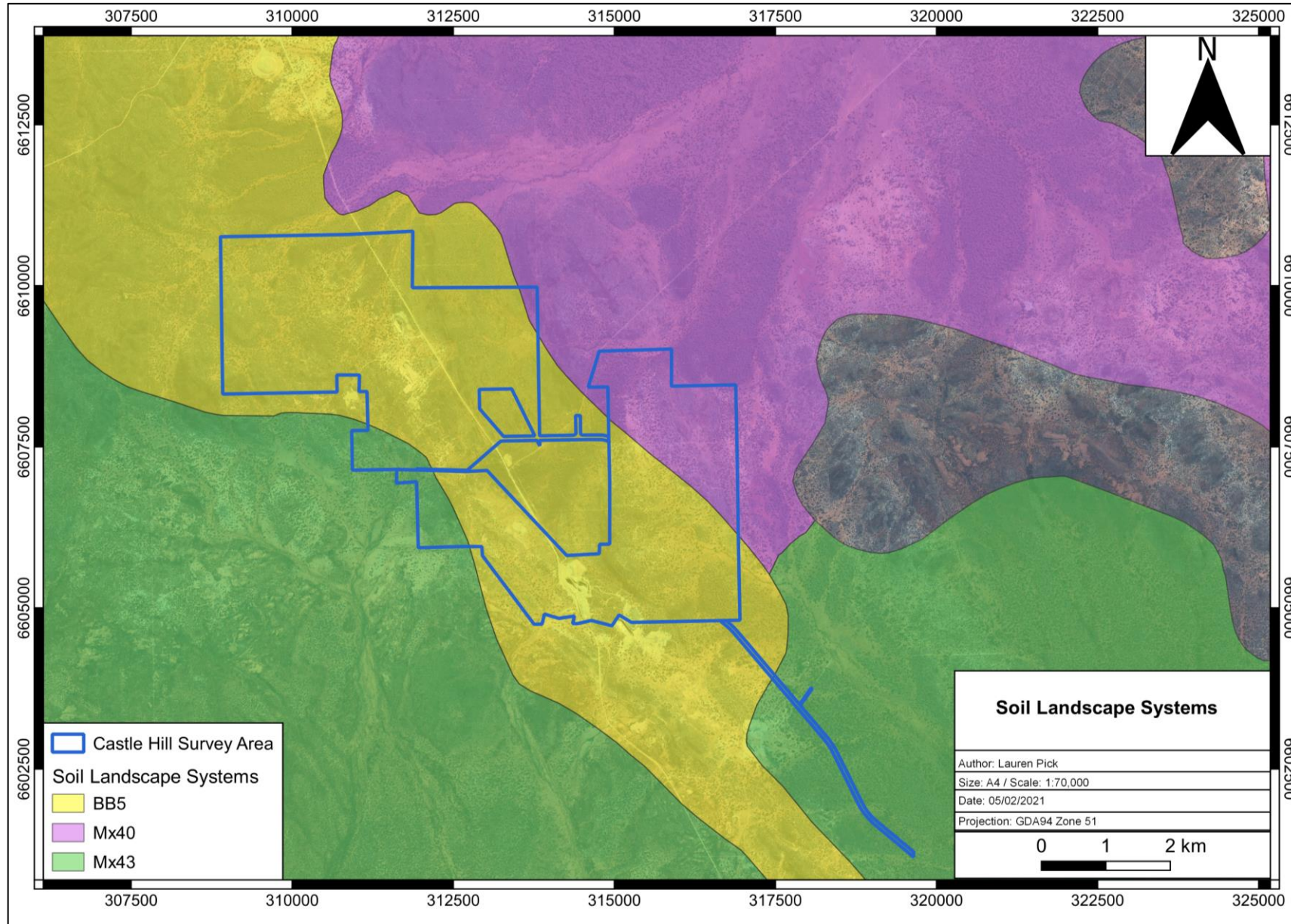


Figure 2-1: Soil Landscape Systems within the survey area

2.4 Regional Vegetation

In accordance with Tille (2006), the vegetation of the Kambalda Zone is typified by the preponderance of stony plains with acacia shrublands and halophytic shrublands, low hills with eucalypt or acacia woodlands with halophytic undershrubs, stony plains with acacia shrublands and alluvial plains with eucalypt woodlands and halophytic undershrubs rangeland. The vegetation of the Norseman zone is differentiated from the Kambalda zone by the presence of sandplains and occasional dunes with spinifex grasslands.

More broadly, the vegetation of the Kalgoorlie Province is described by Tille (2006) as woodlands of redwood (*Eucalyptus transcontinentalis*), red mallee (*E. oleosa*), Dundas blackbutt (*E. dundasii*), merri (*E. flocktoniae*) and salmon gum (*E. salmonophloia*), found on undulating plains over granite. There are also some hummock grasslands with red mallee over spinifex (*Triodia scariosa*) and thickets of *Acacia*, *Casuarina* and *Melaleuca* spp. Plains on greenstone have woodlands of York gum (*E. loxophleba*), salmon gum and gimlet (*E. salubris*). The valley plains have woodlands of salmon gum, red mallee, Goldfields blackbutt (*E. lesouefii*), gimlet, York gum and morrel (*E. longicornis*). These sometimes have an understorey of saltbush (*Atriplex* spp.), pearl bluebush (*Maireana sedifolia*), sago bluebush (*M. pyramidata*) and *Eremophila* spp. There are areas of spinifex grasslands with red mallee, mallees (e.g. *E. youngiana*) and marble gum (*E. gongylocarpa*). Low woodlands of mulga (*Acacia aneura*) and black sheoak (*Casuarina pauper*) over bluebush and saltbush are also present. Apart from the bare salt lake surfaces, saline valley floors have shrublands of samphire (*Tecticornia* spp.) and *Frankenia* spp. in lower areas, shrublands of saltbush and bluebush on red deep sandy duplexes, and woodlands of salmon gum, merri, red mallee, gimlet and York gum. *Acacia neurophylla*, *A. beauverdiana* and *A. resinimarginea* thickets grow on gently sloping uplands on granite, with thickets of acacia, casuarina and melaleuca. There are also scrub-heaths and York gum-salmon gum-gimlet woodlands on these uplands. The hilly terrain on greenstone supports woodlands of salmon gum, Goldfields blackbutt, coral gum (*E. torquata*), York gum, gimlet, morrel, Dundas blackbutt and black sheoak. Thickets of granite wattle (*Acacia quadrimarginea*) are also present. The stony plains support scattered woodlands of Goldfields blackbutt, gimlet and salmon gum, along with shrublands of saltbush and bluebush. Sandplains in the west have acacia (*A. coolgardiensis*, *A. ramulosa*, *A. aneura*, *A. burkittii* and *A. tetragonophylla*) shrublands, commonly with patchy native pine (*Callitris glaucophylla* *C. preissii*) and mallees (*E. leptopoda*, *E. longicornis* and *E. loxophleba*). Native box (*Bursaria occidentalis*), *Melaleuca uncinata* and *Hakea recurva* may also be present. Hard spinifex (*T. basedowii*) grasslands with mulga, marble gum and mallees (e.g. *E. kingsmillii*) are found on sandplains to the east. The sandy-surfaced plains support acacia, casuarina and melaleuca thickets; woodlands of York gum, cypress pine (*Callitris columellaris*), salmon gum, gimlet and mulga; and shrublands of bowgada (*A. ramulosa*).

2.5 Conservation Values

The Eastern Goldfield subregion contains 16 vegetation associations, predominately open *Eucalyptus* woodlands, that have at least 85 per cent of their total extent in the bioregion (Cowan 2001) The subregion is considered a centre of endemism for Eucalypts in the Goldfields Woodlands region, and is also noted for the diversity of *Acacia* spp. and ephemeral flora communities of the tertiary sandplain shrublands and the valley floors of woodland areas.

The subregion contains one wetland of national importance: Rowles Lagoon System, located approximately 40 km east of the survey area. In addition, there are seven wetlands of subregional importance (Cowan, 2001). Other significant assemblages in the region include plant assemblages of the Fraser Range and the Woodline Hills.

No ecosystems are listed as threatened under WA State legislation occur within the subregion, but 18 communities and vegetation associations are thought to be at risk for a variety of reasons. Grazing from livestock, goats and rabbits and impacts from mining are the main threatening processes in the region, with changed fire regimes, erosion and sedimentation also causing significant impacts.

2.5.1 Great Western Woodlands

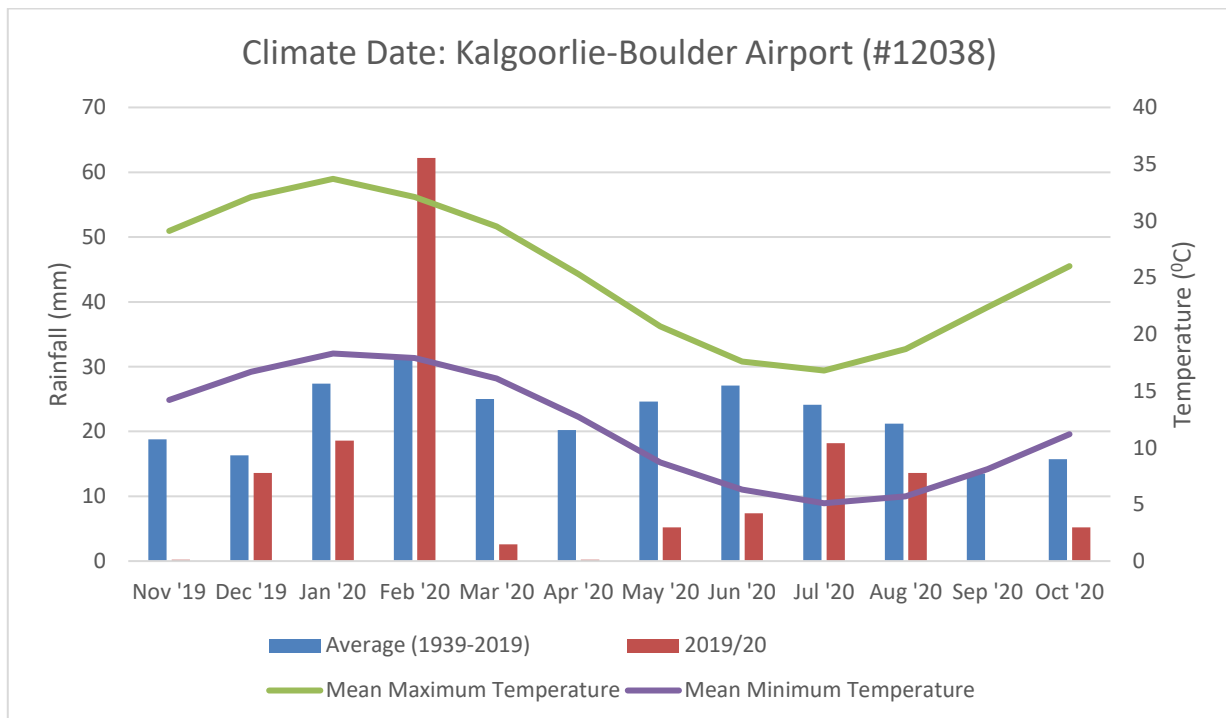
The survey area lies within the Great Western Woodlands, considered by The Wilderness Society of WA to be of global biological and conservation importance as one of the largest and healthiest temperate woodlands on Earth, containing many endemic taxa. The region covers almost 16 million hectares (160,000 square kilometres), from the southern edge of the Western Australian Wheatbelt to the pastoral lands of the Mulga country in the north, the inland deserts to the northeast, and the treeless Nullarbor Plain to the east.

The Great Western Woodlands provides a connection between southwest forests and inland deserts (Gondwana Link) as well as linking the north-west passage to Shark Bay. The majority of the Great Western Woodlands is unallocated crown land (61.1%) with other interests including pastoral leases (20.4%), conservation reserves (15.4%) unallocated crown land, ex pastoral (2%) managed by the Department of Biodiversity, Conservation and Attractions (DBCA) and private land (approximately 1%) (Watson *et. al.*, 2008).

No specific management strategy or formal conservation status applies to the Great Western Woodlands. The Great Western Woodlands currently includes towns, highways, roads, railways, private property, Crown Reserves, agricultural activities and mining tenements.

2.6 Climate

The climate of the Eastern Goldfield subregion is characterised as arid to semi-arid with 200-300 mm of rainfall, sometimes in summer but usually in winter (Cowan 2001). Rainfall data for the Kalgoorlie-Boulder Airport (#12038) weather station, located approximately 40 km south-east of the survey area, is shown in Graph 2-1 (BoM, 2020). Mean monthly rainfall ranges from 31.6 mm in February to 13.5 mm in September, with a mean annual rainfall of 264.9 mm. The survey was conducted in November 2020, with the preceding months (September and October) being characterised by significantly reduced rainfall. Although climate conditions are not considered optimal for the presence of flowering material and ephemeral species, this is unlikely to be a major survey constraint, with multiple surveys previously conducted by Botanica within the survey area over different seasons (spring/ autumn) over multiple years (2012-2014).



Graph 2-1: Average and recent rainfall and average temperature data (Kalgoorlie-Boulder Airport (#12038)) (BoM, 2020)

2.7 Hydrology

According to the Geoscience Australia database (2015), there are no permanent or ephemeral inland waters within the survey area, however multiple minor ephemeral drainage lines intersect the survey area (Figure 2-2).

Groundwater Dependent Ecosystems (GDE) includes biological assemblages of species such as wetlands or woodlands that use groundwater either opportunistically or as their primary water source. For the purposes of this report, a GDE is defined as any vegetation community that derives part of its water budget from groundwater and must be assumed to have some degree of groundwater dependency. According to the BoM *Atlas of Groundwater Dependent Ecosystems* database (BoM, 2020b) database, there are no aquatic GDE's within the survey area, however two low potential terrestrial GDEs intersect the north-eastern and south eastern extremity of the survey area, which are described below in Table 2-2 and spatially in Figure 2-2.

Table 2-2: Potential Terrestrial Groundwater Dependent Ecosystems (BoM, 2020b)

GDE Description	Potential GDE (according to BoM, 2020b)
Medium woodland; salmon gum	Low potential GDE
Shrublands; <i>Acacia quadrimarginea</i> thicket	Low potential GDE

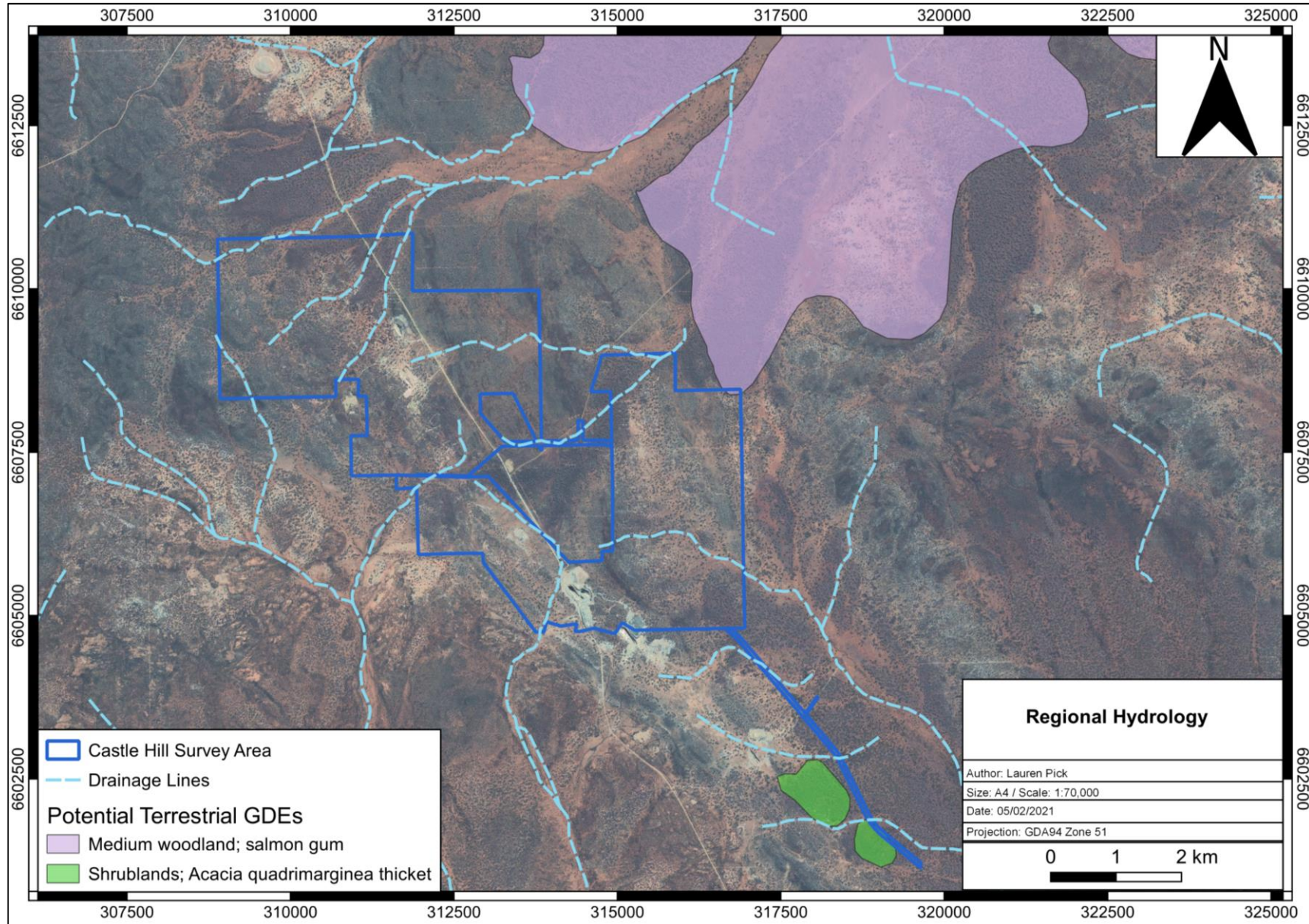


Figure 2-2: Regional hydrology of the survey area

3 SURVEY METHODOLOGY

3.1 Desktop Assessment

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

- Botanica (2011). *Level 1 Flora & Vegetation Survey: Proposed Anthill open pit operation*. Prepared for Metaliko Resources Ltd, 2011.
- Botanica (2013). *Level 2 Flora & Vegetation Survey for the Castle Hill Project*. Prepared for Phoenix Gold Ltd, September 2013.
- Botanica (2014). *Level 2 Flora & Vegetation Survey for the Burgundy Project*. Prepared for Phoenix Gold Ltd, September 2014.
- Botanica (2020). *Ant Hill Reconnaissance Flora/ Vegetation Survey and Basic Fauna Survey*. Prepared for Northern Star Resources Ltd, December 2020.
- Harewood (2013). *Terrestrial vertebrate Fauna Assessment of the Castle Hill Project Area*, . Prepared for Phoenix Gold Ltd, October 2013.
- Harewood (2014a) *Fauna Assessment, Burgundy Project Area*. Prepared for Phoenix Gold Ltd, October 2014.
- Harewood (2014b). *Clearing Permit CPS5675/2 Malleefowl Assessment, Castle Hill Project Area*. Prepared for Phoenix Gold Ltd, October 2014.
- Harewood (2014c). *Clearing Permit CPS6152/1 Malleefowl Assessment, Burgundy Project Area*. Prepared for Phoenix Gold Ltd, October 2014.
- Phoenix Environmental Services (2019a). *Flora and vegetation survey for Mungari Gold Operations: Cutters Ridge Project*. Prepared for Evolution Mining Ltd, May 2019.
- Phoenix Environmental Services (2019b). *Fauna survey for Mungari Gold Operations: Cutters Ridge Project*. Prepared for Evolution Mining Ltd, May 2019.

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

- DBCA Threatened/ Priority Flora spatial data (DBCA, 2019);
- DBCA NatureMap database (DBCA, 2020); and
- EPBC Protected Matters search tool (DAWE, 2020a).

The NatureMap species search and EPBC Protected Matters search were conducted with a 40 km buffer from the survey area.

Significant flora and fauna species identified by the desktop review were assessed with regards to their population extent and distribution and preferred habitat to determine their likelihood of occurrence within the survey area.

The assessment categorised flora species as follows:

- Unlikely- Suitable habitat is not expected to occur and/or the survey area is outside the known range of the species.
- Possible- Suitable habitat may be present, and the area is within the known range of the species. This option is also used when there is insufficient information to determine the preferred habitat of a species.
- Likely- Suitable habitat is expected to occur and there are records within 10 km of the survey area.
- Previously Recorded- A record for this species is located within the survey area. Field survey will ground-truth currently occurring individuals and populations.

Fauna species were categorised as follows:

- **Would Not Occur:** There is no suitable habitat for the species in the survey area and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
 - **Locally Extinct:** Populations no longer occur within a small part of the species natural range, in this case within 10 or 20km of the survey area. Populations do however persist outside of this area.
 - **Regionally Extinct:** Populations no longer occur in a large part of the species natural range, in this case within the Goldfields region. Populations do however persist outside of this area.
- **Unlikely to Occur:** The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the site itself would not support a population or part population of the species.
- **Possibly Occurs:** Survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as likely to be present during the field survey and literature review, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.
- **Known to Occur:** The species in question has been positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during field surveys within or near the survey area. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. tracks, foraging debris, scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

It should be noted that these lists are based on observations from a broader area than the assessment area (40 km radius) and therefore may include taxa not present. The databases also often include very old records that may be incorrect or in some cases the taxa in question have become locally or regionally extinct. Information from these sources should therefore be taken as indicative only and local knowledge and information also needs to be taken into consideration when determining what actual species may be present within the specific area being investigated.

The conservation significance of flora and fauna taxa was assessed using data from the following sources:

- *Environment Protection and Biodiversity and Conservation (EPBC) Act 1999*. Administered by the Australian Government (DAWE);
- *Biodiversity Conservation (BC) Act 2016*. Administered by the WA Government (DBCA);
- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List – the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- Priority Flora/ Fauna list. A non-legislative list maintained by DBCA for management purposes (fauna list released April 2019; flora list released December 2018).

The EPBC Act also requires the compilation of a list of migratory species that are recognized under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA)¹;
- China Australia Migratory Bird Agreement 1998 (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

Most but not all migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as Matters of National Environmental Significance (MNES) under the EPBC Act. Descriptions of conservation significant species and communities are provided in Appendix 1.

3.2 Field Assessment

Botanica conducted a detailed flora/ vegetation survey, basic fauna survey and targeted flora/ fauna surveys on the 30th October, 3rd to 5th November and 9th November 2020, with the area traversed on foot and 4WD by three Botanica staff members; Jennifer Jackson (Senior Botanist, BSc (Honours) Environmental Management), Greg Harewood (Zoologist, BSc Zoology) and Matthew Newlands (Environmental Technician).

3.2.1 Vegetation Mapping

Prior to the commencement of field work, aerial photography was inspected and obvious differences in the vegetation assemblages were identified. The different vegetation communities identified were then inspected during the field survey to assess their validity. A handheld GPS unit was used to record the coordinates of the boundaries between vegetation communities. At each sample point, the following information was recorded:

- GPS location;
- Photograph of vegetation;
- Dominant taxa for each stratum (including height and percentage cover of dominant taxa);
- All vascular taxa (including annual taxa);
- Landform classification;

¹ Most but not all species listed under JAMBA are also specially protected under Specially Protected Species of the BC Act.

- Vegetation condition rating;
- Collection and documentation of unknown plant specimens; and
- GPS location, photograph and collection of flora of significance if encountered.

Vegetation types were classified in accordance with NVIS classifications.

3.2.2 Flora Identification

Unknown specimens collected during the survey were identified by Jim Williams with the aid of samples housed at the Botanica Herbarium and WA Herbarium.

3.2.3 Sampling Quadrats

A total of 100 quadrats (20m X 20m) were established within the survey area, including 55 quadrats established in 2012-2013 (Castle Hill survey), 20 quadrats established in 2014 (Burgundy survey) and 25 quadrats established in 2020 (current survey). A map of all quadrats included in the statistical analysis is provided in Figure 3-1.

The quadrats were established by inserting metal pickets in each corner, and measuring the length of the resultant boundaries to verify the quadrats were 20 m x 20 m (square quadrats). Following their establishment and boundary verification, the location of each quadrat was recorded by GPS (Appendix 9) and photographed from the north-west corner of the quadrat (Appendix 11). All vascular plants within the quadrat were recorded (Appendix 10).

This included recording of dominant taxa from the upper, middle and lower stratum, and sampling of all unknown taxa. Unknown taxa were identified using Botanica's own reference herbarium and relevant taxonomical keys. Data on level of disturbance, presence of coarse fragments on surface, topographical position, elevation, aspect, percentage litter, percentage bare ground, percentage surface rock (bedrock and surface deposits), soil types (colour, profile, field texture and surface type), and vegetation structure were collected from each quadrat (Appendix 10). Methods of recording data from these quadrats largely follow those outlined in CSIRO's *Australian Soil and Land Survey Field Handbook* (McDonald *et al.* 1998) and in accordance with current EPA Guidelines (2016).

3.2.4 Targeted Searches

Suitable habitats for significant flora were systematically searched by Botanica staff members to identify and record the locations of Threatened and Priority Flora. Any locations of Threatened and Priority Flora were recorded using a hand-held GPS and a simple plant count (not differentiated between juvenile/mature plants, flowering or non-flowering plants) was conducted.

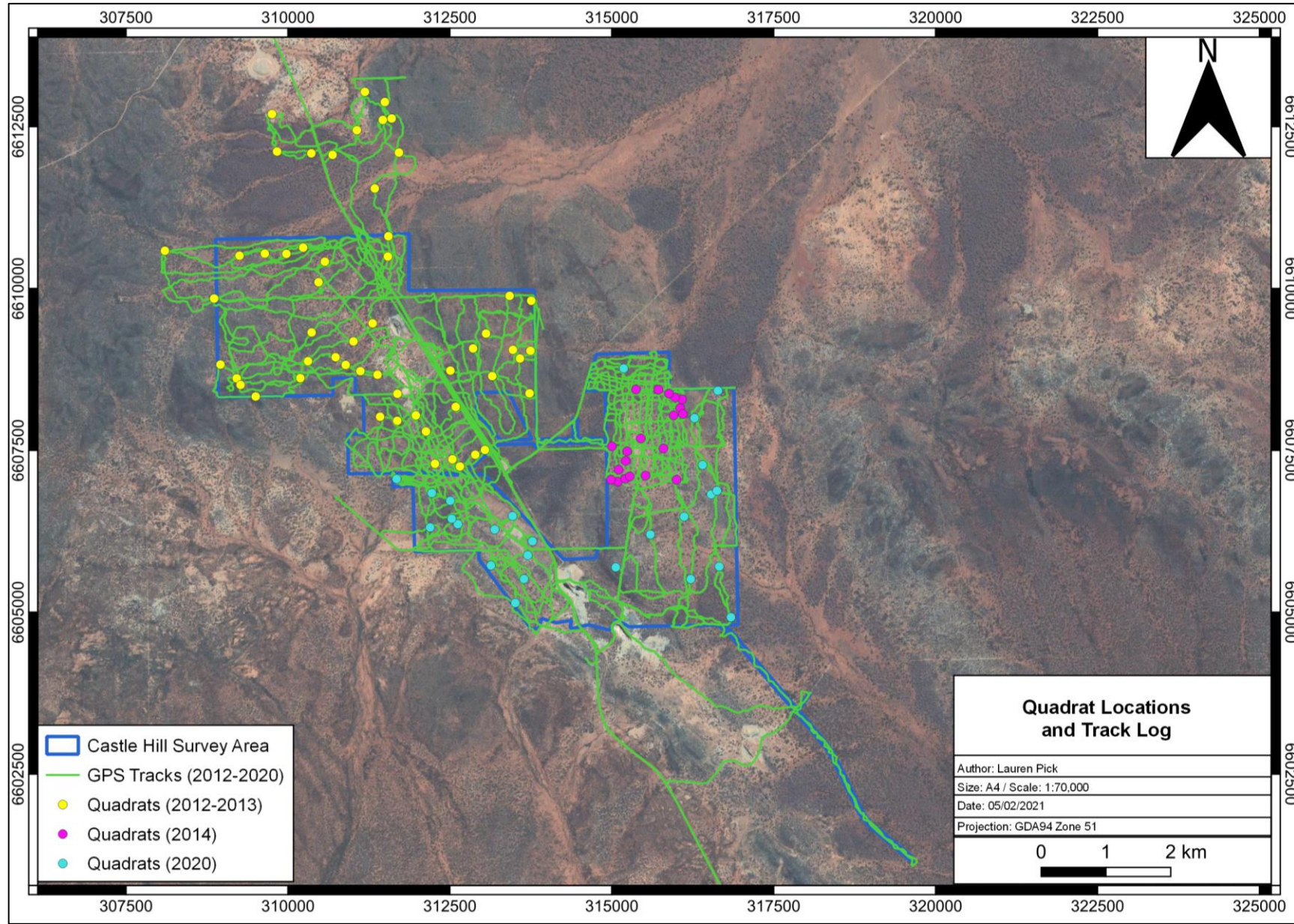


Figure 3-1: Quadrat Locations and track log

3.2.5 Fauna Assessment

Vegetation and landform units identified during the flora assessment have been used to define broad fauna habitat types across the site. This information has been supplemented with observations made during the fauna assessment.

The main aim of the fauna habitat assessment was to determine the likelihood of fauna species of conservation significance utilizing the areas that may be impacted during site development. The habitat information obtained was also used to aid in finalizing the overall potential fauna list.

As part of the desktop literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the field survey, the habitats within the study area were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilizing the area and its significance to them.

Opportunistic observations of fauna species were made during all field survey work which involved a series of transects across the study area during the day including observations of bird species with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

3.2.6 Targeted Fauna Survey

Suitable malleefowl habitat within the survey area was systematically searched on foot and by vehicle by two Botanica staff members to identify and record the locations of any malleefowl activity (i.e. mounds, footprints and feathers). Any locations/ observations of malleefowl activity were recorded using a hand-held GPS.

3.2.7 Scientific Licences

Table 3-1: Scientific Licences of Botanica Staff coordinating the flora survey

Licensed staff	Permit Number	Valid Until
Jennifer Jackson	SW019268 (Licence to flora for scientific purposes)	18/02/2021

3.3 Data Analysis Tools

At the completion of the survey effort, the data obtained was analysed to generate a vegetation map (Figure 4-5) and complete list of flora species (Appendix 5). The statistical program PATN was used to assess species composition of the quadrats (Appendix 12).

3.3.1 PATN Analysis

The PATN software package was used to assess the similarities/ dissimilarities between quadrats based on presence/ absence of species. A total of 100 quadrats were included in the analysis, including 55 quadrats established in 2012-2013 (Castle Hill survey), 20 quadrats established in 2014 (Burgundy survey) and 25 quadrats established in 2020 (current survey).

Annual taxa (35 taxa) and sterile taxa (two taxa) were removed from the analysis. Singleton taxa (21 taxa) were also excluded from the analysis. Species reconciliation was conducted for four variant taxa. A total of 75 perennial taxa were included in the final analysis.

The analysis produced a quantitative estimate of the relationship between species composition of each quadrat. The classifications were based upon a Bray-Curtis association matrix using a flexible Unweighted Pair Group Arithmetic Mean (UPGMA) method (with a beta value of -0.1) which standardises the data enabling the analysis to be completed. Semi-strong hybrid (SSH) ordination of the quadrat is then undertaken to show spatial relationships between groups and to elucidate possible environmental correlates with the classification.

The analysis also produced a stress value which is a measure of the 'strength' of the analysis (i.e. how well the quadrats are grouped together into the appropriate floristic groups). The lower the stress value the greater the strength of the analysis with a value of less than 0.3 showing that the analysis appropriately grouped quadrats. A stress value greater than 0.3 suggests that the analysis was unable to group quadrats appropriately due to extraneous variables (i.e. other factors influencing differences in floristic groups other than species composition e.g. fire, clearing disturbance etc.).

3.3.2 EstimateS

EstimateS software was used to estimate species richness present using the Chao2 richness estimator. For any number of samples, the estimator uses the existing pattern of species accumulation to estimate the true number of species at a site. The estimators tend to under-estimate species number when sample size is small, hence the estimated number of true species can be seen to increase with sample size. This software was also used to compute Coleman rarefaction curves estimates which were used to calculate species accumulation curves.

3.4 Survey Limitations and Constraints

It is important to note that flora surveys will entail limitations notwithstanding careful planning and design. Potential limitations are listed in Table 3-2.

The conclusions presented in this report are based upon field data and environmental assessments and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. Also, it should be recognised that site conditions can change with time. Information not available at the time of this assessment which may subsequently become available may alter the conclusions presented.

Some species are reported as potentially occurring based on there being suitable habitat (quality and extent) within the survey area or immediately adjacent. The habitat requirements and ecology of many of the species known to occur in the wider area are however often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on a lack of a specific habitats or microhabitats within the survey area. As a consequence of this limitation, the potential species list produced is most likely an overestimation of those species that actually utilise the survey area for some purpose.

In recognition of survey limitations, a precautionary approach has been adopted for this assessment. Any flora and fauna species that would possibly occur within the survey area (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the author, has been listed as having the potential to occur.

Table 3-2: Limitations and constraints associated with the survey

Variable	Potential Impact on Survey	Details
Access problems	Not a constraint	The survey was conducted via ATV and on foot. Numerous tracks were located within the survey area, providing ease of access.
Competency/ Experience	Not a constraint	The BC personnel that conducted the survey were regarded as suitably qualified and experienced. Coordinating Botanist/ Zoologist: Jennifer Jackson & Greg Harewood Data Interpretation: Kelby Jennings & Lauren Pick
Timing of survey, weather & season	Minor constraint	Fieldwork was undertaken within the EPA's recommended survey period (September - November) for the South-West and Interzone Province. Reduced rainfall was recorded in the preceding months, with limited ephemeral species present. Although climate conditions are not considered optimal for the presence of flowering material and ephemeral species, this is unlikely to be a major survey constraint, with multiple surveys previously conducted by Botanica within the survey area over different seasons (spring/ autumn) over multiple years (2012-2014).
Area disturbance	Not a constraint	The area has been disturbed from exploration and mining operations, cattle grazing and other human impacts; however, vegetation was mostly intact and comprised of native vegetation.
Survey Effort/ Extent	Not a constraint	Survey intensity was appropriate for the size/significance of the area with a detailed flora/ vegetation survey and basic fauna survey completed to identify vegetation types/fauna habitats and conservation significant species/communities.
Availability of contextual information at a regional and local scale	Not a constraint	Threatened flora database searches provided by the DBCA were used to identify any potential locations of Threatened/Priority taxa. BoM, DWER, DPIRD, DBCA and DAWE databases were reviewed to obtain appropriate regional desktop information on the biophysical environment of the local region. Previous Flora/ Fauna surveys within the local area have been assessed for pertinent information and environmental context of the regional area.
Completeness	Not a constraint	In the opinion of Botanica, the survey area was covered sufficiently in order to identify vegetation assemblages. Only two flora specimens were unable to be positively identified to species level. The vegetation types for this study were based on visual descriptions of locations in the field. The distribution of these vegetation communities/ fauna habitats outside the study area is not known, however vegetation types identified were categorised via comparison to vegetation distributions throughout WA specified in the NVIS Major Vegetation Groups (DotEE, 2017b).

4 RESULTS

4.1 Desktop Assessment

4.1.1 Flora

The desktop review identified 780 vascular flora species as occurring within 40 km of the survey area, representing 303 genera from 76 families. The most diverse families were Asteraceae (104 species), Fabaceae (99 species) and Myrtaceae (88 species). Significant genera include *Acacia* (54 species), *Eucalyptus* (47 species) and *Eremophila* (35 species). This total includes 71 introduced (weed) species (9.1%).

4.1.1.1 Introduced Flora

The desktop review identified 71 introduced flora (weed) species as potentially occurring in the vicinity of the survey area. These species consist of 26 families, with the most commonly represented being Asteraceae (14 species), Poaceae (13 species) and Fabaceae (six species). Of these, two are listed as a Declared Pest on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management (BAM) Act 2007*, with one also listed as a Weed of National Significance (Table 4-1).

The full list of potential weed species is contained in Appendix 2.

Table 4-1: Potentially occurring Declared Pests and Weeds of National Significance

Family	Species	Common Name	WAOL Status	Control Category	WONS
Boraginaceae	<i>Echium plantagineum</i>	Paterson's Curse	Declared Pest - s22(2)	No Control Category, Whole of State	No
Cactaceae	<i>Opuntia elata</i>	-	Declared Pest - s22(2)	C3 Management, Whole of State	Yes

4.1.1.2 Significant Flora

The assessment of the DBCA Priority/ Threatened flora data (DBCA, 2019), NatureMap search (DBCA, 2020), Protected Matters searches (DAWE, 2020a) and previous relevant literature identified 49 significant flora species recorded within a 40 km radius of the survey area. These are comprised of three Endangered, 16 Priority 1, seven Priority 2, 19 Priority 3 and four Priority 4 taxa (Appendix 3).

These taxa were assessed for distribution and known habitat to determine their likelihood of occurrence within the survey area. The assessment identified on Priority flora species as previously recorded within the survey area. Five taxa were assessed as possibly occurring in the survey area, consisting of one Priority 1, two Priority 2 and two Priority 3 taxa (Table 4-2). The full flora likelihood assessment is listed in Appendix 3. The locations of the DBCA database records are illustrated spatially in Figure 4-1.

Table 4-2: Potentially occurring significant flora species

Species	Rank	Habitat	Comments	Likelihood
<i>Rhodanthe uniflora</i>	P1	Brown earth. Open eucalyptus woodland.	Within species range, habitat may be present.	Possible
<i>Eremophila praecox</i>	P2	Red/brown sandy loam. Undulating plains.	Previously recorded within survey area by Phoenix Environmental Services (2019a)	Previously Recorded
<i>Eucalyptus educta</i>		Shallow soils. Granite rocks.	Within known range, habitat may be present.	Possible
<i>Rumex crystallinus</i>		Arid & semi-arid areas.	Within species range, habitat may be present.	Possible
<i>Angianthus prostratus</i>	P3	Red clay or loamy soils. Saline depressions.	Extreme of known range, habitat may be present.	Possible
<i>Notisia intonsa</i>		Red sand, disturbed areas.	Within species range, habitat may be present.	Possible

4.1.1.3 Significant Ecological Communities

The Protected Matters search (DAWE, 2020a) did not identify any Threatened Ecological Communities recorded within 40 km of the survey area. Analysis of the Priority Ecological Communities within the Goldfields region (DBCA, 2017) did not identify any significant vegetation assemblages as likely or possibly occurring within the survey area.

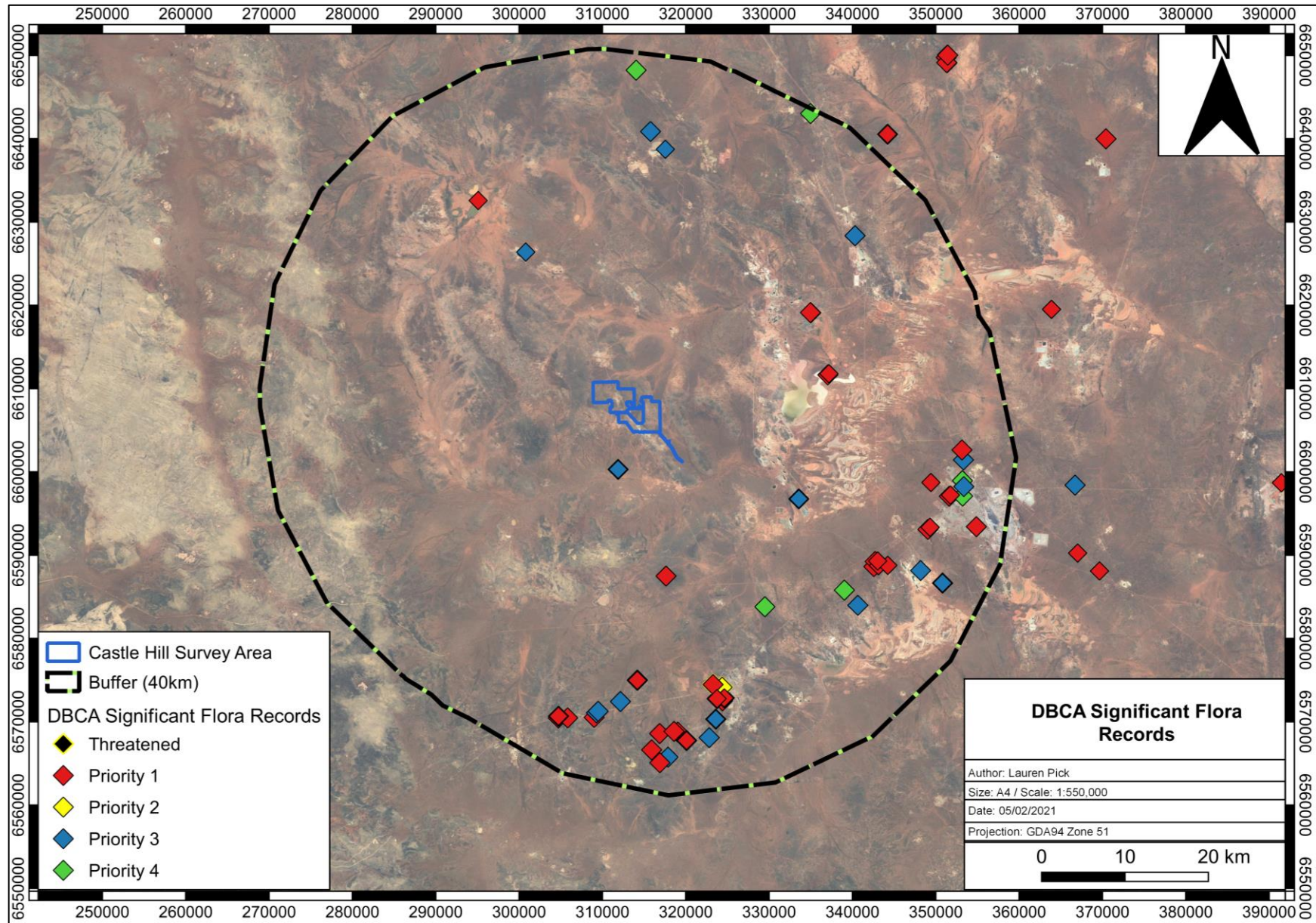


Figure 4-1: DBCA significant flora records

4.1.2 Vegetation Associations

The Pre-European vegetation association spatial mapping dataset (DPIRD, 2018) identifies three vegetation associations as occurring within the survey area (Figure 4-2). The association descriptions and their remaining extent, as specified in the 2018 Statewide Vegetation Statistics (DBCA, 2019) are provided in Table 4-3. Areas retaining less than 30% of their pre-European vegetation extent generally experience exponentially accelerated species loss, while areas with less than 10% are considered “endangered” (EPA, 2000). All vegetation associations retain >98% of their Pre-European extent. Development within the survey area will not significantly reduce the pre-European extent of these vegetation associations.

Table 4-3: Pre-European Vegetation Associations within the survey area

Vegetation Association	Current Extent (ha)	Pre-European extent remaining (%)	% in DBCA managed lands	Floristic Description	Extent within Survey Area ha (%)
Kununulling 468	181,666.52	98.30	0.04	Medium woodland; salmon gum & goldfields blackbutt	2 ha (0.07%)
Kununulling 520	1,424.70	100.00	0	Shrublands; <i>Acacia quadrimarginea</i> thicket	1 ha (0.04%)
Kununulling 936	13,907.76	99.55	0	Medium woodland; salmon gum	2,505 ha (99.9%)

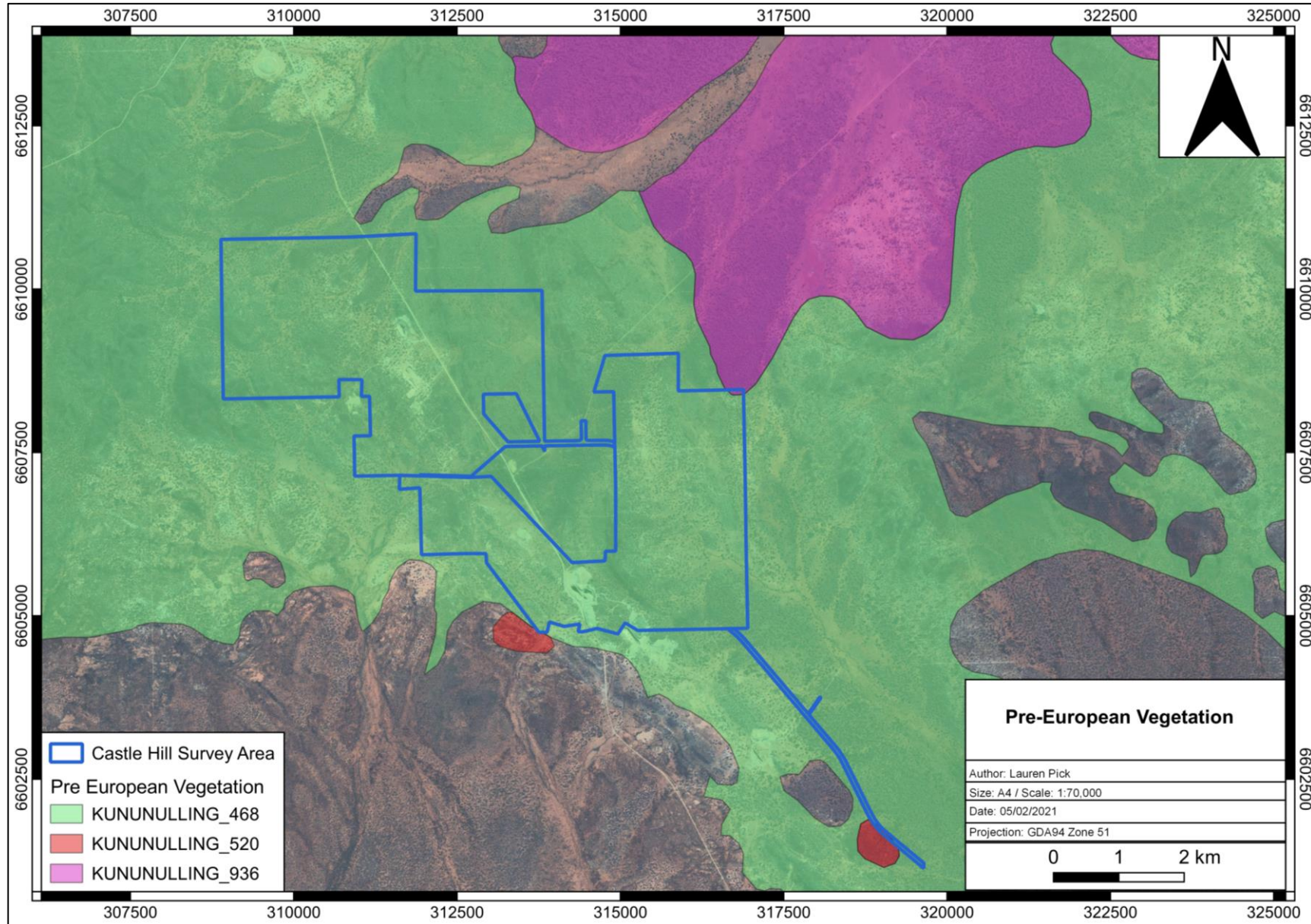


Figure 4-2: Pre-European Vegetation Associations within the survey area

4.1.3 Fauna

According to the results of the NatureMap search (DBCA, 2020), a total of 261 terrestrial vertebrate fauna taxa have been recorded within a 40 km radius of the survey area, consisting of 158 bird, 26 mammal, 71 reptile and six amphibian taxa. This total includes seven introduced (feral) species (2.7%).

4.1.3.1 Introduced (Feral) Fauna

The NatureMap and EPBC database searches identified 13 feral fauna species from nine families as potentially occurring in the survey area (Table 4-4).

Table 4-4: Potentially Occurring Introduced Fauna

Family	Species	Common Name
Bovidae	<i>Capra hircus</i>	Goat
Canidae	<i>Canis lupus familiaris</i>	Domestic Dog
	<i>Vulpes</i>	Red Fox
Columbidae	<i>Columba livia</i>	Domestic Pigeon
	<i>Streptopelia chinensis</i>	Spotted Turtle-Dove
	<i>Streptopelia senegalensis</i>	Laughing Turtle-Dove
Equidae	<i>Equus asinus</i>	Donkey, Ass
	<i>Equus caballus</i>	Horse
Felidae	<i>Felis catus</i>	Cat
Gekkonidae	<i>Hemidactylus frenatus</i>	Asian House Gecko
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit
Muridae	<i>Mus musculus</i>	House Mouse
Phasianidae	<i>Pavo cristatus</i>	Common Peafowl

4.1.3.2 Conservation Significant Fauna

The desktop review identified 22 terrestrial vertebrate fauna species of conservation significance as previously being recorded in the regional area, consisting of seven Threatened, one Priority 3, one Priority 4 and three migratory or otherwise protected species. In addition, ten migratory wading/shorebird species were assessed collectively due to their similar habitat requirements. The full fauna likelihood assessment is listed in Appendix 4

Habitat and distribution data was used to determine the likelihood of occurrence within the survey area. The assessment identified three significant fauna species as potentially occurring in the survey area (Table 4-5).

Table 4-5: Significant fauna species potentially occurring in survey area

Species	Status	Likelihood
Central Long-eared Bat (<i>Nyctophilus major tor</i>)	P3	Possible
Malleefowl (<i>Leipoa ocellata</i>)	T (VU)	Possible
Peregrine Falcon (<i>Falco peregrinus</i>)	OS	Possible

4.1.4 Conservation Areas

There are no vested Conservation Reserves located within the survey area.

There are no DBCA managed lands located within the survey area.

There are no Environmentally Sensitive Areas located within the survey area.

There are no Nationally Important or RAMSAR wetlands located within the survey area.

The closest significant environmental feature is the Rowles Lagoon Conservation Park, which is DBCA-managed land located approximately 25 km north-west of the survey area. Disturbances within the survey area are unlikely to impact this conservation reserve. The location of conservation areas in relation to the survey area is provided in Figure 4-3.

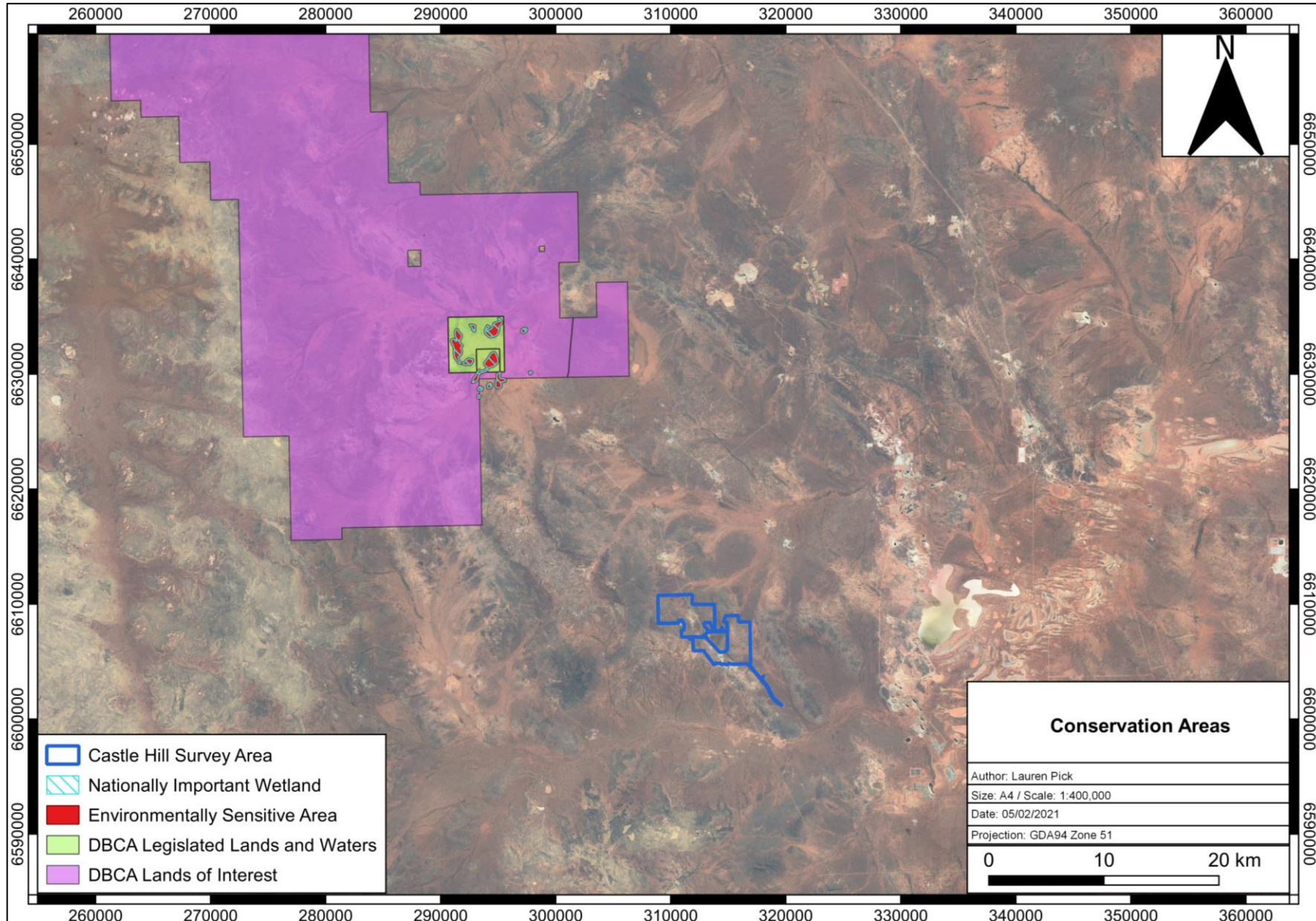


Figure 4-3: Conservation Areas

4.2 Field Assessment

4.2.1 Flora

The field survey identified 145 flora taxa within the survey area. These taxa represented 70 genera across 32 families, with the most diverse genera being *Eremophila* (15 species), *Eucalyptus* (10 species) and *Acacia* (8 species). Dominant families include Chenopodiaceae (26 species), Asteraceae (17 species), Scrophulariaceae (15 species) and Fabaceae (14 species). Eleven introduced (weed) species were recorded, representing 8% of the total species richness. The full field species inventory is listed in Appendix 5.

4.2.1.1 Introduced Flora

Eleven introduced (weed) species were recorded within the survey area (Table 4-6), none of these species are listed as a Weed of National Significance or a Declared Pest in Western Australia.

Table 4-6: Introduced flora species within the survey area

Family	Species
Asphodelaceae	<i>Asphodelus fistulosus</i>
Asteraceae	<i>Centaurea melitensis</i>
Asteraceae	<i>Dittrichia graveolens</i>
Asteraceae	<i>Sonchus oleraceus</i>
Brassicaceae	<i>Carrichtera annua</i>
Brassicaceae	<i>Sisymbrium irio</i>
Cucurbitaceae	<i>Cucumis myriocarpus</i>
Lamiaceae	<i>Salvia reflexa</i>
Lamiaceae	<i>Salvia verbenaca</i>
Poaceae	<i>Cenchrus ciliaris</i>
Primulaceae	<i>Lysimachia arvensis</i>

4.2.1.2 Significant Flora

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016b) significant flora includes:

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

No Threatened flora species were recorded within the survey area. One Priority 2 flora species (*Eremophila praecox*) was previously recorded within and adjacent to the survey area by Phoenix Environmental Services (2019a). An additional potential record of this taxon was recorded by Botanica within the survey area however due to absence of flowering material (despite the survey being conducted during the known flowering period for this taxon), this specimen could not be positively identified or formally lodged with the Western Australian Herbarium. Given this taxon has been previously recorded within/ adjacent to the survey area this record is tentatively considered as a Priority 2 flora record.

Coordinates for the *Eremophila praecox* (P2) records are provided in Table 4-7. A map showing the *Eremophila praecox* (P2) records is provided in Figure 4-4. No other significant flora (as described above) was identified within the survey area.

Table 4-7: Priority Flora Records within the survey area

Taxon	Recorded by	Coordinates
<i>Eremophila praecox</i> (P2)	Phoenix Environmental Services	51J 316881 6604620
<i>Eremophila praecox</i> (P2)	Phoenix Environmental Services	51J 319390 6601964
<i>Eremophila ?praecox</i> (P2)	Botanica	51J 312624 6606361

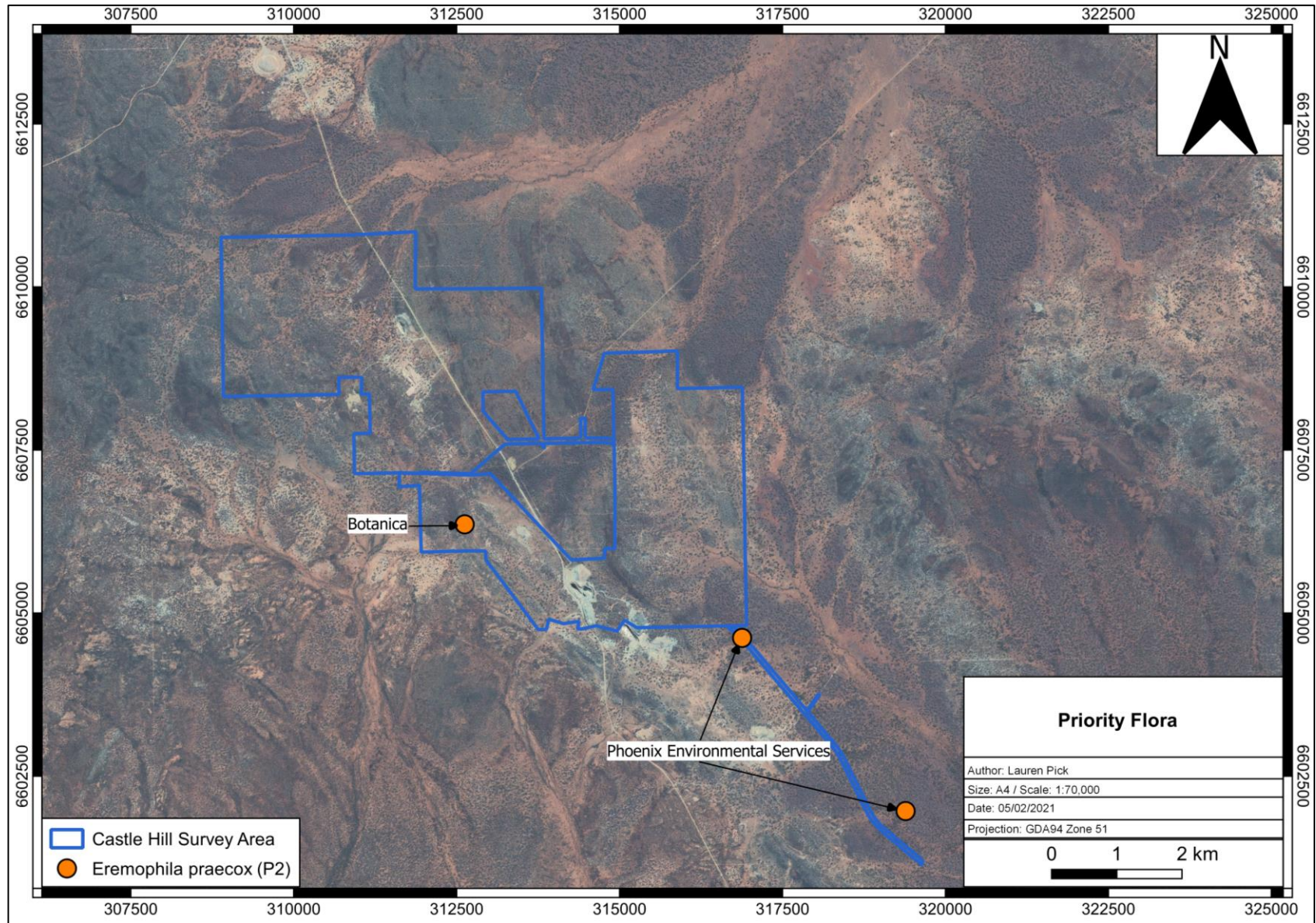




Figure 4-4: Priority Flora Records within the survey area



4.2.2 Vegetation Communities



A total of twelve broad vegetation types were identified within the survey area. Vegetation type descriptions and extent are listed below in Table 4-8 and illustrated spatially in Figure 4-5. Vegetation type descriptions and extents were determined from field survey results, aerial imagery interpretation, statistical analysis of quadrat data and extrapolation of the communities.



The survey found CLP-EW1 was the most widespread community in the survey area, occupying 814 ha (32.5%), while RH-CFW1 was the most restricted with 10 ha (0.4%). CLP-EW1 and RH-MWS1 were the most diverse community, with 67 flora species recorded, and RH-AFW1 was the least diverse with 23 flora species recorded.



Table 4-8: Vegetation Type Descriptions and Extent



Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
CLP-EW1 814 ha (32.5%)	Eucalyptus woodland	Low woodland of <i>Eucalyptus campaspe</i> / <i>E. salmonophloia</i> over mid shrubland of <i>Eremophila</i> spp. and low chenopod shrubland on clay-loam plain	Clay/loam plain	
CLP-EW2 245 ha (9.8%)	Eucalyptus woodland	Low woodland of <i>Eucalyptus ravidia</i> / <i>E. salmonophloia</i> over mid shrubland of <i>Eremophila</i> spp. and low chenopod shrubland on clay-loam plain	Clay/loam plain	

Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
CLP-OS1 47 ha (1.9%)	Other Shrubland	Mid sparse shrubland of <i>Atriplex nummularia</i> subsp. <i>spathulata</i> subsp. <i>spathulata</i> / <i>Eremophila dempsteri</i> over sparse tussock grassland of <i>Austrostipa nitida</i> on clay-loam plain	Clay/loam plain	
CLP-OS2 61 ha (2.4%)	Other Shrubland	Mid open shrubland of <i>Eremophila alternifolia</i> / <i>E. interstans</i> subsp. <i>virgata</i> over low chenopod shrubland on clay-loam plain	Clay/loam plain	

Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
OD-EW1 98 ha (3.9%)	Eucalyptus woodland	Low woodland of <i>Eucalyptus salmonophloia</i> / <i>E. transcontinentalis</i> / <i>E. clelandiorum</i> over mid shrubland of <i>Eremophila</i> spp. and low samphire shrubland in open depression	Open Depression	
RH-AFW1 15 ha (0.6%)	Acacia Woodland	Low woodland of <i>Acacia quadrimarginea</i> over mixed mid open shrubland and low open shrubland of <i>Ptilotus obovatus</i> on greenstone hillslope	Greenstone Hillslope	

Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
RH-CFW1 10 ha (0.4%)	Casuarina Woodland	Low open woodland of <i>Allocasuarina acutivalvis</i> / <i>Casuarina pauper</i> over low mixed scrub on greenstone hillslope	Greenstone Hillslope	
RH-EW1 740 ha (29.5%)	Eucalyptus woodland	Low woodland of <i>Eucalyptus clelandiorum</i> over mid shrubland of <i>Eremophila</i> spp. shrubland and low chenopod shrubland on greenstone hillslope	Greenstone Hillslope	

Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
RH-EW2 24 ha (1.0%)	Eucalyptus woodland	Low woodland of <i>Eucalyptus clelandiorum</i> / <i>Eucalyptus torquata</i> over low shrubland of <i>Eremophila</i> spp. on greenstone hillslope	Greenstone Hillslope	
RH-MWS1 273 ha (10.9%)	Mallee Woodland	Open mallee woodland of <i>Eucalyptus griffithsii</i> over mid shrubland of <i>Eremophila</i> / <i>Dodonaea</i> spp. and low mixed shrubland on greenstone hillslope	Greenstone Hillslope	

Vegetation Code	Broad Floristic Formation (NVIS III)	Description	Landform	Image
SLP-AS1 94 ha (3.7%)	Acacia Shrubland	Tall open shrubland of <i>Acacia acuminata</i> over low mixed shrubland on sandy-loam plain	Sand/loam plain	
SLP-MWS1 25 ha (1.0%)	Mallee Woodland	Tall mallee woodland of <i>Eucalyptus griffithsii</i> over mid open shrubland of <i>Eremophila/Senna</i> spp. And hummock grassland of <i>Triodia irritans</i> on sand-loam plain	Sand/loam plain	
CV 62 ha (2.5%)	N/A	Cleared Vegetation	N/A	No image available

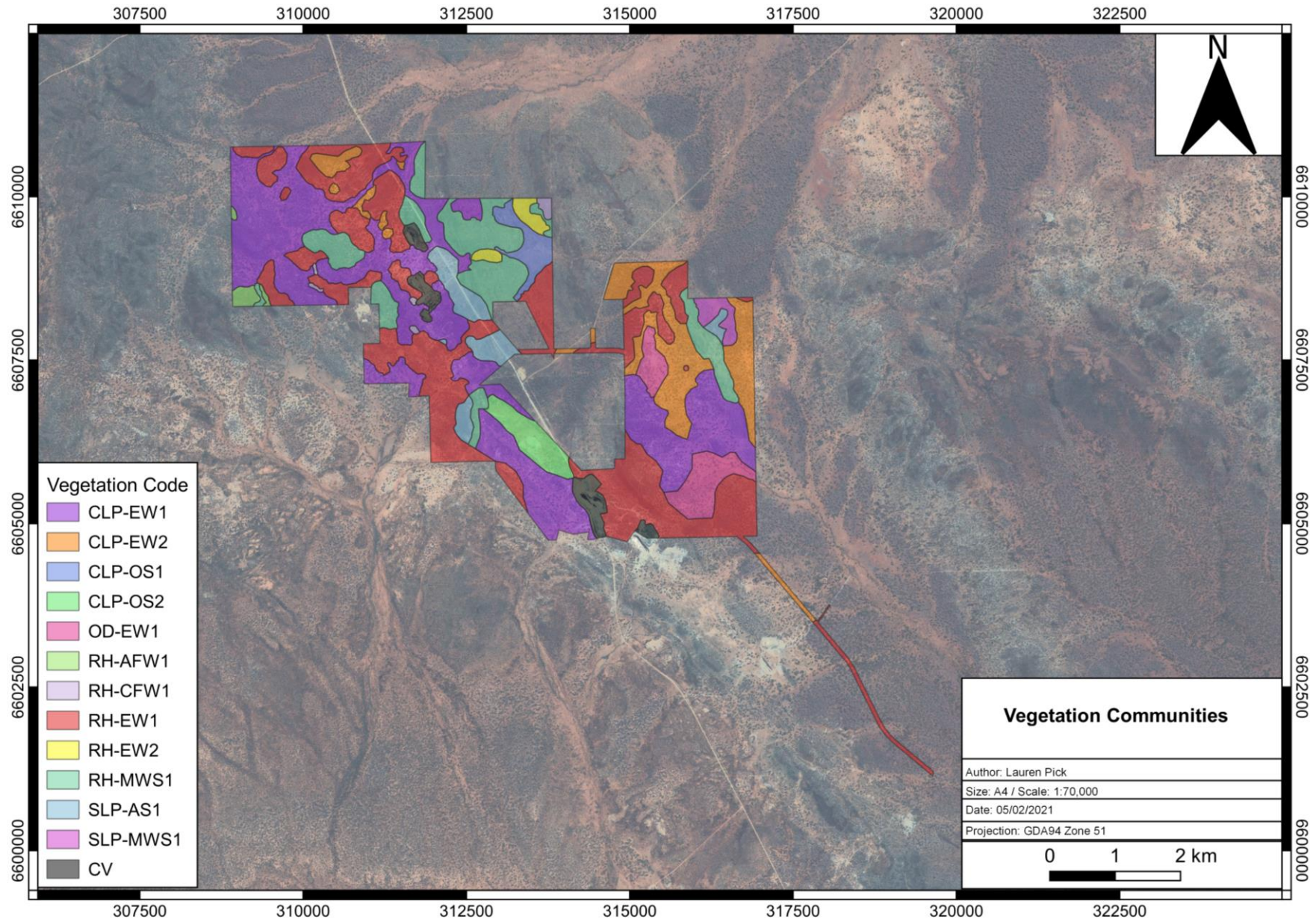


Figure 4-5: Vegetation Communities

4.2.3 Floristic Composition

PATN analysis was used to determine the similarities or differences between vegetation types identified within the survey area. Appendix 12 provides the dendrogram, two way-table (specifying species group) and ordination graph for all generated from the PATN statistical analysis. A list of the 100 quadrats and their respective vegetation types are provided in Table 4-9 below. The PATN analysis produced a stress value of 0.2379.

Table 4-9: Vegetation types identified within the survey area and corresponding quadrats

Vegetation Type	Vegetation Code	Quadrat 2012-2013	Quadrat 2014	Quadrat 2020
Low woodland of <i>Eucalyptus campaspe</i> / <i>E. salmonophloia</i> over mid shrubland of <i>Eremophila</i> spp. and low chenopod shrubland on clay-loam plain	CLP-EW1	CH2, CH4, CH6, CH8, CH10, CH13, CH17, CH18, CH39, CH40, CH46, CH48, CH49, CH53, CH54	B4, B5, B6, B7, B10	QE5, QE9, QE12, QW1, QW6, QW9, QW10
Low woodland of <i>Eucalyptus ravida</i> / <i>E. salmonophloia</i> over mid shrubland of <i>Eremophila</i> spp. and low chenopod shrubland on clay-loam plain	CLP-EW2	CH15, CH25, CH26, CH38, CH47, CH50	B9, B11, B12	QE8
Mid sparse shrubland of <i>Atriplex nummularia</i> subsp. <i>spathulata</i> subsp. <i>spathulata</i> / <i>Eremophila dempsteri</i> over sparse tussock grassland of <i>Austrostipa nitida</i> on clay-loam plain	CLP-OS1	CH27, CH30, CH36		
Mid open shrubland of <i>Eremophila alternifolia</i> / <i>E. interstans</i> subsp. <i>virgata</i> over low chenopod shrubland on clay-loam plain	CLP-OS2			QW7, QW12, QW13
Low woodland of <i>Eucalyptus salmonophloia</i> / <i>E. transcontinentalis</i> / <i>E. clelandiorum</i> over mid shrubland of <i>Eremophila</i> spp. and low samphire shrubland in open depression	OD-EW1		B2, B3, B8	QE10
Low woodland of <i>Acacia quadrimarginea</i> over mixed mid open shrubland and low open shrubland of <i>Ptilotus obovatus</i> on greenstone hillslope	RH-AFW1	CH12, CH14, CH22, CH55		
Low open woodland of <i>Allocasuarina acutivalvis</i> / <i>Casuarina pauper</i> over low mixed scrub on greenstone hillslope	RH-CFW1	CH11, CH20, CH21, CH28		
Low woodland of <i>Eucalyptus clelandiorum</i> over mid shrubland of <i>Eremophila</i> spp. shrubland and low chenopod shrubland on greenstone hillslope	RH-EW1	CH3, CH7, CH24, CH35, CH45, CH51, CH52	B1, B19, B20	QE1, QE2, QE3, QE11, QW2, QW8, QW11
Low woodland of <i>Eucalyptus clelandiorum</i> / <i>Eucalyptus torquata</i> over low shrubland of <i>Eremophila</i> spp. on greenstone hillslope	RH-EW2	CH31, CH37, CH42, CH43, CH44		

Vegetation Type	Vegetation Code	Quadrat 2012-2013	Quadrat 2014	Quadrat 2020
Open mallee woodland of <i>Eucalyptus griffithsii</i> over mid shrubland of <i>Eremophila/ Dodonaea</i> spp. and low mixed shrubland on greenstone hillslope	RH-MWS1	CH9, CH19, CH23, CH29, CH32, CH33, CH34, CH41	B13, B17, B18	QE4, QE6, QW5
Tall open shrubland of <i>Acacia acuminata</i> over low mixed shrubland on sandy-loam plain	SLP-AS1	CH1, CH5, CH16		QE7, QW3, QW4
Tall mallee woodland of <i>Eucalyptus griffithsii</i> over mid open shrubland of <i>Eremophila/ Senna</i> spp. and hummock grassland of <i>Triodia irritans</i> on sand-loam plain	SLP-MWS1		B14, B15, B16	

Two supergroups were identified from the PATN analysis:

1. Eucalypt Woodlands; *E. campaspe*, *E. salmonophloia*, *E. transcontinentalis* woodlands on clay-loam plain/ open depression and *E. clelandiorum* woodland on greenstone hillslope.
2. Eucalypt Woodlands; *E. clelandiorum* and *E. torquata* woodland on greenstone hillslope/ Mallee Woodlands on greenstone hillslope and sand-loam plains/ Other Shrublands on clay-loam plains/ Casuarina and Acacia Woodlands on greenstone hillslopes and Acacia Shrublands on sand-loam plain.

As shown in the dendrogram provided in Appendix 12, each supergroup comprised of six floristic groups.

The first floristic group included *Eucalyptus campaspe/ E. salmonophloia* woodland quadrats, *E. clelandiorum* woodland quadrats and one *Eucalyptus griffithsii* mallee woodland quadrat. This floristic group was characterised by species group C (see two-way table provided in Appendix 12) with an average species richness of twelve taxa per quadrat (ranged from eight to nineteen taxa per quadrat).

The second floristic group comprised of two *E. clelandiorum* woodland quadrats and was closely related to floristic group 1 and 3, however had a lower species composition. This floristic group was characterised by species group C, with an average species richness of eight taxa per quadrat (ranged from six to nine taxa per quadrat).

The third floristic group included *Eucalyptus campaspe/ E. salmonophloia* woodland quadrats, *E. clelandiorum* woodland quadrats, one *Eucalyptus griffithsii* mallee woodland quadrat and one *Eucalyptus salmonophloia/ E. transcontinentalis/ E. clelandiorum* woodland quadrat. Like the previous floristic groups, it was mostly characterised by species group 3, with an average species richness of nine taxa per quadrat (ranged from five to fifteen taxa per quadrat).

Floristic groups 4 to 6 were closely related to each other (see dendrogram in Appendix 12). Floristic group 4 comprised mostly of a combination of *Eucalyptus campaspe/ E. salmonophloia* woodland quadrats and *Eucalyptus salmonophloia/ E. transcontinentalis/ E. clelandiorum* woodland quadrats while floristic group 5 comprised mostly of a combination of *Eucalyptus campaspe/ E. salmonophloia* woodland quadrats and *Eucalyptus clelandiorum/ Eucalyptus torquata* woodland quadrats. Floristic group 4 was mostly characterised by species group C and K with an average species richness of nine taxa per quadrat (ranged from five to fourteen taxa per quadrat). Floristic group 5 was mostly

characterised by species group C and J with an average species richness of eight taxa per quadrat (ranged from four to eleven taxa per quadrat).

Floristic group 6 included quadrats from three vegetation types; *Eucalyptus clelandiorum*/*Eucalyptus torquata* woodland quadrat, other shrubland and Acacia shrubland quadrats and was mostly characterised by species group C and H with an average species richness of eight taxa per quadrat (ranged from five to nine taxa per quadrat).

Floristic groups 7 and 8 of the second supergroup were found to be closely related to each other. Floristic group 7 included majority of the *Eucalyptus griffithsii* mallee woodland quadrats and one other shrubland quadrat. This group mostly characterised by species group C and G with an average species richness of twelve taxa per quadrat (ranged from eight to fifteen taxa per quadrat). Floristic group 8 comprised of the majority of the other shrubland and Acacia shrubland quadrats and was mostly characterised by species group C and L with an average species richness of twelve taxa per quadrat (ranged from seven to twenty-two taxa per quadrat).

Floristic group 9 included *Eucalyptus clelandiorum*/*Eucalyptus torquata* woodland quadrats and *Eucalyptus griffithsii* mallee woodland quadrats, including all three *Eucalyptus griffithsii* mallee woodland quadrats from the sand-loam plain landform. This floristic group was mostly characterised by species group C and D with an average species richness of eleven taxa per quadrat (ranged from nine to sixteen taxa per quadrat).

Floristic groups 10 and 11 were closely related to each other, with floristic group 10 comprising of two quadrats from the Casuarina woodland vegetation type. This floristic group was mostly characterised by species group A with an average species richness of six taxa per quadrat (ranged from four to eight taxa per quadrat). Floristic group 11 included the remaining Casuarina woodland and Acacia shrubland quadrats, which was mostly characterised by species group A and C with an average species richness of seven taxa per quadrat (ranged from four to twelve taxa per quadrat).

Floristic group 12 comprised entirely of Acacia woodland quadrats and was mostly characterised by species group B and C with an average species richness of six taxa per quadrat (ranged from five to six taxa per quadrat).

With the exception of the Acacia woodland vegetation type, based on the results of the PATN analysis, there was minimal heterogeneity in species composition with the majority of vegetation types intermixed into floristic groups despite differences in both dominant stratum taxa and landform.

4.2.3.1 Species Richness and accumulation estimates

The Chaos 2 richness estimator provided an estimated species richness of 148 species in 150 sample sites (quadrats). Species richness recorded for the 100 quadrats was 134 species (including annuals/ sterile taxa) which indicates survey intensity was adequate. A species accumulation curve was created to display the rate of species accumulation. The R² value (0.99) suggests that the data “fits” the species accumulation curve shown in Figure 4-6.

The rate of species accumulation for the first 12 quadrats ranged from eight to three species per quadrat. The rate of species accumulation between 13-22 quadrats was two species per quadrat. Species accumulation reduced to 1 species per quadrat as quadrat number increased beyond 22 quadrats. Beyond 75 quadrats, species accumulation reduced to <1 species per quadrat. Botanica has determined that according to this data a sufficient number of quadrats were established in the survey area to adequately assess the floristic composition of the area.

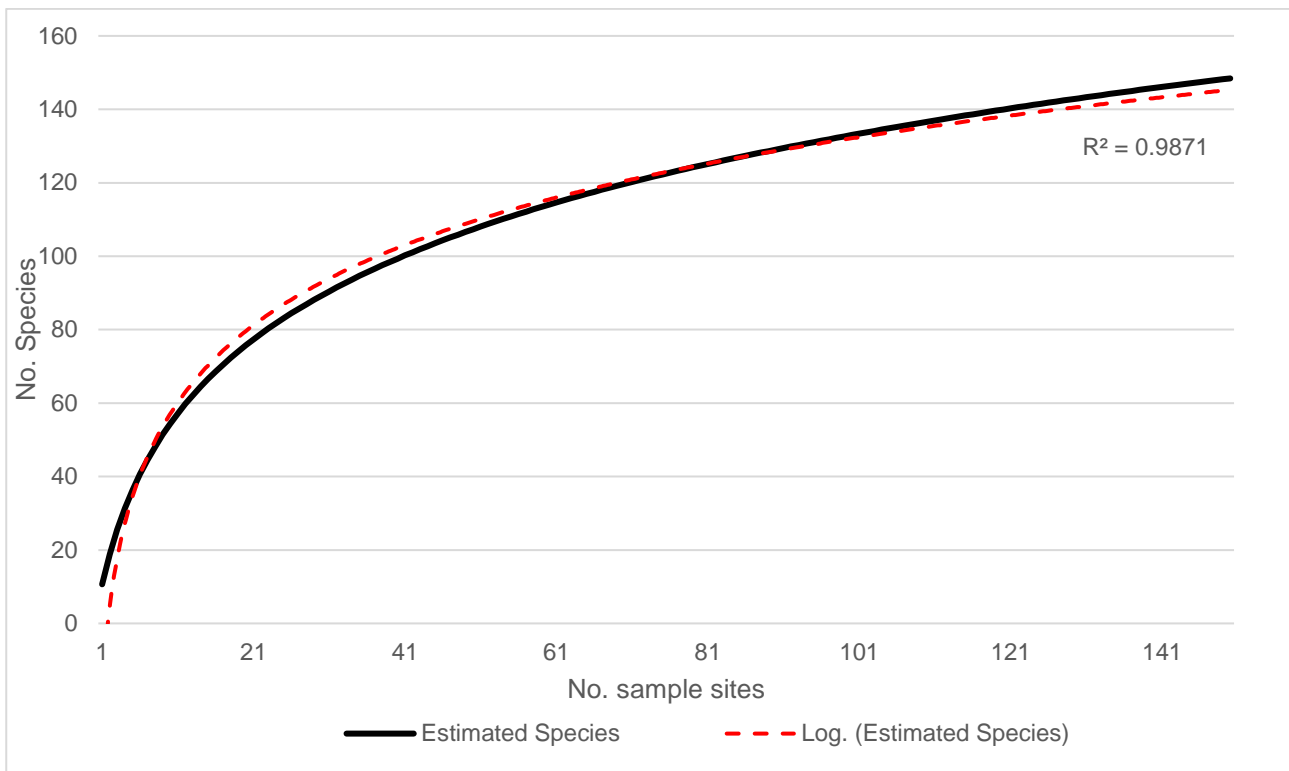


Figure 4-6: Species accumulation curve

4.2.4 Vegetation Condition

Based on the vegetation condition rating scale adapted from Keighery (1994) and Trudgen, (1988), native vegetation within the survey area ranged from ‘good’ to ‘very good’ (Table 4-10; Figure 4-7).

‘Good’ condition depicts vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

‘Very Good’ condition depicts vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.

Table 4-10: Vegetation Condition within the survey area

Condition Rating	Area (ha)	Area (%)
Cleared Vegetation	62	2.5
Good	171	6.8
Very Good	2,275	90.7
Total	2,508	100.0

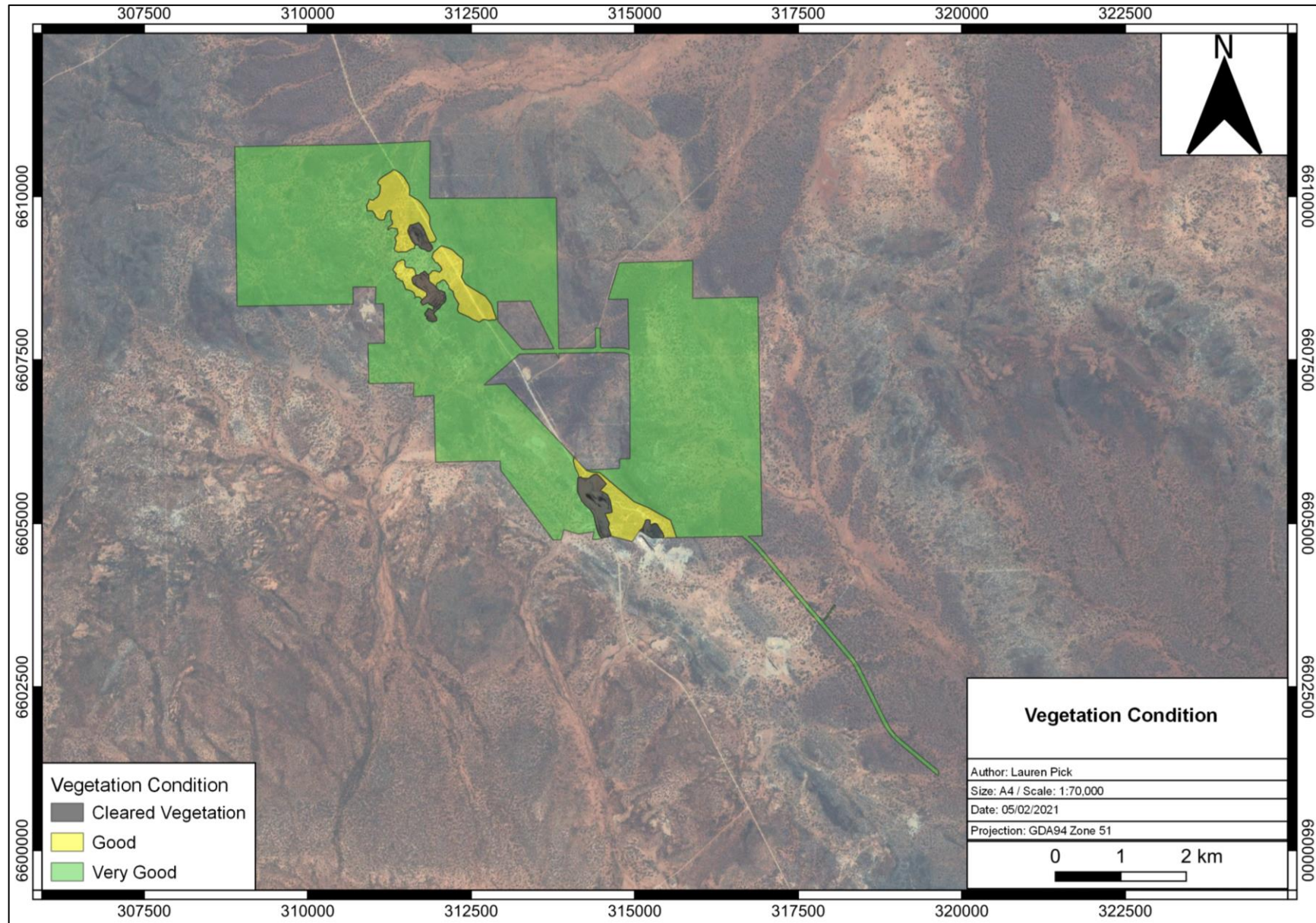


Figure 4-7: Vegetation Condition within the survey area

4.2.5 Significant Vegetation

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016b) significant vegetation includes:




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




No Threatened or Priority Ecological Communities or otherwise significant vegetation were identified within the survey area.

4.2.6 Fauna Habitat

Based on vegetation and associated landforms identified during the flora and vegetation assessment, six broad scale terrestrial fauna habitats were identified as occurring within the survey area. Table 4-11 provides a visual representation of this habitat type, and the extent of fauna habitat is shown spatially in Figure 4-8.

Table 4-11: Terrestrial Fauna Habitats within the survey area

Fauna Habitat	Example Image
<p>Eucalypt woodland on clay-loam plain/ open depression</p> <p>1,156 ha (46.1%)</p>	
<p>Open mixed shrubland on clay-loam plain</p> <p>108 ha (4.3%)</p>	
<p>Eucalypt woodland/ Mallee woodland on greenstone hillslope</p> <p>1,038 ha (41.4%)</p>	

Fauna Habitat	Example Image
<p>Acacia/ Casuarina woodland on greenstone hillslope</p> <p>25 ha (1.0%)</p>	
<p>Acacia shrubland on sandy-loam plain</p> <p>94 ha (3.7%)</p>	
<p>Mallee woodland over spinifex grassland on sand-loam plain</p> <p>25 ha (1.0%)</p>	
<p>Cleared Vegetation</p> <p>62 ha (2.5%)</p>	<p>No image available</p>

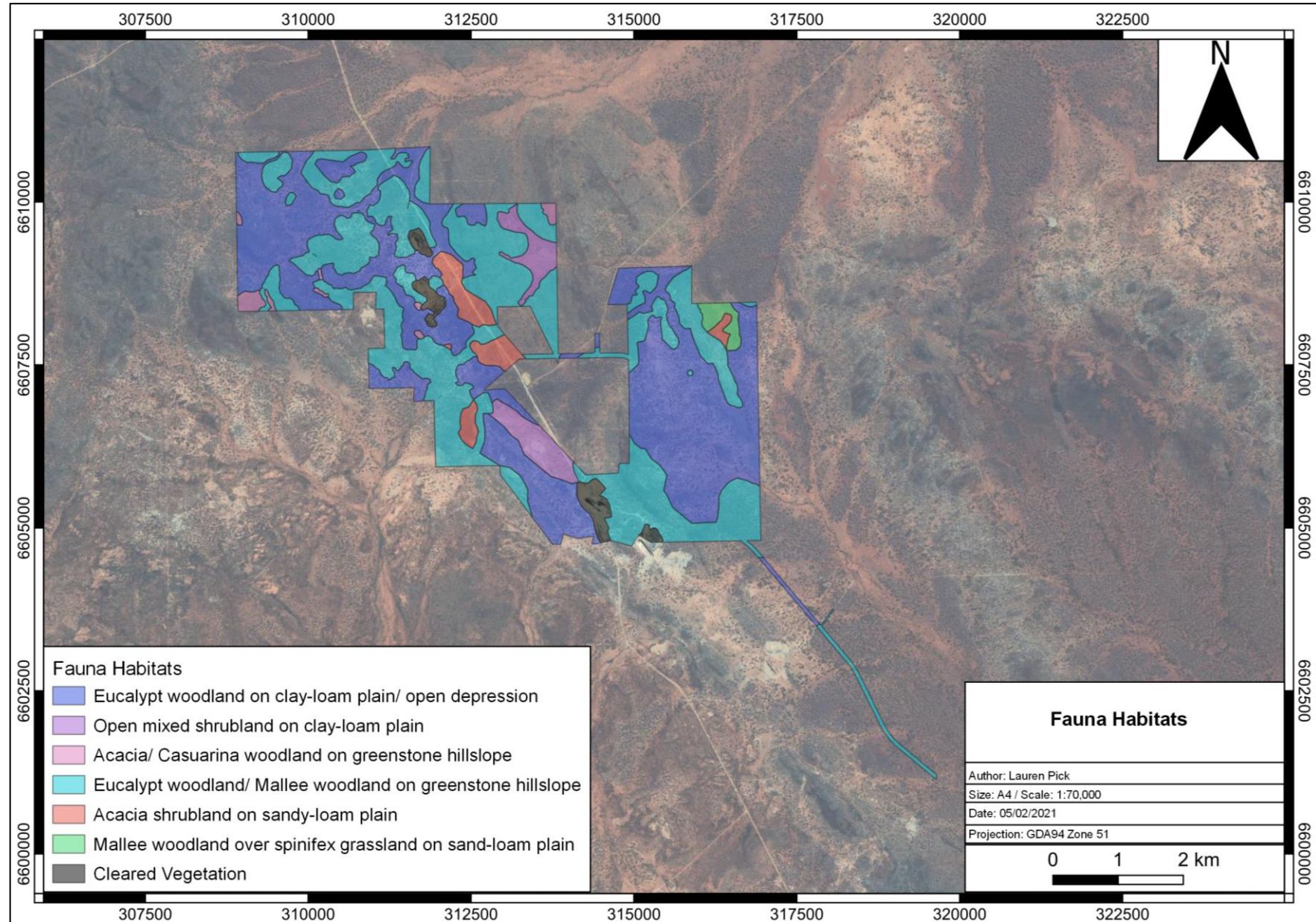


Figure 4-8: Terrestrial Fauna Habitats

4.2.7 Significant Fauna

According to the EPA *Environmental Factor Guideline for Terrestrial Fauna* (EPA, 2016d) significant fauna includes:



- Fauna being identified as a threatened or priority species;
- Fauna species with restricted distribution;
- Fauna subject to a high degree of historical impact from threatening processes; and
- Fauna providing an important function required to maintain the ecological integrity of a significant ecosystem.

No significant fauna were observed during the survey. The current status of some species on site and/or in the general area is difficult to determine, however, based on the habitats present and, in some cases, direct observations or recent nearby records, the following species of conservation significance can be regarded as possibly utilising the survey area for some purpose at times, these being:

- **Central Long-eared Bat (*Nyctophilus major tor*) – P4 (DBCAs)**
Listed as a potential species with potential roost sites present (e.g. tree hollows) however it is generally uncommon and significant impact unlikely.
- **Peregrine Falcon (*Falco peregrinus*) – OS (BC Act)**
This species potentially utilises some sections of the survey area as part of a much larger home range, though records in this area are uncommon. It is considered unlikely to breed within the survey area. Significant impact unlikely.
- **Malleefowl (*Leipoa ocellata*) - Vulnerable (EPBC Act and BC Act)**
This species is occasionally recorded in the Eastern Goldfields subregion. Two inactive (historical) malleefowl mounds were observed within the survey area (Table 4-12; Figure 4-9). It was estimated that these mounds were at least 20 years old and in fact maybe much older than this as they deteriorate slowly. No active malleefowl mounds or other evidence of malleefowl activity (tracks, feathers or bird observations etc.) were observed during the field survey. Available information therefore suggests that a breeding population of this species is unlikely to be present in the survey area, though transient non-breeding individuals may occasionally occur. Significant impact unlikely.

It should be noted that while habitats onsite for one or more of the species listed above are considered possibly suitable, some or all may be marginal in extent/quality and therefore the fauna species considered as possibly occurring may in fact only visit the area for short periods as infrequent vagrants.

Table 4-12: Inactive malleefowl mounds

Feature	Coordinates	Image
Inactive Mound (>20 years old)	51J 312741 6608288	
Inactive Mound (>20 years old)	51J 310657 6610116	

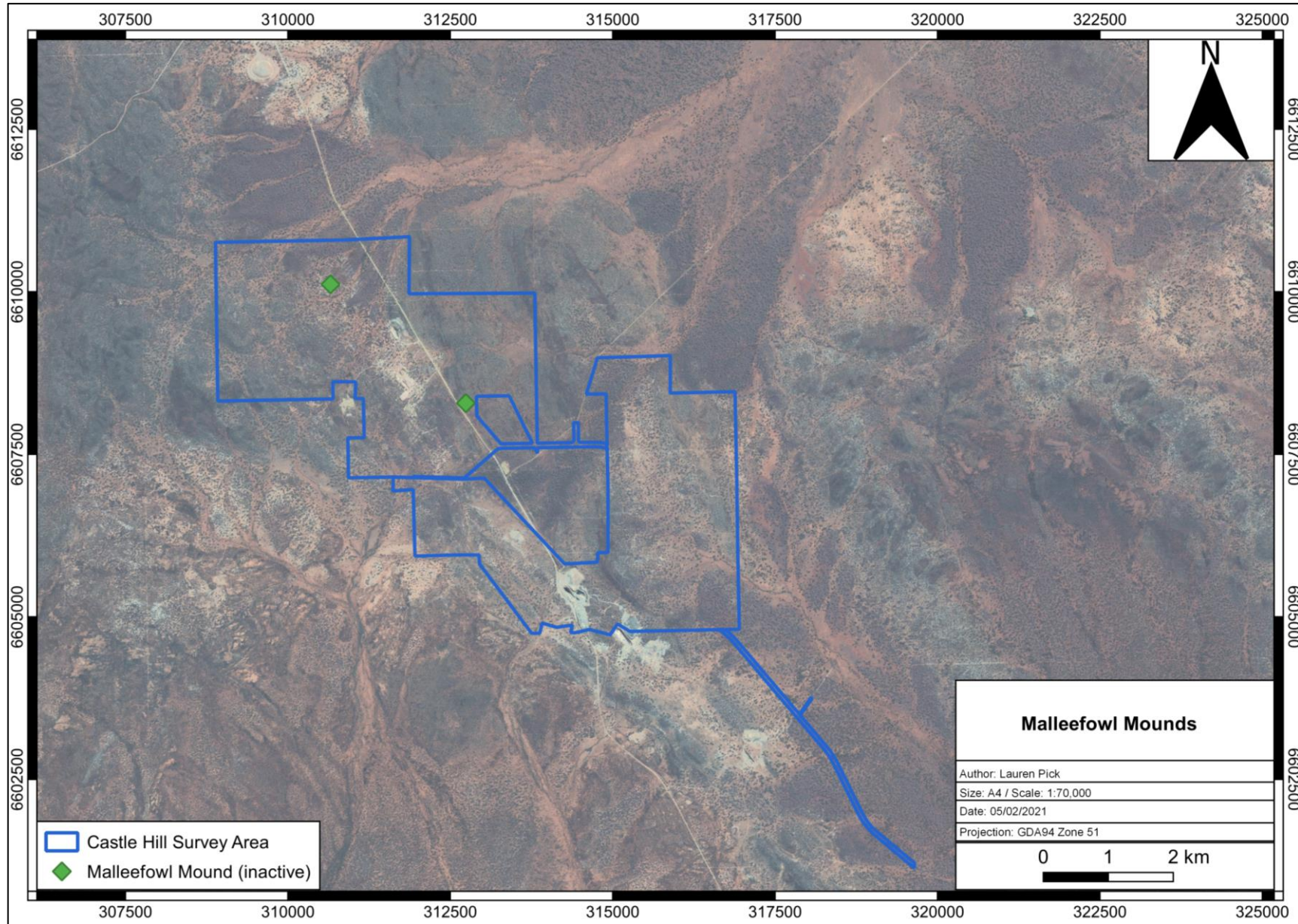


Figure 4-9: Inactive malleefowl mounds

4.3 Matters of National Environmental Significance

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act protects matters of national environmental significance, and is used by the Commonwealth DAWE to list threatened taxa and ecological communities into categories based on the criteria set out in the Act (www.environment.gov.au/epbc/index.html). The Act provides a national environmental assessment and approval system for proposed developments and enforces strict penalties for unauthorised actions that may affect matters of national environmental significance. Matters of national environmental significance as defined by the Commonwealth EPBC Act include:

- Nationally threatened flora species;
- World heritage properties;
- National heritage places;
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- Nationally threatened ecological communities;
- Commonwealth marine area;
- The Great Barrier Reef Marine Park; and
- Nuclear actions (including uranium mining) a water resource, in relation to coal seam gas development and large coal mining development.

No matters of national environmental significance as defined by the Commonwealth EPBC Act were identified within the survey area.

4.4 Matters of State Environmental Significance

4.4.1 Environmental Protection Act WA 1986

The EP Act provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment. The Act is administered by The Department of Water and Environment Regulation (DWER), which is the State Government's environmental regulatory agency.

Under Section 51C of the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations (Regulations) WA 2004* any clearing of native vegetation in Western Australia that is not eligible for exemption under Schedule 6 of the *EP Act 1986* or under the Regulations 2004 requires a clearing permit from the DWER or DMIRS. Under Section 51A of the *EP Act 1986* native vegetation includes aquatic and terrestrial vegetation indigenous to Western Australia, and intentionally planted vegetation declared by regulation to be native vegetation, but not vegetation planted in a plantation or planted with commercial intent. Section 51A of the *EP Act 1986* defines clearing as "the killing or destruction of; the removal of; the severing or ringbarking of trunks or stems of; or the doing of substantial damage to some or all of the native vegetation in an area, including the flooding of land, the burning of vegetation, the grazing of stock or an act or activity that results in the above". Exemptions under Schedule 6 of the EP Act and the EP Regulations do not apply in ESAs as declared under Section 51B of the EP Act or TEC listed under State and Commonwealth legislation.

No evidence of the survey area containing any TEC or Threatened flora or fauna was found during the survey period. The survey area is not located within an ESA.

4.4.2 Biodiversity Conservation Act 2016

This Act is used by the Western Australian DBCA for the conservation and protection of biodiversity and biodiversity components in Western Australia and to promote the ecologically sustainable use of biodiversity components in the State. Taxa are classified as ‘Threatened’ when their populations are geographically restricted or are threatened by local processes (see following sections for Threatened definitions). Under this Act all native flora and fauna are protected throughout the State. Financial penalties are enforced under this Act if threatened species are collected without an appropriate licence.

Under Section 54(1) of the BC Act, habitat is eligible for listing as critical habitat if:

- a) it is critical to the survival of a threatened species or a threatened ecological community; and
- b) its listing is otherwise in accordance with the ministerial guidelines.

No threatened species or critical habitat listed under the BC Act were recorded within the survey area.

4.5 Native Vegetation Clearing Principles

Based on the outcomes from the survey undertaken, Botanica assessed the results of the desktop and field survey with regards to the native vegetation clearing principles listed under Schedule 5 of the EP Act (Table 4-13). The assessment found that the proposed vegetation clearing activities may be at variance with clearing principle (f).

Table 4-13: Assessment against native vegetation clearing principles

Letter	Principle	Assessment	Outcome
	Native vegetation should not be cleared if it:		
(a)	comprises a high level of biological diversity.	Vegetation identified within the survey area is not considered to be of high biological diversity and is well represented outside of the survey area. The survey area does not occur within any mapped Priority Ecological Communities (PECs), Threatened Ecological Communities (TECs) or associated buffer zones and does not contain any Banded Ironstone Formations. No Threatened Flora taxa listed under the BC Act and EPBC Act are located within the survey area. No Priority Flora taxa were identified within the survey area.	Clearing is unlikely to be at variance to this principle
(b)	comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to WA.	No significant fauna were observed within the survey area. No significant fauna habitat was observed within the survey area.	Clearing is unlikely to be at variance to this principle
(c)	includes, or is necessary for the continued existence of rare flora.	No Threatened Flora taxa, pursuant to the BC Act and the EPBC Act were identified within the survey area.	Clearing is not at variance to this principle
(d)	comprises the whole or part of or is necessary for the maintenance of a	No TEC listed under the EPBC Act or by the BC Act occur within the survey area.	Clearing is not at variance to this principle

Letter	Principle	Assessment	Outcome
	Native vegetation should not be cleared if it:		
	threatened ecological community (TEC).		
(e)	is significant as a remnant of native vegetation in an area that has been extensively cleared	All vegetation associations in the survey area retains >98% of their original pre-European vegetation extent.	Clearing is unlikely to be at variance to this principle
(f)	is growing, in, or in association with, an environment associated with a watercourse or wetland	Numerous ephemeral drainage lines were identified within the survey area. Of the twelve vegetation types identified, one was identified as growing in association with a watercourse; OD-EW1 which represents 3.9% of the total survey area.	Clearing may be at variance to this principle
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The survey area and surrounding region has not been extensively cleared. Clearing within the survey area is not considered likely to lead to land degradation issues such as salinity, water logging or acidic soils.	Clearing is unlikely to be at variance to this principle
(h)	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The survey area is not located within any conservation areas. The closest conservation area is the Rowles Lagoon Conservation Park, which is DBCA-managed land located approximately 25 km north-west of the survey area. Disturbances within the survey area are unlikely to impact this conservation reserve.	Clearing is unlikely to be at variance to this principle
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	No surface water bodies are located within the survey area. Clearing is unlikely to result in significant impacts to groundwater quality.	Clearing is unlikely to be at variance to this principle
(j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding	Rainfall in the Eastern Goldfield subregion has an average rainfall of 200-300mm and an evaporation rate of 2400 mm. Rainfall data for Kalgoorlie-Boulder indicates that rainfall is spread throughout the year and rainfall events are unlikely to result in localised flooding. Clearing within the survey area is not likely to increase the incidence or intensity of flooding within the survey area or surrounds.	Clearing is unlikely to be at variance to this principle

4.6 Conclusions

No Threatened Flora, Fauna or TEC's as listed under the Western Australian BC Act or Commonwealth EPBC Act were identified within the survey area. Two inactive (historical) malleefowl mounds were observed within the survey area which was estimated to be at least 20 years old. No active malleefowl mounds or other evidence of malleefowl activity (tracks, feathers or bird observations etc.) were observed during the field survey. Available information therefore suggests that a breeding population of this species is unlikely to be present in the survey area, though transient non-breeding individuals may occasionally occur.

No Priority Fauna or PEC's as listed by DBCA were identified within the survey area. One Priority 2 flora species (*Eremophila praecox*) was previously recorded within and adjacent to the survey area by Phoenix Environmental Services (2019a). An additional potential record of this taxon was recorded by Botanica within the survey area however due to absence of flowering material (despite the survey being conducted during the known flowering period for this taxon), this specimen could not be positively identified or formally lodged with the Western Australian Herbarium. Given this taxon has been previously recorded within/ adjacent to the survey area this record is tentatively considered as a Priority 2 flora record. No other significant flora, fauna or vegetation (as described by EPA) was identified within the survey area.

The survey area does not contain any world or national heritage places. There are no wetlands of international importance (Ramsar Wetlands), national importance (ANCA) Wetlands or conservation category wetlands within the survey area. The survey area does not contain any Environmentally Sensitive Areas (ESA) listed under the EP Act. The survey is not located within any proposed or gazetted Conservation Reserves.

The assessment found that the proposed vegetation clearing activities may be at variance with clearing principle (f); *native vegetation should not be cleared if it is growing, in, or in association with, an environment associated with a watercourse or wetland*. Numerous ephemeral drainage lines were identified within the survey area. Of the twelve vegetation types identified, one was identified as growing in association with a watercourse; OD-EW1 which represents 3.9% of the total survey area.

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Appendix 1: Conservation Ratings BC Act and EPBC Act

Definitions of Conservation Significant Species

Code	Category
State categories of threatened and priority species	
Threatened Species (T)	
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 Biodiversity Conservation Act 2016 (BC Act).	
CR	<p>Critically Endangered</p> <p>Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for critically endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for critically endangered flora.</p>
EN	<p>Endangered</p> <p>Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.</p>
VU	<p>Vulnerable</p> <p>Threatened species considered to be “facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.</p>
Extinct species	
Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.	
EX	<p>Extinct</p> <p>Species where “<i>there is no reasonable doubt that the last member of the species has died</i>”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).</p> <p>Published as presumed extinct under schedule 4 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for extinct fauna or the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for extinct flora.</p>
EW	<p>Extinct in the Wild</p> <p>Species that “<i>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</i>”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).</p> <p>Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.</p>
Specially protected species	
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.	
IA	<p>International Agreement/ Migratory</p> <p>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).</p> <p>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 <i>Convention on the Conservation of Migratory Species of Wild Animals</i> (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.</p>

Code	Category
	Published as migratory birds protected under an international agreement under schedule 5 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> .
CD	Species of special conservation interest 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 schedule 6 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> .
OS	Other specially protected species 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 schedule 7 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> .
Priority species 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.	
P1	Priority 1: Poorly-known species 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.
P2	Priority 2: Poorly-known species 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.
P3	Priority 3: Poorly-known species 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.
P4	Priority 4: Rare, Near Threatened and other species in need of monitoring (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.
Commonwealth categories of threatened species	
EX	Extinct Taxa where there is no reasonable doubt that the last member of the species has died.
EW	Extinct in the Wild Taxa where it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CR	Critically Endangered Taxa that are facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
EN	Endangered

Code	Category
	Taxa which are not critically endangered and is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
VU	Vulnerable Taxa which are not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	Conservation Dependent Taxa which are the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for 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; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; (iv) cessation of the plan of management would adversely affect the conservation status of the species.

Definitions of Conservation Significant Communities

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

Category Code	Category
	The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.
Commonwealth categories of Threatened Ecological Communities (TEC)	
CE	Critically Endangered If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).
EN	Endangered If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).
VU	Vulnerable If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium-term future (indicative timeframe being the next 50 years).
Priority Ecological Communities (PEC)	
P1	Poorly-known ecological communities
	Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.
P2	Poorly-known ecological communities
	Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.
P3	Poorly known ecological communities
	Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:
	Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;
	Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4	Ecological communities that are adequately known, rare but not threatened or meet criteria for near threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.
P5	Conservation Dependent ecological communities
	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Appendix 2: Potentially Occurring Introduced (Weed) Flora Species

Family	Species	Common Name	WAOL Status	Control Category	WONS
Fabaceae	<i>Acacia pycnantha</i>	Golden Wattle	Permitted - s11	No Control Category	No
Asparagaceae	<i>Agave americana</i>	Century Plant	Permitted - s11	No Control Category	No
Aizoaceae	<i>Aizoon pubescens</i>	-	Permitted - s11	No Control Category	No
Fabaceae	<i>Alhagi maurorum</i>	-	Permitted - s11	No Control Category	No
Amaranthaceae	<i>Amaranthus viridis</i>	Green Amaranth	Permitted - s11	No Control Category	No
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed, African Marigold	Permitted - s11	No Control Category	No
Apocynaceae	<i>Asclepias curassavica</i>	Redhead Cottonbush	Permitted - s11	No Control Category	No
Brassicaceae	<i>Brassica tournefortii</i>	Mediterranean Turnip	Permitted - s11	No Control Category	No
Poaceae	<i>Bromus catharticus</i>	Prairie Grass	Permitted - s11	No Control Category	No
Poaceae	<i>Bromus rubens</i>	Red Brome	Permitted - s11	No Control Category	No
Boraginaceae	<i>Buglossoides arvensis</i>	Corn Gromwell	Permitted - s11	No Control Category	No
Brassicaceae	<i>Capsella bursa-pastoris</i>	Shepherd's Purse	Permitted - s11	No Control Category	No
Brassicaceae	<i>Carrichtera annua</i>	Ward's Weed	Permitted - s11	No Control Category	No
Asteraceae	<i>Carthamus lanatus</i>	Saffron Thistle	Permitted - s11	No Control Category	No
Poaceae	<i>Cenchrus ciliaris</i>	Buffel Grass	Permitted - s11	No Control Category	No
Asteraceae	<i>Centaurea melitensis</i>	Maltese Cockspur, Malta Thistle	Permitted - s11	No Control Category	No
Chenopodiaceae	<i>Chenopodium album</i>	Fat Hen	Permitted - s11	No Control Category	No
Chenopodiaceae	<i>Chenopodium murale</i>	Nettle-leaf Goosefoot	Permitted - s11	No Control Category	No
Asteraceae	<i>Cichorium intybus</i>	Chicory	Permitted - s11	No Control Category	No
Asteraceae	<i>Conyza bonariensis</i>	Flax-leaf Fleabane	Permitted - s11	No Control Category	No
Asteraceae	<i>Conyza sumatrensis</i>	-	Permitted - s11	No Control Category	No
Cactaceae	<i>Cylindropuntia tunicata</i>	-	Permitted - s11	No Control Category	No
Asteraceae	<i>Dittrichia graveolens</i>	Stinkwort	Permitted - s11	No Control Category	No
Boraginaceae	<i>Echium plantagineum</i>	Paterson's Curse	Declared Pest - s22(2)	No Control Category, Whole of State	No
Poaceae	<i>Ehrharta villosa</i>	Pyp Grass	Permitted - s11	No Control Category	No
Poaceae	<i>Eragrostis curvula</i>	African Lovegrass	Permitted - s11	No Control Category	No
Geraniaceae	<i>Erodium aureum</i>	-	Permitted - s11	No Control Category	No
Geraniaceae	<i>Erodium botrys</i>	Long Storksbill	Permitted - s11	No Control Category	No
Geraniaceae	<i>Erodium cicutarium</i>	Common Storksbill	Permitted - s11	No Control Category	No

Family	Species	Common Name	WAOL Status	Control Category	WONS
Fabaceae	<i>Erythrostemon gilliesii</i>	-	Permitted - s11	No Control Category	No
Verbenaceae	<i>Glandularia aristigera</i>	-	Permitted - s11	No Control Category	No
Asteraceae	<i>Helianthus annuus</i>	Sunflower, Common Sunflower	Permitted - s11	No Control Category	No
Boraginaceae	<i>Heliotropium europaeum</i>	Common Heliotrope	Permitted - s11	No Control Category	No
Poaceae	<i>Hordeum leporinum</i>	Barley Grass	Permitted - s11	No Control Category	No
Asteraceae	<i>Lactuca serriola forma serriola</i>	-	Permitted - s11	No Control Category	No
Plumbaginaceae	<i>Limonium sinuatum</i>	Perennial Sea Lavender	Permitted - s11	No Control Category	No
Primulaceae	<i>Lysimachia arvensis</i>	Pimpernel	Permitted - s11	No Control Category	No
Lythraceae	<i>Lythrum hyssopifolia</i>	Lesser Loosestrife	Permitted - s11	No Control Category	No
Malvaceae	<i>Malva parviflora</i>	Marshmallow	Permitted - s11	No Control Category	No
Lamiaceae	<i>Marrubium vulgare</i>	Horehound	Permitted - s11	No Control Category	No
Fabaceae	<i>Medicago laciniata</i>	Cut-leaf Medic	Permitted - s11	No Control Category	No
Fabaceae	<i>Medicago minima</i>	Small Burr Medic	Permitted - s11	No Control Category	No
Asteraceae	<i>Monoculus monstrosus</i>	-	Permitted - s11	No Control Category	No
Asteraceae	<i>Oligocarpus calendulaceus</i>	-	Permitted - s11	No Control Category	No
Asteraceae	<i>Oncosiphon suffruticosum</i>	Calomba Daisy	Permitted - s11	No Control Category	No
Cactaceae	<i>Opuntia elata</i>	-	Declared Pest - s22(2)	C3 Management, Whole of State	Yes
Oxalidaceae	<i>Oxalis bowiei</i>	Bowie Wood Sorrel	Permitted - s11	No Control Category	No
Oxalidaceae	<i>Oxalis pes-caprae</i>	Soursob	Permitted - s11	No Control Category	No
Papaveraceae	<i>Papaver hybridum</i>	Rough Poppy	Permitted - s11	No Control Category	No
Poaceae	<i>Phalaris paradoxa</i>	Paradoxa Grass	Permitted - s11	No Control Category	No
Verbenaceae	<i>Phyla canescens</i>	-	Permitted - s11	No Control Category	No
Polygonaceae	<i>Polygonum aviculare</i>	Wireweed	Permitted - s11	No Control Category	No
Poaceae	<i>Rostraria cristata</i>	-	Permitted - s11	No Control Category	No
Poaceae	<i>Rostraria pumila</i>	-	Permitted - s11	No Control Category	No
Polygonaceae	<i>Rumex hypogea</i>	-	Permitted - s11	No Control Category	No
Lamiaceae	<i>Salvia reflexa</i>	Mintweed	Permitted - s11	No Control Category	No
Lamiaceae	<i>Salvia verbenaca</i>	Wild Sage	Permitted - s11	No Control Category	No
Anacardiaceae	<i>Schinus molle var. areira</i>	-	Permitted - s11	No Control Category	No
Poaceae	<i>Schismus arabicus</i>	Araby Grass	Permitted - s11	No Control Category	No

Family	Species	Common Name	WAOL Status	Control Category	WONS
Poaceae	<i>Schismus barbatus</i>	Kelch Grass	Permitted - s11	No Control Category	No
Brassicaceae	<i>Sisymbrium irio</i>	London Rocket	Permitted - s11	No Control Category	No
Brassicaceae	<i>Sisymbrium orientale</i>	Indian Hedge Mustard	Permitted - s11	No Control Category	No
Solanaceae	<i>Solanum nigrum</i>	Black Berry Nightshade	Permitted - s11	No Control Category	No
Asteraceae	<i>Sonchus oleraceus</i>	Common Sowthistle	Permitted - s11	No Control Category	No
Poaceae	<i>Sorghum halepense</i>	Johnson Grass	Permitted - s11	No Control Category	No
Caryophyllaceae	<i>Spergularia diandra</i>	Lesser Sand Spurry	Permitted - s11	No Control Category	No
Zygophyllaceae	<i>Tribulus terrestris</i>	Caltrop	Permitted - s11	No Control Category	No
Poaceae	<i>Urochloa panicoides</i>	-	Permitted - s11	No Control Category	No
Urticaceae	<i>Urtica urens</i>	Small Nettle	Permitted - s11	No Control Category	No
Fabaceae	<i>Vicia monantha</i> subsp. <i>triflora</i>	-	Permitted - s11	No Control Category	No
Asteraceae	<i>Xanthium spinosum</i>	-	Permitted - s11	No Control Category	No

Appendix 3: Significant Flora Likelihood Assessment

Species	Rank	Habitat	Comments	Likelihood
<i>Gastrolobium graniticum</i>	T (EN)	Sand, sandy loam, granite. Margins of rock outcrops, along drainage lines.	Outside known range of species.	Unlikely
<i>Ricinocarpos brevis</i>		Shallow sandy soils on rocky banded ironstone outcrops.	Outside known range of species.	Unlikely
<i>Thelymitra stellata</i>		Sand, gravel, lateritic loam.	Outside known range of species.	Unlikely
<i>Acacia coatesii</i>	P1	-	Outside known range of species.	Unlikely
<i>Acacia epedunculata</i>		Yellow sand. Sandplains.	Outside known range of species.	Unlikely
<i>Acacia sclerophylla</i> var. <i>teretiuscula</i>		Clay & loamy soils.	Outside known range of species.	Unlikely
<i>Acacia websteri</i>		Red sand, clay or loam. Low-lying areas, flats.	Outside known range of species.	Unlikely
<i>Austrostipa</i> sp. Carlingup Road (S. Kern & R. Jasper LCH 18459)		-	Outside known range of species.	Unlikely
<i>Eucalyptus websteriana</i> subsp. <i>norsemanica</i>		Rocky rises.	Outside known range of species.	Unlikely
<i>Lepidosperma</i> sp. Parker Range (N. Gibson & M. Lyons 2094)		-	Outside known range of species.	Unlikely
<i>Melichrus</i> sp. Coolgardie (K.R. Newbey 8698)		-	Outside known range of species.	Unlikely
<i>Phebalium appressum</i>		Yellow sandplain.	Extreme of known range, habitat unlikely to be present.	Unlikely
<i>Philotheca pachyphylla</i>		Sand, red loam, clay loam. Sandplains, hill tops.	Outside known range of species.	Unlikely
<i>Ptilotus chortophytus</i>		-	Outside known range of species.	Unlikely
<i>Ptilotus procumbens</i>		Red clay.	Outside known range of species.	Unlikely
<i>Rhodanthe uniflora</i>		Brown earth. Open eucalyptus woodland.	Within species range, habitat may be present.	Possible
<i>Ricinocarpos digynus</i>		Rocky hillslopes, breakaways.	Extreme of known range, habitat may be present.	Unlikely
<i>Thryptomene planiflora</i>		-	Outside known range of species.	Unlikely
<i>Thryptomene</i> sp. Coolgardie (E. Kelso s.n. 1902)		-	Outside known range of species.	Unlikely
<i>Austrostipa</i> sp. Dowerin (G. Wiehl F 8004)	P2	-	Outside known range of species.	Unlikely
<i>Elachanthus pusillus</i>		-	Sparse regional records.	Unlikely
<i>Eremophila praecox</i>		Red/brown sandy loam. Undulating plains.	Previously recorded within survey area by Phoenix Environmental Services (2019a)	Previously Recorded
<i>Eucalyptus educta</i>		Shallow soils. Granite rocks.	Within known range, habitat may be present.	Possible
<i>Hakea rigida</i>		Sandy soils, yellow sand.	Outside known range of species.	Unlikely
<i>Lepidium merrallii</i>		Clay loam.	Outside known range of species.	Unlikely

Species	Rank	Habitat	Comments	Likelihood
<i>Rumex crystallinus</i>		Arid & semi-arid areas.	Within species range, habitat may be present.	Possible
<i>Acacia crenulata</i>	P3	Clay, sandy clay, yellow sand. Rocky rises, granite outcrops, breakaways.	Outside known range of species.	Unlikely
<i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>		Stony loam, laterite clay. Granite outcrops.	Outside known range of species.	Unlikely
<i>Alyxia tetanifolia</i>		Sandy clay, loam, concretinary gravel. Drainage lines, near lakes.	Habitat unlikely to be present.	Unlikely
<i>Angianthus prostratus</i>		Red clay or loamy soils. Saline depressions.	Extreme of known range, habitat may be present.	Possible
<i>Atriplex lindleyi</i> subsp. <i>conduplicata</i>		Crabhole plains.	Habitat unlikely to be present.	Unlikely
<i>Austrostipa blackii</i>		-	Outside known range of species.	Unlikely
<i>Chrysocephalum apiculatum</i> subsp. <i>norsemanense</i>		-	Outside known range of species.	Unlikely
<i>Cyathostemon verrucosus</i>		Slopes of Red Hill, Kambalda	Outside known range of species.	Unlikely
<i>Diocirea microphylla</i>		Red-brown clay loam.	Outside known range of species.	Unlikely
<i>Eremophila veronica</i>		Stony clay, clay loam. Lateritic breakaways.	Outside known range of species.	Unlikely
<i>Gompholobium cinereum</i>		Yellow sand, clayey sand, brown loam, sandy gravel, laterite. Well-drained open sites, slopes, plains, roadsides.	Outside known range of species.	Unlikely
<i>Grevillea georgeana</i>		Stony loam/clay. Ironstone hilltops & slopes.	Outside known range of species.	Unlikely
<i>Isolepis australiensis</i>		Silty sand, sandy clay. Lake margins, pools.	Outside known range of species.	Unlikely
<i>Lepidium fasciculatum</i>		-	Sparse regional records.	Unlikely
<i>Melaleuca coccinea</i>		Sandy loam over granite. Granite outcrops, sandplain, river valleys.	Outside known range of species.	Unlikely
<i>Notisia intonsa</i>		Red sand, disturbed areas.	Within species range, habitat may be present.	Possible
<i>Phlegmatospermum eremaeum</i>		Stony loam.	Outside known range of species.	Unlikely
<i>Rinzia triplex</i>	-	Outside known range of species.	Unlikely	
<i>Styphelia saxicola</i>	-	Outside known range of species.	Unlikely	
<i>Eremophila caerulea</i> subsp. <i>merrallii</i>	P4	Sand, clay or loam. Undulating plains.	Outside known range of species.	Unlikely
<i>Eucalyptus jutsonii</i> subsp. <i>jutsonii</i>		Red to pale orange deep sands. Undulating areas and on dunes.	Outside known range of species.	Unlikely
<i>Eucalyptus x brachyphylla</i>		Sandy loam. Granite outcrops.	Outside known range of species.	Unlikely
<i>Frankenia glomerata</i>		White sand.	Outside known range of species.	Unlikely

Appendix 4: Significant Fauna Likelihood Assessment

Species	Conservation Status			Habitat Description	Assessment	Likelihood
	EPBC Act	BC Act	DBC Priority			
Night Parrot <i>Pezoporus occidentalis</i>	EN	CR	-	Most habitat records are of <i>Triodia</i> (<i>Spinifex</i>) grasslands and/or chenopod shrublands in the arid and semi-arid zones, or <i>Astrelba</i> spp. (Mitchell grass), shrubby samphire and chenopod associations, scattered trees and shrubs, <i>Acacia aneura</i> (Mulga) woodland, treeless areas and bare gibber are associated with sightings of the species. Roosting and nesting sites are consistently reported as within clumps of dense vegetation, primarily old and large <i>Spinifex</i> (<i>Triodia</i>) clumps, but sometimes other vegetation types (DAWE, 2020b).	Would not occur. Very marginal habitat.	Would Not Occur
Carnaby's Cockatoo <i>Calyptrorhynchus latirostris</i>	EN	EN	-	Carnaby's Cockatoo is endemic to, and widespread in, the south-west of Western Australia. It occurs from the wheatbelt, in areas that receive between 300 and 750 mm of rainfall annually, across to wetter regions in the extreme south-west, including the Swan Coastal Plain and the southern coast. Its range extends from Cape Arid in the south-east to Kalbarri in the north, and inland to Hatter Hill, Gibb Rock, Narembeen, Noongar, Wongan Hills, Nugadong, near Perenjori, Wilroy and Nabawa.	Would Not Occur. No documented records in the region.	Would Not Occur
Grey Falcon <i>Falco hypoleucos</i>	VU	VU	-	The Grey Falcon occurs at low densities across inland Australia. The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter. While breeding Grey Falcons feed almost exclusively on birds. Prey species include doves, pigeons, small parrots and cockatoos and finches, but a variety of other bird prey species has been recorded. Nonavian prey recorded by direct observation include small mammals and lizards.	Unlikely to occur. Outside of current documented distribution.	Unlikely
Malleefowl <i>Leipoa ocellata</i>	VU	VU	-	Scrublands and woodlands dominated by mallee and wattle species (DAWE, 2020b).	Possibly Occurs. Habitat likely marginal and unsuitable for breeding. Occasional transients only.	Possible
Fork-tailed Swift <i>Apus pacificus</i>	MI	MI	-	Low to very high airspace over varied habitat from rainforest to semi desert (Birdlife Australia, 2019).	Unlikely to occur. Very occasional transients only.	Unlikely
Migratory Shorebirds (Various species)	IA/MI	IA/MI	P3-P4	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland (DAWE, 2020b).	Habitat would not be present.	Would Not Occur
Grey Wagtail <i>Motacilla cinerea</i>	MI	MI	-	Running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields (Morecombe 2004).	Would Not Occur. No suitable habitat.	Would Not Occur

Species	Conservation Status			Habitat Description	Assessment	Likelihood
	EPBC Act	BC Act	DBCA Priority			
Peregrine Falcon <i>Falco peregrinus</i>	-	OS	-	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings (Birdlife Australia, 2018).	Possibly Occurs. Survey area may form part of larger home range but unlikely to breed in area	Possible
Freckled Duck <i>Stictonetta naevosa</i>	-	-	P4	Occurs in inland wetlands, lignum swamps, occasionally coastal wetlands. Breeding occurs from September to December, or after significant rains. The species is nomadic and often rare, but can have irruptive population booms when large numbers of birds form migratory groups.	Habitat would not be present.	Would Not Occur
Numbat <i>Myrmecobius fasciatus</i>	EN	EN	-	Previously widespread in arid and semi-arid Australia, the species is now restricted to two isolated wild populations in south-west Western Australia and a number of translocations to predator proof locations.	Would Not Occur. No documented records in the region.	Would Not Occur
Chuditch, Western Quoll <i>Dasyurus geoffroii</i>	VU	VU	-	Previously occurred throughout arid and semi-arid Australia but is now restricted to south-west Western Australia. (DAWE, 2020b).	Unlikely to Occur. Considered to be locally extinct.	Unlikely
Bilby <i>Macrotis lagotis</i>	VU	VU	-	In Western Australia, it is mainly restricted to the Gibson Desert, Little Sandy Desert, Great Sandy Desert and parts of the Pilbara and Southern Kimberley.	Would Not Occur. No documented records in the region.	Would Not Occur
Central long-eared bat <i>Nyctophilus major tor</i>	-	-	P3	<i>Nyctophilus major</i> occurs in the high rainfall southwest region of Western Australia. The trees of the upperstorey of its habitat are the large to very tall eucalypt species, karri <i>Eucalyptus diversicolor</i> , jarrah <i>E. marginata</i> , tuart <i>E. gomphocephala</i> , and marri <i>Corymbia calophylla</i> . Other woodland types inhabited by the bat include stands of melaleuca, banksia and sheoak trees of genus <i>Allocasuarina</i> , and include a dense understorey.	Possibly Occurs. Potential roost sites present (e.g. tree hollows).	Possible

Appendix 5: List of species identified within each vegetation type

(A) and blue text-Annual taxa; (W) and green text-Introduced taxa; (P) and red text-Priority Flora

Family	Taxon	CLP-EW1	CLP-EW2	CLP-OS1	CLP-OS2	OD-EW1	RH-AFW1	RH-CFW1	RH-EW1	RH-EW2	RH-MWS1	SLP-AS1	SLP-MWS1
Aizoaceae	<i>Disphyma crassifolium</i>	*	*			*							
Amaranthaceae	<i>Ptilotus aervoides</i> (A)		*	*		*						*	
	<i>Ptilotus carlsonii</i> (A)	*		*									
	<i>Ptilotus exaltatus</i> (A)	*	*	*	*	*			*			*	
	<i>Ptilotus holosericeus</i> (A)			*									
	<i>Ptilotus obovatus</i> var. <i>obovatus</i>	*	*	*	*	*	*	*	*	*	*	*	*
Apocynaceae	<i>Alyxia buxifolia</i>			*					*	*	*		
	<i>Marsdenia australis</i>	*		*			*		*		*	*	
Asphodelaceae	<i>Asphodelus fistulosus</i> (W)				*								
Asteraceae	<i>Brachyscome ciliocarpa</i> (A)	*		*									
	<i>Centaurea melitensis</i> (W)	*	*	*		*							
	<i>Cephalopterum drummondii</i> (A)		*	*		*							
	<i>Cratystylis conocephala</i>	*							*				
	<i>Cratystylis subspinescens</i>	*				*							
	<i>Dittrichia graveolens</i> (W)		*			*							
	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> (A)	*											
	<i>Olearia muelleri</i>	*				*		*	*	*	*		*
	<i>Olearia pimelioides</i>												*
	<i>Rhodanthe floribunda</i> (A)		*	*		*			*				*
	<i>Schoenia cassiniana</i> (A)		*	*		*							
	<i>Sonchus oleraceus</i> (W)			*									
	<i>Streptoglossa cylindriceps</i> (A)	*											*
	<i>Streptoglossa decurrens</i> (A)	*										*	
	<i>Streptoglossa liatroides</i> (A)	*	*	*		*							
<i>Vittadinia eremaea</i> (A)											*		
<i>Waitzia acuminata</i> (A)									*				*
Boraginaceae	<i>Halgania andromedifolia</i>											*	
Brassicaceae	<i>Carrichtera annua</i> (W)		*								*		
	<i>Sisymbrium irio</i> (W)										*		
Casuarinaceae	<i>Allocasuarina acutivalvis</i>							*					
	<i>Allocasuarina helmsii</i>											*	
	<i>Casuarina pauper</i>	*	*			*	*	*	*		*	*	
Chenopodiaceae	<i>Atriplex bunburyana</i>	*											
	<i>Atriplex codonocarpa</i> (A)	*	*			*							
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i> subsp. <i>spatulata</i>	*	*	*	*	*			*	*	*	*	*
	<i>Atriplex vesicaria</i>	*	*	*	*	*			*	*	*	*	*
	<i>Chenopodium curvispicatum</i>										*		
	<i>Enchylaena lanata</i>		*	*		*							
	<i>Enchylaena tomentosa</i>	*	*	*		*			*		*		
	<i>Eriochiton sclerolaenoides</i>											*	
	<i>Maireana carnosae</i>	*			*						*		
	<i>Maireana georgei</i>	*	*	*		*			*	*		*	
	<i>Maireana oppositifolia</i>	*	*			*							
<i>Maireana pentatropis</i>								*	*	*			

Family	Taxon	CLP-EW1	CLP-EW2	CLP-OS1	CLP-OS2	OD-EW1	RH-AFW1	RH-CFW1	RH-EW1	RH-EW2	RH-MWS1	SLP-AS1	SLP-MWS1	
	<i>Maireana pyramidata</i>		*		*	*			*			*		
	<i>Maireana sedifolia</i>	*	*		*	*			*	*	*			
	<i>Maireana thesioides</i>								*					
	<i>Maireana trichoptera</i>	*	*	*		*			*		*		*	
	<i>Maireana triptera</i>	*	*	*		*			*		*	*		
	<i>Rhagodia drummondii</i>	*		*										
	<i>Rhagodia eremaea</i>		*								*	*		
	<i>Sclerolaena cuneata</i>	*										*		
	<i>Sclerolaena densiflora</i>					*								
	<i>Sclerolaena diacantha</i>	*	*	*		*					*	*		
	<i>Sclerolaena drummondii</i>	*	*	*		*					*	*		
	<i>Sclerolaena eurotioides</i>			*										
	<i>Sclerolaena parvifolia</i>	*	*	*		*			*		*	*		
	<i>Tecticornia disarticulata</i>	*	*			*								
Cucurbitaceae	<i>Cucumis myriocarpus (W)</i>			*										
Euphorbiaceae	<i>Beyeria sulcata</i>										*			
Fabaceae	<i>Acacia acuminata</i>	*					*	*	*			*	*	
	<i>Acacia colletioides</i>								*					
	<i>Acacia erinacea</i>	*				*			*	*	*		*	
	<i>Acacia hemiteles</i>	*		*	*				*	*	*	*	*	
	<i>Acacia merrallii</i>	*											*	
	<i>Acacia quadrimarginea</i>						*						*	
	<i>Acacia ramulosa</i> var. <i>ramulosa</i>											*		
	<i>Acacia tetragonophylla</i>	*						*	*		*	*		
	<i>Dillwynia acerosa</i>											*		*
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	*	*		*	*	*	*	*	*	*	*	*	*
	<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>									*	*		*	
	<i>Senna cardiosperma</i>				*				*					
	<i>Templetonia egena</i>											*		
<i>Templetonia sulcata</i>	*													
Frankeniaceae	<i>Frankenia setosa</i>	*	*		*	*								
Geraniaceae	<i>Erodium crinitum</i>			*							*			
Goodeniaceae	<i>Goodenia havilandii (A)</i>			*									*	
	<i>Goodenia pinnatifida (A)</i>		*			*						*		
	<i>Goodenia xanthosperma (A)</i>							*	*					
	<i>Scaevola spinescens</i>	*	*	*		*	*	*	*	*	*	*	*	
Lamiaceae	<i>Prostanthera grylloana</i>							*						
	<i>Salvia reflexa (W)</i>													
	<i>Salvia verbenaca (W)</i>		*		*	*					*			
	<i>Westringia rigida</i>							*	*	*	*		*	
Malvaceae	<i>Abutilon cryptopetalum</i>								*					
	<i>Brachychiton gregorii</i>	*					*							
	<i>Sida calyxhymenia</i>						*						*	
Myrtaceae	<i>Eucalyptus campaspe</i>	*	*	*		*			*					
	<i>Eucalyptus celastroides</i>	*	*			*			*					
	<i>Eucalyptus clelandiorum</i>	*	*			*			*	*				
	<i>Eucalyptus griffithsii</i>			*					*		*	*	*	
	<i>Eucalyptus ravida</i>	*	*			*								

Family	Taxon	CLP-EW1	CLP-EW2	CLP-OS1	CLP-OS2	OD-EW1	RH-AFW1	RH-CFW1	RH-EW1	RH-EW2	RH-MWS1	SLP-AS1	SLP-MWS1
	<i>Eucalyptus salmonophloia</i>	*	*			*			*		*		
	<i>Eucalyptus torquata</i>									*			
	<i>Eucalyptus transccontinentalis</i>	*	*			*			*				
	<i>Eucalyptus websteriana</i>						*						
	<i>Eucalyptus yilgarnensis</i>										*		
Pittosporaceae	<i>Pittosporum angustifolium</i>	*	*		*				*			*	
	<i>Aristida contorta</i> (A)	*		*			*				*		
	<i>Austrostipa elegantissima</i>	*	*	*	*	*			*	*	*	*	
	<i>Austrostipa eremophila</i>			*									
	<i>Austrostipa nitida</i>	*		*			*	*	*	*	*	*	*
	<i>Cenchrus ciliaris</i> (W)										*		
	<i>Enneapogon caerulescens</i>		*			*					*		
	<i>Eragrostis dielsii</i> (A)			*									
	<i>Eragrostis setifolia</i>			*									
	<i>Triodia irritans</i>												*
Portulacaceae	<i>Calandrinia polyandra</i> (A)	*											
Primulaceae	<i>Lysimachia arvensis</i> (W)			*									
	<i>Grevillea acuaria</i>			*				*		*	*		
	<i>Grevillea huegelii</i>							*			*		
	<i>Grevillea nematophylla</i>							*					
	<i>Hakea kippistiana</i>								*				
	<i>Hakea</i> sp. (sterile)											*	
Pteridaceae	<i>Cheilanthes sieberi</i> (A)						*						
	<i>Cryptandra aridicola</i>							*	*				
Rhamnaceae	<i>Trymalium myrtillus</i>							*					*
Rutaceae	<i>Philotheca brucei</i>							*					
	<i>Exocarpos aphyllus</i>	*				*			*	*	*	*	*
	<i>Santalum acuminatum</i>	*		*					*		*		
	<i>Santalum spicatum</i>	*					*		*		*	*	*
	<i>Dodonaea adenophora</i>										*		
	<i>Dodonaea lobulata</i>	*			*	*	*	*	*	*	*	*	*
	<i>Dodonaea stenozyga</i>									*	*		
	<i>Eremophila ?praecox</i> (P2)										*		
	<i>Eremophila alternifolia</i>	*	*		*				*		*	*	
	<i>Eremophila clarkei</i>			*			*	*	*				
	<i>Eremophila decipiens</i>					*							*
	<i>Eremophila dempsteri</i>	*	*	*								*	
	<i>Eremophila georgei</i>		*								*		
	<i>Eremophila glabra</i>	*	*			*			*	*	*	*	
	<i>Eremophila interstans</i> subsp. <i>interstans</i>	*	*			*			*	*	*		*
	<i>Eremophila interstans</i> subsp. <i>virgata</i>	*	*		*		*		*		*		
	<i>Eremophila ionantha</i>								*				
	<i>Eremophila miniata</i>										*		
	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	*		*			*	*	*	*	*	*	*
	<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>								*	*	*		*
	<i>Eremophila pustulata</i>	*				*			*		*		
	<i>Eremophila scoparia</i>	*	*	*	*	*	*		*		*	*	
Solanaceae	<i>Lycium australe</i>				*						*		

Family	Taxon	CLP-EW1	CLP-EW2	CLP-OS1	CLP-OS2	OD-EW1	RH-AFW1	RH-CFW1	RH-EW1	RH-EW2	RH-MWS1	SLP-AS1	SLP-MWS1
	<i>Solanum hoplopetalum</i>		*			*							
	<i>Solanum lasiophyllum</i>	*			*		*	*			*	*	
	<i>Solanum nummularium</i>	*			*				*		*	*	
Zygophyllaceae	<i>Roepera eremaea</i> (A)		*	*		*	*	*	*		*		
	<i>Roepera</i> sp. (sterile) (A)		*			*					*		

Appendix 6: Vegetation Condition Rating

Vegetation Condition Rating	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	N/A
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	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	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	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	N/A	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.	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.

Appendix 7: NatureMap Species List (40km buffer)

NatureMap Species Report

Created By Guest user on 28/12/2020

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 121° 04' 03" E, 30° 39' 26" S
Buffer 40km
Group By Family

Family	Species	Records
Acanthizidae	10	495
Acarosporaceae	2	6
Accipitridae	10	106
Actinopodidae	1	4
Aegothelidae	1	15
Aeshnidae	1	2
Agamidae	11	135
Aizoaceae	5	12
Amaranthaceae	14	89
Anacardiaceae	1	4
Anatidae	12	468
Anhingidae	1	2
Apiaceae	1	3
Apocynaceae	5	19
Araliaceae	1	1
Araneidae	8	21
Arcellidae	1	2
Arcyriaceae	1	2
Ardeidae	3	43
Artamidae	3	33
Asparagaceae	5	9
Asphodelaceae	1	2
Asteraceae	104	376
Baetidae	2	2
Barychelidae	1	1
Boidae	1	2
Boletaceae	1	1
Boraginaceae	9	34
Bothriuridae	1	1
Brachionidae	1	1
Branchipodidae	1	11
Brassicaceae	16	42
Bryaceae	1	1
Burramyidae	1	30
Buthidae	1	1
Cacatuidae	1	34
Cactaceae	2	3
Campanulaceae	2	4
Campephagidae	3	108
Caprimulgidae	1	7
Carphodactylidae	1	1
Caryophyllaceae	1	2
Casuarinidae	1	29
Casuarinaceae	8	22
Celastraceae	2	3
Centropagidae	1	2
Centropyxidae	1	1
Ceratopogonidae	3	5
Charadriidae	6	71
Cheluidae	1	1
Chenopodiaceae	65	264
Chironomidae	5	8
Chydoridae	1	1
Cinclosomatidae	1	1
Cladoniaceae	2	4
Climacteridae	1	3
Collemataceae	1	1
Columbidae	4	197
Convolvulaceae	4	10
Corduliidae	1	2
Corixidae	3	6
Corvidae	3	273
Cractidae	4	432
Crassulaceae	1	4
Cuculidae	4	19
Cupressaceae	2	15
Cyclopidae	3	6
Cyperaceae	5	6
Cypridae	3	5
Cypridopsidae	1	1
Cyprinidae	1	1
Cyzicidae	1	4
Daphniidae	2	3
Dasyuridae	8	83
Desidae	2	2
Dicaeidae	1	16
Dicruridae	3	355

Dilleniaceae	2	2
Diplodactylidae	7	79
Droseraceae	1	1
Dytiscidae	9	12
Echinosteliaceae	1	3
Elaeocarpaceae	1	2
Elapidae	15	82
Elatinaceae	1	1
Ericaceae	6	7
Estrilidae	1	28
Euphorbiaceae	9	11
Fabaceae	99	389
Falconidae	5	87
Felidae	1	1
Frankeniaceae	9	19
Funariaceae	1	1
Gekkonidae	5	135
Geraniaceae	5	25
Gnaphosidae	1	1
Goodeniaceae	27	101
Graphidaceae	3	6
Grimmiaceae	1	1
Gyrostemonaceae	2	3
Haemodoraceae	1	1
Halcyonidae	2	12
Haliplidae	2	2
Haloragaceae	5	13
Hemerocallidaceae	1	1
Hersiliidae	1	1
Hexarthridae	1	1
Hirundinidae	4	171
Hydnaceae	1	1
Hydrachnidae	1	1
Hydrophilidae	2	4
Hylidae	1	1
Icmadophilaceae	1	1
Idiopidae	1	2
Juncaceae	2	2
Juncaginaceae	1	1
Lamiaceae	19	105
Lamponidae	2	5
Laridae	1	2
Lecideaceae	2	4
Leporidae	1	3
Leptoceridae	1	1
Lestidae	3	5
Libellulidae	3	3
Liceaceae	1	3
Limnadiidae	1	2
Limnodynastidae	4	42
Loganiaceae	2	2
Loranthaceae	6	9
Lycanidae	3	23
Lycosidae	5	15
Lynceidae	1	1
Lynceidae	1	1
Lythraceae	2	2
Macropodidae	1	1
Macrotrichidae	2	2
Maluridae	3	115
Malvaceae	22	71
Marsileaceae	2	2
Megalosporaceae	3	5
Megapodiidae	1	39
Meliaceae	1	1
Meliphagidae	12	1014
Meropidae	1	28
Montiaceae	3	10
Motacillidae	1	2
Muridae	5	111
Myobatrachidae	1	38
Myrmecobiidae	1	1
Myrtaceae	88	465
Nemesiidae	2	3
Neosittidae	2	8
Nicodamidae	1	3
Notonectidae	2	3
Nyctaginaceae	1	1
Ophioglossaceae	1	1
Orchidaceae	9	12
Ostracoda	1	3
Otididae	1	4
Oxalidaceae	3	5
Oxyopidae	3	12
Pachycephalidae	5	313
Papaveraceae	1	1
Pardalotidae	3	223
Parmeliaceae	18	28
Peltulaceae	1	1
Petroicidae	6	109
Pezizaceae	1	1
Phalacrocoracidae	2	12
Phasianidae	2	2
Phelloriniaceae	1	1
Pholcidae	1	1
Physaraceae	1	1
Physciaceae	1	3
Pileolariaceae	1	2
Pittosporaceae	3	10
Plantaginaceae	2	11
Plumbaginaceae	1	1
Poaceae	52	138
Podargidae	1	3
Podicipedidae	2	128
Polygalaceae	2	4

Polygonaceae	6	10
Pomatostomidae	2	57
Portulacaceae	1	1
Pottiaceae	5	6
Primulaceae	1	1
Proteaceae	27	75
Psittacidae	9	74
Psoraceae	2	3
Pygopodidae	4	16
Rallidae	3	98
Ramalinaceae	1	1
Recurvirostridae	4	38
Restionaceae	2	2
Rhamnaceae	4	13
Rhizocarpaceae	1	1
Ricciaceae	1	1
Ruppiaceae	1	1
Rutaceae	9	34
Salticidae	4	15
Santalaceae	3	25
Sapindaceae	9	68
Scincidae	23	159
Scolopacidae	8	25
Scolopendridae	3	6
Scrophulariaceae	36	330
Sididae	1	2
Solanaceae	17	67
Sparassidae	2	14
Stemonitidaceae	2	3
Sternophoridae	1	1
Stratiomyidae	1	2
Styliidae	3	8
Tachyglossidae	1	1
Teloschistaceae	2	4
Testudinellidae	1	1
Thamnocephalidae	3	4
Theraphosidae	1	3
Theridiidae	1	11
Threskiornithidae	2	24
Thylacomyidae	1	2
Thymelaeaceae	3	8
Trichiaceae	1	1
Trichocercidae	1	1
Triopsidae	1	2
Trochanteriidae	2	4
Turbellaria	1	1
Tytonidae	1	1
Urodacidae	3	3
Urticaceae	1	1
Varanidae	3	18
Verbenaceae	2	2
Verrucariaceae	6	10
Vespertilionidae	6	96
Violaceae	1	8
Zodariidae	1	1
Zosteropidae	1	22
Zygophyllaceae	6	13
TOTAL	1229	9783

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Acanthizidae				
1.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
2.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
3.	24264 <i>Acanthiza robustirostris</i> (Slaty-backed Thornbill)			
4.	24265 <i>Acanthiza uropygialis</i> (Chestnut-rumped Thornbill)			
5.	25528 <i>Aphelocephala leucopsis</i> (Southern Whiteface)			
6.	24266 <i>Aphelocephala leucopsis</i> subsp. <i>castaneiventris</i> (Southern Whiteface)			
7.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
8.	34001 <i>Hylacola cauta</i> subsp. <i>whitlocki</i> (Shy Groundwren)			
9.	24278 <i>Pyrrholaemus brunneus</i> (Redthroat)			
10.	30948 <i>Smicronis brevirostris</i> (Weebill)			
Acarosporaceae				
11.	27574 <i>Acarospora citrina</i>			
12.	46014 <i>Myriospora smaragdula</i>			
Accipitridae				
13.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
14.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
15.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
16.	24288 <i>Circus approximans</i> (Swamp Harrier)			
17.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
18.	<i>Elanus axillaris</i>			
19.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
20.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
21.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
22.	25542 <i>Milvus migrans</i> (Black Kite)			
Actinopodidae				
23.	<i>Missulena occatoria</i>			
Aegothelidae				
24.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
Aeshnidae				
25.	<i>Anax papuensis</i>			
Agamidae				
26.	24871 <i>Ctenophorus cristatus</i> (Bicycle Dragon)			
27.	24873 <i>Ctenophorus fordi</i> (Mallee Sand Dragon)			
28.	24874 <i>Ctenophorus isolepis</i> subsp. <i>citrinus</i> (Yellowy Military Dragon)			
29.	24886 <i>Ctenophorus reticulatus</i> (Western Netted Dragon)			
30.	24888 <i>Ctenophorus salinarum</i> (Salt Pan Dragon)			
31.	24889 <i>Ctenophorus scutulatus</i> (Lozenge-marked Dragon)			
32.	30909 <i>Diporiphora amphiboluroides</i> (Mulga Dragon)			
33.	24904 <i>Moloch horridus</i> (Thorny Devil)			
34.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
35.	30814 <i>Tympanocryptis cephalus</i> (Pebble Dragon)			
36.	39408 <i>Tympanocryptis lineata</i> (Lined Earless Dragon)			
Aizoaceae				
37.	48513 <i>Aizoon pubescens</i>	Y		
38.	11681 <i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>			
39.	2807 <i>Gunniopsis quadriida</i> (Sturts Pigface)			
40.	2810 <i>Gunniopsis septifraga</i>			
41.	2822 <i>Tetragonia eremaea</i>			
Amaranthaceae				
42.	2648 <i>Alternanthera denticulata</i> (Lesser Joyweed)			
43.	2652 <i>Alternanthera nodiflora</i> (Common Joyweed)			
44.	2671 <i>Amaranthus viridis</i> (Green Amaranth)	Y		
45.	2690 <i>Ptilotus aervooides</i>			
46.	2707 <i>Ptilotus carlsonii</i>			
47.	38463 <i>Ptilotus chortophytus</i>		P1	
48.	48602 <i>Ptilotus eremita</i>			
49.	2721 <i>Ptilotus exaltatus</i> (Tall Mulla Mulla)			
50.	2727 <i>Ptilotus gaudichaudii</i>			
51.	2729 <i>Ptilotus grandiflorus</i>			
52.	2730 <i>Ptilotus helichrysoides</i>			
53.	2732 <i>Ptilotus holosericeus</i>			
54.	2747 <i>Ptilotus obovatus</i> (Cotton Bush)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
55.	2751 <i>Ptilotus polystachyus</i> (Prince of Wales Feather)			
Anacardiaceae				
56.	17056 <i>Schinus molle</i> var. <i>areira</i>	Y		
Anatidae				
57.	24312 <i>Anas gracilis</i> (Grey Teal)			
58.	24313 <i>Anas platyrhynchos</i> (Mallard)			
59.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
60.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
61.	24318 <i>Aythya australis</i> (Hardhead)			
62.	24319 <i>Biziura lobata</i> (Musk Duck)			
63.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
64.	24322 <i>Cygnus atratus</i> (Black Swan)			
65.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
66.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
67.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
68.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
Anhingidae				
69.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
Apiaceae				
70.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
Apocynaceae				
71.	6565 <i>Alyxia buxifolia</i> (Dysentery Bush)			
72.	14636 <i>Alyxia tetanifolia</i>		P3	
73.	6580 <i>Asclepias curassavica</i> (Redhead Cottonbush)	Y		
74.	12949 <i>Marsdenia australis</i>			
75.	48986 <i>Vincetoxicum lineare</i>			
Araliaceae				
76.	6279 <i>Trachymene ornata</i> (Spongefruit)			
Araneidae				
77.	<i>Argiope protensa</i>			
78.	<i>Argiope trifasciata</i>			
79.	<i>Austracantha minax</i>			
80.	<i>Backobourkia heroine</i>			
81.	<i>Celaenia excavata</i>			
82.	<i>Cyrtophora parnasia</i>			
83.	<i>Eriophora biapicata</i>			
84.	<i>Nephila edulis</i>			
Arcellidae				
85.	<i>Arcella discoides</i>			
Arcyriaceae				
86.	38964 <i>Arcyria cinerea</i>			
Ardeidae				
87.	41324 <i>Ardea modesta</i> (great egret, white egret)			
88.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
89.	<i>Egretta novaehollandiae</i>			
Artamidae				
90.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
91.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
92.	24356 <i>Artamus personatus</i> (Masked Woodswallow)			
Asparagaceae				
93.	1505 <i>Agave americana</i> (Century Plant)	Y		
94.	1215 <i>Chamaexeros fimbriata</i>			
95.	1216 <i>Chamaexeros macranthera</i>			
96.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
97.	1343 <i>Thysanotus patersonii</i>			
Asphodelaceae				
98.	1366 <i>Bulbine semibarbata</i> (Leek Lily)			
Asteraceae				
99.	7817 <i>Actinobole uliginosum</i> (Flannel Cudweed)			
100.	7834 <i>Angianthus prostratus</i>		P3	
101.	7836 <i>Angianthus tomentosus</i> (Camel-grass)			
102.	7838 <i>Arctotheca calendula</i> (Cape Weed, African Marigold)	Y		
103.	7846 <i>Asteridea athrioides</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
104.	7871 <i>Brachyscome ciliaris</i>			
105.	7878 <i>Brachyscome iberidifolia</i>			
106.	7880 <i>Brachyscome lineariloba</i>			
107.	7882 <i>Brachyscome perpusilla</i>			
108.	7903 <i>Calotis hispidula</i> (Birdy Eye)			
109.	7905 <i>Calotis multicaulis</i> (Many-stemmed Burr-daisy)			
110.	7911 <i>Carthamus lanatus</i> (Saffron Thistle)	Y		
111.	7916 <i>Centaurea melitensis</i> (Maltese Cockspur, Malta Thistle)	Y		
112.	19759 <i>Centipeda crateriformis</i> subsp. <i>crateriformis</i>			
113.	7922 <i>Cephalopterum drummondii</i> (Pompom Head)			
114.	7924 <i>Ceratogyne obionoides</i> (Wingwort)			
115.	47074 <i>Chrysocephalum apiculatum</i> subsp. <i>norsemanense</i>		P3	
116.	13138 <i>Chrysocephalum puteale</i>			
117.	7933 <i>Chthonocephalus pseudevax</i> (Woolly Groundheads)			
118.	7935 <i>Cichorium intybus</i> (Chicory)	Y		
119.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
120.	20074 <i>Conyza sumatrensis</i>	Y		
121.	7943 <i>Cotula australis</i> (Common Cotula)			
122.	13353 <i>Craspedia haplorrhiza</i>			Y
123.	7949 <i>Cratystylis conocephala</i> (Greybush)			
124.	7950 <i>Cratystylis microphylla</i> (Small-leaved Grey Bush)			
125.	7961 <i>Dittrichia graveolens</i> (Stinkwort)	Y		
126.	7964 <i>Elachanthus pusillus</i> (Elacanth)		P2	
127.	12739 <i>Erymophyllum ramosum</i>			
128.	14377 <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>			
129.	12780 <i>Gilberta tenuifolia</i>			
130.	7988 <i>Gnephosis arachnoidea</i> (Cobwebby-headed Gnephosis)			
131.	7989 <i>Gnephosis brevifolia</i> (Short-leaved Gnephosis)			
132.	7998 <i>Gnephosis macrocephala</i>			
133.	8002 <i>Gnephosis tenuissima</i>			
134.	8008 <i>Helianthus annuus</i> (Sunflower, Common Sunflower)	Y		
135.	8045 <i>Helipterum craspedioides</i> (Yellow Billy Buttons)			
136.	15447 <i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>			
137.	12756 <i>Hyalosperma zacchaeus</i>			
138.	8087 <i>Isoetopsis graminifolia</i> (Cushion Grass)			
139.	8094 <i>Kippistia suaedifolia</i>			
140.	29046 <i>Lactuca serriola</i> forma <i>serriola</i>	Y		
141.	13284 <i>Lawrencella rosea</i>			
142.	19237 <i>Leiocarpa websteri</i>			
143.	12628 <i>Lemooria burkittii</i>			
144.	8105 <i>Millotia myosotidifolia</i>			
145.	12631 <i>Millotia perpusilla</i>			
146.	8107 <i>Minuria cunninghamii</i> (Bush Minuria)			
147.	8108 <i>Minuria gardneri</i>			
148.	8110 <i>Minuria leptophylla</i> (Minnie Daisy)			
149.	29418 <i>Monoculus monstrosus</i>	Y		
150.	14186 <i>Myriocephalus pygmaeus</i>			
151.	48227 <i>Notisia intonsa</i>		P3	
152.	8134 <i>Olearia exiguiifolia</i> (Small-leaved Daisy Bush)			
153.	8136 <i>Olearia homolepis</i>			
154.	19023 <i>Olearia incana</i>			
155.	8140 <i>Olearia muelleri</i> (Goldfields Daisy)			
156.	8145 <i>Olearia pimeleoides</i> (Pimelea Daisybush, Burbunga)			
157.	8149 <i>Olearia rudis</i> (Rough Daisybush)			
158.	44401 <i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628)			
159.	8152 <i>Olearia subspicata</i> (Spiked Daisy Bush)			
160.	19828 <i>Oligocarpus calendulaceus</i>	Y		
161.	20661 <i>Oncosiphon suffruticosum</i> (Calomba Daisy)	Y		
162.	12642 <i>Ozothamnus cassiope</i>			
163.	45238 <i>Podolepis aristata</i> subsp. <i>affinis</i>			
164.	8173 <i>Podolepis capillaris</i> (Wiry Podolepis)			
165.	8180 <i>Podolepis rugata</i> (Pleated Podolepis)			
166.	8187 <i>Pogonolepis muelleriana</i>			
167.	8188 <i>Pogonolepis stricta</i>			
168.	8189 <i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
169.	13308 <i>Rhodanthe charsleyae</i>			
170.	13239 <i>Rhodanthe chlorocephala</i>			
171.	13241 <i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>			
172.	13242 <i>Rhodanthe chlorocephala</i> subsp. <i>splendida</i>			
173.	13301 <i>Rhodanthe floribunda</i>			

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174.	13293 <i>Rhodanthe haigii</i>			
175.	13294 <i>Rhodanthe laevis</i>			
176.	13234 <i>Rhodanthe manglesii</i>			
177.	13249 <i>Rhodanthe oppositifolia</i> subsp. <i>oppositifolia</i>			
178.	13252 <i>Rhodanthe pygmaea</i>			
179.	13253 <i>Rhodanthe rubella</i>			
180.	13254 <i>Rhodanthe stricta</i>			
181.	13237 <i>Rhodanthe uniflora</i>		P1	
182.	8200 <i>Schoenia cassiniana</i> (<i>Schoenia</i>)			
183.	13287 <i>Schoenia filifolia</i> subsp. <i>filifolia</i>			
184.	20722 <i>Senecio dolichocephalus</i>			
185.	8207 <i>Senecio glossanthus</i> (<i>Slender Groundsel</i>)			
186.	25881 <i>Senecio lacustrinus</i>			
187.	8213 <i>Senecio magnificus</i> (<i>Showy Groundsel</i>)			
188.	20161 <i>Senecio pinnatifolius</i>			
189.	25883 <i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>			
190.	8217 <i>Senecio quadridentatus</i>			
191.	8231 <i>Sonchus oleraceus</i> (<i>Common Sowthistle</i>)	Y		
192.	8238 <i>Streptoglossa liatroides</i>			
193.	12652 <i>Trichanthodium skirrophorum</i>			
194.	8253 <i>Triptilodiscus pygmaeus</i>			
195.	11387 <i>Vittadinia cervicularis</i> var. <i>cervicularis</i>			
196.	8265 <i>Vittadinia eremaea</i>			
197.	8273 <i>Vittadinia sulcata</i>			
198.	8275 <i>Waitzia acuminata</i> (<i>Orange Immortelle</i>)			
199.	13331 <i>Waitzia acuminata</i> var. <i>acuminata</i>			
200.	46093 <i>Waitzia fitzgibbonii</i>			
201.	13328 <i>Waitzia nitida</i>			
202.	8287 <i>Xanthium spinosum</i> (<i>Bathurst Burr, Common Cockleburr, Spiny Cockleburr, Spiny Clotburr</i>)	Y		
Baetidae				
203.	<i>Baetidae</i> sp.			
204.	<i>Cloeon</i> sp.			
Barychelidae				
205.	<i>Idiommata blackwalli</i>			
Boidae				
206.	25240 <i>Morelia spilota</i> subsp. <i>imbricata</i> (<i>Carpet Python</i>)			
Boletaceae				
207.	<i>Boletus</i> sp.			
Boraginaceae				
208.	6675 <i>Buglossoides arvensis</i> (<i>Corn Gromwell</i>)	Y		
209.	6681 <i>Echium plantagineum</i> (<i>Paterson's Curse</i>)	Y		
210.	6684 <i>Halgania andromedifolia</i>			
211.	29840 <i>Halgania cyanea</i> var. <i>Allambi Strn</i> (<i>B.W. Strong 676</i>)			
212.	31117 <i>Halgania cyanea</i> var. <i>Charleville</i> (<i>R.W. Purdie +111</i>)			
213.	6691 <i>Halgania integerrima</i>			
214.	6707 <i>Heliotropium curassavicum</i> (<i>Smooth Heliotrope</i>)			
215.	6710 <i>Heliotropium europaeum</i> (<i>Common Heliotrope</i>)	Y		
216.	6723 <i>Omphalolappula concava</i> (<i>Burr Stickseed</i>)			
Bothriuridae				
217.	<i>Cercophonius michaelsoni</i>			
Brachionidae				
218.	<i>Platyias quadricornis</i>			
Branchipodidae				
219.	<i>Parartemia</i> sp.			
Brassicaceae				
220.	31876 <i>Arabidella chrysodema</i>			
221.	2992 <i>Arabidella trisecta</i>			
222.	3000 <i>Brassica tournefortii</i> (<i>Mediterranean Turnip</i>)	Y		
223.	3004 <i>Capsella bursa-pastoris</i> (<i>Shepherd's Purse</i>)	Y		
224.	3008 <i>Carrichtera annua</i> (<i>Ward's Weed</i>)	Y		
225.	3026 <i>Lepidium fasciculatum</i> (<i>Bundled Peppergrass</i>)		P3	
226.	3031 <i>Lepidium merrallii</i>		P2	
227.	3034 <i>Lepidium papillosum</i> (<i>Warty Peppergrass</i>)			Y
228.	3037 <i>Lepidium phlebotetalum</i> (<i>Veined Peppergrass</i>)			
229.	3050 <i>Menkea australis</i> (<i>Fairy Spectacles</i>)			

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230.	3053 <i>Menkea sphaerocarpa</i>			
231.	3059 <i>Phlegmatospermum eremaeum</i>		P3	
232.	3070 <i>Sisymbrium irio</i> (London Rocket)	Y		
233.	3072 <i>Sisymbrium orientale</i> (Indian Hedge Mustard)	Y		
234.	3076 <i>Stenopetalum filifolium</i>			
235.	3077 <i>Stenopetalum lineare</i> (Narrow Thread Petal)			
Bryaceae				
236.	32427 <i>Rosulabryum capillare</i>			
Burramyidae				
237.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
Buthidae				
238.	<i>Isometroides vescus</i>			
Cacatuidae				
239.	<i>Eolophus roseicapillus</i>			
Cactaceae				
240.	20281 <i>Cylindropuntia tunicata</i>	Y		Y
241.	31799 <i>Opuntia elata</i>	Y		
Campanulaceae				
242.	7397 <i>Isotoma petraea</i> (Rock Isotome, Tundiwari)			
243.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
Campephagidae				
244.	24361 <i>Coracina maxima</i> (Ground Cuckoo-shrike)			
245.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
246.	24362 <i>Coracina novaehollandiae</i> subsp. <i>novaehollandiae</i> (Black-faced Cuckoo-shrike)			
Caprimulgidae				
247.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
Carphodactylidae				
248.	24971 <i>Nephurus vertebralis</i>			
Caryophyllaceae				
249.	2914 <i>Spergularia diandra</i> (Lesser Sand Spurry)	Y		
Casuariidae				
250.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
Casuarinaceae				
251.	13904 <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>			
252.	1721 <i>Allocasuarina campestris</i>			
253.	1722 <i>Allocasuarina corniculata</i>			
254.	13906 <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i>			
255.	13897 <i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>		P3	
256.	1730 <i>Allocasuarina helmsii</i>			
257.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
258.	12658 <i>Casuarina pauper</i> (Black Oak)			
Celastraceae				
259.	4734 <i>Stackhousia muricata</i>			
260.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
Centropagidae				
261.	<i>Boeckella triarticulata</i>			
Centropyxidae				
262.	<i>Centropyxis aculeata</i>			
Ceratopogonidae				
263.	<i>Bezzia</i> sp. 1 (SAP)			
264.	<i>Bezzia</i> sp. 2 (SAP)			
265.	<i>Culicoides</i> sp.			
Charadriidae				
266.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
267.	24378 <i>Charadrius veredus</i> (Oriental Plover)		IA	
268.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			
269.	24379 <i>Erythrogonys cinctus</i> (Red-kneed Dotterel)			
270.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
271.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
Cheluidae				
272.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			

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Chenopodiaceae				
273.	11435 <i>Atriplex acutibractea</i> subsp. <i>acutibractea</i>			
274.	11489 <i>Atriplex acutibractea</i> subsp. <i>karoniensis</i>			
275.	2453 <i>Atriplex codonocarpa</i> (Flat-topped Saltbush)			
276.	2455 <i>Atriplex eardleyae</i>			
277.	2459 <i>Atriplex holocarpa</i> (Pop Saltbush)			
278.	17520 <i>Atriplex lindleyi</i> subsp. <i>conduplicata</i>		P3	
279.	12042 <i>Atriplex lindleyi</i> subsp. <i>inflata</i>			
280.	2469 <i>Atriplex nummularia</i> (Old Man Saltbush)			
281.	11516 <i>Atriplex nummularia</i> subsp. <i>spathulata</i> (Old Man Saltbush)			
282.	2472 <i>Atriplex pumilio</i>			
283.	11791 <i>Atriplex quadrivalvata</i> var. <i>quadrivalvata</i>			
284.	2475 <i>Atriplex semibaccata</i> (Berry Saltbush)			
285.	2478 <i>Atriplex spongiosa</i> (Pop Saltbush)			
286.	2479 <i>Atriplex stipitata</i> (Mallee Saltbush)			
287.	2481 <i>Atriplex vesicaria</i> (Bladder Saltbush)			
288.	2483 <i>Chenopodium album</i> (Fat Hen)	Y		
289.	2487 <i>Chenopodium curvispicatum</i>			
290.	2494 <i>Chenopodium murale</i> (Nettle-leaf Goosefoot)	Y		
291.	2495 <i>Chenopodium nitrariaceum</i> (Nitre Goosefoot)			
292.	2499 <i>Dissocarpus paradoxus</i> (Curious Saltbush)			
293.	33501 <i>Dysphania cristata</i> (Crested Goosefoot)			
294.	33480 <i>Dysphania pumilio</i> (Clammy Goosefoot)			
295.	11704 <i>Einadia nutans</i> subsp. <i>eremaea</i> (Climbing Saltbush)			
296.	2510 <i>Enchylaena lanata</i>			
297.	2511 <i>Enchylaena tomentosa</i> (Barrier Saltbush)			
298.	12064 <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> (Barrier Saltbush)			
299.	2514 <i>Eriochiton sclerolaenoides</i> (Woolly Bindii)			
300.	2533 <i>Maireana amoena</i>			
301.	2535 <i>Maireana appressa</i>			
302.	2536 <i>Maireana atkinsiana</i> (Bronze Bluebush)			
303.	2537 <i>Maireana brevifolia</i> (Small Leaf Bluebush)			
304.	2538 <i>Maireana carnosa</i> (Cottony Bluebush)			
305.	2542 <i>Maireana erioclada</i>			
306.	2543 <i>Maireana eriosphaera</i>			
307.	2544 <i>Maireana georgei</i> (Satiny Bluebush)			
308.	2545 <i>Maireana glomerifolia</i> (Ball Leaf Bluebush)			
309.	2550 <i>Maireana marginata</i>			
310.	2554 <i>Maireana pentagona</i> (Hairy Bluebush)			
311.	2555 <i>Maireana pentatropis</i>			
312.	2560 <i>Maireana pyramidata</i> (Sago Bush)			
313.	2561 <i>Maireana radiata</i>			
314.	2563 <i>Maireana sedifolia</i> (Pearl Bluebush, Myall)			
315.	2565 <i>Maireana suaedifolia</i>			
316.	2567 <i>Maireana tomentosa</i> (Felted Bluebush)			
317.	11662 <i>Maireana tomentosa</i> subsp. <i>tomentosa</i>			
318.	2568 <i>Maireana trichoptera</i> (Downy Bluebush)			
319.	2569 <i>Maireana triptera</i> (Threewinged Bluebush)			
320.	2570 <i>Maireana turbinata</i>			
321.	2572 <i>Malacocera tricornis</i> (Soft Horns)			
322.	2581 <i>Rhagodia drummondii</i>			
323.	30434 <i>Salsola australis</i>			
324.	2606 <i>Sclerolaena cuneata</i> (Yellow Bindii)			
325.	2609 <i>Sclerolaena diacantha</i> (Grey Copperburr)			
326.	2610 <i>Sclerolaena drummondii</i>			
327.	2615 <i>Sclerolaena fusiformis</i>			
328.	8877 <i>Sclerolaena gardneri</i>			
329.	2625 <i>Sclerolaena obliquicuspis</i> (Limestone Bindii)			
330.	2627 <i>Sclerolaena patentiscuspis</i> (Spear-fruit Saltbush)			
331.	31719 <i>Tecticornia chartacea</i>			
332.	31492 <i>Tecticornia disarticulata</i>			
333.	46513 <i>Tecticornia doliiformis</i>			
334.	33319 <i>Tecticornia indica</i> subsp. <i>bidens</i>			
335.	33299 <i>Tecticornia pergranulata</i> subsp. <i>elongata</i>			
336.	33297 <i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i> (Blackseed Samphire)			
337.	31717 <i>Tecticornia undulata</i>			
Chironomidae				
338.	<i>Chironomus aff. alternans</i> (V24) (CB)			
339.	<i>Chironomus tepperi</i>			

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340.	<i>Cryptochironomus griseidorsum</i>			
341.	<i>Polypedium nubifer</i>			
342.	<i>Procladius paludicola</i>			
Chydoridae				
343.	<i>Maraura macracantha</i> (formerly <i>Alona macracantha</i>)			
Cinclosomatidae				
344.	25580 <i>Cinclosoma castaneothorax</i> (Chestnut-breasted Quail-thrush)			
Cladoniaceae				
345.	48176 <i>Cladia beaugleholei</i>			
346.	48177 <i>Cladia muelleri</i>			
Climacteridae				
347.	25581 <i>Climacteris affinis</i> (White-browed Treecreeper)			
Collemataceae				
348.	27703 <i>Collema coccophorum</i>			
Columbidae				
349.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
350.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
351.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
352.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
Convolvulaceae				
353.	6612 <i>Convolvulus clementii</i>			
354.	6614 <i>Convolvulus remotus</i>			
355.	6663 <i>Cuscuta epithymum</i> (Lesser Dodder, Greater Dodder)	Y		
356.	6621 <i>Ipomoea calobra</i> (Weir Vine)			
Corduliidae				
357.	<i>Hemicordulia tau</i>			
Corixidae				
358.	<i>Agraptocorixa parvipunctata</i>			
359.	<i>Micronecta gracilis</i>			
360.	<i>Micronecta robusta</i>			
Corvidae				
361.	24416 <i>Corvus bennetti</i> (Little Crow)			
362.	25592 <i>Corvus coronoides</i> (Australian Raven)			
363.	25593 <i>Corvus orru</i> (Torresian Crow)			
Cracticidae				
364.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
365.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
366.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
367.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
Crassulaceae				
368.	11563 <i>Crassula colorata</i> var. <i>colorata</i>			
Cuculidae				
369.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
370.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
371.	24431 <i>Chrysococcyx basalus</i> (Horsfield's Bronze Cuckoo)			
372.	24434 <i>Chrysococcyx osculans</i> (Black-eared Cuckoo)			
Cupressaceae				
373.	8466 <i>Callitris columellaris</i> (White Cypress Pine)			
374.	96 <i>Callitris preissii</i> (Rottneest Island Pine, Maro)			
Cyclopidae				
375.	<i>Australocyclops australis</i>			
376.	<i>Mesocyclops brooksi</i>			
377.	<i>Microcyclops varicans</i>			
Cyperaceae				
378.	765 <i>Chrysitrix distigmata</i>			
379.	903 <i>Gahnia deusta</i>			
380.	<i>Lepidosperma</i> sp.			
381.	954 <i>Mesomelaena preissii</i>			
382.	1015 <i>Schoenus subaphyllus</i>			
Cyprididae				
383.	<i>Bennelongia</i> sp.			
384.	<i>Cyprinotus cingalensis</i>			

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385.	<i>Ilyodromus</i> sp.			
Cyridopsidae				
386.	<i>Sarscyridopsis aculeata</i>			
Cyprinidae				
387.	<i>Carassius auratus</i>			
Cyzicidae				
388.	<i>Ozestheria packardi</i>			
Daphniidae				
389.	<i>Daphnia carinata</i>			
390.	<i>Daphnia cephalata</i>			
Dasyuridae				
391.	24087 <i>Antechinomys laniger</i> (Kultarr)			
392.	24094 <i>Ningai ridei</i> (Wongai Ningai)			
393.	24096 <i>Ningai yvonneae</i> (Southern Ningai)			
394.	24106 <i>Pseudantechinus woolleyae</i> (Woolley's Pseudantechinus)			
395.	24108 <i>Sminthopsis crassicaudata</i> (Fat-tailed Dunnart)			
396.	24109 <i>Sminthopsis dolichura</i> (Little long-tailed Dunnart)			
397.	24111 <i>Sminthopsis gilberti</i> (Gilbert's Dunnart)			
398.	24117 <i>Sminthopsis ooldea</i> (Ooldea Dunnart)			
Desidae				
399.	<i>Baiami tegenarioides</i>			
400.	<i>Corasoides australis</i>			
Dicaeidae				
401.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
Dicruridae				
402.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
403.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
404.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
Dilleniaceae				
405.	19692 <i>Hibbertia ancistrophylla</i>			
406.	5160 <i>Hibbertia pungens</i>			
Diplodactylidae				
407.	24929 <i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
408.	24940 <i>Diplodactylus pulcher</i>			
409.	42408 <i>Hesperoedura reticulata</i>			
410.	30935 <i>Lucasium maini</i>			
411.	24982 <i>Rhynchoedura ornata</i> (Western Beaked Gecko)			
412.	24923 <i>Strophurus assimilis</i> (Goldfields Spiny-tailed Gecko)			
413.	24927 <i>Strophurus elderi</i>			
Droseraceae				
414.	49090 <i>Drosera</i> sp. Branched styles (S.C. Coffey 193)			
Dytiscidae				
415.	<i>Allodessus bistrigatus</i>			
416.	<i>Antiporus gilberti</i>			
417.	<i>Antiporus</i> sp.			
418.	<i>Hyphydrus elegans</i>			
419.	<i>Hyphydrus</i> sp.			
420.	<i>Megaporus howittii</i>			
421.	<i>Necterosoma</i> sp.			
422.	<i>Sternopriscus multimaculatus</i>			
423.	<i>Sternopriscus</i> sp.			
Echinosteliaceae				
424.	39027 <i>Echinostelium apitectum</i>			
Elaeocarpaceae				
425.	4530 <i>Tetradlea foliata</i>			
Elapidae				
426.	25243 <i>Acanthophis pyrrhus</i> (Desert Death Adder)			
427.	42380 <i>Brachyurophis fasciolatus</i> subsp. <i>fasciolatus</i> (Narrow-banded Shovel-nosed Snake)			
428.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
429.	25247 <i>Demansia psammophis</i> subsp. <i>psammophis</i> (Yellow-faced Whipsnake)			
430.	25301 <i>Furina ornata</i> (Moon Snake)			
431.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
432.	25253 <i>Parasuta gouldii</i>			

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433.	25254 <i>Parasuta monachus</i>			
434.	25261 <i>Pseudechis australis</i> (Mulga Snake)			
435.	42416 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
436.	25263 <i>Pseudonaja modesta</i> (Ringed Brown Snake)			
437.	25264 <i>Pseudonaja nuchalis</i> (Gwardar, Northern Brown Snake)			
438.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
439.	<i>Simoselaps semifasciata</i>			Y
440.	25269 <i>Suta fasciata</i> (Rosen's Snake)			

Elatinaceae

441.	5186 <i>Bergia trimera</i>			
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Ericaceae

442.	6336 <i>Astroloma serratifolium</i> (Kondrung)			
443.	6343 <i>Coleanthera myrtoides</i>			
444.	6401 <i>Leucopogon hamulosus</i>			
445.	16049 <i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207)			
446.	34736 <i>Lysinema pentapetalum</i>			
447.	41784 <i>Melichrus</i> sp. Coolgardie (K.R. Newbey 8698)		P1	

Estrilidae

448.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
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Euphorbiaceae

449.	34276 <i>Beyeria sulcata</i> var. <i>brevipes</i>			
450.	34257 <i>Beyeria sulcata</i> var. <i>sulcata</i>			
451.	42868 <i>Euphorbia philochalix</i>			
452.	42869 <i>Euphorbia porcata</i>			
453.	19587 <i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>			
454.	4664 <i>Monotaxis luteiflora</i>			
455.	45075 <i>Ricinocarpos</i> sp. Eastern Goldfields (A. Williams 3)		P1	
456.	4701 <i>Ricinocarpos stylosus</i>			
457.	4704 <i>Ricinocarpos velutinus</i>			

Fabaceae

458.	3200 <i>Acacia acuminata</i> (Jam, Mangard)			
459.	14584 <i>Acacia ancistrophylla</i> var. <i>ancistrophylla</i>			
460.	3216 <i>Acacia andrewsii</i>			
461.	3217 <i>Acacia aneura</i> (Mulga, Wanari)			
462.	3236 <i>Acacia beauverdiana</i> (Pukkati)			
463.	3248 <i>Acacia burkittii</i> (Sandhill Wattle)			
464.	3249 <i>Acacia calcarata</i>			
465.	3251 <i>Acacia campoclada</i>			
466.	3256 <i>Acacia chrysella</i>			
467.	44469 <i>Acacia coatesii</i>		P1	
468.	44514 <i>Acacia collegialis</i>			
469.	3264 <i>Acacia colletioides</i> (Wait-a-while)			
470.	3269 <i>Acacia coolgardiensis</i> (Spinifex Wattle)			
471.	14623 <i>Acacia crenulata</i>		P3	
472.	15281 <i>Acacia desertorum</i> var. <i>desertorum</i>			
473.	3315 <i>Acacia duriuscula</i>			
474.	32118 <i>Acacia effusifolia</i>			
475.	3318 <i>Acacia enervia</i>			
476.	12257 <i>Acacia enervia</i> subsp. <i>explicata</i>			
477.	16020 <i>Acacia eremophila</i> var. <i>eremophila</i>			
478.	3324 <i>Acacia erinacea</i>			
479.	15282 <i>Acacia gibbosa</i>			
480.	3366 <i>Acacia hemiteles</i>			
481.	3378 <i>Acacia inaequiloba</i>			
482.	16164 <i>Acacia inceana</i> subsp. <i>inceana</i>			
483.	3393 <i>Acacia jennerae</i>			
484.	3394 <i>Acacia jensenii</i>			
485.	3395 <i>Acacia jibberdingensis</i>			
486.	14610 <i>Acacia kalgoorliensis</i>			
487.	3408 <i>Acacia lasiocalyx</i> (Silver Wattle, Wilyurwur)			
488.	3416 <i>Acacia leptopetala</i>			
489.	3419 <i>Acacia ligulata</i> (Umbrella Bush, Watarka)			
490.	3426 <i>Acacia longispinea</i>			
491.	13503 <i>Acacia masliniana</i>			
492.	3440 <i>Acacia merrallii</i>			
493.	36416 <i>Acacia mulganeura</i>			
494.	3451 <i>Acacia multispicata</i>			
495.	3452 <i>Acacia murrayana</i> (Sandplain Wattle)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
496.	3463 <i>Acacia nyssophylla</i>			
497.	3478 <i>Acacia pachypoda</i>			
498.	3495 <i>Acacia prainii</i> (Prain's Wattle)			
499.	3504 <i>Acacia pycnantha</i> (Golden Wattle)	Y		
500.	19483 <i>Acacia ramulosa</i> var. <i>linophylla</i>			
501.	19499 <i>Acacia ramulosa</i> var. <i>ramulosa</i>			
502.	3512 <i>Acacia rendlei</i>			
503.	3513 <i>Acacia resinimarginea</i>			
504.	3514 <i>Acacia resinistipulea</i>			
505.	11765 <i>Acacia sclerophylla</i> var. <i>teretiuscula</i>		P1	
506.	13078 <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			
507.	3539 <i>Acacia sericocarpa</i>			
508.	3577 <i>Acacia tetragonophylla</i> (Kurara, Wakalpuka)			
509.	3600 <i>Acacia websteri</i>		P1	
510.	16157 <i>Acacia xerophila</i> var. <i>brevior</i>			
511.	15292 <i>Acacia yorkrakinensis</i> subsp. <i>acrita</i>			
512.	3682 <i>Alhagi maurorum</i>	Y		Y
513.	17417 <i>Cullen discolor</i>			
514.	17118 <i>Cullen leucanthum</i>			
515.	8977 <i>Daviesia aphylla</i>			
516.	3813 <i>Daviesia grahamii</i>			
517.	3823 <i>Daviesia nematophylla</i>			
518.	19854 <i>Dillwynia</i> sp. <i>Coolgardie</i> (V.E. Sands 637.3.1)			
519.	48860 <i>Erythrostemon gilliesii</i>	Y		
520.	11034 <i>Gastrolobium graniticum</i>		T	
521.	3943 <i>Glycyrrhiza acanthocarpa</i> (Native Liquorice)			
522.	29285 <i>Gompholobium cinereum</i>		P3	
523.	10777 <i>Gompholobium gompholobioides</i>			
524.	3963 <i>Hovea acanthoclada</i> (Thorny Hovea)			
525.	4043 <i>Kennedia prorepens</i>			
526.	4056 <i>Leptosema daviesioides</i>			
527.	4061 <i>Lotus cruentus</i> (Redflower Lotus)			
528.	4074 <i>Medicago laciniata</i> (Cutleaf Medic)	Y		
529.	4077 <i>Medicago minima</i> (Small Burr Medic)	Y		
530.	4089 <i>Mirbelia depressa</i>			
531.	4094 <i>Mirbelia microphylla</i>			
532.	4097 <i>Mirbelia ramulosa</i>			
533.	4099 <i>Mirbelia seorsifolia</i>			
534.	3674 <i>Petalostylis cassioides</i>			
535.	17645 <i>Senna artemisioides</i>			
536.	12276 <i>Senna artemisioides</i> subsp. <i>filifolia</i>			
537.	18430 <i>Senna cardiosperma</i>			
538.	18444 <i>Senna charlesiana</i>			
539.	16378 <i>Senna pleurocarpa</i>			
540.	12315 <i>Senna pleurocarpa</i> var. <i>angustifolia</i>			
541.	12314 <i>Senna pleurocarpa</i> var. <i>pleurocarpa</i>			
542.	14579 <i>Senna</i> sp. <i>Austin</i> (A. Strid 20210)			
543.	18446 <i>Senna stowardii</i>			
544.	12355 <i>Swainsona affinis</i>			
545.	4217 <i>Swainsona beasleyana</i>			
546.	4220 <i>Swainsona canescens</i> (Grey Swainsona)			
547.	4229 <i>Swainsona gracilis</i>			
548.	13590 <i>Swainsona halophila</i>			
549.	4230 <i>Swainsona incei</i>			
550.	4231 <i>Swainsona kingii</i>			
551.	4233 <i>Swainsona leeana</i>			
552.	13581 <i>Swainsona paradoxa</i>			
553.	12357 <i>Swainsona purpurea</i>			
554.	4243 <i>Swainsona rostellata</i>			
555.	4316 <i>Trigonella suavissima</i> (Sweet Fenugreek)			
556.	17261 <i>Vicia monantha</i> subsp. <i>triflora</i>	Y		

Falconidae

557.	25621 <i>Falco berigora</i> (Brown Falcon)			
558.	24471 <i>Falco berigora</i> subsp. <i>berigora</i> (Brown Falcon)			
559.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
560.	25623 <i>Falco longipennis</i> (Australian Hobby)			
561.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	

Felidae

562. 24041 *Felis catus* (Cat)

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Frankeniaceae				
563.	5191 <i>Frankenia cinerea</i>			
564.	5197 <i>Frankenia desertorum</i>			
565.	5202 <i>Frankenia glomerata</i> (Cluster Head Frankenia)		P4	
566.	5204 <i>Frankenia interioris</i>			
567.	11592 <i>Frankenia interioris</i> var. <i>interioris</i>			
568.	5209 <i>Frankenia pauciflora</i> (Seaheath)			
569.	14297 <i>Frankenia pauciflora</i> var. <i>pauciflora</i>			
570.	5212 <i>Frankenia setosa</i> (Bristly Frankenia)			
571.	5213 <i>Frankenia tetrapetala</i> (Four Petaled Frankenia)			
Funariaceae				
572.	<i>Funaria</i> sp.			Y
Gekkonidae				
573.	24957 <i>Gehyra purpurascens</i>			
574.	24959 <i>Gehyra variegata</i>			
575.	25232 <i>Hemidactylus frenatus</i> (Asian House Gecko)	Y		
576.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
577.	24983 <i>Underwoodisaurus millii</i> (Barking Gecko)			
Geraniaceae				
578.	4331 <i>Erodium aureum</i>	Y		
579.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
580.	4333 <i>Erodium cicutarium</i> (Common Storksbill)	Y		
581.	4334 <i>Erodium cernitum</i> (Corkscrew)			
582.	4335 <i>Erodium cygnorum</i> (Blue Heronsbill)			
Gnaphosidae				
583.	<i>Hemicloea sublimbata</i>			
Goodeniaceae				
584.	7413 <i>Brunonia australis</i> (Native Cornflower)			
585.	19069 <i>Brunonia</i> sp. Goldfields (K.R. Newbey 6044)			
586.	7419 <i>Coopermookia strophiolata</i>			
587.	7438 <i>Dampiera eriocephala</i> (Woolly-headed Dampiera)			
588.	13155 <i>Dampiera latealata</i>			
589.	7451 <i>Dampiera lavandulacea</i>			
590.	7456 <i>Dampiera luteiflora</i> (Yellow Dampiera)			
591.	7477 <i>Dampiera stenostachya</i> (Narrow-spiked Dampiera)			
592.	7480 <i>Dampiera tenuicaulis</i> (Slender-stemmed Dampiera)			
593.	13158 <i>Dampiera tenuicaulis</i> var. <i>curvula</i>			
594.	13159 <i>Dampiera tenuicaulis</i> var. <i>tenuicaulis</i>			
595.	7499 <i>Goodenia concinna</i> (Elegant Goodenia)			
596.	7504 <i>Goodenia dyeri</i>			
597.	7506 <i>Goodenia elderi</i>			
598.	7514 <i>Goodenia havilandii</i>			
599.	12523 <i>Goodenia helmsii</i>			
600.	7527 <i>Goodenia mimuloides</i>			
601.	7531 <i>Goodenia occidentalis</i>			
602.	7535 <i>Goodenia pinnatifida</i> (Cutleaf Goodenia)			
603.	7541 <i>Goodenia pusilliflora</i> (Smallflower Goodenia)			
604.	7565 <i>Goodenia xanthosperma</i> (Yellow-seeded Goodenia)			
605.	7569 <i>Lechenaultia brevifolia</i>			
606.	7644 <i>Scaevola spinescens</i> (Currant Bush, Maroon)			
607.	7656 <i>Velleia cynopotamica</i>			
608.	7658 <i>Velleia discophora</i> (Cabbage Poison)			
609.	7664 <i>Velleia rosea</i> (Pink Velleia)			
610.	38061 <i>Verreauxia dyeri</i> (Hairy Verreauxia)			
Graphidaceae				
611.	32976 <i>Diploschistes elixii</i>			
612.	27720 <i>Diploschistes hensseniae</i>			
613.	27725 <i>Diploschistes thunbergianus</i>			
Grimmiaceae				
614.	32386 <i>Grimmia laevigata</i>			
Gyrostemonaceae				
615.	2780 <i>Gyrostemon brownii</i>			
616.	2783 <i>Gyrostemon racemiger</i>			
Haemodoraceae				
617.	1439 <i>Conostylis lepidospermoides</i> (Sedge Conostylis)			T

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Halcyonidae				
618.	42351 <i>Todiramphus pyrrophygius</i> (Red-backed Kingfisher)			
619.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
Haliplidae				
620.	<i>Haliplidae</i> sp.			
621.	<i>Haliplus</i> sp.			
Haloragaceae				
622.	33620 <i>Glischrocaryon angustifolium</i>			
623.	6143 <i>Glischrocaryon aureum</i> (Common Popflower)			
624.	11801 <i>Gonocarpus confertifolius</i> var. <i>helmsii</i>			
625.	20669 <i>Haloragis maierae</i>			
626.	6180 <i>Haloragis trigonocarpa</i>			
Hemerocallidaceae				
627.	11636 <i>Dianella revoluta</i> var. <i>divaricata</i>			
Hersiliidae				
628.	<i>Tamopsis circumvidens</i>			
Hexarthridae				
629.	<i>Hexarthra intermedia</i>			
Hirundinidae				
630.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
631.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
632.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
633.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
Hydnaceae				
634.	38794 <i>Hydnum repandum</i>			
Hydrachnidae				
635.	<i>Hydrachna</i> sp.			
Hydrophilidae				
636.	<i>Berosus nutans</i>			
637.	<i>Enochrus elongatulus</i>			
Hylidae				
638.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
Icmadophilaceae				
639.	28060 <i>Siphula coriacea</i>			
Idiopidae				
640.	<i>Anidiops villosus</i>			
Juncaceae				
641.	1176 <i>Juncus aridicola</i>			
642.	1195 <i>Juncus subsecundus</i> (Finger Rush)			
Juncaginaceae				
643.	33276 <i>Triglochin isingiana</i>			
Lamiaceae				
644.	19437 <i>Brachysola coerulea</i>			
645.	6747 <i>Cyanostegia angustifolia</i> (Tinsel-flower)			
646.	6751 <i>Cyanostegia microphylla</i> (Tinsel Flower)			
647.	41025 <i>Dasymalla terminalis</i> (Native Foxglove)			
648.	6771 <i>Dicrastylis parvifolia</i>			
649.	6776 <i>Hemiphora elderi</i> (Red Velvet)			
650.	6779 <i>Lachnostachys coolgardiensis</i>			
651.	6881 <i>Marrubium vulgare</i> (Horehound)	Y		
652.	17206 <i>Physopsis viscida</i>			
653.	6812 <i>Pityrodia lepidota</i>			
654.	15822 <i>Prostanthera althoferi</i> subsp. <i>althoferi</i>			
655.	6912 <i>Prostanthera campbellii</i>			
656.	6916 <i>Prostanthera grylloana</i>			
657.	6917 <i>Prostanthera incurvata</i>			
658.	6928 <i>Salvia reflexa</i> (Mintweed)	Y		
659.	6929 <i>Salvia verbenaca</i> (Wild Sage)	Y		
660.	6937 <i>Teucrium sessiliflorum</i> (Camel Bush)			
661.	6938 <i>Westringia cephalantha</i>			
662.	9247 <i>Westringia rigida</i> (Stiff Westringia)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Lamponidae				
663.	<i>Lampona cylindrata</i>			
664.	<i>Lamponina scutata</i>			
Laridae				
665.	<i>Chroicocephalus novaehollandiae</i>			
Lecideaceae				
666.	27825 <i>Lecidea ochroleuca</i>			
667.	<i>Lecidea sp.</i>			
Leporidae				
668.	24085 <i>Oryctolagus cuniculus (Rabbit)</i>	Y		
Leptoceridae				
669.	<i>Triplectides australis</i>			
Lestidae				
670.	<i>Austrolestes analis</i>			
671.	<i>Austrolestes annulosus</i>			
672.	<i>Austrolestes io</i>			
Libellulidae				
673.	<i>Diplacodes bipunctata</i>			
674.	<i>Orthetrum caledonicum</i>			
675.	<i>Pantala flavescens</i>			
Liceaceae				
676.	39041 <i>Licea kleistobolus</i>			
Limnadiidae				
677.	<i>Limnadopsis tatei</i>			
Limnodynastidae				
678.	25425 <i>Neobatrachus kunapalari (Kunapalari Frog)</i>			
679.	25426 <i>Neobatrachus pelobatoides (Humming Frog)</i>			
680.	25427 <i>Neobatrachus sutor (Shoemaker Frog)</i>			
681.	25428 <i>Neobatrachus wilmorei (Plonking Frog)</i>			
Loganiaceae				
682.	46313 <i>Orianthera flaviflora</i>			
683.	46253 <i>Orianthera tortuosa</i>			
Loranthaceae				
684.	2369 <i>Amyema benthamii</i>			
685.	11614 <i>Amyema gibberula var. gibberula</i>			
686.	13267 <i>Amyema linophylla subsp. linophylla</i>			
687.	2383 <i>Amyema preissii (Wireleaf Mistletoe)</i>			
688.	2396 <i>Lysiana casuarinae</i>			
689.	12051 <i>Lysiana exocarpi subsp. exocarpi (Harlequin Mistletoe)</i>			
Lycaenidae				
690.	33979 <i>Jalmenus aridus (inland hairstreak, desert blue butterfly)</i>		P1	Y
691.	<i>Jalmenus icilius</i>			Y
692.	33987 <i>Ogyris subterrestris subsp. petrina (Arid Bronze Azure Butterfly)</i>		T	
Lycosidae				
693.	<i>Hoggicosa castanea</i>			
694.	<i>Hoggicosa forresti</i>			
695.	<i>Hoggicosa storri</i>			
696.	<i>Lycosa ariadnae</i>			
697.	<i>Tasmanicosa leuckartii</i>			
Lyncaeiidae				
698.	<i>Lynceus sp.</i>			
Lynceidae				
699.	<i>Lynceus macleayanus</i>			Y
Lythraceae				
700.	5281 <i>Lythrum hyssopifolia (Lesser Loosestrife)</i>	Y		
701.	17848 <i>Lythrum wilsonii</i>			
Macropodidae				
702.	24132 <i>Macropus fuliginosus (Western Grey Kangaroo)</i>			
Macrotrichidae				
703.	<i>Macrotrix breviseta</i>			
704.	<i>Macrotrix sp.</i>			

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Maluridae				
705.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
706.	24551 <i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
707.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
Malvaceae				
708.	4889 <i>Abutilon cryptopetalum</i>			
709.	4902 <i>Abutilon oxycarpum</i> (Flannel Weed)			
710.	40903 <i>Androcalva aphrix</i>			
711.	40910 <i>Androcalva luteiflora</i> (Yellow-flowered Rulingia)			
712.	4999 <i>Brachychiton gregorii</i> (Desert Kurrajong, Ngalta)			
713.	40923 <i>Commersonia crauophylla</i> (Brittle Leaved Rulingia)			
714.	40927 <i>Commersonia magniflora</i> subsp. <i>oblongifolia</i>			
715.	17725 <i>Hannafordia bissillii</i> subsp. <i>latifolia</i>			
716.	4941 <i>Hibiscus solanifolius</i>			
717.	4954 <i>Lawrencia diffusa</i>			
718.	4955 <i>Lawrencia glomerata</i>			
719.	4957 <i>Lawrencia repens</i>			
720.	4959 <i>Lawrencia squamata</i>			
721.	4961 <i>Malva parviflora</i> (Marshmallow)	Y		
722.	41544 <i>Malva weinmanniana</i>			
723.	4964 <i>Radyera farragei</i> (Knobby Hibiscus)			
724.	46815 <i>Seringia cacaobrunnea</i> (Chocolate fire-bush)			
725.	46824 <i>Seringia velutina</i> (Velvet firebush)			
726.	4970 <i>Sida calyxymenia</i> (Tall Sida)			
727.	4977 <i>Sida fibulifera</i> (Silver Sida)			
728.	4981 <i>Sida intricata</i> (Tangled Sida)			
729.	16924 <i>Sida spodochroma</i>			
Marsileaceae				
730.	76 <i>Marsilea hirsuta</i> (Nardoo)			
731.	<i>Marsilea</i> sp.			
Megalosporaceae				
732.	27587 <i>Aspicilia calcarea</i>			
733.	48911 <i>Aspicilia contorta</i>			
734.	<i>Aspicilia</i> sp.			
Megapodiidae				
735.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T	
Meliaceae				
736.	4516 <i>Melia azedarach</i> (White Cedar)			
Meliphagidae				
737.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
738.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
739.	24564 <i>Certhionyx variegatus</i> (Pied Honeyeater)			
740.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
741.	24570 <i>Epthianura tricolor</i> (Crimson Chat)			
742.	42314 <i>Gavicalis virescens</i> (Singing Honeyeater)			
743.	25659 <i>Lichenostomus leucotis</i> (White-eared Honeyeater)			
744.	24576 <i>Lichenostomus leucotis</i> subsp. <i>novaenorcae</i> (White-eared Honeyeater)			
745.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
746.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
747.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
748.	42344 <i>Purnella albifrons</i> (White-fronted Honeyeater)			
Meropidae				
749.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
Montiaceae				
750.	2853 <i>Calandrinia eremaea</i> (Twining Purslane)			
751.	2865 <i>Calandrinia pumila</i>			
752.	40824 <i>Calandrinia sculpta</i>			
Motacillidae				
753.	24599 <i>Anthus australis</i> subsp. <i>australis</i> (Australian Pipit)			
Muridae				
754.	24223 <i>Mus musculus</i> (House Mouse)	Y		
755.	24229 <i>Notomys mitchellii</i> (Mitchell's Hopping-mouse)			
756.	24230 <i>Pseudomys albocinereus</i> (Ash-grey Mouse)			
757.	24232 <i>Pseudomys bolami</i> (Bolam's Mouse)			
758.	24237 <i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Myobatrachidae				
759.	25434 <i>Pseudophryne occidentalis</i> (Western Toadlet)			
Myrmecobiidae				
760.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
Myrtaceae				
761.	19467 <i>Aluta appressa</i>			
762.	19466 <i>Aluta aspera</i> subsp. <i>aspera</i>			
763.	5344 <i>Baeckea elderiana</i>			
764.	36038 <i>Baeckea</i> sp. <i>Koonadgin</i> (B.L. Rye & M.E. Trudgen BLR 241137)			
765.	5408 <i>Calothamnus gilesii</i>			
766.	5442 <i>Calytrix birdii</i>			
767.	13654 <i>Calytrix breviseta</i> subsp. <i>stipulosa</i>			
768.	44081 <i>Cyathostemon verrucosus</i>		P3	
769.	45244 <i>Ericomyrtus serpyllifolia</i>			
770.	19508 <i>Eucalyptus calycogona</i> subsp. <i>calycogona</i>			
771.	5581 <i>Eucalyptus campaspe</i> (Silver Gimlet)			
772.	14300 <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> (Mirret)			
773.	48436 <i>Eucalyptus clelandiorum</i>			
774.	5595 <i>Eucalyptus comitae-vallis</i> (Comet Vale Mallee)			
775.	5596 <i>Eucalyptus concinna</i> (Victoria Desert Mallee)			
776.	5607 <i>Eucalyptus corrugata</i> (Rough-fruited Mallee)			
777.	5612 <i>Eucalyptus cylindrocarpa</i> (Woodline Mallee)			
778.	34811 <i>Eucalyptus distuberosa</i> subsp. <i>distuberosa</i>			
779.	13549 <i>Eucalyptus ebbanoensis</i> subsp. <i>ebbanoensis</i>			
780.	18349 <i>Eucalyptus ebbanoensis</i> subsp. <i>glaucircamula</i>			
781.	13097 <i>Eucalyptus educta</i>		P2	
782.	5636 <i>Eucalyptus eremicola</i>			
783.	5637 <i>Eucalyptus eremophila</i> (Tall Sand Mallee)			
784.	15667 <i>Eucalyptus eremophila</i> subsp. <i>eremophila</i> (Sand Mallee)			
785.	5641 <i>Eucalyptus ewartiana</i> (Ewart's Mallee)			
786.	12886 <i>Eucalyptus flavida</i> (Yellow-flowered Mallee)			
787.	5648 <i>Eucalyptus flocktoniae</i> (Merrit, Merid)			
788.	18521 <i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i>			
789.	14277 <i>Eucalyptus fraseri</i> subsp. <i>fraseri</i>			
790.	5665 <i>Eucalyptus griffithsii</i> (Griffith's Grey Gum)			
791.	5673 <i>Eucalyptus horistes</i>			
792.	31815 <i>Eucalyptus jutsonii</i> subsp. <i>jutsonii</i>		P4	
793.	13056 <i>Eucalyptus leptopoda</i> subsp. <i>subluta</i>			
794.	5697 <i>Eucalyptus lesouefii</i> (Goldfields Blackbutt)			
795.	5701 <i>Eucalyptus longicornis</i> (Red Morrel, Moril)			
796.	20802 <i>Eucalyptus longissima</i>			
797.	13037 <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>			
798.	19323 <i>Eucalyptus moderata</i>			
799.	5726 <i>Eucalyptus oleosa</i> (Giant Mallee)			
800.	20091 <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>			
801.	5745 <i>Eucalyptus pileata</i> (Capped Mallee)			
802.	18580 <i>Eucalyptus planipes</i>			
803.	5747 <i>Eucalyptus platycorys</i> (Boorabbin Mallee)			
804.	12380 <i>Eucalyptus ravida</i> (Silver-topped Gimlet)			
805.	5761 <i>Eucalyptus rigidula</i> (Stiff-leaved Mallee)			
806.	12693 <i>Eucalyptus salicola</i> (Salt Gum)			
807.	5766 <i>Eucalyptus salmonophloia</i> (Salmon Gum, Wurak)			
808.	5767 <i>Eucalyptus salubris</i> (Gimlet)			
809.	29701 <i>Eucalyptus</i> sp. <i>Mulga Rock</i> (K.D. Hill & L.A.S. Johnson KH 2668)			
810.	46828 <i>Eucalyptus</i> sp. <i>Southern smooth-bark</i> (D. Nicolle & M. French DN 6916)			
811.	13027 <i>Eucalyptus tenera</i>			
812.	5792 <i>Eucalyptus torquata</i> (Coral Gum)			
813.	5793 <i>Eucalyptus transcontinentalis</i> (Redwood, Pungul)			
814.	18293 <i>Eucalyptus urna</i>			
815.	18269 <i>Eucalyptus x brachyphylla</i>		P4	
816.	5802 <i>Eucalyptus yilgarnensis</i> (Yorrell)			
817.	16722 <i>Euryomyrtus maidenii</i>			
818.	5815 <i>Homalocalyx thryptomenoides</i>			
819.	48651 <i>Hysterobaeckea ochropetala</i> subsp. <i>reliqua</i>			
820.	5840 <i>Kunzea pulchella</i> (Granite Kunzea, Silky Kunzea)			
821.	5848 <i>Leptospermum fastigiatum</i>			
822.	12692 <i>Leptospermum subtenuae</i>			
823.	5864 <i>Malleostemon peltiger</i>			
824.	5865 <i>Malleostemon roseus</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
825.	5866 <i>Malleostemon tuberculatus</i>			
826.	19380 <i>Melaleuca calyptroides</i>			
827.	5896 <i>Melaleuca cordata</i>			
828.	5909 <i>Melaleuca elliptica</i> (Granite Bottlebrush, Ngow)			
829.	15603 <i>Melaleuca fulgens</i> subsp. <i>fulgens</i>			
830.	5916 <i>Melaleuca halmaturorum</i>			
831.	19486 <i>Melaleuca hamata</i>			
832.	5922 <i>Melaleuca lanceolata</i> (Rottnest Teatree, Moonah)			
833.	5925 <i>Melaleuca lateriflora</i> (Gorada)			
834.	14700 <i>Melaleuca macronychia</i> subsp. <i>macronychia</i>			
835.	15663 <i>Melaleuca pauperiflora</i> subsp. <i>fastigiata</i>			
836.	17144 <i>Melaleuca phoidophylla</i>			
837.	5966 <i>Melaleuca sheathiana</i> (Boree, Buri)			
838.	9187 <i>Micromyrtus erichsenii</i>			
839.	19787 <i>Micromyrtus monotaxis</i>			
840.	5999 <i>Micromyrtus obovata</i>			
841.	6018 <i>Rinzia carnos</i> (Fleshy-leaved Rinzia)			
842.	6058 <i>Thryptomene kochii</i>			
843.	20680 <i>Thryptomene</i> sp. Coolgardie (E. Kelso s.n. 1902)		P1	Y
844.	36017 <i>Thryptomene</i> sp. Londonderry (R.H. Kuchel 1763)		P1	
845.	6068 <i>Thryptomene urceolaris</i>			
846.	6073 <i>Verticordia chrysantha</i>			
847.	6109 <i>Verticordia picta</i> (Painted Featherflower)			
848.	6113 <i>Verticordia pritzelii</i> (Pritzel's Featherflower)			
Nemesiidae				
849.	<i>Aname armigera</i>			
850.	<i>Aname mainae</i>			
Neosittidae				
851.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
852.	24606 <i>Daphoenositta chrysoptera</i> subsp. <i>pileata</i> (Varied Sittella, Black-capped Sittella)			
Nicodamidae				
853.	<i>Nicodamus mainae</i>			
Notonectidae				
854.	<i>Anisops hyperion</i>			
855.	<i>Anisops stali</i>			
Nyctaginaceae				
856.	2770 <i>Boerhavia coccinea</i> (Tar Vine, Wituka)			
Ophioglossaceae				
857.	18 <i>Ophioglossum polyphyllum</i>			
Orchidaceae				
858.	15502 <i>Caladenia footeana</i>			
859.	17760 <i>Caladenia nobilis</i>			
860.	1614 <i>Caladenia roei</i> (Ant Orchid)			
861.	30797 <i>Caladenia saxicola</i>			
862.	15400 <i>Cyanicula amplexans</i>			
863.	44161 <i>Diuris hazeliae</i>			
864.	18657 <i>Pterostylis</i> sp. <i>inland</i> (A.C. Beaglehole 11880)			
865.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
866.	20732 <i>Thelymitra petrophila</i>			
Ostracoda				
867.	<i>Ostracoda (unident.)</i>			
Otididae				
868.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
Oxalidaceae				
869.	33256 <i>Oxalis bowiei</i> (Bowie Wood Sorrel)	Y		
870.	4355 <i>Oxalis perennans</i>			
871.	4356 <i>Oxalis pes-caprae</i> (Soursob)	Y		
Oxyopidae				
872.	<i>Oxyopes amoenus</i>			
873.	<i>Oxyopes dingo</i>			
874.	<i>Oxyopes variabilis</i>			
Pachycephalidae				
875.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
876.	24618 <i>Oreoica gutturalis</i> (Crested Bellbird)			

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877.	34011 <i>Oreoica gutturalis</i> subsp. <i>gutturalis</i> (Crested Bellbird (southern))			
878.	24619 <i>Pachycephala inornata</i> (Gilbert's Whistler)			
879.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
Papaveraceae				
880.	2964 <i>Papaver hybridum</i> (Rough Poppy)	Y		
Pardalotidae				
881.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
882.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
883.	24630 <i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
Parmeliaceae				
884.	28102 <i>Xanthoparmelia alternata</i>			
885.	28132 <i>Xanthoparmelia filarszkyana</i>			
886.	28137 <i>Xanthoparmelia glareosa</i>			
887.	28326 <i>Xanthoparmelia incantata</i>			
888.	28142 <i>Xanthoparmelia incerta</i>			
889.	28144 <i>Xanthoparmelia isidiigera</i>			
890.	28331 <i>Xanthoparmelia luteonotata</i>			
891.	28158 <i>Xanthoparmelia neorimalis</i>			
892.	29984 <i>Xanthoparmelia paratasmanica</i>			Y
893.	28166 <i>Xanthoparmelia pertinax</i>			
894.	28170 <i>Xanthoparmelia pustuliza</i>			
895.	28172 <i>Xanthoparmelia reptans</i>			
896.	28327 <i>Xanthoparmelia semiviridis</i>			
897.	29020 <i>Xanthoparmelia subbarbatica</i>		P1	
898.	28182 <i>Xanthoparmelia tasmanica</i>			
899.	28356 <i>Xanthoparmelia verrucella</i>			
900.	28186 <i>Xanthoparmelia versicolor</i>			
901.	28189 <i>Xanthoparmelia willisii</i>			
Peltulaceae				
902.	27940 <i>Peltula patellata</i>			
Petroicidae				
903.	24650 <i>Drymodes brunneopygia</i> (Southern Scrub-robin)			
904.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
905.	47997 <i>Melanodryas cucullata</i> (Hooded Robin)			
906.	25693 <i>Microeca fascinans</i> (Jacky Winter)			
907.	24654 <i>Microeca fascinans</i> subsp. <i>assimilis</i> (Jacky Winter)			
908.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
Pezizaceae				
909.	<i>Peziza</i> sp.			
Phalacrocoracidae				
910.	<i>Microcarbo melanoleucos</i>			
911.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
Phasianidae				
912.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
913.	24674 <i>Pavo cristatus</i> (Common Peafowl, Indian Peafowl)	Y		
Phelloriniaceae				
914.	<i>Phellorinia herculeana</i>			
Pholcidae				
915.	<i>Trichocyclus balladong</i>			
Physaraceae				
916.	39068 <i>Physarum decipiens</i>			
Physciaceae				
917.	42104 <i>Buellia albula</i>			
Pileolariaceae				
918.	<i>Uromycladium tepperianum</i>			
Pittosporaceae				
919.	25798 <i>Billardiera fusiformis</i> (Australian Bluebell)			
920.	19421 <i>Marianthus bicolor</i> (Painted Marianthus)			
921.	19744 <i>Pittosporum angustifolium</i>			
Plantaginaceae				
922.	7300 <i>Plantago drummondii</i> (Sago Weed)			
923.	14198 <i>Plantago</i> sp. <i>Mt Magnet</i> (A.S. George 6793)			

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Plumbaginaceae				
924.	6489 <i>Limonium sinuatum</i> (Perennial Sea Lavender)	Y		
Poaceae				
925.	12025 <i>Amphipogon caricinus</i> var. <i>caricinus</i>			
926.	207 <i>Aristida contorta</i> (Bunched Kerosene Grass)			
927.	12063 <i>Aristida holathera</i> var. <i>holathera</i>			
928.	17232 <i>Austrostipa blackii</i>		P3	
929.	17237 <i>Austrostipa elegantissima</i>			
930.	17238 <i>Austrostipa eremophila</i>			
931.	17241 <i>Austrostipa hemipogon</i>			
932.	17246 <i>Austrostipa nitida</i>			
933.	17247 <i>Austrostipa platychaeta</i>			
934.	17251 <i>Austrostipa scabra</i>			
935.	44509 <i>Austrostipa</i> sp. Mt Burgess (A.A. Mitchell & P.J. Waddell 10499)			Y
936.	17255 <i>Austrostipa trichophylla</i>			
937.	247 <i>Bromus arenarius</i> (Sand Brome)			
938.	248 <i>Bromus catharticus</i> (Prairie Grass)	Y		
939.	253 <i>Bromus rubens</i> (Red Brome)	Y		
940.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
941.	271 <i>Chloris truncata</i> (Windmill Grass)			
942.	290 <i>Dactyloctenium radulans</i> (Button Grass)			
943.	11964 <i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			
944.	308 <i>Digitaria ammphila</i> (Silky Umbrella Grass)			
945.	310 <i>Digitaria brownii</i> (Cotton Panic Grass)			
946.	351 <i>Ehrharta villosa</i> (Pyp Grass)	Y		
947.	356 <i>Enneapogon avenaceus</i> (Bottle Washers)			
948.	357 <i>Enneapogon caeruleus</i> (Limestone Grass)			
949.	358 <i>Enneapogon cylindricus</i> (Jointed Nineawn)			
950.	368 <i>Enteropogon ramosus</i> (Windmill Grass, Curly Windmill Grass)			
951.	369 <i>Eragrostis australasica</i> (Canegrass)			
952.	376 <i>Eragrostis curvula</i> (African Lovegrass)	Y		
953.	378 <i>Eragrostis dielsii</i> (Mallee Lovegrass)			
954.	381 <i>Eragrostis falcata</i> (Sickle Lovegrass)			
955.	385 <i>Eragrostis lacunaria</i> (Purple Lovegrass)			
956.	393 <i>Eragrostis setifolia</i> (Neverfail Grass)			
957.	399 <i>Eragrostis xerophila</i> (Knotty-butt Neverfail)			
958.	417 <i>Eriachne pulchella</i> (Pretty Wanderrie)			
959.	449 <i>Hordeum leporinum</i> (Barley Grass)	Y		
960.	471 <i>Leptochloa digitata</i> (Whorled Cane Grass)			
961.	490 <i>Monachather paradoxus</i>			
962.	503 <i>Panicum decompositum</i> (Native Millet, Kaltu-kaltu)			
963.	519 <i>Paspalidium constrictum</i> (Knottybutt Grass)			
964.	524 <i>Paspalidium reflexum</i>			
965.	552 <i>Phalaris paradoxa</i> (Paradoxa Grass)	Y		
966.	10970 <i>Rostraria cristata</i>	Y		
967.	11151 <i>Rostraria pumila</i>	Y		
968.	40425 <i>Rytidosperma caespitosum</i>			
969.	40427 <i>Rytidosperma setaceum</i>			
970.	596 <i>Schismus arabicus</i> (Araby Grass)	Y		
971.	597 <i>Schismus barbatus</i> (Kelch Grass)	Y		
972.	606 <i>Setaria dielsii</i> (Diels' Pigeon Grass)			
973.	617 <i>Sorghum halepense</i> (Johnson Grass)	Y		
974.	699 <i>Triodia scariosa</i>			
975.	13041 <i>Triodia tomentosa</i>			
976.	18326 <i>Urochloa panicoides</i>	Y		
Podargidae				
977.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
Podicipedidae				
978.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
979.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
Polygalaceae				
980.	4553 <i>Comesperma drummondii</i> (Drummond's Milkwort)			
981.	4561 <i>Comesperma scoparium</i> (Broom Milkwort)			
Polygonaceae				
982.	44508 <i>Duma florulenta</i>			
983.	11052 <i>Persicaria prostrata</i>			
984.	2419 <i>Polygonum aviculare</i> (Wireweed)	Y		
985.	2425 <i>Polygonum plebeium</i> (Small Knotweed)			

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986.	2434 <i>Rumex crystallinus</i> (Shiny Dock)		P2	
987.	46434 <i>Rumex hypogaeus</i>	Y		
Pomatostomidae				
988.	24683 <i>Pomatostomus superciliosus</i> (White-browed Babbler)			
989.	34013 <i>Pomatostomus superciliosus</i> subsp. <i>ashbyi</i> (White-browed Babbler (western wheatbelt))			
Portulacaceae				
990.	2884 <i>Portulaca oleracea</i> (Purslane, Wakati)			
Pottiaceae				
991.	32319 <i>Barbula luteola</i>			
992.	<i>Didymodon</i> sp.			Y
993.	32408 <i>Phascopsis rubicunda</i>			
994.	48474 <i>Stonema oleaginosa</i>			
995.	32438 <i>Syntrichia pagorum</i>			
Primulaceae				
996.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
Proteaceae				
997.	1815 <i>Banksia elderiana</i> (Swordfish Banksia)			
998.	15611 <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
999.	1946 <i>Grevillea acacioides</i>			
1000.	1949 <i>Grevillea acuaria</i>			
1001.	1962 <i>Grevillea beardiana</i> (Red Combs)			
1002.	1971 <i>Grevillea cagiana</i> (Red Toothbrushes)			
1003.	13453 <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>			
1004.	8832 <i>Grevillea excelsior</i> (Flame Grevillea)			
1005.	2009 <i>Grevillea georgeana</i>		P3	
1006.	14413 <i>Grevillea haplantha</i> subsp. <i>haplantha</i>			
1007.	19314 <i>Grevillea hookeriana</i> subsp. <i>apiciloba</i>			
1008.	19541 <i>Grevillea nematophylla</i> subsp. <i>nematophylla</i>			
1009.	15978 <i>Grevillea oligomera</i>			
1010.	2056 <i>Grevillea paniculata</i>			
1011.	2077 <i>Grevillea pterosperma</i>			
1012.	12822 <i>Grevillea sarissa</i> subsp. <i>bicolor</i>			
1013.	13458 <i>Grevillea sarissa</i> subsp. <i>sarissa</i>			
1014.	2104 <i>Grevillea teretifolia</i> (Round Leaf Grevillea)			
1015.	2116 <i>Grevillea uncinulata</i> (Hook-leaf Grevillea)			
1016.	2163 <i>Hakea francisiana</i> (Emu Tree)			
1017.	2182 <i>Hakea minyma</i>			
1018.	2184 <i>Hakea multilineata</i> (Grass Leaf Hakea)			
1019.	2199 <i>Hakea recurva</i> (Djarnokmurd)			
1020.	16047 <i>Hakea rigida</i>		P2	
1021.	16812 <i>Isopogon scabriusculus</i> subsp. <i>pubifloris</i>			
1022.	2274 <i>Persoonia saundersiana</i>			
1023.	2308 <i>Petrophile seminuda</i>			
Psittacidae				
1024.	<i>Barnardius zonarius</i>			
1025.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
1026.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
1027.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
1028.	24742 <i>Nymphicus hollandicus</i> (Cockatiel)			
1029.	24748 <i>Platycercus varius</i> (Mulga Parrot)			
1030.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
1031.	24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			
1032.	30854 <i>Polytelis anthopeplus</i> subsp. <i>westralis</i> (Regent Parrot)			
Psoraceae				
1033.	27999 <i>Psora crystallifera</i>			
1034.	28000 <i>Psora decipiens</i>			
Pygopodidae				
1035.	24995 <i>Delma australis</i>			
1036.	24997 <i>Delma butleri</i>			
1037.	25005 <i>Lialis burtonis</i>			
1038.	25009 <i>Pygopus nigriceps</i>			
Rallidae				
1039.	25727 <i>Fulica atra</i> (Eurasian Coot)			
1040.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1041.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
Ramalinaceae				
1042.	28073 <i>Toninia australis</i>			
Recurvirostridae				
1043.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
1044.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
1045.	24775 <i>Himantopus himantopus</i> subsp. <i>leucocephalus</i> (Black-winged Stilt)			
1046.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
Restionaceae				
1047.	1073 <i>Lepidobolus chaetocephalus</i> (Bristle-headed Chaff Rush)			
1048.	1074 <i>Lepidobolus deserti</i>			
Rhamnaceae				
1049.	16183 <i>Cryptandra aridicola</i>			
1050.	4809 <i>Cryptandra pungens</i>			
1051.	4815 <i>Pomaderris forrestiana</i>			
1052.	16986 <i>Trymalium myrtillus</i> subsp. <i>myrtillus</i>			
Rhizocarpaceae				
1053.	28042 <i>Rhizocarpon tinei</i>			
Ricciaceae				
1054.	<i>Riccia limbata</i>			
Ruppiaceae				
1055.	116 <i>Ruppia polycarpa</i>			
Rutaceae				
1056.	4409 <i>Boronia coerulescens</i>			
1057.	4445 <i>Boronia ternata</i>			
1058.	11201 <i>Boronia ternata</i> var. <i>ternata</i>			
1059.	16621 <i>Phebalium appressum</i>		P1	
1060.	4497 <i>Phebalium canaliculatum</i>			
1061.	14883 <i>Phebalium laevigatum</i>			
1062.	4504 <i>Phebalium tuberculosum</i>			
1063.	18537 <i>Philotheca brucei</i> subsp. <i>brucei</i>			
1064.	18506 <i>Philotheca tomentella</i>			
Salticidae				
1065.	<i>Afraflacilla stridulator</i>			
1066.	<i>Holoplatys kalgoorlie</i>			Y
1067.	<i>Holoplatys planissima</i>			
1068.	<i>Sandalodes scopifer</i>			
Santalaceae				
1069.	10977 <i>Exocarpos aphyllus</i> (Leafless Ballart)			
1070.	2356 <i>Santalum acuminatum</i> (Quandong, Warnga)			
1071.	2359 <i>Santalum spicatum</i> (Sandalwood, Wilarak)			
Sapindaceae				
1072.	11730 <i>Alectryon oleifolius</i> subsp. <i>canescens</i>			
1073.	4752 <i>Dodonaea adenophora</i>			
1074.	4753 <i>Dodonaea amblyophylla</i>			
1075.	4769 <i>Dodonaea lobulata</i> (Bead Hopbush)			
1076.	4770 <i>Dodonaea microzyga</i>			
1077.	12034 <i>Dodonaea microzyga</i> var. <i>acrolobata</i>			
1078.	4779 <i>Dodonaea rigida</i>			
1079.	4780 <i>Dodonaea stenozyga</i>			
1080.	11247 <i>Dodonaea viscosa</i> subsp. <i>angustissima</i>			
Scincidae				
1081.	30893 <i>Cryptoblepharus buehananii</i>			
1082.	25020 <i>Cryptoblepharus plagiocephalus</i>			
1083.	25026 <i>Ctenotus atlas</i>			
1084.	25052 <i>Ctenotus leonhardii</i>			
1085.	25074 <i>Ctenotus schomburgkii</i>			
1086.	25465 <i>Ctenotus uber</i> (Spotted Ctenotus)			
1087.	25080 <i>Ctenotus uber</i> subsp. <i>uber</i> (Spotted Ctenotus)			
1088.	25089 <i>Cyclodomorphus melanops</i> subsp. <i>elongatus</i> (Slender Blue-tongue)			
1089.	25092 <i>Egernia depressa</i> (Southern Pygmy Spiny-tailed Skink)			
1090.	25094 <i>Egernia formosa</i>			
1091.	25104 <i>Egernia richardi</i>			
1092.	25109 <i>Eremiascincus richardsonii</i> (Broad-banded Sand Swimmer)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1093.	25115 <i>Hemiergis initialis</i> subsp. <i>initialis</i>			
1094.	<i>Lerista kingi</i>			
1095.	25162 <i>Lerista picturata</i>			
1096.	42411 <i>Lerista timida</i>			
1097.	41411 <i>Liopholis inornata</i> (Desert Skink)			
1098.	41417 <i>Liopholis striata</i> (Night Skink)			
1099.	25184 <i>Menetia greyii</i>			
1100.	25188 <i>Morethia adelaidensis</i>			
1101.	25190 <i>Morethia butleri</i>			
1102.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
1103.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
Scolopacidae				
1104.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
1105.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
1106.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
1107.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
1108.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
1109.	24803 <i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	
1110.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
1111.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
Scolopendridae				
1112.	<i>Cormocephalus bungalbinensis</i>			
1113.	<i>Scolopendra laeta</i>			
1114.	<i>Scolopendra morsitans</i>			
Scrophulariaceae				
1115.	7180 <i>Eremophila alternifolia</i> (Poverty Bush)			
1116.	16377 <i>Eremophila caerulea</i> subsp. <i>caerulea</i>			
1117.	13641 <i>Eremophila caerulea</i> subsp. <i>merrallii</i>		P4	
1118.	13807 <i>Eremophila caperata</i>			
1119.	7189 <i>Eremophila clarkei</i> (Turpentine Bush)			
1120.	7193 <i>Eremophila decipiens</i> (Slender Fuchsia)			
1121.	14895 <i>Eremophila decipiens</i> subsp. <i>decipiens</i>			
1122.	7195 <i>Eremophila dempsteri</i>			
1123.	7198 <i>Eremophila deserti</i>			
1124.	7200 <i>Eremophila drummondii</i>			
1125.	7212 <i>Eremophila gibbosa</i>			
1126.	14340 <i>Eremophila glabra</i> subsp. <i>glabra</i>			
1127.	7219 <i>Eremophila granitica</i> (Thin-leaved Poverty Bush)			
1128.	15112 <i>Eremophila interstans</i> subsp. <i>interstans</i>			
1129.	15111 <i>Eremophila interstans</i> subsp. <i>virgata</i>			
1130.	7226 <i>Eremophila ionantha</i> (Violet-flowered Eremophila)			
1131.	7234 <i>Eremophila longifolia</i> (Berrigan, Tulypurpa)			
1132.	16363 <i>Eremophila maculata</i> subsp. <i>brevifolia</i> (Native Fuchsia)			
1133.	7242 <i>Eremophila miniata</i> (Kopi Poverty Bush)			
1134.	14632 <i>Eremophila oblonga</i>			
1135.	15003 <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>			
1136.	17168 <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>			
1137.	18570 <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>			
1138.	7250 <i>Eremophila pantonii</i>			
1139.	14594 <i>Eremophila parvifolia</i> subsp. <i>auricampa</i>			
1140.	14516 <i>Eremophila praecox</i>		P1	
1141.	7259 <i>Eremophila pustulata</i> (Warted Eremophila)			
1142.	7264 <i>Eremophila saligna</i> (Willow Eremophila)			
1143.	7267 <i>Eremophila scoparia</i> (Broom Bush (I))			
1144.	7269 <i>Eremophila serrulata</i> (Serrate-leaved Eremophila)			
1145.	<i>Eremophila</i> sp.			
1146.	19528 <i>Eremophila</i> sp. Mt Jackson (G.J. Keighery 4372)			
1147.	17162 <i>Eremophila subfloccosa</i> subsp. <i>lanata</i>			
1148.	7278 <i>Eremophila veronica</i>		P3	
1149.	7283 <i>Eremophila weldii</i>			
1150.	17158 <i>Myoporum montanum</i> (Native Myrtle)			
Sididae				
1151.	<i>Diaphanosoma unguiculatum</i>			
Solanaceae				
1152.	6955 <i>Crenidium spinescens</i>			
1153.	10823 <i>Datura inoxia</i>	Y		
1154.	6966 <i>Duboisia hopwoodii</i> (Pituri, Kundugu)			
1155.	6967 <i>Lycium australe</i> (Australian Boxthorn)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1156.	6978 <i>Nicotiana rotundifolia</i> (Round-leaved Tobacco)			
1157.	6979 <i>Nicotiana simulans</i>			
1158.	6998 <i>Solanum cleistogamum</i>			
1159.	7007 <i>Solanum esuriale</i> (Quena)			
1160.	7013 <i>Solanum hoplopetalum</i> (Thorny Solanum)			
1161.	7018 <i>Solanum lasiophyllum</i> (Flannel Bush, Mindjulu)			
1162.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
1163.	7023 <i>Solanum nummularium</i> (Money-leaved Solanum)			
1164.	7026 <i>Solanum orbiculatum</i> (Wild Tomato)			
1165.	11241 <i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i> (Round-leaved Solanum)			
1166.	7028 <i>Solanum petrophilum</i> (Rock Nightshade)			
1167.	7030 <i>Solanum plicatile</i>			
1168.	7038 <i>Solanum terraneum</i>			
Sparassidae				
1169.	<i>Isopeda magna</i>			
1170.	<i>Isopedella saundersi</i>			
Stemonitidaceae				
1171.	38987 <i>Comatricha ellae</i>			
1172.	39030 <i>Enerthenema papillatum</i>			
Sternophoridae				
1173.	<i>Afrosterophorus hirsti</i>			Y
Stratiomyidae				
1174.	<i>Stratiomyidae</i> sp.			
Stylidiaceae				
1175.	7685 <i>Stylidium arenicola</i>			
1176.	7714 <i>Stylidium dielsianum</i> (Tangle Triggerplant)			
1177.	7751 <i>Stylidium limbatum</i> (Fringed-leaved Triggerplant)			
Tachyglossidae				
1178.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
Teloschistaceae				
1179.	48195 <i>Caloplaca scarlatina</i>			
1180.	<i>Caloplaca</i> sp.			
Testudinellidae				
1181.	<i>Testudinella patina</i>			
Thamnocephalidae				
1182.	33934 <i>Branchinella denticulata</i> (fairy shrimp (Carnarvon to Kalgoorlie))		P3	
1183.	<i>Branchinella halsei</i>			
1184.	<i>Branchinella occidentalis</i>			
Theraphosidae				
1185.	<i>Selenotholus foelschei</i>			
Theridiidae				
1186.	<i>Latrodectus hasseltii</i>			
Threskiornithidae				
1187.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
1188.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
Thylacomyidae				
1189.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyte, Ninu)		T	
Thymelaeaceae				
1190.	5231 <i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
1191.	11185 <i>Pimelea microcephala</i> subsp. <i>microcephala</i>			
1192.	11910 <i>Pimelea suaveolens</i> subsp. <i>flava</i>			
Trichiaceae				
1193.	39059 <i>Perichaena vermicularis</i>			
Trichocercidae				
1194.	<i>Trichocerca</i> cf. <i>rattus</i>			
Triopsidae				
1195.	<i>Triops australiensis australiensis</i>			
Trochanteriidae				
1196.	<i>Corimaethes campestris</i>			
1197.	<i>Fissarena castanea</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Turbellaria				
1198.	<i>Turbellaria sp.</i>			
Tytonidae				
1199.	24852 <i>Tyto alba subsp. delicatula (Barn Owl)</i>			
Urodacidae				
1200.	<i>Urodacus armatus</i>			
1201.	<i>Urodacus hoplurus</i>			
1202.	<i>Urodacus yaschenkoi</i>			
Urticaceae				
1203.	1767 <i>Urtica urens (Small Nettle)</i>	Y		
Varanidae				
1204.	25211 <i>Varanus caudolineatus</i>			
1205.	25218 <i>Varanus gouldii (Bungarra or Sand Monitor)</i>			
1206.	25526 <i>Varanus tristis (Racehorse Monitor)</i>			
Verbenaceae				
1207.	29836 <i>Glandularia aristigera</i>	Y		
1208.	13557 <i>Phyla canescens</i>	Y		
Verrucariaceae				
1209.	27736 <i>Endocarpon helmsianum</i>			
1210.	27737 <i>Endocarpon macrosporum</i>			
1211.	27741 <i>Endocarpon simplicatum</i>			
1212.	<i>Placidium lacinulatum</i>			
1213.	27984 <i>Placidium squamulosum</i>			
1214.	<i>Verrucaria sp.</i>			
Vespertilionidae				
1215.	24186 <i>Chalinolobus gouldii (Gould's Wattled Bat)</i>			
1216.	24187 <i>Chalinolobus morio (Chocolate Wattled Bat)</i>			
1217.	24194 <i>Nyctophilus geoffroyi (Lesser Long-eared Bat)</i>			
1218.	24199 <i>Scotorepens balstoni (Inland Broad-nosed Bat)</i>			
1219.	24202 <i>Vespadelus baverstocki (Inland Forest Bat)</i>			
1220.	24206 <i>Vespadelus regulus (Southern Forest Bat)</i>			
Violaceae				
1221.	11973 <i>Hybanthus floribundus subsp. curvifolius</i>			
Zodariidae				
1222.	<i>Storena sinuosa</i>			
Zosteropidae				
1223.	25765 <i>Zosterops lateralis (Grey-breasted White-eye, Silvereye)</i>			
Zygophyllaceae				
1224.	48887 <i>Roepera billardierei</i>			
1225.	48890 <i>Roepera eremaea</i>			
1226.	48892 <i>Roepera glauca (Pale Twinleaf, Pale Twin-leaf)</i>			
1227.	48898 <i>Roepera ovata</i>			
1228.	48903 <i>Roepera tetraptera</i>			
1229.	4383 <i>Tribulus terrestris (Caltrop)</i>	Y		

Conservation Codes

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

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

Appendix 8: EPBC Protected Matters Search (40km buffer)



EPBC Act Protected Matters Report

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

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

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

Report created: 29/12/20 01:13:38

[Summary](#)

[Details](#)

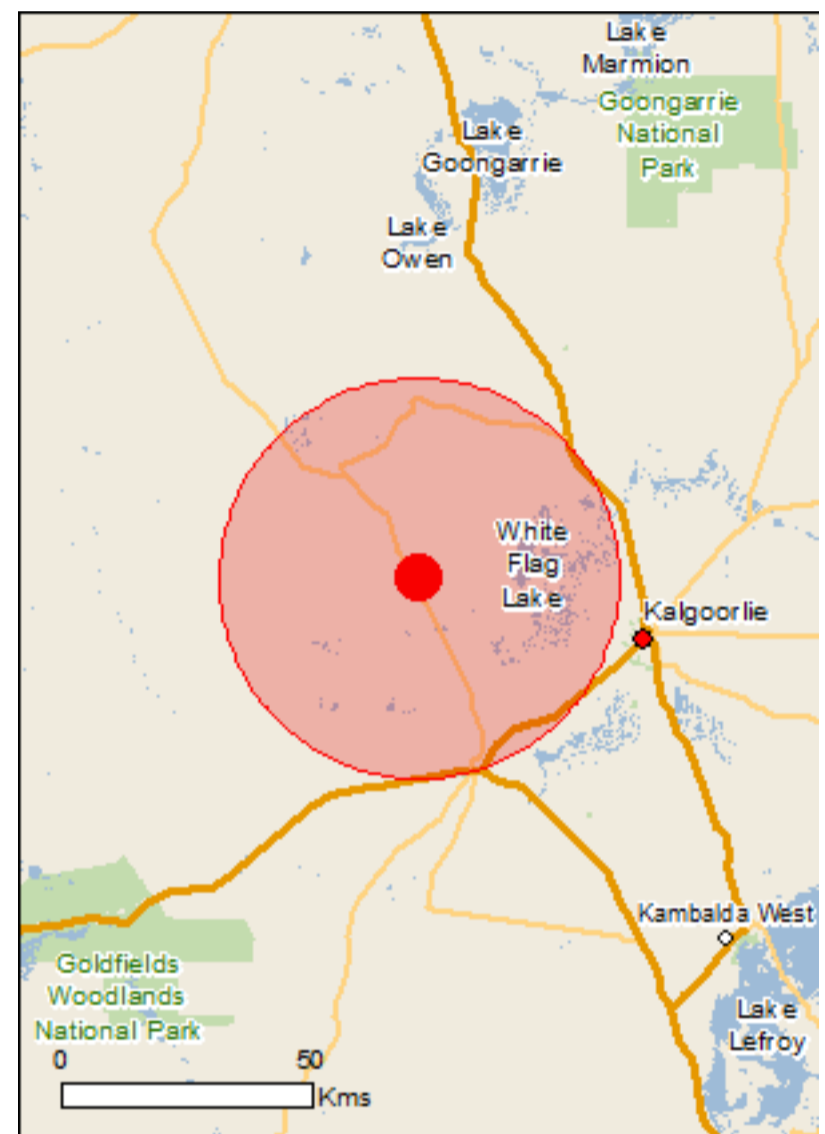
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

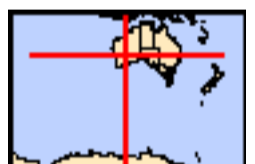
[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 40.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	9
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	5
Regional Forest Agreements:	None
Invasive Species:	15
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

National Heritage Properties		[Resource Information]
Name	State	Status
Historic		
Goldfields Water Supply Scheme, Western Australia	WA	Listed place

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area

Insects		
Ogyris subterrestris petrina Arid Bronze Azure [77743]	Critically Endangered	Species or species habitat may occur within area

Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area

Plants		
Gastrolobium graniticum Granite Poison [14872]	Endangered	Species or species habitat likely to occur within area
Ricinocarpos brevis [82879]	Endangered	Species or species habitat may occur within area
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species

Name	Threatened	Type of Presence
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		habitat likely to occur within area Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species [\[Resource Information \]](#)

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		habitat may occur within area Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Clear And Muddy Lakes	WA
Credo	WA
Kangaroo Hills Timber Reserve	WA
Kurrawang	WA
Rowles Lagoon	WA

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area

Plants

Carrichtera annua Ward's Weed [9511]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Cylindropuntia spp. Prickly Pears [85131]		Species or species habitat likely to occur within area

Reptiles

Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
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Nationally Important Wetlands [Resource Information]

Name	State
Rowles Lagoon System	WA

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-30.65805 121.06526

Acknowledgements

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

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

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

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

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Appendix 9: GPS coordinates of Quadrat locations (GDA94, Zone 51)

Quadrat	Zone	Easting	Northing
CH1	51J	313042	6607508
CH2	51J	312893	6607434
CH3	51J	312270	6607294
CH4	51J	311975	6608041
CH5	51J	312132	6607793
CH6	51J	311383	6608669
CH7	51J	311119	6608725
CH8	51J	310892	6608821
CH9	51J	310736	6608940
CH10	51J	310309	6608878
CH11	51J	310191	6608617
CH12	51J	309502	6608333
CH13	51J	308958	6608826
CH14	51J	309209	6608613
CH15	51J	310472	6610098
CH16	51J	312591	6608173
CH17	51J	312540	6607363
CH18	51J	312656	6607252
CH19	51J	311423	6608020
CH20	51J	311688	6607957
CH21	51J	311690	6608375
CH22	51J	309268	6608512
CH23	51J	310366	6609322
CH24	51J	311012	6609184
CH25	51J	311308	6609463
CH26	51J	310570	6610415
CH27	51J	313745	6609039
CH28	51J	313757	6609812
CH29	51J	313059	6609305
CH30	51J	313583	6608920
CH31	51J	312859	6609075
CH32	51J	311465	6612605
CH33	51J	312508	6608733
CH34	51J	313155	6608648
CH35	51J	313731	6608382
CH36	51J	313474	6609054
CH37	51J	313423	6609887
CH38	51J	311543	6610495
CH39	51J	311551	6610808
CH40	51J	311341	6611546
CH41	51J	311714	6612100
CH42	51J	311602	6612627
CH43	51J	311497	6612881
CH44	51J	311188	6613038
CH45	51J	311064	6612446
CH46	51J	310689	6612065

Quadrat	Zone	Easting	Northing
CH47	51J	310361	6612089
CH48	51J	309832	6612116
CH49	51J	309754	6612696
CH50	51J	310235	6610632
CH51	51J	309976	6610536
CH52	51J	309643	6610540
CH53	51J	309252	6610508
CH54	51J	308100	6610584
CH55	51J	308860	6609846
B1	51J	315003	6607564
B2	51J	315239	6607487
B3	51J	315214	6607339
B4	51J	315106	6607203
B5	51J	315095	6607017
B6	51J	314987	6607048
B7	51J	315208	6607062
B8	51J	315279	6607100
B9	51J	315522	6607112
B10	51J	316000	6607047
B11	51J	315798	6607530
B12	51J	315448	6607685
B13	51J	315956	6608042
B14	51J	316056	6608155
B15	51J	316098	6608062
B16	51J	316085	6608288
B17	51J	315979	6608318
B18	51J	315883	6608378
B19	51J	315720	6608438
B20	51J	315374	6608441
QE1	51J	315185	6608766
QE2	51J	316840	6604923
QE3	51J	316660	6605707
QE4	51J	316625	6606877
QE5	51J	316536	6606822
QE6	51J	316403	6607275
QE7	51J	316278	6608000
QE8	51J	316640	6608423
QE9	51J	316118	6606477
QE10	51J	316219	6605514
QE11	51J	315063	6605695
QE12	51J	315597	6606200
QW1	51J	311678	6607059
QW2	51J	312222	6606841
QW3	51J	312506	6606722
QW4	51J	312529	6606445
QW5	51J	312624	6606361
QW6	51J	313192	6606279

Quadrat	Zone	Easting	Northing
QW7	51J	313469	6606486
QW8	51J	312195	6606311
QW9	51J	313511	6605145
QW10	51J	313646	6605515
QW11	51J	313135	6605723
QW12	51J	313703	6605880
QW13	51J	313776	6606097

Appendix 10: Quadrat Datasheets

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 1	
Quadrat size: 20x20		
Photo number: 2-4		
Landform: Flat		
Land surface/disturbance: Plain/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): moderately; many/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ soft		
%Cover leaf litter: 20		
%Cover bare ground: 30		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <1	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia acuminata</i>	<i>Eremophila alternifolia</i>	<i>Olearia pimeleoides</i>
ALL SPECIES		
<i>Acacia acuminata</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila alternifolia</i>		
<i>Eremophila dempsteri</i>		
<i>Goodenia pinnatifida</i>		
<i>Olearia pimeleoides</i>		
<i>Ptilotus aervoides</i> (A)		
<i>Rhagodia eremaea</i>		
<i>Rhodanthe floribunda</i> (A)		
<i>Scaevola spinescens</i>		
<i>Sclerolaena drummondii</i>		
<i>Streptoglossa cylindriceps</i> (A)		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 2	
Quadrat size: 20x20		
Photo number: 10-12		
Landform: Midslope		
Land surface/disturbance: Hillslope/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): extremely; very abundant/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 15		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <1	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i> <i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa elegantissima</i>		
<i>Eucalyptus campaspe</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 3	
Quadrat size: 20x20		
Photo number: 26-28		
Landform: Midslope		
Land surface/disturbance: Hillslope/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): moderately; many/ cobbly; cobble stones/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 50		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <10	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila pustulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eremophila pustulata</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Maireana pentatropis</i>		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena parvifolia</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 4	
Quadrat size: 20x20		
Photo number: 46-48		
Landform: Midslope		
Land surface/disturbance: Hillslope/Extensive Clearing		
Coarse fragments on the surface (abundance/size/shape): moderately; many/ coarse gravelly; large pebbles; subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 50		
%Cover bare ground: 70		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <10	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Alyxia buxifolia</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Enchylaena tomentosa</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila pustulata</i>		
<i>Eremophila scoparia</i>		
<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> (A)		
<i>Eucalyptus campaspe</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Sclerolaena drummondii</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 5	
Quadrat size: 20x20		
Photo number: 49-51		
Landform: Lowslope		
Land surface/disturbance: Hillslope/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): slightly; few/ fine gravelly; small pebbles; subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 10		
%Cover bare ground: 15		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila dempsteri</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 6	
Quadrat size: 20x20		
Photo number: 57-59		
Landform: Lowslope		
Land surface/disturbance: Hillslope/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): moderately; many/ medium gravelly; medium pebbles; subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <10	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila pustulata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus campaspe</i>		
<i>Maireana georgei</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena drummondii</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 7	
Quadrat size: 20x20		
Photo number: 60-62		
Landform: Midslope		
Land surface/disturbance: Hillslope/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): moderately; many/ cobbly; or cobbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 75		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <1	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Acacia erinacea</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Eremophila glabra</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Olearia muelleri</i>		
<i>Santalum spicatum</i>		
<i>Scaevola spinescens</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 8	
Quadrat size: 20x20		
Photo number: 63-65		
Landform: Flat		
Land surface/disturbance: Plain/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): slight; few/ cobbly; or cobbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 30		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila pustulata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Exocarpos aphyllus</i>		
<i>Maireana georgei</i>		
<i>Marsdenia australis</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena drummondii</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 9	
Quadrat size: 20x20		
Photo number: 70-72		
Landform: Crest		
Land surface/disturbance: Hillcrest/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): extremely; very abundant/ cobbly; or cobbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 15		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Dodonaea lobulata</i>	<i>Scaevola spinescens</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Dodonaea lobulata</i>		
<i>Enchylaena tomentosa</i>		
<i>Eremophila glabra</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Olearia muelleri</i>		
<i>Santalum spicatum</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 10	
Quadrat size: 20x20		
Photo number: 73-75		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): very abundant/ coarse gravelly; large pebbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 80		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila pustulata</i>	<i>Olearia muelleri</i>
ALL SPECIES		
<i>Acacia merrallii</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila pustulata</i>		
<i>Eucalyptus campaspe</i>		
<i>Olearia muelleri</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 11	
Quadrat size: 20x20		
Photo number: 73-75		
Landform: Crest		
Land surface/disturbance: Hillcrest/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): very abundant/ cobbly; or cobbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 80		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 1-3m	Height: 0.5-1m	Height: 0.25-0.5m
Crown cover %: <10	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Allocasuarina acutivalvis</i>	<i>Philothea brucei</i>	<i>Prostanthera grylloana</i>
ALL SPECIES		
<i>Allocasuarina acutivalvis</i>		
<i>Cryptandra aridicola</i>		
<i>Grevillea acuaria</i>		
<i>Philothea brucei</i>		
<i>Prostanthera grylloana</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 12	
Quadrat size: 20x20		
Photo number: 93-95		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ coarse gravelly; large pebbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 10		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 0.5-1m	Height: 0.25-0.5m
Crown cover %: <10	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia quadrimarginea</i>	<i>Dodonaea lobulata</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia quadrimarginea</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Ptilotus obovatus</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 13	
Quadrat size: 20x20		
Photo number: 96-98		
Landform: Flat		
Land surface/disturbance: Plain/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Nil		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 50		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Enchylaena tomentosa</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Frankenia setosa</i>		
<i>Pittosporum angustifolium</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 14	
Quadrat size: 20x20		
Photo number: 101-103		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ Cobbly; or cobbles/ Angular Tabular		
Rock outcrop (abundance/runoff): no bedrock exposed/ rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 10		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia quadrimarginea</i>	<i>Dodonaea lobulata</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia quadrimarginea</i>		
<i>Austrostipa nitida</i>		
<i>Cheilanthes sieberi</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Marsdenia australis</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Sida calyxhymenia</i>		

Project Name: Castle Hill		
Date: 06/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 15	
Quadrat size: 20x20		
Photo number: 107-109		
Landform: Flat		
Land surface/disturbance: Plain/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Nil		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 60		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravidia</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus ravidia</i>		
<i>Frankenia setosa</i>		
<i>Maireana georgei</i>		
<i>Maireana oppositifolia</i>		
<i>Sclerolaena diacantha</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 16	
Quadrat size: 20x20		
Photo number: 117-119		
Landform: Flat		
Land surface/disturbance: Plain/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ medium gravelly; medium pebbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 5		
%Cover bare ground: 10		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Acacia acuminata</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia acuminata</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila dempsteri</i>		
<i>Eucalyptus griffithsii</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 17	
Quadrat size: 20x20		
Photo number: 120-122		
Landform: Flat		
Land surface/disturbance: Plain/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 5		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: N/A	Height: 1-3m	Height: 0.5-1m
Crown cover %: N/A	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa: N/A	Dominant taxa:	Dominant taxa:
	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Calandrinia polyandra</i> (A)		
<i>Cratystylis subspinescens</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Frankenia setosa</i>		
<i>Maireana triptera</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena cuneata</i>		
<i>Streptoglossa cylindriceps</i> (A)		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 18	
Quadrat size: 20x20		
Photo number: 123-125		
Landform: Flat		
Land surface/disturbance: Plain/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ fine gravelly; small pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ very slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 5		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: N/A	Height: 1-3m	Height: 0.5-1m
Crown cover %: N/A	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa: N/A	Dominant taxa:	Dominant taxa:
	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Cratystylis subspinescens</i>		
<i>Enchylaena tomentosa</i>		
<i>Eremophila dempsteri</i>		
<i>Sclerolaena cuneata</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Castle Hill		
	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 19	
Quadrat size: 20x20		
Photo number: 127-129		
Landform: Lower slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 20		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Acacia erinacea</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Acacia hemiteles</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Grevillea acuaria</i>		
<i>Olearia muelleri</i>		
<i>Santalum spicatum</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 20	
Quadrat size: 20x20		
Photo number: 130-132		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ Extensive clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 30		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Casuarina pauper</i>	<i>Acacia acuminata</i>	<i>Dodonaea lobulata</i>
ALL SPECIES		
<i>Acacia acuminata</i>		
<i>Casuarina pauper</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Olearia muelleri</i>		
<i>Scaevola spinescens</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 21	
Quadrat size: 20x20		
Photo number: 133-135		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very; abundant/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 15		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Allocasuarina acutivalvis</i>	<i>Acacia acuminata</i>	<i>Prostanthera grylloana</i>
<i>Casuarina pauper</i>		
ALL SPECIES		
<i>Acacia acuminata</i>		
<i>Allocasuarina acutivalvis</i>		
<i>Casuarina pauper</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila clarkei</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Philothea brucei</i>		
<i>Prostanthera grylloana</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 22	
Quadrat size: 20x20		
Photo number: 136-138		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very; abundant/ cobbly; or cobble stones/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 50		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia quadrimarginea</i>	<i>Dodonaea lobulata</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia quadrimarginea</i>		
<i>Austrostipa nitida</i>		
<i>Cheilanthes sieberi</i>		
<i>Dodonaea lobulata</i>		
<i>Ptilotus obovatus</i>		
<i>Sida calyxhymenia</i>		
<i>Solanum lasiophyllum</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 23	
Quadrat size: 20x20		
Photo number: 140-142		
Landform: Upper slope		
Land surface/disturbance: Hillslope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very; abundant/ cobbly; or cobble stones/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ no runoff		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 60		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eucalyptus griffithsii</i>		
<i>Maireana pentatropis</i>		
<i>Olearia muelleri</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 24	
Quadrat size: 20x20		
Photo number: 143-145		
Landform: Lower slope		
Land surface/disturbance: Hillslope/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Very; abundant/ coarse gravelly; large pebbles/ subangular		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 50		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila pustulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia colletioides</i>		
<i>Atriplex vesicaria</i>		
<i>Cratystylis conocephala</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila pustulata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Maireana pentatropis</i>		
<i>Maireana thesioides</i>		
<i>Santalum spicatum</i>		
<i>Senna cardiosperma</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 25	
Quadrat size: 20x20		
Photo number: 146-148		
Landform: Flat		
Land surface/disturbance: Plain/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Nil		
Rock outcrop (abundance/runoff): no bedrock exposed/ very slow		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 90		
%Cover bare ground: 95		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravida</i>	<i>Eremophila glabra</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus celastroides</i>		
<i>Eucalyptus ravida</i>		
<i>Frankenia setosa</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Scaevola spinescens</i>		

Project Name: Castle Hill		
Date: 07/11/12	Botanist: Jim Williams & Samantha Stapleton	
Location: Castle Hill	Quadrat: 26	
Quadrat size: 20x20		
Photo number: 149-151		
Landform: Flat		
Land surface/disturbance: Plain/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): very slightly; few/ coarse gravelly; large pebbles/ subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): uniform/ medium clay/ firm		
%Cover leaf litter: 90		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravidia</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus ravidia</i>		
<i>Maireana georgei</i>		
<i>Pittosporum angustifolium</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena parvifolia</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Castle Hill		
Date: 27/08/13	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: Q27	
Quadrat size: 20x20		
Photo number: 5-7		
Landform: Flat		
Land surface/disturbance: Plain/No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): no bedrock exposed/ slow		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter:10		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Tussock grass
Height: N/A	Height: 1-3m	Height: 0.5-1m
Crown cover %: N/A	Crown cover %: <10	Crown cover %: <10
Dominant taxa: N/A	Dominant taxa: <i>Atriplex nummularia</i> subsp. <i>spathulata</i>	Dominant taxa: <i>Austrostipa nitida</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Alyxia buxifolia</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa elegantissima</i>		
<i>Austrostipa nitida</i>		
<i>Centaurea melitensis</i> (W)		
<i>Cephalopterum drummondii</i> (A)		
<i>Cucumis myriocarpus</i> (W)		
<i>Enchylaena tomentosa</i>		
<i>Eragrostis setifolia</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Erodium crinitum</i>		
<i>Eucalyptus campaspe</i>		
<i>Eucalyptus griffithsii</i>		
<i>Goodenia havilandii</i> (A)		
<i>Grevillea acuaria</i>		
<i>Maireana georgei</i>		
<i>Maireana trichoptera</i>		
<i>Maireana triptera</i>		
<i>Ptilotus aervoides</i> (A)		
<i>Ptilotus carlsonii</i> (A)		
<i>Ptilotus holosericeus</i>		
<i>Ptilotus nobilis</i>		
<i>Rhagodia drummondii</i>		
<i>Rhodanthe floribunda</i> (A)		
<i>Salvia verbenaca</i> (W)		
<i>Santalum acuminatum</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena eurotioides</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Castle Hill		
Date: 27/08/13	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: Q28	
Quadrat size: 20x20		
Photo number: 12-14		
Landform: Upper Slope		
Land surface/disturbance: Hillslope/ No effective disturbance		
Coarse fragments on the surface (abundance/size/shape): Slightly; few/coarse gravelly; large pebbles; angular		
Rock outcrop (abundance/runoff): No bedrock exposed/Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 25		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Tussock grass
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia acuminata</i>	<i>Dodonaea lobulata</i>	<i>Austrostipa nitida</i>
<i>Casuarina pauper</i>		
ALL SPECIES		
<i>Acacia acuminata</i>		
<i>Austrostipa nitida</i>		
<i>Casuarina pauper</i>		
<i>Dodonaea lobulata</i>		
<i>Goodenia xanthosperma</i>		
<i>Olearia muelleri</i>		
<i>Philothea brucei</i>		
<i>Prostanthera grylloana</i>		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Solanum lasiophyllum</i>		
<i>Westringia rigida</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Castle Hill		
Date: 27/08/13	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 29	
Quadrat size: 20x20		
Photo number: 18-20		
Landform: Upper Slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/fine gravelly; small pebbles/angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Slow		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 15		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 1-3m
Crown cover %: <10	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Acacia hemiteles</i>
	<i>Eremophila scoparia</i>	<i>Scaevola spinescens</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea adenophora</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Eucalyptus yilgarnensis</i>		
<i>Grevillea acuararia</i>		
<i>Maireana pentatropis</i>		
<i>Maireana trichoptera</i>		
<i>Olearia muelleri</i>		
<i>Santalum acuminatum</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 27/08/13	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 30	
Quadrat size: 20x20		
Photo number: 30-32		
Landform: Flat		
Land surface/disturbance: Plain/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Slow		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 5		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Tussock grass
Height: N/A	Height: 1-3m	Height: 0.5-1m
Crown cover %: N/A	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
N/A	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Austrostipa nitida</i>
	<i>Eremophila dempsteri</i>	
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Alyxia buxifolia</i>		
<i>Aristida contorta</i> (A)		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa eremophila</i>		
<i>Austrostipa nitida</i>		
<i>Brachyscome ciliocarpa</i> (A)		
<i>Cephalopterum drummondii</i>		
<i>Eragrostis setifolia</i>		
<i>Eremophila clarkei</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Lysimachia arvensis</i> (W)		
<i>Maireana trichoptera</i>		
<i>Marsdenia australis</i> (A)		
<i>Ptilotus carlsonii</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Rhagodia drummondii</i>		
<i>Rhodanthe floribunda</i> (A)		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena eurotioides</i>		
<i>Sonchus oleraceus</i> (W)		

Project Name: Castle Hill		
Date: 27/08/13	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 31	
Quadrat size: 20x20		
Photo number: 43-45		
Landform: Upper Slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ medium gravelly; medium pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 20		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 1-3m
Crown cover %: <10	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Dodonaea lobulata</i>
<i>Eucalyptus torquata</i>		<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Acacia hemiteles</i>		
<i>Alyxia buxifolia</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila parvifolia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Eucalyptus torquata</i>		
<i>Exocarpos aphyllus</i>		
<i>Grevillea acuaria</i>		
<i>Maireana pentatropis</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 32	
Quadrat size: 20x20		
Photo number: 60-62		
Landform: Upper slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ coarse gravelly; large pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 30		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 1-3m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Dodonaea lobulata</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Dodonaea stenozyga</i>		
<i>Eremophila georgei</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 33	
Quadrat size: 20x20		
Photo number: 1-3		
Landform: Upper slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common/coarse gravelly; large pebbles/ subrounded tabular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Silt Clay Loam/ Firm		
%Cover leaf litter: 30		
%Cover bare ground: 45		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Dodonaea lobulata</i>	<i>Olearia muelleri</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Austrostipa nitida</i>		
<i>Beyeria sulcata</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Goodenia havilandii</i>		
<i>Grevillea acuaria</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 34	
Quadrat size: 20x20		
Photo number: 4-6		
Landform: Lower slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ medium gravelly; medium pebbles/ subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Silt Clay Loam/ Firm		
%Cover leaf litter: 30		
%Cover bare ground: 45		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Scaevola spinescens</i>	<i>Westringia rigida</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Grevillea acuaria</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 35	
Quadrat size: 20x20		
Photo number: 7-9		
Landform: Mid slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ fine gravelly; small pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Slow		
Soil (profile/field texture/soil surface): Uniform/ Silt Clay Loam/ Firm		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Acacia hemiteles</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa nitida</i>		
<i>Casuarina pauper</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Maireana pentatropis</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Santalum spicatum</i>		
<i>Scaevola spinescens</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 36	
Quadrat size: 20x20		
Photo number: 10-12		
Landform: Flat		
Land surface/disturbance: Plain/Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/fine gravelly; small pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Very slow		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Self-mulching		
%Cover leaf litter: 5		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Tussock grass
Height: N/A	Height: 1-3m	Height: 0.5-1m
Crown cover %: N/A	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa: N/A	Dominant taxa:	Dominant taxa:
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Austrostipa nitida</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa elegantissima</i>		
<i>Austrostipa nitida</i>		
<i>Centaurea melitensis</i> (W)		
<i>Cephalopterum drummondii</i>		
<i>Enchylaena lanata</i>		
<i>Eragrostis dielsii</i>		
<i>Eremophila dempsteri</i>		
<i>Maireana triptera</i>		
<i>Marsdenia australis</i> (A)		
<i>Ptilotus carlsonii</i>		
<i>Ptilotus holosericeus</i>		
<i>Rhagodia drummondii</i>		
<i>Rhodanthe floribunda</i> (A)		
<i>Schoenia cassiniana</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		
<i>Sonchus oleraceus</i> (W)		
<i>Streptoglossa liatroides</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 37	
Quadrat size: 20x20		
Photo number: 13-15		
Landform: Lower slope		
Land surface/disturbance: Hill slope/Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ medium gravelly; medium pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Light Medium Clay/ Firm		
%Cover leaf litter: 20		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Dodonaea stenozyga</i>
<i>Eucalyptus torquata</i>		
ALL SPECIES		
<i>Austrostipa nitida</i>		
<i>Dodonaea stenozyga</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Eucalyptus torquata</i>		
<i>Exocarpos aphyllus</i>		
<i>Grevillea acuaria</i>		
<i>Scaevola spinescens</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 38	
Quadrat size: 20x20		
Photo number: 16-18		
Landform: Flat		
Land surface/disturbance: Plain/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/Medium Clay/ Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravida</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila georgei</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus ravida</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 39	
Quadrat size: 20x20		
Photo number: 19-21		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/Heavy Clay/ Firm		
%Cover leaf litter: 40		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 0.5-1m
Crown cover %: <1	Crown cover %: 10-30	Crown cover %: 30-70
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Exocarpos aphyllus</i>		
<i>Olearia muelleri</i>		

Project Name: Castle Hill		
Date: 28/08/2013	Botanist: Andrea Williams & Pat Harton	
Location: Castle Hill	Quadrat: 40	
Quadrat size: 20x20		
Photo number: 22-24		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/Heavy Clay/ Firm		
%Cover leaf litter: 40		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Maireana sedifolia</i>		
<i>Ptilotus nobilis</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 41	
Quadrat size: 20x20		
Photo number: 25-27		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Cracking		
%Cover leaf litter: 10		
%Cover bare ground: 70		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila alternifolia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa nitida</i>		
<i>Carrichtera annua</i> (W)		
<i>Eremophila alternifolia</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eriochiton sclerolaenoides</i>		
<i>Eucalyptus griffithsii</i>		
<i>Maireana triptera</i>		
<i>Ptilotus obovatus</i>		
<i>Salvia verbenaca</i> (W)		
<i>Sclerolaena drummondii</i>		
<i>Solanum lasiophyllum</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 42	
Quadrat size: 20x20		
Photo number: 28-30		
Landform: Mid slope		
Land surface/disturbance: Hill slope/Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ coarse gravelly; large pebbles/ angular tabular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Light Clay/ Cracking		
%Cover leaf litter: 80		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-6m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus torquata</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Dodonaea stenozyga</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea stenozyga</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eucalyptus torquata</i>		
<i>Maireana pentatropis</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 43	
Quadrat size: 20x20		
Photo number: 31-33		
Landform: Mid slope		
Land surface/disturbance: Hill slope/Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ coarse gravelly; large pebbles/ angular tabular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Light Clay/ Cracking		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus torquata</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Scaevola spinescens</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Austrostipa elegantissima</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea stenozyga</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eucalyptus torquata</i>		
<i>Exocarpos aphyllus</i>		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Westringia rigida</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 44	
Quadrat size: 20x20		
Photo number: 37-39		
Landform: Mid slope		
Land surface/disturbance: Hill slope/Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many/ coarse gravelly; large pebbles/ subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Light Clay/ Firm		
%Cover leaf litter:60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Dodonaea stenozyga</i>
<i>Eucalyptus torquata</i>		
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea stenozyga</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila parvifolia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Eucalyptus torquata</i>		
<i>Maireana georgei</i>		
<i>Maireana sedifolia</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 45	
Quadrat size: 20x20		
Photo number: 40-42		
Landform: Mid slope		
Land surface/disturbance: Hill slope/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very slightly; very few/ medium gravelly; medium pebbles/ angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Clay Loam/ Firm		
%Cover leaf litter: 80		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 0.5-1m	Height: 0-0.5m
Crown cover %: >70	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 46	
Quadrat size: 20x20		
Photo number: 43-45		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus ravidia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Sclerolaena drummondii</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 47	
Quadrat size: 20x20		
Photo number: 46-48		
Landform: Flat		
Land surface/disturbance: Plain/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Firm		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: >70	Crown cover %: <10	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravida</i>	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa elegantissima</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eucalyptus ravida</i>		
<i>Maireana oppositifolia</i>		
<i>Ptilotus nobilis</i>		
<i>Rhagodia eremaea</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 48	
Quadrat size: 20x20		
Photo number: 49-51		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Firm		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: >70	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eucalyptus campaspe</i>		
<i>Frankenia setosa</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 49	
Quadrat size: 20x20		
Photo number: 52-54		
Landform: Flat		
Land surface/disturbance: Plain/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ fine gravelly; small pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Soft		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 0.5-1m	Height: 0-0.5m
Crown cover %: >70	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila pustulata</i>	<i>Atriplex vesicaria</i>
	<i>Eremophila scoparia</i>	<i>Tecticornia disarticulata</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Disphyma crassifolium</i>		
<i>Eremophila pustulata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus campaspe</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 50	
Quadrat size: 20x20		
Photo number: 55-57		
Landform: Simple slope		
Land surface/disturbance: Hill slope/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Soft		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: >70	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus ravidia</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Carrichtera annua (W)</i>		
<i>Eremophila dempsteri</i>		
<i>Eucalyptus ravidia</i>		
<i>Maireana trichoptera</i>		
<i>Ptilotus nobilis</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 51	
Quadrat size: 20x20		
Photo number: 58-60		
Landform: Simple slope		
Land surface/disturbance: Hill slope/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Medium Clay/ Firm		
%Cover leaf litter: 10		
%Cover bare ground: 90		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: N/A	Height: 3-6m	Height: 1-3m
Crown cover %: N/A	Crown cover %: 30-70	Crown cover %: <10
Dominant taxa: N/A	Dominant taxa:	Dominant taxa:
	<i>Acacia acuminata</i>	<i>Scaevola spinescens</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Acacia acuminata</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila clarkei</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Scaevola spinescens</i>		
<i>Waitzia acuminata</i> (A)		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 52	
Quadrat size: 20x20		
Photo number: 61-63		
Landform: Lower slope		
Land surface/disturbance: Hill slope/ Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Very abundant/ medium gravelly; medium pebbles/subrounded		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Loam/ Firm		
%Cover leaf litter: 60		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <1	Crown cover %: <1
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Senna artemisioides</i> subsp. <i>filifolia</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 53	
Quadrat size: 20x20		
Photo number: 64-66		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Nil		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Heavy Clay/ Soft		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: <1	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Exocarpos aphyllus</i>		
<i>Pittosporum angustifolium</i>		
<i>Ptilotus nobilis</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 54	
Quadrat size: 20x20		
Photo number: 67-69		
Landform: Flat		
Land surface/disturbance: Valley Flat/ Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Nil		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Medium Clay/ Firm		
%Cover leaf litter: 20		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>virgata</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Exocarpos aphyllus</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 20/09/13	Botanist: Jim Williams & Pat Harton	
Location: Castle Hill	Quadrat: 55	
Quadrat size: 20x20		
Photo number: 70-72		
Landform: Mid slope		
Land surface/disturbance: Hill slope/ No effective disturbance except grazing by hoofed animals		
Coarse fragments on the surface (abundance/size/shape): Extremely; very abundant/ coarse gravelly; large pebbles/subrounded tabular		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Uniform/ Silty Clay Loam/ Firm		
%Cover leaf litter: 10		
%Cover bare ground: 80		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height:3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 30-70	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Acacia quadrimarginea</i>	<i>Dodonaea lobulata</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia quadrimarginea</i>		
<i>Aristida contorta</i> (A)		
<i>Dodonaea lobulata</i>		
<i>Eremophila clarkei</i>		
<i>Ptilotus obovatus</i>		
<i>Santalum spicatum</i>		
<i>Solanum lasiophyllum</i>		
<i>Roepera eremaea</i> (A)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 1	
Quadrat size: 20x20		
Photo number: 2-3		
Landform: Simple Slope/ Middle third/ Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately (20-50%)/ coarse gravel, large pebbles (20-60mm)/ Angular		
Rock outcrop (abundance/runoff): No bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): Brown/ uniform/ silty clay loam/ firm		
%Cover leaf litter:40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: 30-70%	Crown cover %: 10-30%	Crown cover %: 30-70%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus celastroides</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Maireana georgei</i>		
<i>Maireana pentatropis</i>		
<i>Maireana trichoptera</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 2	
Quadrat size: 20x20		
Photo number: 6-8		
Landform: Upper slope/ top third/ hill slope		
Land surface/disturbance: No effective disturbance		
Coarse fragments on the surface (abundance/size/shape): very abundant (50-90%)/ cobbly or cobbles (60-200mm)/Angular		
Rock outcrop (abundance/runoff): No exposed bedrock/ moderately rapid		
Soil (profile/field texture/soil surface): Brown/ uniform/ silty clay loam/ soft		
%Cover leaf litter:40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height:6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30%	Crown cover %: <10%	Crown cover %: 30-70%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus transcontinentalis</i>	<i>Eremophila scoparia</i>	<i>Tecticornia disarticulata</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila decipiens</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus transcontinentalis</i>		
<i>Sclerolaena densiflora</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 3	
Quadrat size: 20x20		
Photo number: 9-11		
Landform: Simple slope/ middle third/ hill slope		
Land surface/disturbance: limited clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately (20-50%)/ medium Gravel, medium pebbles (6-20mm)/sub rounded tabular		
Rock outcrop (abundance/runoff): No exposed bedrock/ moderately rapid		
Soil (profile/field texture/soil surface): Brown/ uniform/ silty clay loam/ soft		
%Cover leaf litter:40		
%Cover bare ground: 70		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height:6-12m	Height: 1-3m	Height: 0.25-0.5
Crown cover %: 10-30%	Crown cover %: <10%	Crown cover %: 10-30%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Atriplex nummularia</i> subsp. <i>spatulata</i>	<i>Tecticornia disarticulata</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa elegantissima</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Maireana georgei</i>		
<i>Maireana trichoptera</i>		
<i>Ptilotus obovatus</i>		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena parvifolia</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 4	
Quadrat size: 20x20		
Photo number: 12-14		
Landform: Flat/ Middle third/ Plain		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Slightly, few (2-10%)/ coarse gravel (20-60mm)/ Angular		
Rock outcrop (abundance/runoff): No bedrock/ Moderately Rapid		
Soil (profile/field texture/soil surface): Brown/ Uniform/ Silty clay loam/ soft		
%Cover leaf litter:40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30%	Crown cover %: 10-30%	Crown cover %: <10%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Chenopodium curvispicatum</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus campaspe</i>		
<i>Exocarpos aphyllus</i>		
<i>Frankenia setosa</i>		
<i>Lycium australe</i>		
<i>Maireana georgei</i>		
<i>Maireana oppositifolia</i>		
<i>Maireana trichoptera</i>		
<i>Ptilotus exaltatus (A)</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 5	
Quadrat size: 20x20		
Photo number: 16/18		
Upper slope/ Top third/ Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Quartz/ No qualifier (10-20%)/ Coarse gravel, large pebbles (20-60mm)/ Angular Tabular		
Rock outcrop (abundance/runoff): Slightly rocky (2-10%)/ Moderately rapid		
Soil (profile/field texture/soil surface): Brown/ uniform/ medium clay/ firm		
%Cover leaf litter:40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:3-6	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10%	Crown cover %: 10-30%	Crown cover %: <10%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>Spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila pustulata</i>		
<i>Eucalyptus campaspe</i>		
<i>Eucalyptus celastroides</i>		
<i>Exocarpos aphyllus</i>		
<i>Maireana georgei</i>		
<i>Maireana trichoptera</i>		
<i>Maireana triptera</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 6	
Quadrat size: 20x20		
Photo number: 20-22		
Landform: Upper slope/ Middle third/ Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): No coarse fragments		
Rock outcrop (abundance/runoff): No bedrock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Brown/ Duplex/ Medium Clay/ Firm		
%Cover leaf litter:40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:3-6	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30%	Crown cover %: <10%	Crown cover %: <10%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Atriplex nummularia</i> subsp. <i>spatulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia tetragonophylla</i>		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila decipiens</i>		
<i>Eremophila pustulata</i>		
<i>Eucalyptus campaspe</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Maireana georgei</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 7	
Quadrat size: 20x20		
Photo number: 23-25		
Landform: Flat/ middle third/ Plain		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier, common (10-20%)/ Coarse gravel, large pebbles (20-60mm)/ sub rounded tabular		
Rock outcrop (abundance/runoff): No bed rock exposed/ Moderately rapid		
Soil (profile/field texture/soil surface): Brown/ uniform/ Medium heavy clay/ soft		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height: 6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: 10-30%	Crown cover %: <10%	Crown cover %: 10-30%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Eremophila dempsteri</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila dempsteri</i>		
<i>Eucalyptus campaspe</i>		
<i>Maireana georgei</i>		
<i>Olearia muelleri</i>		
<i>Sclerolaena drummondii</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 8	
Quadrat size: 20x20		
Photo number: 26-28		
Landform: Simple Slope/ Bottom Third/ Hill slope		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier, common (10-20%)/ medium gravel, medium pebbles (6-20mm)/ Angular platy		
Rock outcrop (abundance/runoff): No bedrock exposed/ moderately rapid		
Soil (profile/field texture/soil surface): Brown/ Duplex/ Medium heavy clay/ firm		
%Cover leaf litter:20		
%Cover bare ground: 40		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30%	Crown cover %: <1	Crown cover %: 30-70%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus transcontinentalis</i>	<i>Atriplex nummularia</i> subsp. <i>spatulata</i>	<i>Tecticornia disarticulata</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eucalyptus transcontinentalis</i>		
<i>Maireana georgei</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Sclerolaena parvifolia</i>		
<i>Tecticornia disarticulata</i>		
<i>Roepera</i> sp. (Sterile)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 9	
Quadrat size: 20x20		
Photo number: 29-31		
Landform: Flat/ Bottom third/ Valley Flat		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): No coarse fragments		
Rock outcrop (abundance/runoff): No bedrock exposed/ Rapid		
Soil (profile/field texture/soil surface): Uniform/ medium heavy clay/ firm		
%Cover leaf litter:30		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: shrub	Growth form: shrub
Height:6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: <10%	Crown cover %: <10%	Crown cover %: 30-70%
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Eucalyptus salmonophloia</i>		
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>		
<i>Atriplex vesicaria</i>		
<i>Maireana sedifolia</i>		
<i>Tecticornia disarticulata</i>		
<i>Sclerolaena parvifolia</i>		
<i>Maireana trichoptera</i>		
<i>Maireana georgei</i>		
<i>Enchylaena tomentosa</i>		
<i>Maireana oppositifolia</i>		
<i>Roepera</i> sp. (Sterile)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 10	
Quadrat size: 20x20		
Photo number: 33-35		
Landform: Simple Slope/Middle Third/Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Iron/No qualifier, common (10-20%)/Medium gravelly; medium pebbles (6-20mm) / Sub rounded		
Rock outcrop (abundance/runoff): No bed rock exposed /Moderately rapid		
Soil (profile/field texture/soil surface): Red/ Uniform / Silty clay loam / Firm		
%Cover leaf litter: 30		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover %: 10-30	Crown cover %: <1	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus campaspe</i>	<i>Atriplex nummularia</i> subsp. <i>spatulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eriochiton sclerolaenoides</i>		
<i>Eucalyptus campaspe</i>		
<i>Eucalyptus celastroides</i>		
<i>Maireana georgei</i>		
<i>Maireana sedifolia</i>		
<i>Sclerolaena drummondii</i>		
<i>Roepera</i> sp. (Sterile)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 11	
Quadrat size: 20x20		
Photo number: 36-38		
Landform: Flat / Bottom Third / Valley Flat		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very slightly, very few 2-10% / Fine gravelly; small pebbles 2-6mm / Angular Tabular		
Rock outcrop (abundance/runoff): No bed rock exposed/ Moderately Rapid		
Soil (profile/field texture/soil surface): Brown/ Uniform / Medium heavy clay / Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12 m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <1	Crown cover %: 30-70
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spatulata</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex codonocarpa</i> (A)		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Enchylaena lanata</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Frankenia setosa</i>		
<i>Maireana pyramidata</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 12	
Quadrat size: 20x20		
Photo number: 39-41		
Landform: Flat / Middle third / Valley flat		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): Vey slightly; very few <2% / Medium gravelly; medium pebbles / Angular Tabular		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Red/ Duplex / Medium Heavy Clay / Firm		
%Cover leaf litter: 60		
%Cover bare ground: 70		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <1	Crown cover %: 30-70
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus salmonophloia</i>	<i>Maireana sedifolia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Eucalyptus salmonophloia</i>		
<i>Maireana pyramidata</i>		
<i>Maireana sedifolia</i>		
<i>Sclerolaena diacantha</i>		
<i>Sclerolaena parvifolia</i>		
<i>Tecticornia disarticulata</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 13	
Quadrat size: 20x20		
Photo number: 42-44		
Landform: Flat / Middle Third / Valley Flat		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): Very Slightly; very few <2% / Coarse gravelly; Large pebbles 6-20mm / Angular		
Rock outcrop (abundance/runoff): No bedrock exposed / moderately Rapid		
Soil (profile/field texture/soil surface): Brown/ Duplex / Medium heavy clay / Soft		
%Cover leaf litter: 20		
%Cover bare ground: 30		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee <8m	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila alternifolia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia tetragonophylla</i>		
<i>Aristida contorta</i> (A)		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Carrichtera annua</i> (W)		
<i>Cenchrus ciliaris</i> (W)		
<i>Enneapogon caeruleus</i>		
<i>Eremophila alternifolia</i>		
<i>Eriochiton sclerolaenoides</i>		
<i>Erodium crinitum</i>		
<i>Eucalyptus griffithsii</i>		
<i>Lycium australe</i>		
<i>Maireana trichoptera</i>		
<i>Marsdenia australis</i> (A)		
<i>Ptilotus obovatus</i>		
<i>Rhagodia eremaea</i>		
<i>Salvia verbenaca</i> (W)		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Streptoglossa liatroides</i>		
<i>Vittadinia eremaea</i>		
<i>Roepera</i> sp. (Sterile)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 14	
Quadrat size: 20x20		
Photo number: 47-49		
Landform: Crest / Top Third/ Hill Crest		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common 10-20% / Fine gravelly; small pebbles 2-6mm / Sub rounded		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Brown/ Uniform/ Silty loam/ Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree mallee >8m	Growth form: Shrub	Growth form: Hummock Grass
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: 30-70
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Triodia irritans</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila parvifolia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Dillwynia acerosa</i>		
<i>Maireana trichoptera</i>		
<i>Santalum spicatum</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Triodia irritans</i>		
<i>Westringia rigida</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 15	
Quadrat size: 20x20		
Photo number: 50-52		
Landform: Simple Slope / Middle Third / Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common 10-20% / Fine gravelly; small pebbles 2-6mm / Sub angular		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Brown / Uniform / Silty clay loam / Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee <8m	Growth form: Shrub	Growth form: Hummock grass
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Olearia muelleri</i>
ALL SPECIES		
<i>Atriplex vesicaria</i>		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila parvifolia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 16	
Quadrat size: 20x20		
Photo number: 53-55		
Landform: Simple slope / Middle third / Hill slope		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common / Coarse gravelly; medium pebbles / Angular		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Brown / Uniform / Silty clay loam / Firm		
%Cover leaf litter: 30		
%Cover bare ground: 50		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree Mallee	Growth form: Shrub	Growth form: Hummock Grass
Height: 3-5m	Height: 0.5-1m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: 30-70
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Triodia irritans</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Eremophila decipiens</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila parvifolia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Olearia muelleri</i>		
<i>Scaevola spinescens</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Triodia irritans</i>		
<i>Westringia rigida</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 17	
Quadrat size: 20x20		
Photo number: 56-58		
Landform: Flat / Middle Third / Plain		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): No coarse fragments		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Brown / Uniform / Medium heavy clay / Soft		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Shrub Mallee >8	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Acacia erinacea</i>		
<i>Acacia tetragonophylla</i>		
<i>Atriplex vesicaria</i>		
<i>Austrostipa elegantissima</i>		
<i>Eremophila alternifolia</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus griffithsii</i>		
<i>Maireana trichoptera</i>		
<i>Olearia muelleri</i>		
<i>Ptilotus obovatus</i>		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Templetonia sulcata</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 18	
Quadrat size: 20x20		
Photo number: 59, 61		
Landform: Flat / Middle Third / Valley flat		
Land surface/disturbance: Limited clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common 10-20% / Medium gravelly; Medium pebbles 6-20mm / Sub rounded tabular		
Rock outcrop (abundance/runoff): No bedrock exposed / Moderately rapid		
Soil (profile/field texture/soil surface): Uniform / Medium heavy clay / Soft		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree Mallee >8m	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 3-5m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: 10-30
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus griffithsii</i>	<i>Eremophila alternifolia</i>	<i>Ptilotus obovatus</i>
ALL SPECIES		
<i>Acacia hemiteles</i>		
<i>Aristida contorta</i> (A)		
<i>Austrostipa nitida</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila alternifolia</i>		
<i>Eremophila glabra</i>		
<i>Eremophila interstans</i> subsp. <i>interstans</i>		
<i>Eremophila scoparia</i>		
<i>Eriochiton sclerolaenoides</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Ptilotus obovatus</i>		
<i>Santalum spicatum</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		
<i>Solanum lasiophyllum</i>		
<i>Templetonia sulcata</i>		
<i>Roepera</i> sp. (Sterile) (A)		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 19	
Quadrat size: 20x20		
Photo number: 62-64		
Landform: Crest / Middle third / Hill slope		
Land surface/disturbance: Extensive clearing		
Coarse fragments on the surface (abundance/size/shape): Moderately; many 20-50% / Coarse gravelly; large pebbles 20-60mm / Angular tabular		
Rock outcrop (abundance/runoff): Very slightly rocky / Moderately Rapid		
Soil (profile/field texture/soil surface): Uniform / Silty clay loam / Firm		
%Cover leaf litter: 40		
%Cover bare ground: 70		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 3-6m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: 10-30	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Dodonaea lobulata</i>		
<i>Eremophila dempsteri</i>		
<i>Eremophila parvifolia</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Eucalyptus griffithsii</i>		
<i>Exocarpos aphyllus</i>		
<i>Olearia muelleri</i>		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>		

Project Name: Burgundy		
Date: 01/09/14	Botanist: Jim Williams & Pat Harton	
Location: Burgundy	Quadrat: 20	
Quadrat size: 20x20		
Photo number: 65-67		
Landform: Flat / Bottom third / Valley Flat		
Land surface/disturbance: Limited Clearing		
Coarse fragments on the surface (abundance/size/shape): No qualifier; common 10-20% / Coarse gravelly; large pebbles 20-60mm / Angular tabular		
Rock outcrop (abundance/runoff): Slightly rocky / Moderately rapid		
Soil (profile/field texture/soil surface): Brown / Uniform / Silty clay loam / Firm		
%Cover leaf litter: 40		
%Cover bare ground: 60		
Tallest stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 6-12m	Height: 1-3m	Height: 0.5-1m
Crown cover %: 10-30	Crown cover %: <10	Crown cover %: <10
Dominant taxa:	Dominant taxa:	Dominant taxa:
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Atriplex vesicaria</i>
ALL SPECIES		
<i>Atriplex nummularia</i> subsp. <i>spatulata</i>		
<i>Atriplex vesicaria</i>		
<i>Eremophila scoparia</i>		
<i>Eucalyptus clelandiorum</i>		
<i>Eucalyptus transcontinentalis</i>		
<i>Maireana georgei</i>		
<i>Maireana trichoptera</i>		
<i>Maireana triptera</i>		
<i>Ptilotus exaltatus</i> (A)		
<i>Scaevola spinescens</i>		
<i>Sclerolaena parvifolia</i>		

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 187-189
Quadrat: QE1	Quadrat size: 20m x 20m	Waypoint (NW corner): 220
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Ironstone, quartz, calcrete, 10%-20%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Clay Loam/ Soft		
Cover leaf litter: 50%		
Cover bare ground: 35%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 12-20m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: 10-30%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	<i>Olearia muelleri</i>
Other Taxa		
<i>Eucalyptus clelandiorum</i>	<i>Acacia hemiteles</i>	
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Atriplex vesicaria</i>	
	<i>Eremophila glabra</i>	
	<i>Eremophila scoparia</i>	
	<i>Exocarpos aphyllus</i>	
	<i>Santalum acuminatum</i>	
	<i>Scaevola spinescens</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 190-192
Quadrat: QE2	Quadrat size: 20m x 20m	Waypoint (NW corner): 221
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Ironstone, 50%-80%, 2-6mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Clay Loam/ Firm		
Cover leaf litter: 60%		
Cover bare ground: 30%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: N/A
Height: 5-12m	Height: 1-3m	Height: -
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: -
Dominant taxa		
<i>Eucalyptus transcontinentalis</i>	<i>Eremophila scoparia</i>	-
Other Taxa		
<i>Eucalyptus celastroides</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
<i>Eucalyptus salmonophloia</i>	<i>Eremophila parvifolia</i> subsp. <i>auricampi</i>	
	<i>Exocarpos aphyllus</i>	
	<i>Maireana sedifolia</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna cardiosperma</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 193-195
Quadrat: QE3	Quadrat size: 20m x 20m	Waypoint (NW corner): 222
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Ironstone, 20-50%, 2-6mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Clay Loam/ Firm		
Cover leaf litter: 75%		
Cover bare ground: 20%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: 10-30%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
Other Taxa		
<i>Eucalyptus clelandiorum</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana pyramidata</i>
	<i>Atriplex vesicaria</i>	
	<i>Eremophila glabra</i>	
	<i>Eremophila interstans</i> subsp. <i>interstans</i>	
	<i>Eremophila ionantha</i>	
	<i>Maireana sedifolia</i>	
	<i>Scaevola spinescens</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 198-200
Quadrat: QE4	Quadrat size: 20m x 20m	Waypoint (NW corner): 223
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: 10-20%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Medium clay/ Soft		
Cover leaf litter: 10%		
Cover bare ground: 70%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: -	Height: 1-3m	Height: 0.25-0.5m
Crown cover: -	Crown cover: 30-70%	Crown cover: 10-30%
Dominant taxa		
-	<i>Dodonaea lobulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
Other Taxa		
	<i>Acacia hemiteles</i>	
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Atriplex vesicaria</i>	
	<i>Eremophila alternifolia</i>	
	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 201-203
Quadrat: QE5	Quadrat size: 20m x 20m	Waypoint (NW corner): 224
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Quartz, 20-50%, 20-50mm		
Rock outcrop (abundance/runoff): Nil/ Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-loam		
Cover leaf litter: 40%		
Cover bare ground: 50%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus griffithsii</i>	<i>Dodonaea lobulata</i>	<i>Olearia muelleri</i>
Other Taxa		
<i>Casuarina pauper</i>	<i>Eremophila interstans</i> subsp. <i>interstans</i>	<i>Westringia rigida</i>
	<i>Acacia hemiteles</i>	
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	
	<i>Eremophila parvifolia</i> subsp. <i>auricampa</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
	<i>Solanum nummularium</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 204-206
Quadrat: QE6	Quadrat size: 20m x 20m	Waypoint (NW corner): 225
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Mixed, <2%, 2-6mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Medium clay/ Hard-setting		
Cover leaf litter: 10%		
Cover bare ground: 80%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 3-5m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eremophila miniata</i>	<i>Maireana sedifolia</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
Other Taxa		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Atriplex vesicaria</i>	<i>Austrostipa elegantissima</i>
	<i>Dodonaea lobulata</i>	<i>Maireana carnososa</i>
	<i>Eremophila scoparia</i>	<i>Marsdenia australis</i>
		<i>Solanum lasiophyllum</i>

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 207-209
Quadrat: QE7	Quadrat size: 20m x 20m	Waypoint (NW corner): 226
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: 2-10%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Medium heavy clay/ Cracking		
Cover leaf litter: 15%		
Cover bare ground: 70%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: Shrub
Height: 3-5m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 10-30%	Crown cover: <1%	Crown cover: <1%
Dominant taxa		
<i>Acacia acuminata</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
Other Taxa		
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Maireana pyramidata</i>	<i>Austrostipa elegantissima</i>
	<i>Rhagodia drummondii</i>	<i>Maireana triptera</i>
		<i>Marsdenia australis</i>
		<i>Sclerolaena cuneata</i>
		<i>Solanum lasiophyllum</i>
		<i>Solanum nummularium</i>

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 210-212
Quadrat: QE8	Quadrat size: 20m x 20m	Waypoint (NW corner): 227
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: 10-20%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Light medium clay/ Soft		
Cover leaf litter: 65%		
Cover bare ground: 30%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-5m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus ravida</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana pyramidata</i>
Other Taxa		
<i>Eucalyptus celastroides</i>	<i>Atriplex vesicaria</i>	
	<i>Enchylaena tomentosa</i>	
	<i>Eremophila alternifolia</i>	
	<i>Eremophila interstans</i> subsp. <i>virgata</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 213-215
Quadrat: QE9	Quadrat size: 20m x 20m	Waypoint (NW corner): 228
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Quartz, ironstone/ 10-20%, 20-60mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Clay-loam		
Cover leaf litter: 30%		
Cover bare ground: 60%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Maireana pyramidata</i>
Other Taxa		
	<i>Acacia jennerae</i>	<i>Austrostipa elegantissima</i>
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Atriplex vesicaria</i>	
	<i>Exocarpos aphyllus</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
	<i>Solanum nummularium</i>	
	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 219-221
Quadrat: QE10	Quadrat size: 20m x 20m	Waypoint (NW corner): 229
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Quartz, ironstone/ 10-20%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very slow		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 70%		
Cover bare ground: 20%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Chenopod
Height: 5-12m	Height: 1-3m	Height: <0.25m
Crown cover: 10-30%	Crown cover: <10%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana triptera</i>
Other Taxa		
<i>Eucalyptus transcontinentalis</i>	<i>Atriplex vesicaria</i>	<i>Austrostipa elegantissima</i>
	<i>Cratystylis subspinescens</i>	<i>Olearia muelleri</i>
	<i>Eremophila glabra</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Eremophila interstans</i> subsp. <i>interstans</i>	
	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	
	<i>Eremophila scoparia</i>	
	<i>Maireana sedifolia</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
	<i>Tecticornia disarticulata</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 222-224
Quadrat: QE11	Quadrat size: 20m x 20m	Waypoint (NW corner): 230
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ 50-90%, 60-200mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Soft		
Cover leaf litter:		
Cover bare ground:		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: <0.25m
Crown cover: <10%	Crown cover: <10%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus clelandiorum</i>	<i>Eremophila pustulata</i>	<i>Olearia muelleri</i>
Other Taxa		
	<i>Acacia erinacea</i>	<i>Maireana triptera</i>
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Dodonaea lobulata</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 227-229
Quadrat: QE12	Quadrat size: 20m x 20m	Waypoint (NW corner): 231
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: 2-10%, 2-5mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Light-medium clay/ Soft		
Cover leaf litter: 40%		
Cover bare ground: 50%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Chenopod
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 10-30%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus transcontinentalis</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana triptera</i>
Other Taxa		
<i>Eucalyptus clelandiorum</i>	<i>Atriplex vesicaria</i>	<i>Maireana georgei</i>
	<i>Eremophila pustulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Eremophila scoparia</i>	
	<i>Maireana sedifolia</i>	
	<i>Scaevola spinescens</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 133-135
Quadrat: QW01	Quadrat size: 20m x 20m	Waypoint (NW corner): 207
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Laterite/ 2-10%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Soft		
Cover leaf litter: 30%		
Cover bare ground: 50%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Chenopod
Height: 5-12m	Height: 1-3m	Height: <0.25m
Crown cover: <10%	Crown cover: 10-30%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana triptera</i>
Other Taxa		
	<i>Atriplex vesicaria</i>	<i>Maireana carnososa</i>
	<i>Enchylaena tomentosa</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Eremophila scoparia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 136-138
Quadrat: QW02	Quadrat size: 20m x 20m	Waypoint (NW corner): 208
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ 20-50%, 6-20mm		
Rock outcrop (abundance/runoff):		
Soil (profile/field texture/soil surface): Brown/ Clay-loam		
Cover leaf litter: 50%		
Cover bare ground: 20%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Chenopod
Height: 5-12m	Height: 1-3m	Height: <0.25m
Crown cover: 10-30%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus clelandiorum</i>	<i>Eremophila scoparia</i>	<i>Maireana triptera</i>
Other Taxa		
	<i>Acacia erinacea</i>	
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Eremophila glabra</i>	
	<i>Eremophila pustulata</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 139-141
Quadrat: QW03	Quadrat size: 20m x 20m	Waypoint (NW corner): 209
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ 50-80%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 85%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: N/A
Height: 1-3m	Height:	Height: -
Crown cover: 10-30%	Crown cover:	Crown cover: -
Dominant taxa		
<i>Acacia acuminata</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	-
Other Taxa		
<i>Casuarina pauper</i>	<i>Dodonaea lobulata</i>	
<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	<i>Eremophila glabra</i>	
<i>Exocarpos aphyllus</i>	<i>Halgania andromedifolia</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 142-144
Quadrat: QW04	Quadrat size: 20m x 20m	Waypoint (NW corner): 210
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ >90%, 20-50mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 80%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	Growth form: Shrub	Growth form: N/A
Height: 3-5m	Height: 1-3m	Height: -
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: -
Dominant taxa		
<i>Acacia acuminata</i>	<i>Dodonaea lobulata</i>	
Other Taxa		
<i>Acacia ramulosa</i> var. <i>ramulosa</i>	<i>Eremophila glabra</i>	
<i>Allocasuarina helmsii</i>	<i>Scaevola spinescens</i>	
<i>Hakea kippistiana</i>		

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 152-154
Quadrat: QW05	Quadrat size: 20m x 20m	Waypoint (NW corner): 211
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ >90%, 20-60mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 50		
Cover bare ground: 50		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus griffithsii</i>	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	<i>Olearia muelleri</i>
Other Taxa		
<i>Casuarina pauper</i>	<i>Acacia hemiteles</i>	<i>Westringia rigida</i>
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Atriplex vesicaria</i>	
	<i>Dodonaea lobulata</i>	
	<i>Eremophila interstans</i> subsp. <i>interstans</i>	
	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	
	<i>Eremophila parviflora</i>	
	<i>Eremophila ?praecox</i> (P2)	
	<i>Solanum nummularium</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 155-157
Quadrat: QW06	Quadrat size: 20m x 20m	Waypoint (NW corner): 212
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ 50-90%, 20-60mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 25%		
Cover bare ground: 50%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Eremophila alternifolia</i>	<i>Atriplex vesicaria</i>
Other Taxa		
<i>Pittosporum angustifolium</i>	<i>Acacia erinacea</i>	
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	
	<i>Dodonaea lobulata</i>	
	<i>Eremophila glabra</i>	
	<i>Scaevola spinescens</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 158-160
Quadrat: QW07	Quadrat size: 20m x 20m	Waypoint (NW corner): 212
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Laterite/ 10-20%, 20-60mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/Heavy clay / Hard setting		
Cover leaf litter: 5%		
Cover bare ground: 90%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: -	Height: 1-3m	Height: 0.25-0.5m
Crown cover: -	Crown cover: <10%	Crown cover: <10%
Dominant taxa		
-	<i>Eremophila alternifolia</i>	<i>Mariana carnososa</i>
Other Taxa		
	<i>Acacia hemiteles</i>	<i>Asphodelus fistulosus (W)</i>
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Austrostipa elegantissima</i>
	<i>Atriplex vesicaria</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Dodonaea lobulata</i>	<i>Salvia verbenaca (W)</i>
	<i>Eremophila alternifolia</i>	
	<i>Eremophila scoparia</i>	
	<i>Lycium australe</i>	
	<i>Pittosporum angustifolium</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
	<i>Senna cardiosperma</i>	
	<i>Solanum lasiophyllum</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 161-163
Quadrat: QW08	Quadrat size: 20m x 20m	Waypoint (NW corner): 214
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Hillslope		
Coarse fragments on the surface: Laterite/ 50-90%, 20-60mm		
Rock outcrop (abundance/runoff): Nil/ Moderate		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Firm		
Cover leaf litter: 70%		
Cover bare ground: 20%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree mallee	Growth form: Shrub	Growth form: Shrub
Height: 3-5m	Height: 1-3m	Height: <0.25-0.5m
Crown cover: 10-30%	Crown cover: 10-30%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus ravidia</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Maireana sedifolia</i>
Other Taxa		
<i>Eucalyptus celastroides</i>	<i>Atriplex vesicaria</i>	
	<i>Enchylaena tomentosa</i>	
	<i>Eremophila alternifolia</i>	
	<i>Eremophila interstans</i> subsp. <i>virgata</i>	
	<i>Eremophila scoparia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 164-167
Quadrat: QW09	Quadrat size: 20m x 20m	Waypoint (NW corner): 215
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Quartz/ <2%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-loam/ Soft		
Cover leaf litter: 40%		
Cover bare ground: 30%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 12-20m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: <10%	Crown cover: 10-30%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Olearia muelleri</i>
Other Taxa		
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
	<i>Atriplex vesicaria</i>	
	<i>Exocarpos aphyllus</i>	
	<i>Pittosporum angustifolium</i>	
	<i>Scaevola spinescens</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 168-170
Quadrat: QW10	Quadrat size: 20m x 20m	Waypoint (NW corner): 216
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Plain		
Coarse fragments on the surface: Quartz, ironstone/ 20-50%, 20-50mm		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Light medium clay/ Soft		
Cover leaf litter: <10%		
Cover bare ground: 80%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 12-20m	Height: 1-3m	Height: <0.25m
Crown cover: <10%	Crown cover: <10%	Crown cover: <1%
Dominant taxa		
<i>Eucalyptus salmonophloia</i>	<i>Eremophila scoparia</i>	<i>Frankenia setosa</i>
Other Taxa		
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Austrostipa elegantissima</i>
	<i>Atriplex vesicaria</i>	<i>Marsdenia australis</i>
	<i>Olearia muelleri</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 171-173
Quadrat: QW11	Quadrat size: 20m x 20m	Waypoint (NW corner): 217
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Ironstone/ 20-50%, 6-20mm		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-loam		
Cover leaf litter: 75%		
Cover bare ground: 20%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	Growth form: Shrub	Growth form: Shrub
Height: 5-12m	Height: 1-3m	Height: 0.25-0.5m
Crown cover: 30-70%	Crown cover: 10-30	Crown cover: 10-30
Dominant taxa		
<i>Eucalyptus celastroides</i>	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Olearia muelleri</i>
Other Taxa		
	<i>Alyxia buxifolia</i>	<i>Austrostipa elegantissima</i>
	<i>Atriplex vesicaria</i>	
	<i>Eremophila alternifolia</i>	
	<i>Eremophila interstans</i> subsp. <i>interstans</i>	
	<i>Eremophila scoparia</i>	
	<i>Exocarpos aphyllus</i>	
	<i>Maireana sedifolia</i>	
	<i>Pittosporum angustifolium</i>	
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
	<i>Solanum nummularium</i>	

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 176-178
Quadrat: QW12	Quadrat size: 20m x 20m	Waypoint (NW corner): 218
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Mixed/ 20-50%, 20-50mm		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Medium heavy clay/ Cracking, hard-setting		
Cover leaf litter: <10%		
Cover bare ground: 70%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: -	Height: 1-3m	Height: 0.25-0.5m
Crown cover: -	Crown cover: 30-70%	Crown cover: <10%
Dominant taxa		
-	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Sclerolaena cuneata</i>
Other Taxa		
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Asphodelus fistulosus</i> (W)
	<i>Atriplex vesicaria</i>	<i>Frankenia setosa</i>
	<i>Solanum lasiophyllum</i>	<i>Maireana pyramidata</i>
		<i>Salvia verbenaca</i> (W)
		<i>Ptilotus exaltatus</i> (A)

Project Name: Castle Hill		
Date: 3/11/2020	Botanist: JJ	Photo (NW corner): 184-186
Quadrat: QW13	Quadrat size: 20m x 20m	Waypoint (NW corner): 219
Aspect: SW	Fire (yrs): >40	Condition rating: Very Good
Landform: Floodout		
Coarse fragments on the surface: Mixed/ 20-50%, 20-50mm		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown		
Cover leaf litter: <10%		
Cover bare ground: 70%		
Upper stratum	Mid-stratum	Lower stratum
Growth form: N/A	Growth form: Shrub	Growth form: Shrub
Height: -	Height: 1-3m	Height: <1m
Crown cover: -	Crown cover: 30-70%	Crown cover: <10%
Dominant taxa		
-	<i>Eremophila interstans</i> subsp. <i>virgata</i>	<i>Maireana pyramidata</i>
Other Taxa		
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	<i>Asphodelus fistulosus</i> (W)
	<i>Atriplex vesicaria</i>	<i>Frankenia setosa</i>
	<i>Eremophila scoparia</i>	<i>Salvia verbenaca</i> (W)
	<i>Solanum nummularium</i>	<i>Sclerolaena cuneata</i>
		<i>Solanum lasiophyllum</i>

Appendix 11: Quadrat Photos

CH 1



CH 2



CH 3



CH 4



CH 5



CH 6



CH 7



CH 8



CH 9



CH 10



CH 11



CH 12



CH 13



CH 14



CH 15



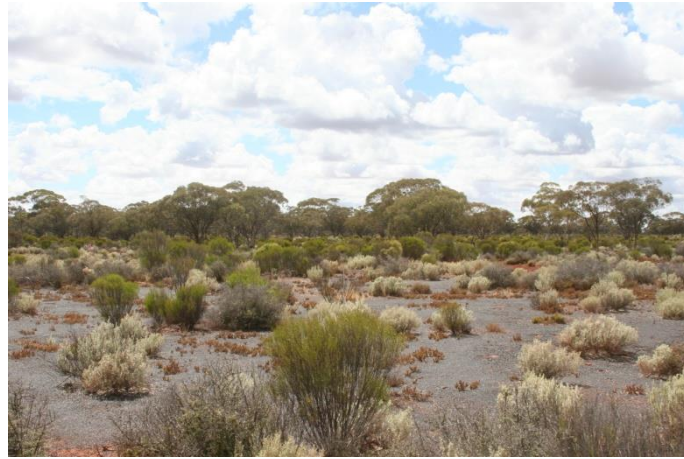
CH 16



CH 17



CH 18



CH 19



CH 20



CH 21



CH 22



CH 23



CH 24



CH 25



CH 26



CH 27



CH 28



CH 29



CH 30



CH 31



CH 32



CH 33



CH 34



CH 35



CH 36



CH 37



CH 38



CH 39



CH 40



CH 41



CH 42



CH 43



CH 44



CH 45



CH 46



CH 47



CH 48



CH 49



CH 50



CH 51



CH 52



CH 53



CH 54



CH 55



B 1



B 2



B 3



B 4



B 5



B 6



B 7



B 8



B 9



B 10



B 11



B 12



B 13



B 14



B 15



B 16



B 17



B 18



B 19



B 20



QE 1



QE 2



QE 3



QE 4



QE 5



QE 6



QE 7



QE 8



QE 9



QE 10



QE 11



QE 12



QW 1



QW 2



QW 3



QW 4



QW 5



QW 6



QW 7



QW 8



QW 9



QW 10



QW 11



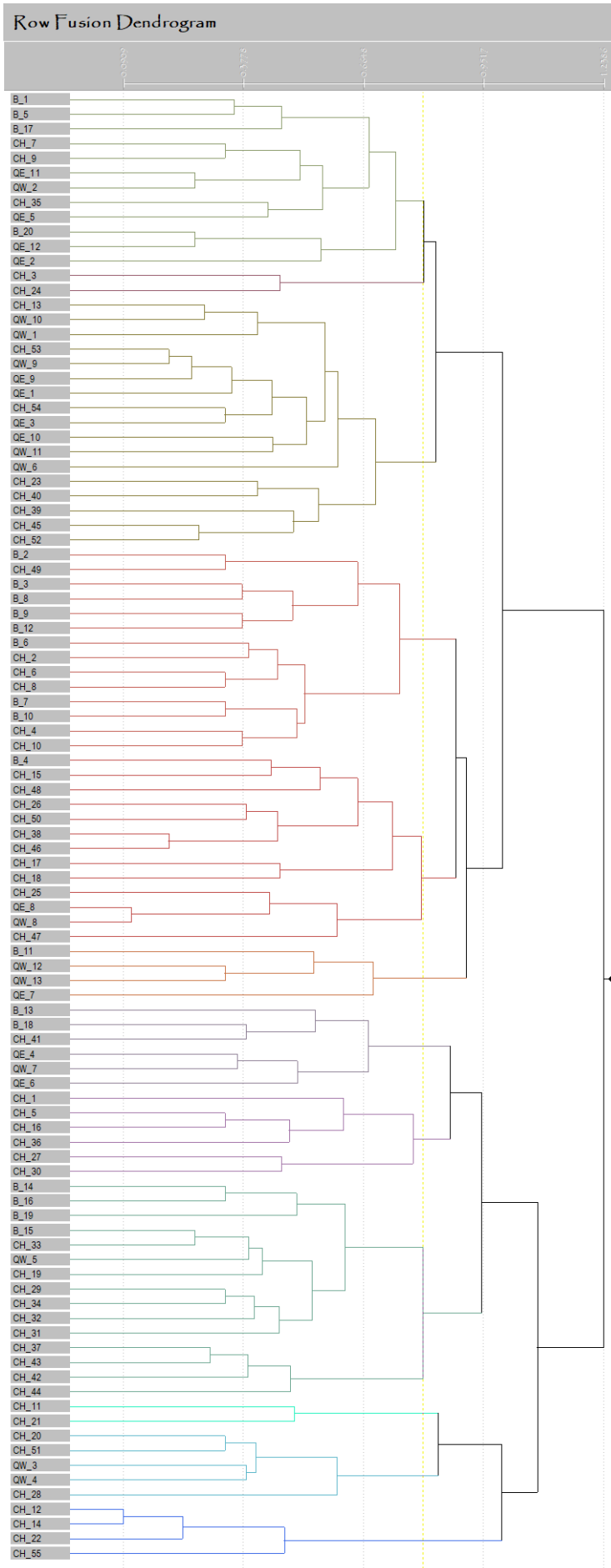
QW 12



QW 13



Appendix 12: PATN Analysis



Stress: 0.2379

LEGEND

- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6
- Group 7
- Group 8
- Group 9
- Group 10
- Group 11
- Group 12

10

11

9

1

7 3

6

8

4

12

5

2

Appendix I: Supporting Biodiversity Survey (Targeted Priority Flora Survey 2021)



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Superintendent - Environment
Evolution Mining Limited
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28th September 2021

Memorandum: Targeted Priority Flora Survey-Castle Hill

Botanica Consulting Pty Ltd (Botanica) was commissioned by Evolution Mining Limited (Evolution) to undertake a targeted Priority flora survey to visit previous records of two Priority flora species and search suitable habitat for potential new populations within the Castle Hill Project Area. The findings of the survey will be used to support a Native Vegetation Clearing Permit (NVCP) application and Mining Proposal (MP) with regards to the further development of the Castle Hill Project.

The survey area is 2,692 ha in extent and is located approximately 40 km north-west of Kalgoorlie-Boulder, Western Australia (Figure 1). Detailed flora/ vegetation surveys and basic fauna surveys were conducted in the survey area by Botanica in 2013, 2014 and 2020 (Figure 2). Phoenix Environmental Sciences surveyed the Haul Road section of this survey area in 2018 (Phoenix 2019), and Spectrum surveyed part of the Castle Hill survey area in 2019 (Spectrum 2019).

Fieldwork for this targeted Priority flora survey was conducted on the 1st September 2021 by two Botanica personnel; Jennifer Jackson (Senior Botanist, BSc Environmental Management (Honours)), and Michelle Luinstra (Environmental Consultant, BSc Biology). A handheld GPS was used to record the locations of tracks traversed (Figure 3) and locations of any conservation significant flora/ vegetation (recorded in GDA 94 format). The survey area was traversed on foot and four wheel drive vehicle.

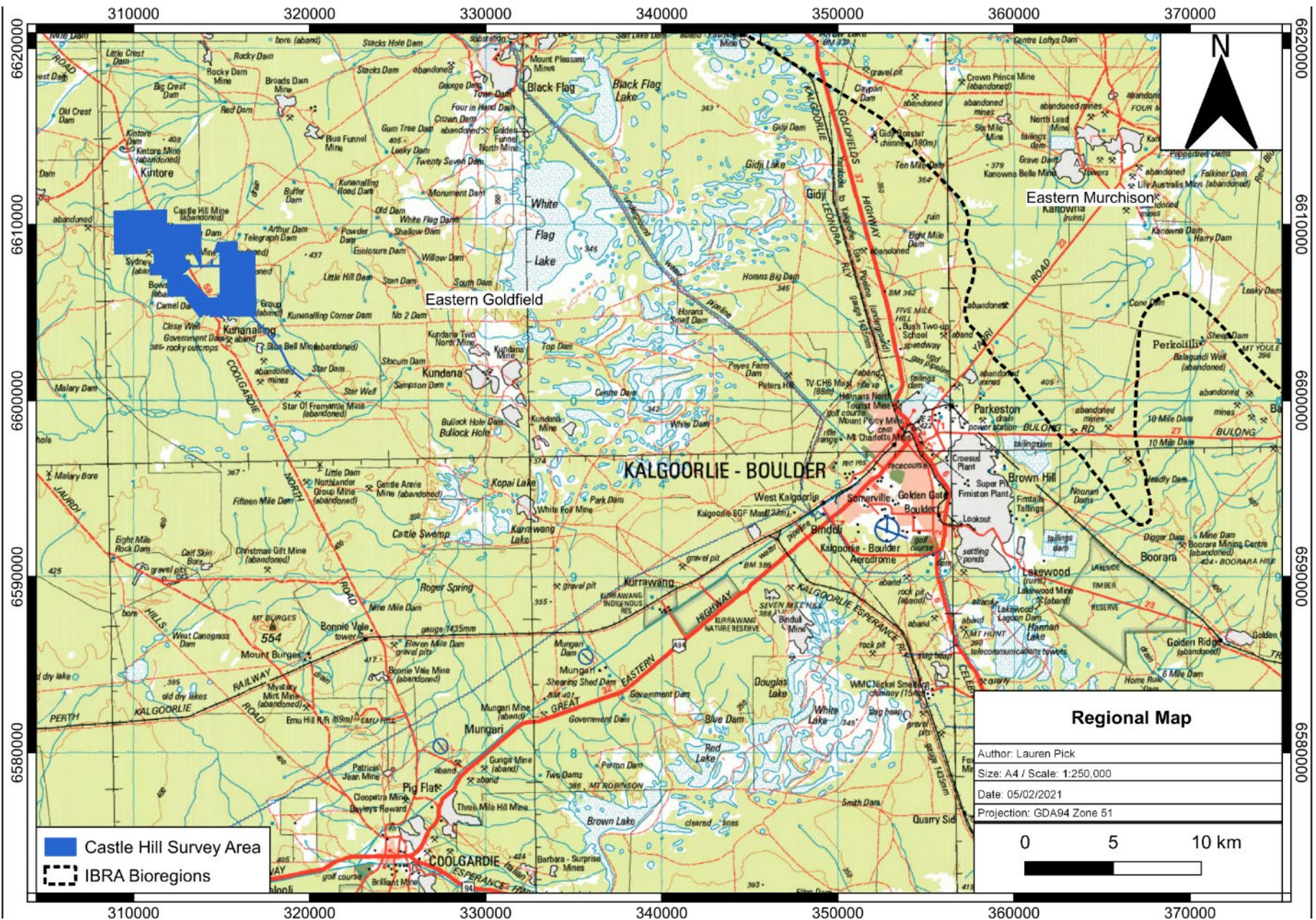


Figure 1. Regional Map

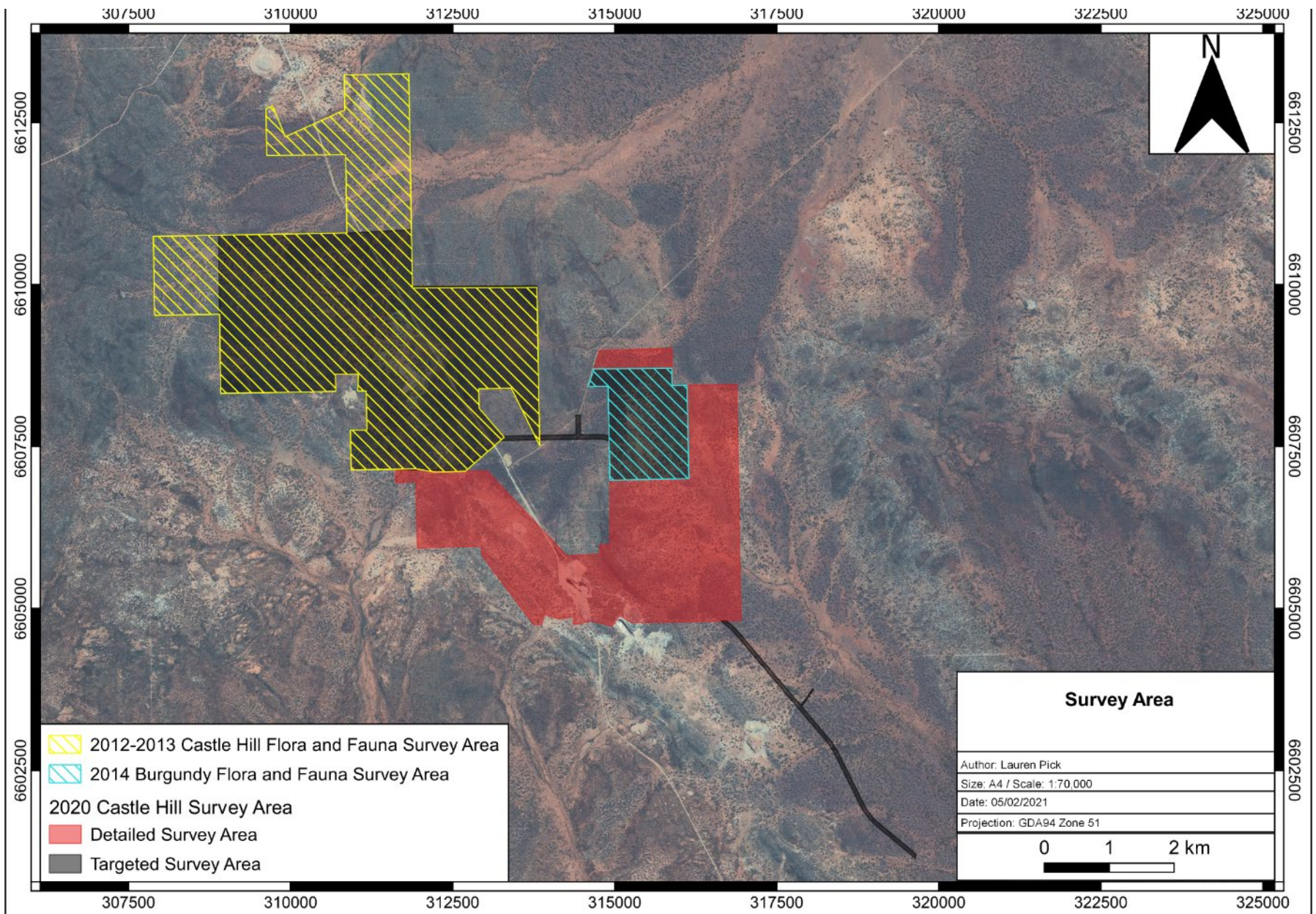


Figure 2: Castle Hill Survey area

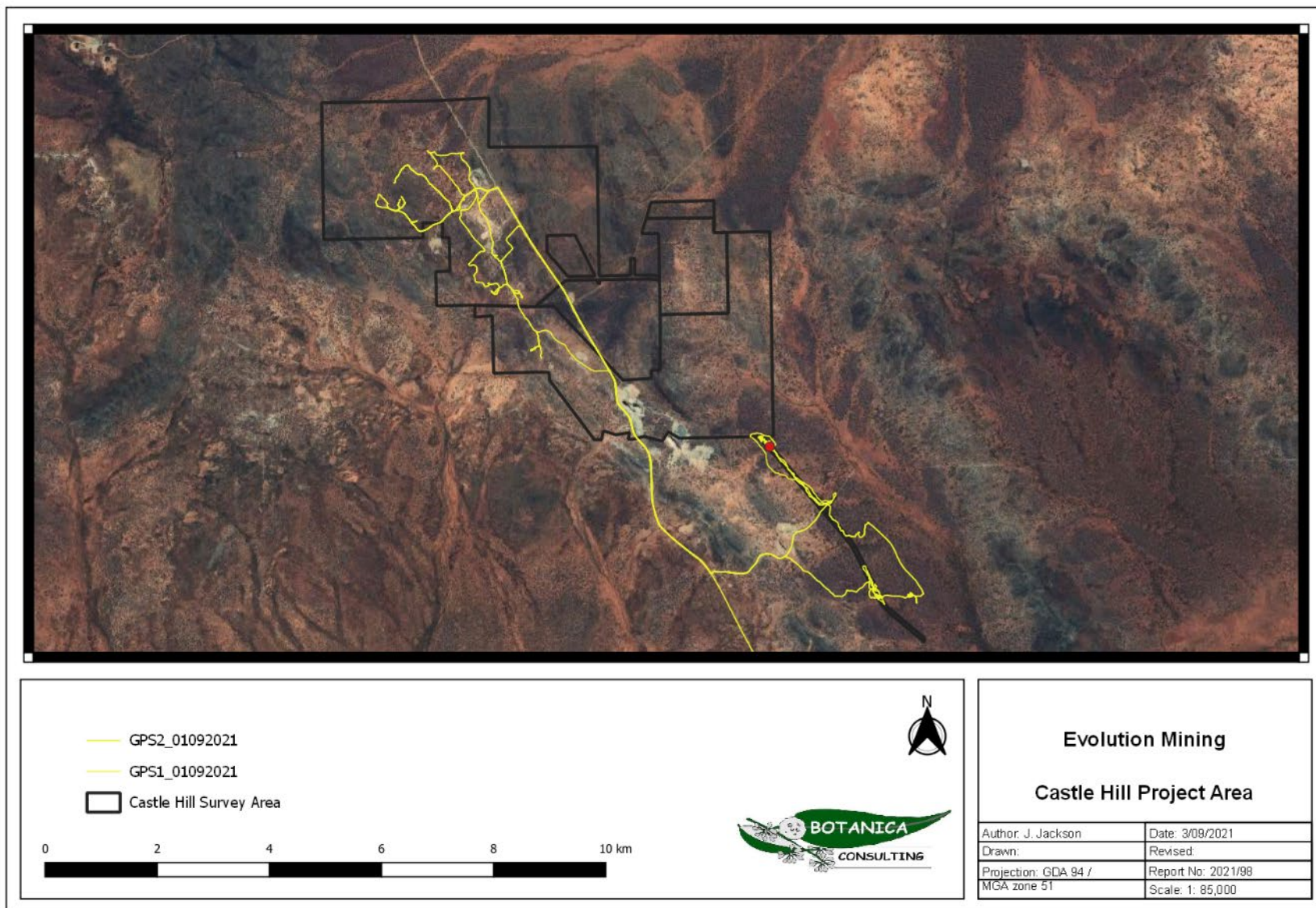


Figure 3: Tracks traversed

1 Background Information

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

- Botanica (2013). *Level 2 Flora & Vegetation Survey for the Castle Hill Project*. Prepared for Phoenix Gold Ltd, September 2013.
- Botanica (2014). *Level 2 Flora & Vegetation Survey for the Burgundy Project*. Prepared for Phoenix Gold Ltd, September 2014.
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The two Priority flora targeted for this survey were *Eremophila praecox* (P2), and *Calandrinia lefroyensis* (P1).

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. Unlike Threatened flora, Priority flora do not need approval from the Minister for the Environment to take, however permission to take is usually considered and granted by the Department of Biodiversity, Conservation and Attractions (DBCA).

1.1 *Eremophila praecox*

Eremophila praecox is Priority 2 flora, meaning it is a poorly known species.

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.

E. praecox is a broom-shaped shrub which grows to a height of between 0.3 and 1.5 m. The flowers are purple, tinged white on the outside. Flowering occurs from October to December and is followed by fruits which are dry, woody, cone-shaped to oval-shaped (ALA, 2021).

E. praecox is known from approximately 13 populations in the general Kalgoorlie area. There are 34 collections of *E. praecox* in the WA Herbarium, and together with records from DBCA's Threatened and Priority Flora database (TPFL), these represent approximately 13 populations (DBCA, 2021b). 12 of these populations are within a 50 km radius of Kalgoorlie-Boulder, one of these populations is approximately 40 km southeast of Kambalda (Figure 4). It is also known to occur in the western part of the Eyre Peninsula in South Australia. It generally grows in red-brown sandy loam with other eremophila species. The total number of plants is not known, but it usually grows as scattered individuals and no large population is known (Chinnock, 2007).

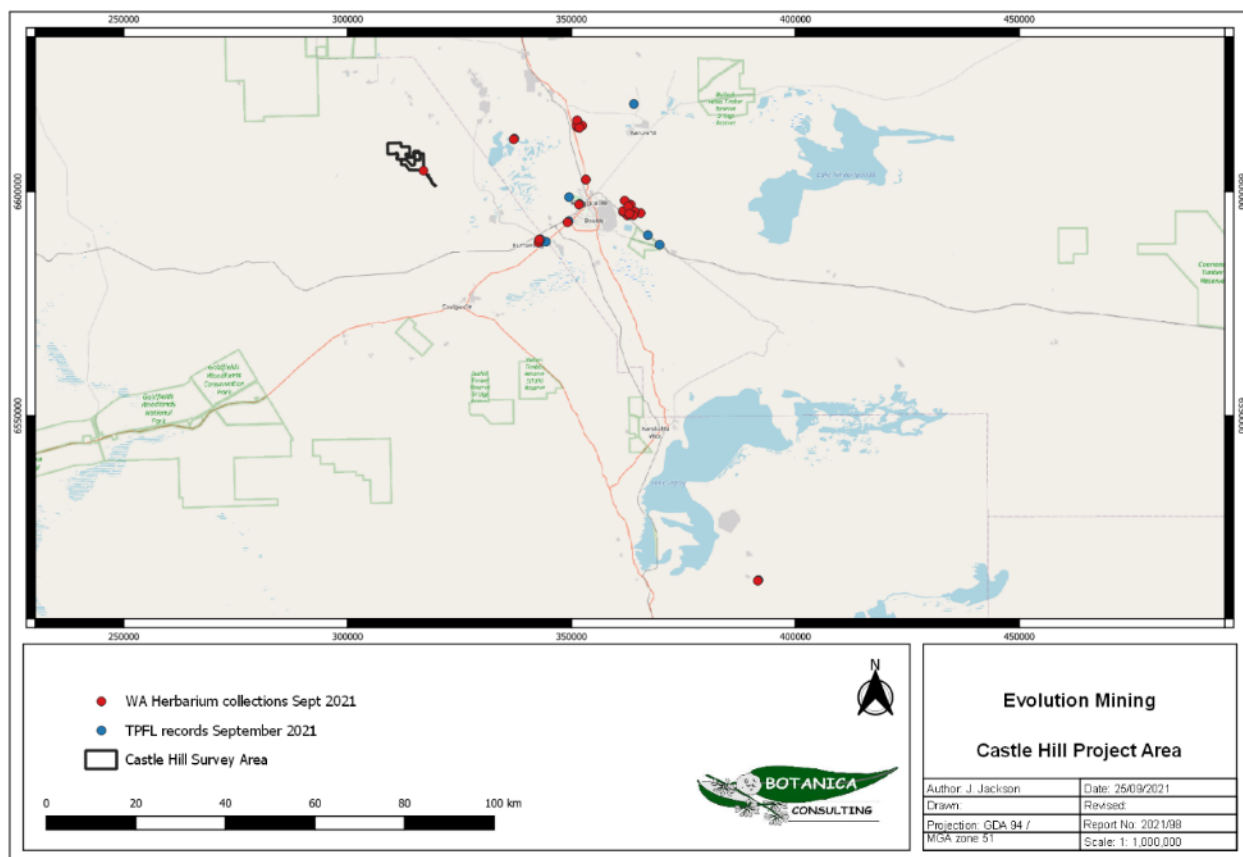


Figure 4. *Eremophila praecox* in relation to the Castle Hill Project Area.

This species was first formally described by Robert Chinnock in 2007 from specimens he collected north of Kalgoorlie in 1986. It is thought that *E. praecox* is a hybrid of *E. ionantha* and *E. parvifolia* and these species are usually found growing with *E. praecox* (Brown and Buirchell, 2011). However Chinnock (2007) notes that the possible species combination that may result in a hybrid are not present in both WA and SA. Genetic work would be needed to resolve this issue.

Phoenix (2019) identified three *E. praecox* plants during their 2018 surveys, which were in or near the proposed haul road envelope of the Castle Hill survey area. Botanica (2021) identified what may have been *E. praecox* during the 2020 surveys of the Castle Hill survey area. It wasn't flowering at the time of the survey so it was not conclusive that it was *E. praecox*. These previous records were targeted for this survey, and the areas surrounding these locations were searched for more *E. praecox* plants.

1.2 *Calandrinia lefroyensis*

Calandrinia lefroyensis is Priority 1 flora, meaning it is a poorly known species.

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.

C. lefroyensis is a semi-erect to erect perennial herb with a scrambling habit and is usually found scrambling through other plants. It grows to 135–260 mm tall and has very fleshy, narrowly obovate to obovate, occasionally broader stem leaves. It flowers and fruits from early October to mid- November, but a longer flowering/fruiting period is possible. The flowers are mid pink to dark pink (Obbens, 2018).

C. lefroyensis occurs on salt-lake flats among samphire communities. The soils are brown silty loams or brown-grey sandy clays. In general, *C. lefroyensis* appears to favour the outer edges of samphire communities including within the ecotone of adjacent communities where there are open assemblages of taller species such as *Casuarina obesa* and *Eucalyptus* spp. It has also been collected up to several hundred metres from the lake shoreline. Associated species at the known sites include *Atriplex nana*, *Maireana glomerifolia*, *Tecticornia doliiformis*, *Frankenia setosa*, *Senecio pinnatifolius* and *Austrostipa* sp (Obbens, 2018).

C. lefroyensis is known from nine populations over a range of about 180 km, from northwest of Kalgoorlie to northeast of Norseman (DBCAs, 2021).

Phoenix (2019) found what potentially was *C. lefroyensis* in an area south of the Castle Hill survey area and at two sites within the survey area. Evolution engaged Spectrum Ecology to undertake a targeted survey for *Calandrinia* species within and surrounding the Cutters Ridge Haul Road. The aim of these targeted searches was to determine the taxonomy of the *Calandrinia* species present, its local and regional extent and the potential impact of the construction of the Cutters Ridge Haul Road. Specimens recorded during this targeted *Calandrinia* survey were identified as *Calandrinia eremaea*, *C. disperma* and *C. ?hortorum*; no *C. lefroyensis* were recorded.

Evolution also engaged Spectrum Ecology to complete a Targeted Flora Survey for the two Priority 1 Flora species, *C. lefroyensis* and *C. quartzitica* in an area immediately surrounding the proposed Rayjax mine and the Mungari Operations. Three populations of *Calandrinia lefroyensis* were recorded during this survey totalling 253 individual plants. No populations of *Calandrinia quartzitica* were recorded. The plants were always found growing up through a low shrub, usually a Samphire or *Frankenia* sp and the habitat they were found in was described as salt-lake flats among samphire communities.

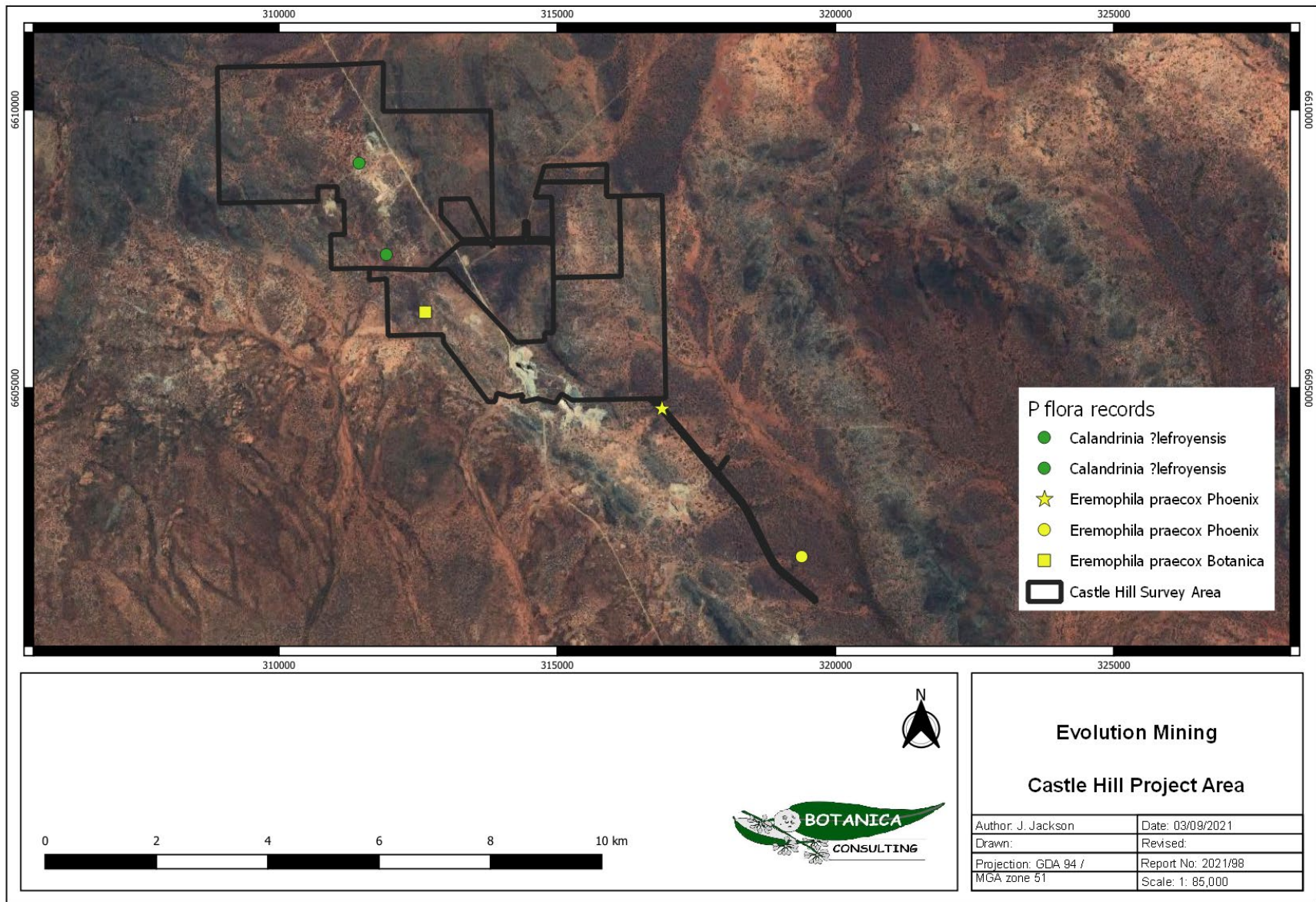


Figure 5: Priority Flora records targeted for this survey

2 Results

2.1 *Eremophila praecox*

The record from the Botanica 2020 survey (51J 312624 6606361) was revisited and was confirmed to be *Hybanthus floribundus*.

The first record from the Phoenix survey (51J 319390 6601964) was searched for and no *Eremophila praecox* were found. An area of approximately 100 m surrounding this point was searched, and no *E. praecox* were seen.

The second record (51J 316881 6604620) was revisited and two *E. praecox* plants were found growing amongst a mixed Eucalypt woodland of *Eucalyptus transcontinentalis* and *E. clelandiorum* woodland over *Eremophila scoparia*, *E. interstans* subsp. *interstans*, *E. parvifolia*, *E. ionantha*, *Senna artemisioides* subsp. *filifolia*, *Atriplex nummularia*, *Maireana sedifolia* and *Olearia muelleri*. An area of approximately 300 m surrounding these plants was searched and no more *E. praecox* were seen.

An area of the proposed Haul Road envelope was walked, and no more *E. praecox* were seen. This area was also surveyed previously by Botanica in 2020 and partly by Phoenix in 2018. The Botanica tracks traversed and locations of the *E. praecox* plants are presented in Figure 5.

2.2 *Calandrinia ?lefroyensis*

The two previous locations of *Calandrinia ?lefroyensis/quartzitica* in the Castle Hill survey area were visited. At both sites *Calandrinia eremaea* was seen. This aligns with the findings from the Spectrum memo (2019c), where the specimens collected by Spectrum were identified as *Calandrinia eremaea*, *C. disperma* and/or *C. ?hortiorum*; and no *C. lefroyensis* or *C. quartzitica* were recorded. No Samphire or Frankenia shrubs were seen in these areas, and therefore it is assumed that *C. lefroyensis* is not present at these locations. No habitat that would suit the *C. lefroyensis*, salt-lake flats among samphire communities was seen anywhere in the Castle Hill survey area.

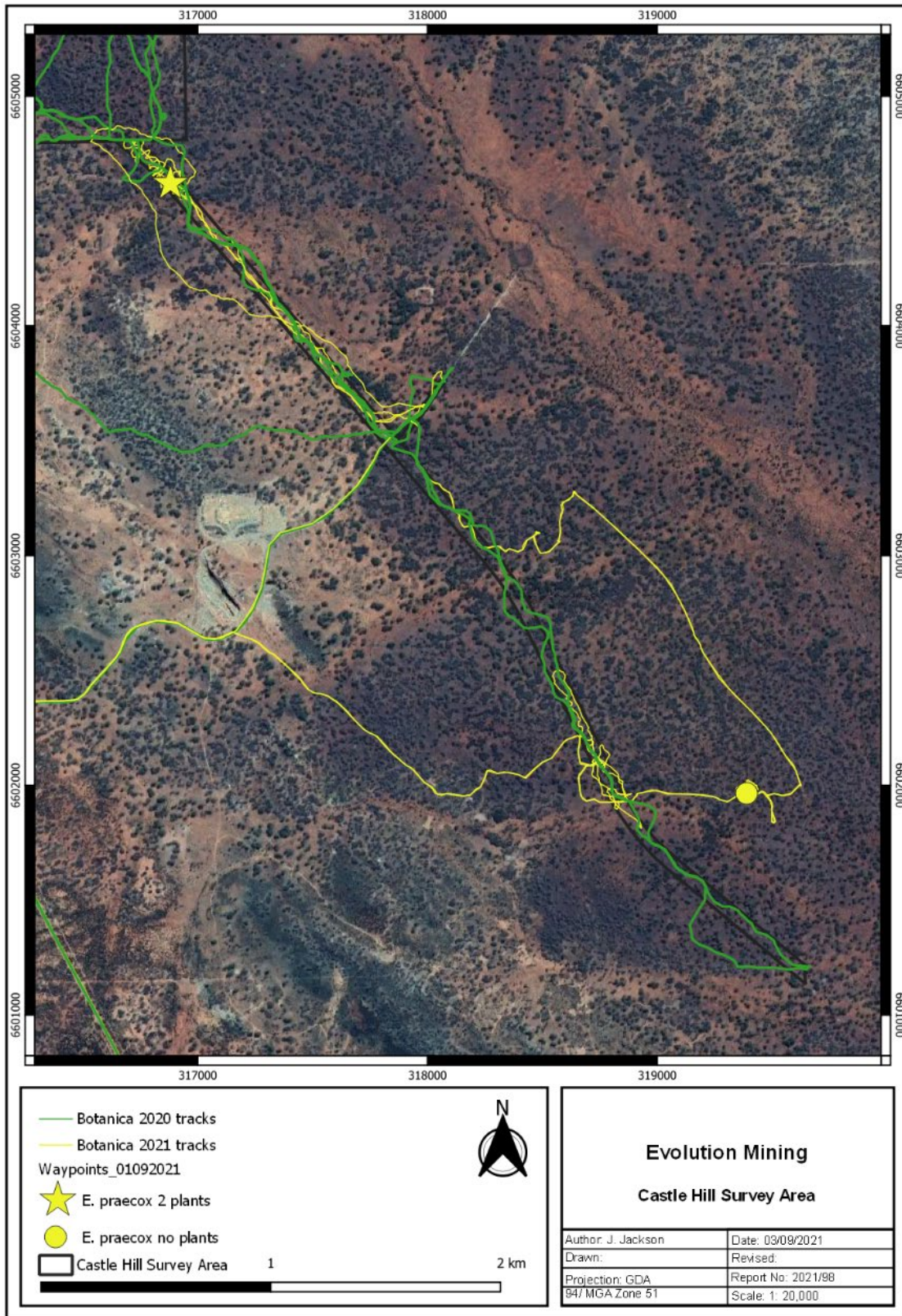


Figure 6: *Eremophila praecox* records and tracks traversed in the Haul Road envelope

3 Conclusions and Recommendations

The two plants of *Eremophila praecox* are within the proposed Haul Road and Evolution have advised this alignment can't be moved. *E. praecox* is generally only known from one or two plants in each population, and the populations known are scattered and there appears to be no consistency to its growing patterns. Given that a large area of the Castle Hill survey area has been traversed previously and no more *E. praecox* were seen, this is likely correct.

It is very unlikely that *Calandrinia lefroyensis* is present in the Castle Hill survey area given that no suitable habitat is present.

It is recommended that:

- Evolution applies to DBCA to take two plants of Priority flora *Eremophila praecox* (P2),
- Consider salvaging the plants to donate to Kalgoorlie Boulder Urban Landcare Group to grow plants from cuttings.

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Appendix J: Supporting Biodiversity Survey (Survey for the Arid Bronze Azure Butterfly and the Inland Hairstreak 2021)



Survey for the Arid Bronze Azure Butterfly and the Inland Hairstreak

Castle Hill Project



Prepared for Evolution Mining Group

July 2021

Version 1

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1 INTRODUCTION

Botanica Consulting Pty Ltd (Botanica) was commissioned by Evolution Mining Ltd. (Evolution) to undertake a survey for the Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*) and the Inland Hairstreak (*Jalmenus aridus*) within the Castle Hill Project area and proposed haul road (referred to as the ‘survey area’) (Figure 1). The survey area is approximately 2,686 ha in extent and is located approximately 36 km northwest of Kalgoorlie-Boulder, Western Australia. The survey was conducted in response to a request from the Department of Mines, Industry Regulation and Safety (DMIRS) in relation to a Native Vegetation Clearing Permit for clearing at the Castle Hill Project. DMIRS had determined that there was the potential for both the Arid Bronze Azure Butterfly (ABAB) and the Inland Hairstreak to be present in the survey area based on the presence of suitable habitat in the application area (smooth bark Eucalyptus such as *Eucalyptus salmonophloia* and *Eucalyptus salubris* for ABAB and *Acacia tetragonophylla* for the Inland Hairstreak) and their potential distribution (both species have been historically recorded from Lake Douglas). Lake Douglas is approximately 40 km southeast of the Castle Hill Project area.

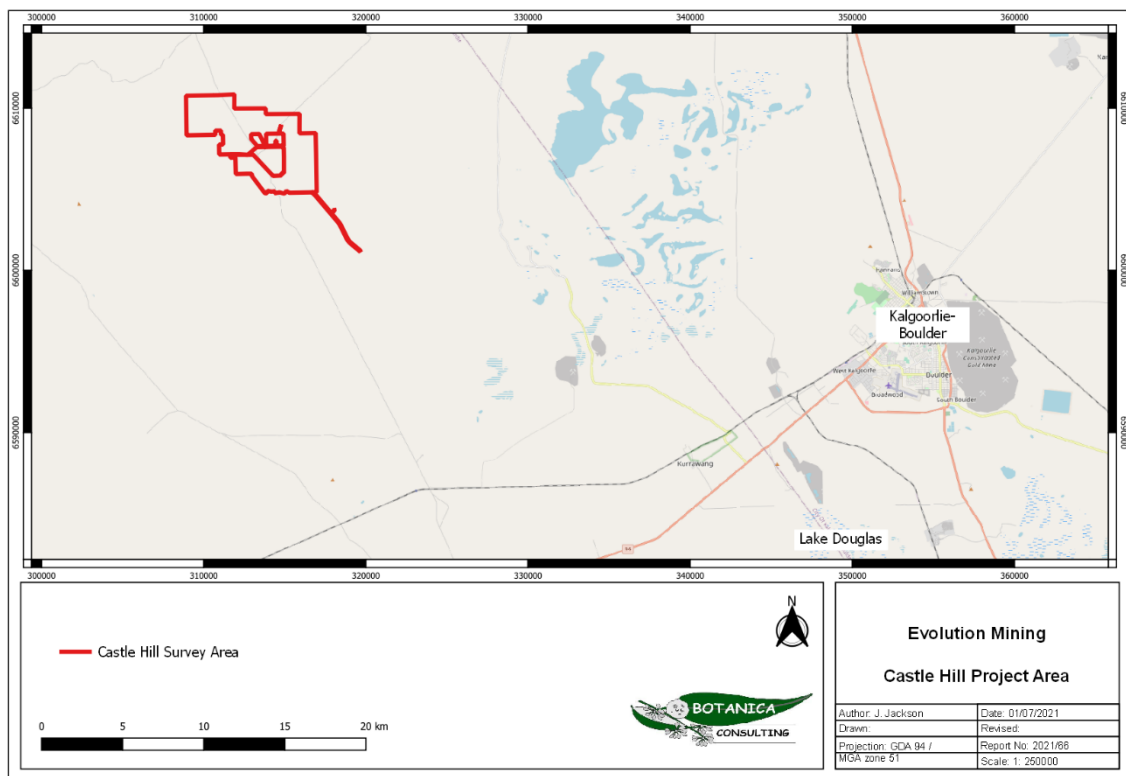


Figure 1: Regional map of the Castle Hill Project Area in relation to Kalgoorlie-Boulder and Lake Douglas

1.1 Arid Bronze Azure Butterfly

The arid bronze azure butterfly is a threatened species that is listed as critically endangered under the national *Environment Protection and Biodiversity Protection Act 1999* and the state *Biodiversity Conservation Act 2016*. The ABAB is listed due to its severely fragmented distribution with only two extant subpopulations being recorded in Western Australia. These subpopulations are at Barbalin Nature Reserve west of Mukinbudin in the Western Australian wheatbelt, and at a second site ~100 km from Barbalin. A third subpopulation (the first discovered, in the 1980s) occurred near Lake Douglas, 12 km southwest of Kalgoorlie but is now locally extinct and no ABAB have been recorded there since 1993 (DBCA, 2021a).

The ABAB has an obligate association with a sugar ant *Camponotus* sp. nr. *terebrans*. The ABAB's larvae live entirely within the ant's nest during their development. The ants protect the larvae from predators and are thought to be rewarded with secretions produced by the larvae. The most critical factor for habitat occupancy by the butterfly is the presence of large colonies of the host ant; only large colonies can support the ABAB because, being a parasitic species, it requires large numbers of hosts.

1.2 Inland Hairstreak

The Inland Hairstreak is endemic to Western Australia and is listed as Priority 1 fauna under the state *Biodiversity Conservation Act 2016*. Only 16 collections are known, 15 of these are from near Kalgoorlie, one is from the Gibson desert (ALA, 2020). It was last sighted in Western Australia at Karamindie, which is about 28 km south of Kalgoorlie (DBCA, 2021a). Little is known about its biology or ecology. Based on the historical records, the larva of this species is thought to feed on leaves and flowers of young shrubs of *Senna nemophila* (recent taxonomic revisions classify as *Senna artemisioides* subsp. *x coriacea*) and mature trees of *Acacia tetragonophylla*, which grow in shallow gullies with gentle slopes (Braby, 2016). The larvae of the butterfly are attended by the Froglet ant *Froggatella kirbii*. The adults are likely to stay close to the breeding habitats. There are likely two generations per year, although adults are absent in some years (Braby, 2016).

2 METHODS

2.1 Desktop review

Prior to the field assessment a review was undertaken of literature related to the Project area, the ABAB and the Inland Hairstreak. Documents reviewed included:

- Braby, M. (2016) *The Complete Field Guide to Butterflies of Australia*. 2nd Edition. Clayton South VIC: CSIRO Publishing.
- Botanica Consulting. (2020). Castle Hill Project, detailed flora/ vegetation survey and basic fauna survey. Prepared for Evolution Mining Ltd.
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These documents included survey guidelines for the ABAB prepared by the Department of Biodiversity, Conservation and Attractions (DBCA) and previous surveys for the ABAB. These assisted in designing a survey methodology for field assessment.

The survey protocol recommended by DBCA for the ABAB has two components:

- i) A survey to detect if the host ant is present in large numbers, and
- ii) If the ant is present, then a survey should be conducted to determine if the ABAB is present.

To survey for the host ant, sampling of smooth barked Eucalypts by disturbing the soil at the base of trees to a depth of approximately 10 cm will determine if a colony is present. Nocturnal surveys are recommended; however ants should be clearly apparent in nests when disturbed at the base of trees during the day.

The number of trees to be sampled and the approximate spacing between trees can be determined from Table 1 in the *Arid bronze azure butterfly (ABAB) survey in Western Australia*:

additional information document. For a 200 ha area to be surveyed, a minimum of 140 trees is recommended with a spacing of ~120m, for a 500 ha area to be surveyed, a minimum of 225 trees is recommended with a spacing of ~150m. Assuming that the availability of smooth barked mature Eucalypts is not a limiting factor. For this survey, a 200 m tree spacing was determined to be adequate. The plan was to traverse lines north to south through the survey area, stopping every 200 m and sampling the nearest mature smooth barked Eucalypt (e.g. *Eucalyptus salmonophloia* and *Eucalyptus salubris*). For this survey *Eucalyptus yilgarnensis* trees will also be targeted, as the *Camponotus* sp. nr. *terebrans* were found at the base of this tree in the Rayjax Project Area (Botanica, 2021).

A plan for surveying for the ABAB was not developed as this would only be done if the host ants were present, and the DBCA survey guidelines recommend these surveys are conducted in weather where the forecast maximum is $\geq 23^{\circ}\text{C}$.

For the Inland Hairstreak, there are no published survey guidelines however, this species also has an association with an ant species; *Froggattella kirbii* which can also be searched for near known habitat trees for the species (*Acacia tetragonophylla* and *Senna artemisioides* subsp. *x coriacea*).

2.2 Field assessment

Botanica conducted a targeted survey for the ABAB and the Inland Hairstreak from the 22nd to 28th June 2021, with the area traversed with an ATV by two Botanica staff members; Jennifer Jackson (Senior Environmental Consultant, BSc (Honours, Environmental Management) and Matthew Newlands (Environmental Technician).

2.3 Tree sampling

Lines were traversed north to south through the survey area, stopping approximately every 200 m and sampling the nearest mature smooth barked Eucalypt (e.g. *Eucalyptus salmonophloia* and *Eucalyptus salubris*). A handheld GPS unit was used to record the tracks traversed and the 200m spacing was determined from these handheld GPS units.

At each point, a smooth barked Eucalypt was located, and a hand trowel was used to disturb the leaf litter and soil to a depth of ~ 10 cm, and the following information was recorded:

- GPS location with a waypoint number,
- Photograph of the base of the tree,
- Tree species,
- The approximate diameter of the tree at a height of 1.5 m,
- If ants were present (Y/N), and
- If leafhoppers were present (Y/N).

Due to there being two people conducting the survey, at many points two trees were sampled.

3 RESULTS

3.1 Arid Bronze Azure Butterfly

A total of 265 trees were searched for the host ant *Camponotus* sp. nr. *terebrans*. The area covered and locations of trees sampled is shown in Figure 2.

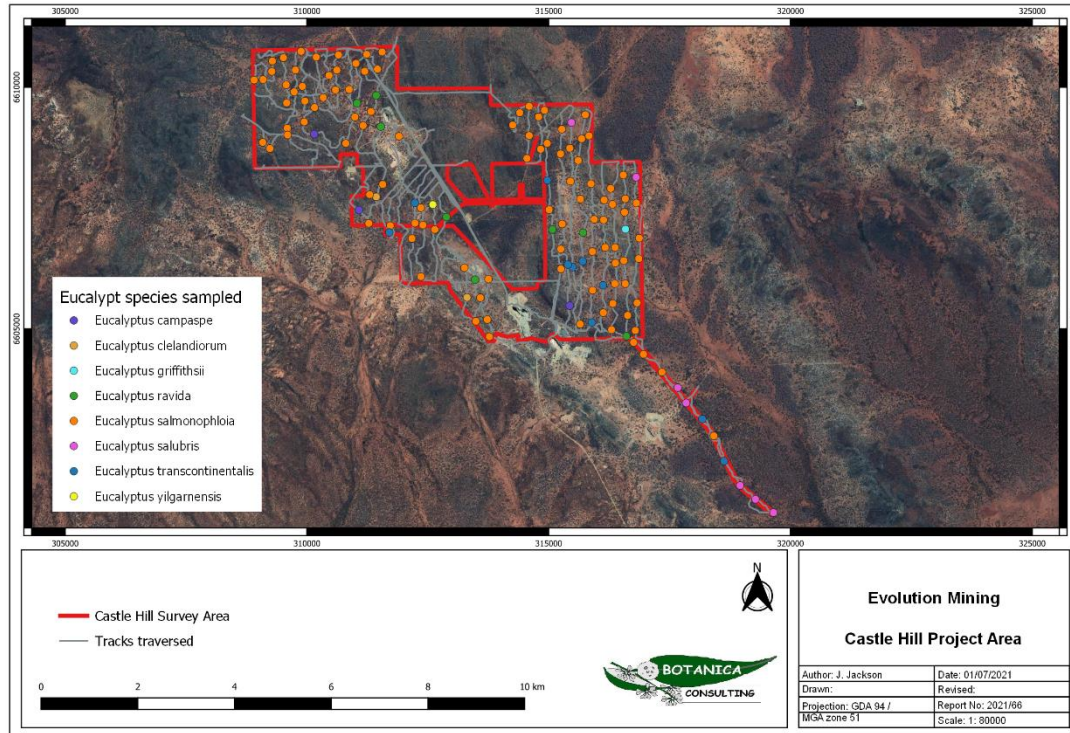


Figure 2. Map showing the tracks traversed and trees sampled within the Castle Hill survey area.

Eight species of Eucalypt trees were sampled, with the numbers of each species sampled presented in Table 1. 220 *Eucalyptus salmonophloia* were sampled, and these were the most abundant tree present throughout the survey area. Only 12 *Eucalyptus salubris* trees were sampled, and these were more abundant in the southeast haul road part of the survey area. In many areas no trees were sampled, and this was due to there not being any smooth barked Eucalypts being present in those general areas. A large area in the middle of the north of the survey area and several large areas west of the Coolgardie North Road were not traversed, as satellite imagery, previous Botanica flora surveys (Botanica, 2020) and ground truthing suggested these areas were mallee or shrub vegetation over a rocky slope. No *Camponotus* sp. nr. *terebrans* were found in the Castle Hill survey area.

Table 1. Eucalypt species sampled and the number of each sampled in the Castle Hill survey area.

Eucalypt species	# of each sampled
<i>Eucalyptus campaspe</i>	3
<i>Eucalyptus clelandiorum</i>	2
<i>Eucalyptus griffithsii</i>	1
<i>Eucalyptus ravida</i>	10
<i>Eucalyptus salmonophloia</i>	220
<i>Eucalyptus salubris</i>	12
<i>Eucalyptus transcontinentalis</i>	16
<i>Eucalyptus yilgarnensis</i>	1
Total	265

3.2 Inland Hairstreak

A total of 68 *Acacia tetragonophylla* were searched for the presence of larvae of the inland hairstreak and the ground surrounding these plants was dug up to search for any Froglet ants. No *Senna artemisioides* subsp. *x coriacea* were seen in the survey area.

Nothing that appeared to be larvae or Froglet ants were seen on any of the *Acacia tetragonophylla*.

4 SUMMARY

No *Camponotus* sp. nr. *terebrans* were found in the Castle Hill survey area. No evidence of the inland hairstreak was seen in the survey area.

The habitat in this survey area was very different to the Rayjax Project Area which was surveyed in May 2021 (Botanica 2021). There were no vegetation communities present that were similar to where the *Camponotus* sp. nr. *terebrans* was found in the Rayjax Project Area.

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Appendix 1. Raw data

Waypoint	Date	Zone	Easting	Northing	Tree species	DBH	Ants present Y/N	Photo #
2	22/06/2021	51J	6604720.57	316760.266	<i>Eucalyptus salmonophloia</i>	0.45	N	698
2	22/06/2021	51J	6604720.57	316760.266	<i>Eucalyptus salmonophloia</i>	0.6	N	
4	22/06/2021	51J	6604474.45	316963.9	<i>Eucalyptus salmonophloia</i>	0.55	N	699
4	22/06/2021	51J	6604474.45	316963.9	<i>Eucalyptus salmonophloia</i>	0.5	N	
5	22/06/2021	51J	6604104.69	317343.95	<i>Eucalyptus salmonophloia</i>	0.35	N	
5	22/06/2021	51J	6604104.69	317343.95	<i>Eucalyptus salmonophloia</i>	0.4	N	
6	22/06/2021	51J	6603784.03	317671.201	<i>Eucalyptus salmonophloia</i>	0.4	N	702
6	22/06/2021	51J	6603784.03	317671.201	<i>Eucalyptus salubris</i>	0.3	N	
7	22/06/2021	51J	6603468.09	317845.41	<i>Eucalyptus salubris</i>	.3 x3	N	703
7	22/06/2021	51J	6603468.09	317845.41	<i>Eucalyptus salubris</i>	.2 x3	N	
8	22/06/2021	51J	6603135.9	318180.201	<i>Eucalyptus salmonophloia</i>	.3 x2	N	704
8	22/06/2021	51J	6603135.9	318180.201	<i>Eucalyptus transcontinentalis</i>	0.4	N	
9	22/06/2021	51J	6602786.22	318418.485	<i>Eucalyptus salmonophloia</i>	1	N	705
9	22/06/2021	51J	6602786.22	318418.485	<i>Eucalyptus salmonophloia</i>	0.9	N	
10	22/06/2021	51J	6602264.78	318630.142	<i>Eucalyptus transcontinentalis</i>	0.3	N	706
10	22/06/2021	51J	6602264.78	318630.142	<i>Eucalyptus transcontinentalis</i>	0.25	N	
11	22/06/2021	51J	6601759.12	318962.813	<i>Eucalyptus salubris</i>	0.3	N	707
11	22/06/2021	51J	6601759.12	318962.813	<i>Eucalyptus salubris</i>	0.3	N	
12	22/06/2021	51J	6601474.5	319279.663	<i>Eucalyptus salubris</i>	0.3	N	708
12	22/06/2021	51J	6601474.5	319279.663	<i>Eucalyptus salubris</i>	0.2	N	
13	22/06/2021	51J	6601197.02	319652.52	<i>Eucalyptus salubris</i>	0.3	N	710
13	22/06/2021	51J	6601197.02	319652.52	<i>Eucalyptus salubris</i>	0.4	N	
14	22/06/2021	51J	6602966.52	318320.286	<i>Acacia tetragonophylla</i>	1	N	
15	22/06/2021	51J	6604966.31	316794.416	<i>Eucalyptus salmonophloia</i>	.25 x4	N	
15	22/06/2021	51J	6604966.31	316794.416	<i>Eucalyptus salmonophloia</i>	0.6	N	
16	22/06/2021	51J	6605538.43	316831.828	<i>Eucalyptus salmonophloia</i>	.3; .25	N	713
16	22/06/2021	51J	6605538.43	316831.828	<i>Eucalyptus salmonophloia</i>	0.4	N	
17	22/06/2021	51J	6606453.9	316866.471	<i>Eucalyptus salmonophloia</i>	.3 x3	N	714
18	22/06/2021	51J	6606878.07	316875.453	<i>Eucalyptus salmonophloia</i>	1	N	717
18	22/06/2021	51J	6606878.07	316875.453	<i>Eucalyptus salmonophloia</i>	.3; .4; .2	N	
19	22/06/2021	51J	6607605.33	316816.393	<i>Eucalyptus salmonophloia</i>	0.8	N	718
19	22/06/2021	51J	6607605.33	316816.393	<i>Eucalyptus salmonophloia</i>	.6; .3	N	
20	22/06/2021	51J	6608139.02	316811.243	<i>Eucalyptus salmonophloia</i>	0.9	N	719
20	22/06/2021	51J	6608139.02	316811.243	<i>Eucalyptus salubris</i>	0.4	N	
21	22/06/2021	51J	6608184.4	316545.961	<i>Eucalyptus salmonophloia</i>	1.2	N	721
21	22/06/2021	51J	6608184.4	316545.961	<i>Eucalyptus salmonophloia</i>	0.3	N	
22	22/06/2021	51J	6607693.36	316587.69	<i>Eucalyptus salmonophloia</i>	.2 x3	N	723
22	22/06/2021	51J	6607693.36	316587.69	<i>Eucalyptus salmonophloia</i>	0.2	N	
23	22/06/2021	51J	6607412.33	316571.388	<i>Eucalyptus salmonophloia</i>	0.7	N	724
23	22/06/2021	51J	6607412.33	316571.388	<i>Eucalyptus salmonophloia</i>	.3 x3	N	
24	22/06/2021	51J	6607062.74	316592.299	<i>Eucalyptus salmonophloia</i>	0.65	N	725
24	22/06/2021	51J	6607062.74	316592.299	<i>Eucalyptus griffithsii</i>	0.4	N	

25	22/06/2021	51J	6606411.68	316555.371	<i>Eucalyptus salmonophloia</i>	0.35	N	726
25	22/06/2021	51J	6606411.68	316555.371	<i>Eucalyptus salmonophloia</i>	0.6	N	
26	22/06/2021	51J	6605935.28	316584.772	<i>Eucalyptus salmonophloia</i>	1.3	N	727
26	22/06/2021	51J	6605935.28	316584.772	<i>Eucalyptus salmonophloia</i>	.8; .6	N	
27	22/06/2021	51J	6605279.39	316635.347	<i>Eucalyptus salmonophloia</i>	0.3	N	731
27	22/06/2021	51J	6605279.39	316635.347	<i>Eucalyptus salmonophloia</i>	.2 x4	N	
28	22/06/2021	51J	6604848.01	316612.702	<i>Eucalyptus salmonophloia</i>	1.3	N	732
28	22/06/2021	51J	6604848.01	316612.702	<i>Eucalyptus ravida</i>	0.25	N	
29	22/06/2021	51J	6605017.24	316004.181	<i>Acacia tetragonophylla</i>	1	N	
30	23/06/2021	51J	6604925.37	316305.357	<i>Acacia tetragonophylla</i>	1	N	
31	23/06/2021	51J	6604983.42	316301.97	<i>Eucalyptus salmonophloia</i>	.3 x2	N	734
31	23/06/2021	51J	6604983.42	316301.97	<i>Eucalyptus salmonophloia</i>	.5; .2	N	
32	23/06/2021	51J	6605022.89	316282.702	<i>Acacia tetragonophylla</i>	1	N	
33	23/06/2021	51J	6605524.12	316330.308	<i>Eucalyptus salmonophloia</i>	0.5	N	735
33	23/06/2021	51J	6605524.12	316330.308	<i>Eucalyptus salmonophloia</i>	0.6	N	
34	23/06/2021	51J	6605868.39	316388.171	<i>Acacia tetragonophylla</i>	1	N	
35	23/06/2021	51J	6605935.15	316368.916	<i>Eucalyptus salmonophloia</i>	0.6	N	736
36	23/06/2021	51J	6606362.31	316384.343	<i>Eucalyptus salmonophloia</i>	.7; .3	N	737
36	23/06/2021	51J	6606362.31	316384.343	<i>Eucalyptus salmonophloia</i>	.7 x2	N	
37	23/06/2021	51J	6606684.59	316375.106	<i>Eucalyptus salmonophloia</i>	0.6	N	738
37	23/06/2021	51J	6606684.59	316375.106	<i>Eucalyptus salmonophloia</i>	0.6	N	
38	23/06/2021	51J	6607578.29	316322.854	<i>Eucalyptus salmonophloia</i>	1	N	739
38	23/06/2021	51J	6607578.29	316322.854	<i>Eucalyptus salmonophloia</i>	1	N	
39	23/06/2021	51J	6607906.84	316284.461	<i>Eucalyptus salmonophloia</i>	0.65	N	740
39	23/06/2021	51J	6607906.84	316284.461	<i>Eucalyptus salmonophloia</i>	.3 x2	N	
40	23/06/2021	51J	6607667.8	316149.341	<i>Eucalyptus salmonophloia</i>	0.6	N	741
40	23/06/2021	51J	6607667.8	316149.341	<i>Eucalyptus salmonophloia</i>	0.5	N	
41	23/06/2021	51J	6607255.58	316138.263	<i>Eucalyptus salmonophloia</i>	.4 x3	N	742
41	23/06/2021	51J	6607255.58	316138.263	<i>Eucalyptus salmonophloia</i>	1	N	
42	23/06/2021	51J	6606684.79	316172.553	<i>Eucalyptus salmonophloia</i>	.3; .6; .4	N	743
42	23/06/2021	51J	6606684.79	316172.553	<i>Eucalyptus salmonophloia</i>	0.4	N	
43	23/06/2021	51J	6606343.43	316227.175	<i>Acacia tetragonophylla</i>	6	N	
44	23/06/2021	51J	6606292.83	316205.034	<i>Acacia tetragonophylla</i>	1	N	
45	23/06/2021	51J	6605901.84	316126.405	<i>Eucalyptus transcontinentalis</i>	.4; .2	N	744
45	23/06/2021	51J	6605901.84	316126.405	<i>Eucalyptus transcontinentalis</i>	0.3	N	
46	23/06/2021	51J	6605335.78	316131.958	<i>Eucalyptus salmonophloia</i>	0.45	N	745
46	23/06/2021	51J	6605335.78	316131.958	<i>Eucalyptus salmonophloia</i>	.3 x2	N	
47	23/06/2021	51J	6604974.28	316104.88	<i>Acacia tetragonophylla</i>	4	N	
48	23/06/2021	51J	6605131.84	315897.174	<i>Eucalyptus salmonophloia</i>	0.7	N	746
48	23/06/2021	51J	6605131.84	315897.174	<i>Eucalyptus transcontinentalis</i>	0.5	N	
50	23/06/2021	51J	6605799.57	315910.092	<i>Eucalyptus salmonophloia</i>	0.9	N	747
50	23/06/2021	51J	6605799.57	315910.092	<i>Eucalyptus salmonophloia</i>	0.4	N	
51	23/06/2021	51J	6606599.65	315907.427	<i>Eucalyptus salmonophloia</i>	0.8	N	748
51	23/06/2021	51J	6606599.65	315907.427	<i>Eucalyptus salmonophloia</i>	0.6	N	
52	23/06/2021	51J	6607267.24	315944.802	<i>Eucalyptus salmonophloia</i>	1.1	N	749
52	23/06/2021	51J	6607267.24	315944.802	<i>Eucalyptus salmonophloia</i>	0.4	N	

53	23/06/2021	51J	6608003	315876.714	<i>Eucalyptus salmonophloia</i>	0.75	N	750
53	23/06/2021	51J	6608003	315876.714	<i>Eucalyptus salmonophloia</i>	0.3	N	
54	23/06/2021	51J	6608098.39	315897.996	<i>Acacia tetragonophylla</i>	1	N	
55	23/06/2021	51J	6608995.23	315835.011	<i>Eucalyptus salmonophloia</i>	0.8	N	751
55	23/06/2021	51J	6608995.23	315835.011	<i>Eucalyptus salmonophloia</i>	0.5	N	
56	23/06/2021	51J	6609431.06	315760.92	<i>Eucalyptus salmonophloia</i>	1.3	N	752
56	23/06/2021	51J	6609431.06	315760.92	<i>Eucalyptus salmonophloia</i>	0.4	N	
57	23/06/2021	51J	6608935.55	315684.638	<i>Eucalyptus salmonophloia</i>	0.7	N	753
57	23/06/2021	51J	6608935.55	315684.638	<i>Eucalyptus salmonophloia</i>	0.8	N	
58	23/06/2021	51J	6608486.14	315613.041	<i>Eucalyptus salmonophloia</i>	0.45	N	755
58	23/06/2021	51J	6608486.14	315613.041	<i>Eucalyptus salmonophloia</i>	0.7	N	
59	23/06/2021	51J	6607688.25	315658.82	<i>Eucalyptus salmonophloia</i>	.6 x3	N	756
60	23/06/2021	51J	6606990.72	315712.273	<i>Eucalyptus salmonophloia</i>	0.8	N	757
60	23/06/2021	51J	6606990.72	315712.273	<i>Eucalyptus ravida</i>	0.3	N	
61	23/06/2021	51J	6606399.96	315706.956	<i>Eucalyptus transcontinentalis</i>	0.55	N	758
61	23/06/2021	51J	6606399.96	315706.956	<i>Eucalyptus transcontinentalis</i>	0.2	N	
62	23/06/2021	51J	6606226.52	315718.937	<i>Acacia tetragonophylla</i>	1	N	
63	23/06/2021	51J	6605485.29	315674.316	<i>Acacia tetragonophylla</i>	2	N	
64	23/06/2021	51J	6605098.61	315653.147	<i>Eucalyptus salmonophloia</i>	0.6	N	759
64	23/06/2021	51J	6605098.61	315653.147	<i>Eucalyptus salmonophloia</i>	0.5	N	
66	23/06/2021	51J	6606276.94	315497.223	<i>Eucalyptus salmonophloia</i>	1	N	761
66	23/06/2021	51J	6606276.94	315497.223	<i>Eucalyptus transcontinentalis</i>	0.5	N	
67	23/06/2021	51J	6606605.44	315449.317	<i>Acacia tetragonophylla</i>	1	N	
68	23/06/2021	51J	6608055.63	315453.693	<i>Eucalyptus salmonophloia</i>	0.65	N	763
68	23/06/2021	51J	6608055.63	315453.693	<i>Eucalyptus salmonophloia</i>	0.25	N	
69	23/06/2021	51J	6608739.4	315438.522	<i>Eucalyptus salmonophloia</i>	0.9	N	764
69	23/06/2021	51J	6608739.4	315438.522	<i>Eucalyptus salmonophloia</i>	1	N	
70	23/06/2021	51J	6609271.58	315474.468	<i>Eucalyptus salubris</i>	0.3	N	765
70	23/06/2021	51J	6609271.58	315474.468	<i>Eucalyptus salubris</i>	0.25	N	
71	23/06/2021	51J	6609282.34	315280.601	<i>Acacia tetragonophylla</i>	1	N	
72	23/06/2021	51J	6609132.54	315274.157	<i>Eucalyptus salmonophloia</i>	0.7	N	766
72	23/06/2021	51J	6609132.54	315274.157	<i>Eucalyptus salmonophloia</i>	0.3	N	
73	23/06/2021	51J	6608621.57	315246.775	<i>Eucalyptus salmonophloia</i>	0.5	N	767
73	23/06/2021	51J	6608621.57	315246.775	<i>Eucalyptus salmonophloia</i>	0.6	N	
74	23/06/2021	51J	6607170.48	315280.302	<i>Eucalyptus salmonophloia</i>	0.8	N	768
74	23/06/2021	51J	6607170.48	315280.302	<i>Eucalyptus salmonophloia</i>	0.3	N	
75	23/06/2021	51J	6606650.94	315251.067	<i>Eucalyptus salmonophloia</i>	0.8	N	769
76	23/06/2021	51J	6606241.18	315254.555	<i>Eucalyptus salmonophloia</i>	0.7	N	770
76	23/06/2021	51J	6606241.18	315254.555	<i>Eucalyptus salmonophloia</i>	0.3	N	
77	23/06/2021	51J	6605934.11	315213.914	<i>Acacia tetragonophylla</i>	1	N	
78	23/06/2021	51J	6605366.92	315115.732	<i>Acacia tetragonophylla</i>	1	N	
79	23/06/2021	51J	6605106.05	315117.724	<i>Acacia tetragonophylla</i>	1	N	
80	24/06/2021	51J	6605171.13	315400.98	<i>Acacia tetragonophylla</i>	2	N	
81	24/06/2021	51J	6605480.88	315436.592	<i>Eucalyptus salmonophloia</i>	0.4	N	
81	24/06/2021	51J	6605480.88	315436.592	<i>Eucalyptus campaspe</i>	0.25	N	
82	24/06/2021	51J	6606332.36	315399.074	<i>Eucalyptus transcontinentalis</i>	.2 x2	N	771

82	24/06/2021	51J	6606332.36	315399.074	<i>Eucalyptus transcidentalis</i>	0.3	N	
83	24/06/2021	51J	6607056.82	315079.983	<i>Eucalyptus ravida</i>	0.3	N	772
83	24/06/2021	51J	6607056.82	315079.983	<i>Eucalyptus ravida</i>	0.2	N	
84	24/06/2021	51J	6607467.03	315011.964	<i>Eucalyptus salmonophloia</i>	0.9	N	773-4
84	24/06/2021	51J	6607467.03	315011.964	<i>Eucalyptus salmonophloia</i>	0.3	N	
85	24/06/2021	51J	6607729.93	315038.029	<i>Acacia tetragonophylla</i>	1	N	
86	24/06/2021	51J	6608074.99	314973.14	<i>Eucalyptus transcidentalis</i>	0.7	N	775
86	24/06/2021	51J	6608074.99	314973.14	<i>Eucalyptus transcidentalis</i>	0.3	N	
87	24/06/2021	51J	6608839.39	314971.415	<i>Eucalyptus salmonophloia</i>	0.5	N	777
87	24/06/2021	51J	6608839.39	314971.415	<i>Eucalyptus salmonophloia</i>	.3 x2	N	
88	24/06/2021	51J	6609524.25	314916.406	<i>Eucalyptus salmonophloia</i>	0.7	N	778
89	24/06/2021	51J	6609387.76	314794.103	<i>Eucalyptus salmonophloia</i>	0.75	N	780
89	24/06/2021	51J	6609387.76	314794.103	<i>Eucalyptus salmonophloia</i>	0.9	N	
90	24/06/2021	51J	6608719.18	314835.225	<i>Eucalyptus salmonophloia</i>	0.8	N	781
90	24/06/2021	51J	6608719.18	314835.225	<i>Eucalyptus salmonophloia</i>	0.4	N	
91	24/06/2021	51J	6608424.2	314614.606	<i>Acacia tetragonophylla</i>	2	N	
92	24/06/2021	51J	6608527.81	314552.612	<i>Eucalyptus salmonophloia</i>	1	N	782
92	24/06/2021	51J	6608527.81	314552.612	<i>Eucalyptus salmonophloia</i>	0.7	N	
93	24/06/2021	51J	6608999.76	314599.425	<i>Eucalyptus salmonophloia</i>	0.8	N	783
93	24/06/2021	51J	6608999.76	314599.425	<i>Eucalyptus salmonophloia</i>	0.7	N	
94	24/06/2021	51J	6609607.25	314597.791	<i>Eucalyptus salmonophloia</i>	1	N	784
94	24/06/2021	51J	6609607.25	314597.791	<i>Eucalyptus salmonophloia</i>	0.4	N	
95	24/06/2021	51J	6609472.5	314402.779	<i>Eucalyptus salmonophloia</i>	0.8	N	785
95	24/06/2021	51J	6609472.5	314402.779	<i>Eucalyptus salmonophloia</i>	0.5	N	
96	24/06/2021	51J	6609217.84	314257.206	<i>Eucalyptus salmonophloia</i>	0.6	N	786
96	24/06/2021	51J	6609217.84	314257.206	<i>Eucalyptus salmonophloia</i>	0.5	N	
97	24/06/2021	51J	6610156.82	311570.14	<i>Acacia tetragonophylla</i>	1	N	
98	24/06/2021	51J	6610884.33	311830.061	<i>Acacia tetragonophylla</i>	1	N	
99	24/06/2021	51J	6610730.64	311557.038	<i>Eucalyptus salmonophloia</i>	1	N	787
99	24/06/2021	51J	6610730.64	311557.038	<i>Eucalyptus salmonophloia</i>	0.6	N	
100	24/06/2021	51J	6610681.23	311236.261	<i>Eucalyptus salmonophloia</i>	.6; .4	N	788
100	24/06/2021	51J	6610681.23	311236.261	<i>Eucalyptus salmonophloia</i>	0.3	N	
101	24/06/2021	51J	6610375.14	311461.701	<i>Eucalyptus salmonophloia</i>	0.65	N	789
101	24/06/2021	51J	6610375.14	311461.701	<i>Eucalyptus salmonophloia</i>	0.7	N	
102	24/06/2021	51J	6604838.96	313775.906	<i>Eucalyptus salmonophloia</i>	1	N	790
102	24/06/2021	51J	6604838.96	313775.906	<i>Eucalyptus salmonophloia</i>	0.8	N	
103	24/06/2021	51J	6605193.46	313731.717	<i>Eucalyptus salmonophloia</i>	0.9	N	791-2
103	24/06/2021	51J	6605193.46	313731.717	<i>Eucalyptus salmonophloia</i>	0.6	N	
104	24/06/2021	51J	6606029.95	313756.341	<i>Eucalyptus salmonophloia</i>	1	N	793
104	24/06/2021	51J	6606029.95	313756.341	<i>Eucalyptus salmonophloia</i>	0.7	N	
105	24/06/2021	51J	6606019.27	313478.74	<i>Eucalyptus ravida</i>	0.25	N	794
105	24/06/2021	51J	6606019.27	313478.74	<i>Eucalyptus ravida</i>	0.25	N	
106	24/06/2021	51J	6605644.82	313587.888	<i>Eucalyptus salmonophloia</i>	0.9	N	795
106	24/06/2021	51J	6605644.82	313587.888	<i>Eucalyptus salmonophloia</i>	0.8	N	
107	24/06/2021	51J	6605159.35	313496.908	<i>Eucalyptus salmonophloia</i>	.3 x2	N	796
107	24/06/2021	51J	6605159.35	313496.908	<i>Eucalyptus salmonophloia</i>	0.3	N	

108	24/06/2021	51J	6605651.49	313314.021	<i>Eucalyptus salmonophloia</i>	0.6	N	797
108	24/06/2021	51J	6605651.49	313314.021	<i>Eucalyptus clelandiorum</i>	0.3	N	
109	24/06/2021	51J	6606264.59	313258.042	<i>Eucalyptus salmonophloia</i>	0.4	N	798
109	24/06/2021	51J	6606264.59	313258.042	<i>Eucalyptus salmonophloia</i>	0.6	N	
1	25/06/2021	51J	6606837.75	312670.908	<i>Acacia tetragonophylla</i>	1	N	
2	25/06/2021	51J	6607314.06	312885.125	<i>Eucalyptus salmonophloia</i>	0.3	N	799
2	25/06/2021	51J	6607314.06	312885.125	<i>Eucalyptus ravida</i>	multi	N	
3	25/06/2021	51J	6607464.42	312776.386	<i>Acacia tetragonophylla</i>	1	N	
4	25/06/2021	51J	6607572.22	312605.589	<i>Eucalyptus salmonophloia</i>	0.9	N	800
4	25/06/2021	51J	6607572.22	312605.589	<i>Eucalyptus yilgarnensis</i>	0.2	N	
5	25/06/2021	51J	6607056.66	312647.062	<i>Eucalyptus salmonophloia</i>	0.8	N	801
5	25/06/2021	51J	6607056.66	312647.062	<i>Eucalyptus salmonophloia</i>	0.5	N	
6	25/06/2021	51J	6606945.12	312615.644	<i>Acacia tetragonophylla</i>	2	N	
7	25/06/2021	51J	6606852	312623.208	<i>Acacia tetragonophylla</i>	1	N	
8	25/06/2021	51J	6605987.26	312664.242	<i>Acacia tetragonophylla</i>	1	N	
9	25/06/2021	51J	6606082.98	312359.862	<i>Eucalyptus salmonophloia</i>	0.8	N	802
9	25/06/2021	51J	6606082.98	312359.862	<i>Eucalyptus salmonophloia</i>	.3 x2	N	
10	25/06/2021	51J	6606363.19	312284.232	<i>Acacia tetragonophylla</i>	1	N	
11	25/06/2021	51J	6607149.06	312400.326	<i>Eucalyptus salmonophloia</i>	1.4	N	803-4
11	25/06/2021	51J	6607149.06	312400.326	<i>Eucalyptus salmonophloia</i>	0.7	N	
12	25/06/2021	51J	6607507.34	312356.789	<i>Eucalyptus salmonophloia</i>	.4 x5	N	805
12	25/06/2021	51J	6607507.34	312356.789	<i>Eucalyptus salmonophloia</i>	0.7	N	
13	25/06/2021	51J	6607607.11	312234.254	<i>Eucalyptus salmonophloia</i>	0.75	N	806
13	25/06/2021	51J	6607607.11	312234.254	<i>Eucalyptus transcontinentalis</i>	0.5	N	
14	25/06/2021	51J	6607189.11	312236.273	<i>Eucalyptus salmonophloia</i>	0.9	N	808
14	25/06/2021	51J	6607189.11	312236.273	<i>Eucalyptus salmonophloia</i>	.3 x3	N	
15	25/06/2021	51J	6606869.55	312173.113	<i>Eucalyptus salmonophloia</i>	.3 x3	N	809
15	25/06/2021	51J	6606869.55	312173.113	<i>Eucalyptus salmonophloia</i>	.3 x2	N	
16	25/06/2021	51J	6606277.93	312151.518	<i>Acacia tetragonophylla</i>	6	N	
17	25/06/2021	51J	6606786.42	311965.775	<i>Acacia tetragonophylla</i>	1	N	
18	25/06/2021	51J	6607501.9	311873.513	<i>Acacia tetragonophylla</i>	1	N	
19	25/06/2021	51J	6608377.52	312265.593	<i>Acacia tetragonophylla</i>	1	N	
20	25/06/2021	51J	6608160.2	312030.941	<i>Acacia tetragonophylla</i>	3	N	
21	25/06/2021	51J	6607136.37	311724.407	<i>Eucalyptus salmonophloia</i>	0.7	N	810
21	25/06/2021	51J	6607136.37	311724.407	<i>Eucalyptus salmonophloia</i>	0.2	N	
22	25/06/2021	51J	6606995.96	311703.568	<i>Eucalyptus salmonophloia</i>	0.6	N	811
22	25/06/2021	51J	6606995.96	311703.568	<i>Eucalyptus transcontinentalis</i>	0.6	N	
23	25/06/2021	51J	6608985.86	311905.018	<i>Eucalyptus salmonophloia</i>	0.7	N	812-13
23	25/06/2021	51J	6608985.86	311905.018	<i>Eucalyptus salmonophloia</i>	0.4	N	
24	25/06/2021	51J	6609183.34	311530.594	<i>Eucalyptus salmonophloia</i>	0.5	N	814
24	25/06/2021	51J	6609183.34	311530.594	<i>Eucalyptus ravida</i>	0.5	N	
25	25/06/2021	51J	6607989.78	311568.738	<i>Eucalyptus salmonophloia</i>	0.7	N	815
25	25/06/2021	51J	6607989.78	311568.738	<i>Eucalyptus salmonophloia</i>	0.3	N	
26	25/06/2021	51J	6607732.76	311436.045	<i>Eucalyptus salmonophloia</i>	0.8	N	816
26	25/06/2021	51J	6607732.76	311436.045	<i>Eucalyptus clelandiorum</i>	0.7	N	
27	25/06/2021	51J	6607185.83	311281.788	<i>Eucalyptus salmonophloia</i>	0.6	N	817

27	25/06/2021	51J	6607185.83	311281.788	<i>Eucalyptus salmonophloia</i>	0.6	N	
28	25/06/2021	51J	6607461.14	311078.417	<i>Eucalyptus salmonophloia</i>	0.7	N	818-19
28	25/06/2021	51J	6607461.14	311078.417	<i>Eucalyptus campaspe</i>	0.6	N	
29	25/06/2021	51J	6607735.45	310963.446	<i>Acacia tetragonophylla</i>	6	N	
30	25/06/2021	51J	6607779.06	311300.629	<i>Eucalyptus salmonophloia</i>	0.6	N	
30	25/06/2021	51J	6607779.06	311300.629	<i>Eucalyptus salmonophloia</i>	0.6	N	820
31	25/06/2021	51J	6608897.41	311058.105	<i>Acacia tetragonophylla</i>	3	N	
32	25/06/2021	51J	6609209.19	311163.862	<i>Eucalyptus salmonophloia</i>	0.8	N	
32	25/06/2021	51J	6609209.19	311163.862	<i>Eucalyptus salmonophloia</i>	0.4	N	
33	25/06/2021	51J	6609498.56	311326.305	<i>Eucalyptus salmonophloia</i>	0.7	N	
33	25/06/2021	51J	6609498.56	311326.305	<i>Eucalyptus salmonophloia</i>	0.6	N	
34	25/06/2021	51J	6609830.47	311435.752	<i>Eucalyptus salmonophloia</i>	0.4	N	
34	25/06/2021	51J	6609830.47	311435.752	<i>Eucalyptus ravida</i>	0.2	N	
35	25/06/2021	51J	6610329.94	311197.919	<i>Eucalyptus salmonophloia</i>	0.8	N	
35	25/06/2021	51J	6610329.94	311197.919	<i>Eucalyptus salmonophloia</i>	0.6	N	
36	25/06/2021	51J	6610492.96	311015.449	<i>Eucalyptus salmonophloia</i>	0.7	N	
36	25/06/2021	51J	6610492.96	311015.449	<i>Eucalyptus salmonophloia</i>	0.5	N	
37	25/06/2021	51J	6610409.27	311004.642	<i>Acacia tetragonophylla</i>	3	N	
38	25/06/2021	51J	6609670.11	311036.017	<i>Eucalyptus salmonophloia</i>	0.8	N	
38	25/06/2021	51J	6609670.11	311036.017	<i>Eucalyptus ravida</i>	.2 x5	N	
39	25/06/2021	51J	6609385.29	310994.412	<i>Eucalyptus salmonophloia</i>	.6; .2; .3	N	
39	25/06/2021	51J	6609385.29	310994.412	<i>Eucalyptus salmonophloia</i>	0.25	N	
40	25/06/2021	51J	6608838.54	310805.819	<i>Eucalyptus salmonophloia</i>	.3 x4	N	
40	25/06/2021	51J	6608838.54	310805.819	<i>Eucalyptus salmonophloia</i>	.2 x2	N	
41	25/06/2021	51J	6609029.3	310152.664	<i>Eucalyptus salmonophloia</i>	0.6	N	
41	25/06/2021	51J	6609029.3	310152.664	<i>Eucalyptus campaspe</i>	0.4	N	
42	25/06/2021	51J	6609283.38	309947.4	<i>Eucalyptus salmonophloia</i>	0.7	N	
42	25/06/2021	51J	6609283.38	309947.4	<i>Eucalyptus salmonophloia</i>	0.6	N	
43	25/06/2021	51J	6609581.51	310159.137	<i>Eucalyptus salmonophloia</i>	0.9	N	
43	25/06/2021	51J	6609581.51	310159.137	<i>Eucalyptus salmonophloia</i>	0.8	N	
44	25/06/2021	51J	6609954.04	310875.118	<i>Eucalyptus salmonophloia</i>	0.6	N	
44	25/06/2021	51J	6609954.04	310875.118	<i>Eucalyptus salmonophloia</i>	0.75	N	
45	25/06/2021	51J	6610669.78	310653.306	<i>Eucalyptus salmonophloia</i>	0.7	N	
45	25/06/2021	51J	6610669.78	310653.306	<i>Eucalyptus salmonophloia</i>	0.7	N	
46	28/06/2021	51J	6610354.2	310621.643	<i>Eucalyptus transcontinentalis</i>	0.7	N	
46	28/06/2021	51J	6610354.2	310621.643	<i>Eucalyptus salmonophloia</i>	0.7	N	
47	28/06/2021	51J	6609946.2	310593.046	<i>Eucalyptus salmonophloia</i>	0.7	N	
47	28/06/2021	51J	6609946.2	310593.046	<i>Eucalyptus salmonophloia</i>	0.3	N	
48	28/06/2021	51J	6609916.93	310612.164	<i>Acacia tetragonophylla</i>	2	N	
49	28/06/2021	51J	6609787.6	310338.848	<i>Eucalyptus salmonophloia</i>	0.7	N	
49	28/06/2021	51J	6609787.6	310338.848	<i>Eucalyptus salmonophloia</i>	0.5	N	
50	28/06/2021	51J	6610244.69	310459.876	<i>Eucalyptus salmonophloia</i>	0.65	N	
50	28/06/2021	51J	6610244.69	310459.876	<i>Eucalyptus salmonophloia</i>	0.3	N	
51	28/06/2021	51J	6610623.91	310194.857	<i>Eucalyptus salmonophloia</i>	0.6	N	
51	28/06/2021	51J	6610623.91	310194.857	<i>Eucalyptus salmonophloia</i>	0.7	N	
52	28/06/2021	51J	6610232.94	310258.704	<i>Acacia tetragonophylla</i>	3	N	

53	28/06/2021	51J	6609715.82	309959.332	<i>Eucalyptus salmonophloia</i>	0.4	N	
53	28/06/2021	51J	6609715.82	309959.332	<i>Eucalyptus salmonophloia</i>	0.7	N	
54	28/06/2021	51J	6610019.95	309907.747	<i>Eucalyptus salmonophloia</i>	0.6	N	
54	28/06/2021	51J	6610019.95	309907.747	<i>Eucalyptus salmonophloia</i>	0.2	N	
55	28/06/2021	51J	6610744	309880.494	<i>Eucalyptus salmonophloia</i>	0.5	N	
55	28/06/2021	51J	6610744	309880.494	<i>Eucalyptus salmonophloia</i>	0.3	N	
56	28/06/2021	51J	6610357.63	309765.138	<i>Eucalyptus salmonophloia</i>	0.5	N	
56	28/06/2021	51J	6610357.63	309765.138	<i>Eucalyptus salmonophloia</i>	1.1	N	
57	28/06/2021	51J	6609905.73	309737.349	<i>Eucalyptus salmonophloia</i>	0.7	N	
57	28/06/2021	51J	6609905.73	309737.349	<i>Eucalyptus salmonophloia</i>	0.7	N	
58	28/06/2021	51J	6609154.64	309595.662	<i>Eucalyptus salmonophloia</i>	1	N	
59	28/06/2021	51J	6609014.15	309602.173	<i>Eucalyptus salmonophloia</i>	0.9	N	
59	28/06/2021	51J	6609014.15	309602.173	<i>Eucalyptus salmonophloia</i>	0.7	N	
60	28/06/2021	51J	6608733.78	309236.066	<i>Eucalyptus salmonophloia</i>	0.8	N	
60	28/06/2021	51J	6608733.78	309236.066	<i>Eucalyptus salmonophloia</i>	0.7	N	
61	28/06/2021	51J	6608860.11	309087.607	<i>Eucalyptus salmonophloia</i>	0.7	N	
61	28/06/2021	51J	6608860.11	309087.607	<i>Eucalyptus salmonophloia</i>	0.6	N	
62	28/06/2021	51J	6610160.06	309095.734	<i>Eucalyptus salmonophloia</i>	.4 x2	N	
62	28/06/2021	51J	6610160.06	309095.734	<i>Eucalyptus salmonophloia</i>	1	N	
63	28/06/2021	51J	6610150.33	308909.391	<i>Eucalyptus salmonophloia</i>	1.1	N	
63	28/06/2021	51J	6610150.33	308909.391	<i>Eucalyptus salmonophloia</i>	0.5	N	
64	28/06/2021	51J	6610328.02	309275.633	<i>Eucalyptus salmonophloia</i>	0.9	N	
64	28/06/2021	51J	6610328.02	309275.633	<i>Eucalyptus salmonophloia</i>	0.7	N	
65	28/06/2021	51J	6610543.33	309286.015	<i>Eucalyptus salmonophloia</i>	0.8	N	
65	28/06/2021	51J	6610543.33	309286.015	<i>Eucalyptus salmonophloia</i>	0.9	N	
66	28/06/2021	51J	6610611.47	309514.966	<i>Eucalyptus salmonophloia</i>	0.7	N	
66	28/06/2021	51J	6610611.47	309514.966	<i>Eucalyptus salmonophloia</i>	0.7	N	
67	28/06/2021	51J	6610050.07	309572.261	<i>Eucalyptus salmonophloia</i>	0.8	N	
67	28/06/2021	51J	6610050.07	309572.261	<i>Eucalyptus salmonophloia</i>	0.6	N	
68	28/06/2021	51J	6609676.24	309583.087	<i>Eucalyptus salmonophloia</i>	0.75	N	

*Note, the number in the DBH column for *Acacia tetragonophylla* is the number of plants sampled at that point.