Deflector Project
Reconnaissance Flora/ Vegetation and Basic Fauna Survey

Prepared for Silver Lake (Deflector) Pty Ltd.

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Version 1

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Glossary

Acronym	Description
BAM Act	*Biosecurity and Agriculture Management Act 2007*, WA Government.
BC Act	*Biodiversity Conservation Act 2016*, 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	*Environment Protection and Biodiversity Conservation Act 1999*, 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	*Japan Australia Migratory Bird Agreement 1981.*
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 Silver Lake (Deflector) Pty Ltd. (Silver Lake) to undertake a reconnaissance flora/ vegetation survey and basic fauna survey within the Deflector Project area (referred to as 'survey area'). The survey area is 1,350 ha in extent and is located approximately 50 km south-west of Yalgoo in the Shire of Yalgoo, Western Australia. The survey was conducted within tenements L59/35, L59/50, L59/175, M59/49, M59/68, M59/294, M59/335, M59/336, M59/391 and M59/522 to support a Native Vegetation Clearing Permit (NVCP) application and mining proposal with regards to further development of the Deflector Project. The survey was conducted from the 15th to 16th September 2020, with the area traversed on foot and 4WD by Jim Williams (Director/Principal Botanist, Diploma of Horticulture) and Michelle Luinstra (Graduate Environmental Consultant, BSc. Biology).

The survey area lies within the Tallering (YAL02) subregion, one of two components of the Yalgoo Bioregion as defined by the Interim Biogeographic Regionalisation of Australia (IBRA). The Yalgoo is regarded as an interzone between the South-western and Murchison bioregions. Vegetation is characterised by low woodlands to open woodlands of *Eucalyptus*, *Acacia* and *Callitris* on red sandy plains of the Western Yilgarn Craton and southern Carnarvon Basin. The Yalgoo bioregion is characterised by a landscape of sand and alluvial plains, low ranges and lakes. Mulga or Bowgada shrublands dominate in the east, with western parts including sand plains, heathlands and some Eucalypt shrublands. The subregion is particularly rich in ephemeral species. There are two wetlands of national importance within the region, and two considered to have subregional significance. There are twelve Pre-European vegetation associations which have at least 85% of their extent within the region (Desmond & Chant, 2001).

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 (2019). *Desktop Flora, Vegetation & Fauna Assessment - Deflector Gold Project (M59-442)*. Prepared for Silver Lake Resources, May 2019
- Stantec (2017b). *Deflector Gold Mine - Level 1 Flora, Vegetation and Fauna Survey Rev 1*. Prepared for Doray Minerals Ltd., October 2017
- Mattiske (2012). *Flora and Vegetation Survey of The Gullewa Survey Area. Rev 3*. Prepared for Woolard Consulting on behalf of on behalf of Mutiny Gold Ltd., May 2012
- Ninox Wildlife Consulting (2012). *Level 1 Vertebrate Fauna Assessment of the Gullewa Copper-Gold Project*. Prepared for Woolard Consulting on behalf of on behalf of Mutiny Gold Ltd., May 2012

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 Database Search (DBCA, 2020a);
- DBCA Threatened/ Priority Flora Database Search (DBCA, 2020b)
- DBCA NatureMap database (DBCA, 2020c); and
- EPBC Protected Matters search tool (DAWE, 2020a).

The desktop review identified 479 vascular flora species as occurring within 40 km of the survey area, representing 327 genera from 66 families. The most diverse families were Asteraceae (76 species), Fabaceae (74 species) and Myrtaceae (57 species). Significant genera were *Acacia* (52 species) *Eremophila* (28 species) and *Grevillea* (18 species).

The desktop review identified 29 introduced flora (weed) species as potentially occurring in the vicinity of the survey area. These species consist of nine families, with the most commonly represented being Poaceae (11 species), Asteraceae (six species) and Brassicaceae (three species). Of these, two are listed as both a Declared Pest on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management* (BAM) *Act 2007,* and a Weed of National Significance

Assessment of the DBCA, NatureMap and Protected Matters database searches and previous relevant literature identified 39 significant flora species recorded within a 40 km radius of the survey area. These consist of ten Threatened, seven Priority 1, three Priority 2, 14 Priority 3 and five 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 five taxa as likely to occur in the survey area, consisting of three Priority 3, and two Priority 4 taxa. Ten taxa were assessed as possibly occurring in the survey area, consisting of two Threatened, two Priority 1, two Priority 2 and four Priority 3.

A total of 191 fauna taxa have been recorded within a 40 km radius of the survey area, consisting of 125 bird, eight mammal, 39 reptile, six amphibian and 13 invertebrate taxa.

The desktop review identified 12 fauna species of conservation significance as previously being recorded in the regional area, consisting of six Threatened, one Priority 3, three Priority 4 and two migratory or otherwise protected species. In addition, numerous migratory wading/shorebirds were assessed collectively due to their similar habitat requirements. A further two species identified are no longer listed. 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 five significant fauna species as potentially occurring in the survey area.

The Protected Matters search (DAWE, 2020a) did not identify any Threatened Ecological Communities recorded within 40 km of the survey area. The DBCA Ecological Communities database search identified the Priority 1 Ecological Community, *Gullewa vegetation complexes (banded ironstone formation)* as occurring in the south-west of the survey area. This vegetation complex is associated with the Buddadoo Range, Edamura Range, Mugga Mugga Hill and Murdaburia Hill.

There are no vested Conservation Reserves located within the survey area. However, the survey area is located within the ex. Barnong Station former leasehold (LR3074/589), which is listed as Unallocated Crown Land proposed for conservation which is managed by DBCA.

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 field survey identified 65 flora taxa within the survey area, including five introduced (weed) species. These taxa represented 40 genera across 20 families, with the most diverse genera being *Acacia* (11 species), *Ptilotus* (four species) and *Maireana* (four species).

No Threatened or Priority flora species were recorded within the survey area.

A total of four vegetation communities were identified within the survey area. Vegetation community descriptions and extents were determined from field survey results, aerial imagery interpretation and extrapolation of the communities. The survey found RP-AOW1 was the most widespread community in the survey area, occupying 752 ha (55.9%), while Outcrop-AS1 was the most restricted with 32 ha (2.4%).

No Threatened Ecological Communities were identified within the survey area. The Priority 1 Ecological Community 'Gullewa BIF' was identified as likely occurring in the survey area, and is associated with vegetation community, Outcrop-AS1.

Based on vegetation and associated landforms identified during the flora and vegetation assessment, the broad scale terrestrial fauna habitat *Acacia* shrubland was identified as occurring over the entirety of the survey area. No evidence of significant fauna species were observed during the survey, including no evidence of Malleefowl nesting mounds or other activity.

Native vegetation within the survey area was rated as 'good', which describes obvious signs of damage caused by human activity since European settlement, including impacts to vegetation structure and composition from low levels of grazing, changed fire regimes and/or slightly aggressive weeds. Cleared areas associated with current mining operations and road infrastructure/ easements were rated as 'completely degraded'.

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 principles (f) and (h).

1 INTRODUCTION

1.1 Project Description

Botanica Consulting (Botanica) was commissioned by Silver Lake (Deflector) Pty Ltd. (Silver Lake) to undertake a reconnaissance flora/ vegetation survey and basic fauna survey within the Deflector Project area (referred to as 'survey area') (Figure 1-1). The survey area is 1,350 ha in extent and is located approximately 50 km south-west of Yalgoo in the Shire of Yalgoo, Western Australia. The survey was conducted within tenements L59/35, L59/50, L59/175, M59/49, M59/68, M59/294, M59/335, M59/336, M59/391 and M59/522 (Figure 1-2) to support a Native Vegetation Clearing Permit (NVCP) application and mining proposal with regards to further development of the Deflector Project.

1.2 Objectives

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

- gather background information on flora and vegetation in the target area (literature review, database and map-based searches);
- identify significant flora, vegetation and ecological communities and assess the potential sensitivity to impact;
- conduct a field survey to verify / ground truth the desktop assessment findings;
- 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;
- assess the project area's plant species diversity, density, composition, structure and weed cover, using NVIS classification system for vegetation description;
- 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 of the project to the Commonwealth DAWE; and
- determine the State legislative context of environmental aspects required for the assessment.

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.

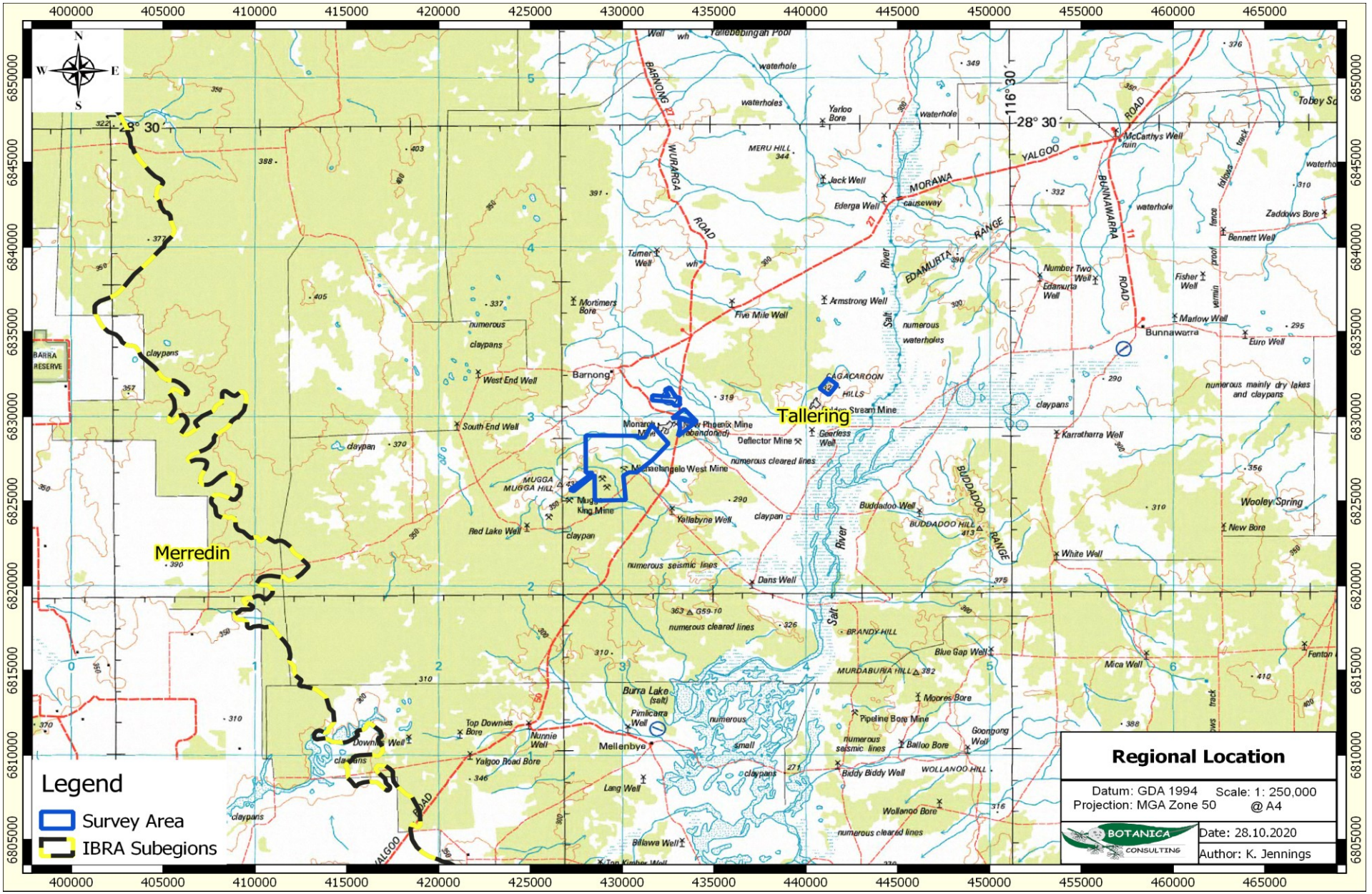


Figure 1-1: Regional map of the survey area

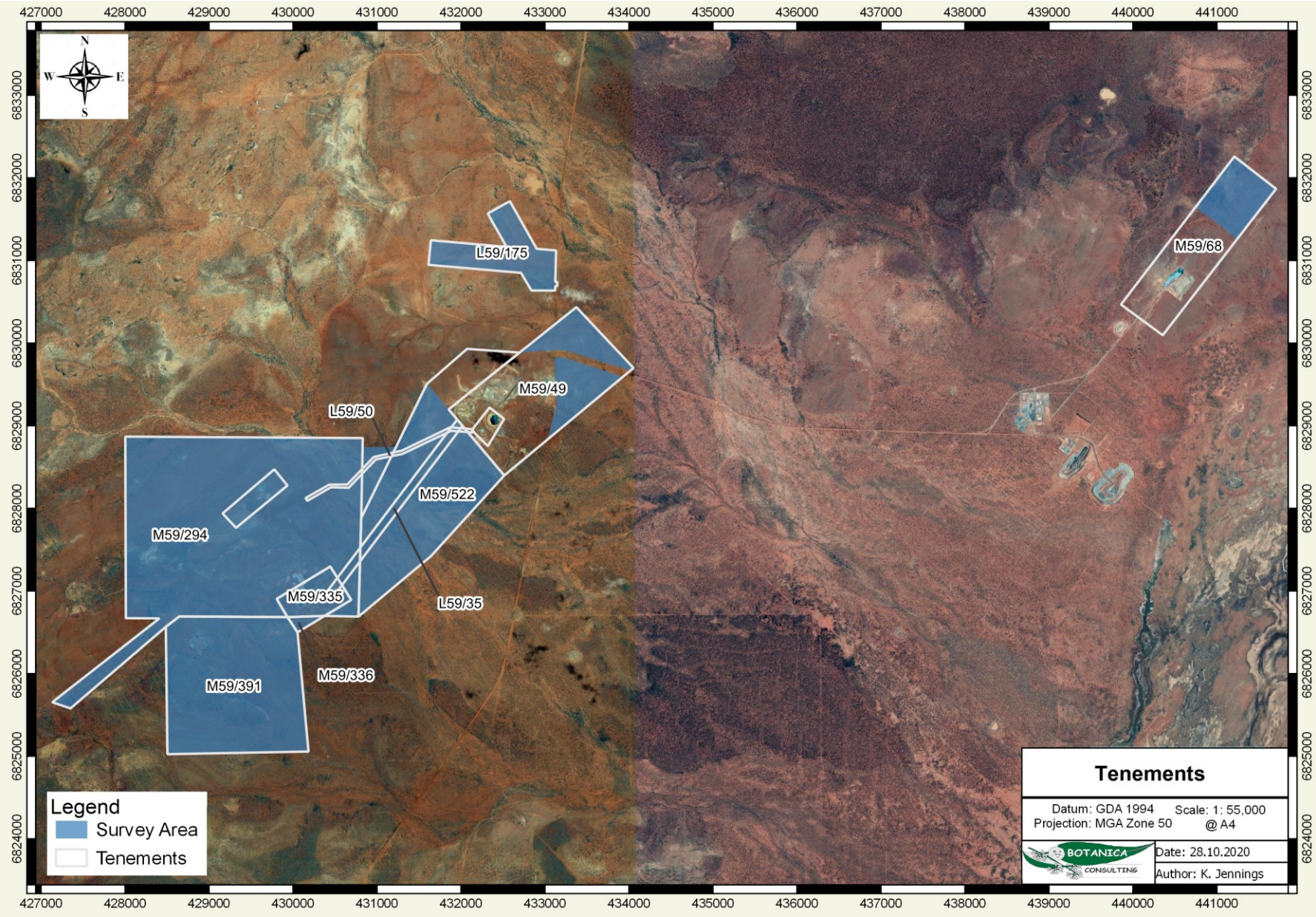


Figure 1-2: Survey area and associated tenements

2 BIOPHYSICAL ENVIRONMENT

2.1 Regional Environment

The survey area lies within the Tallering (YAL02) subregion, one of two components of the Yalgoo Bioregion as defined by the Interim Biogeographic Regionalisation of Australia (IBRA). The Yalgoo is regarded as an interzone between the South-western and Murchison bioregions. Vegetation is characterised by low woodlands to open woodlands of *Eucalyptus*, *Acacia* and *Callitris* on red sandy plains of the Western Yilgarn Craton and southern Carnarvon Basin. The Yalgoo bioregion is characterised by a landscape of sand and alluvial plains, low ranges and lakes. Mulga or Bowgada shrublands dominate in the east, with western parts including sand plains, heathlands and some Eucalypt shrublands. The subregion is particularly rich in ephemeral species. There are two wetlands of national importance within the region, and two considered to have subregional significance. There are twelve Pre-European vegetation associations which have at least 85% of their extent within the region (Desmond & Chant, 2001).

In accordance with Beard (1990), the survey area is located in Austin Botanical District of the Eremaean Province of WA. It is defined by the vegetational expression of geological boundaries of the Yilgarn Block, described as Archaean granite with infolded volcanics and meta-sediments (greenstones) of a like age. The topography is undulating, with occasional ranges of low hills and extensive sandplains in the eastern half. The principal soil type is shallow earthy loam overlying red-brown hardpan, with shallow stony loams on hills and red earthy sands on sandplains. The western half of the region more or less coincides with the basin of the Murchison River, the eastern half embraces the drainage of former rivers, now dry, draining towards the Eucla Basin. Vegetation is predominantly mulga low woodland *(Acacia aneura)* on plains, reduced to scrub on hills, with a tree steppe of *Eucalyptus* spp. and *Triodia basedowii* on sandplains. The climate is arid, with summer and winter rains and an average annual precipitation of 200 mm.

2.2 Land Use

The dominant land uses of the Yalgoo subregion include grazing native pastures (77.0%), conservation (10.2%) and unallocated crown reserves (9.3%). Mining operations occupy a relatively small portion of the region, but are currently increasing in occurrence and extent. The survey area is located within the ex. Barnong Station former leasehold (LR3074/589), which is listed as Unallocated Crown Land proposed for conservation which is managed by DBCA.

2.3 Soils and Landscape Systems

The survey area lies within the Murchison Province, which consists of hardpan wash plains and sandplains (with some stony plains, hills, mesas and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton. The Murchison Province is located in the inland Mid-west and northern Goldfields between three Springs, the Gascoyne River, Wiluna, Cosmo Newberry and Menzies Soil types consist of red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams with some red shallow sands and red shallow sandy duplexes present. Vegetation communities are predominately Mulga shrublands with spinifex grasslands, with areas of bowgada shrublands, Eucalypt woodlands and halophytic shrublands (Tille, 2006).

The Murchison Province is further divided into seven soil-landscape zones, with the survey area located within the Karrara Hills, Plains and Lakes Zone (270). It is described as hills and ranges, sandy plains, hardpan wash plains, stony plains and salt lakes (with some mesas and plains) on greenstone and granitic rocks of the Yilgarn Craton. Soils consist of red shallow loams, red loamy earths, red deep sands and salt lake soils with some red shallow sands, stony soils and red shallow sandy duplexes. Vegetation consists of bowgada-mulga-jam woodlands (with some halophytic shrublands and York gum-salmon gum woodlands). It is located in the southwestern Murchison between Morawa, Paynes Find and Yalgoo. This area is separated from the Yalgoo Plain and Irwin River Zones due to a preponderance of rangeland land types characterized by hills and ranges with acacia shrublands, low hills with eucalypt or acacia woodlands with halophytic undershrubs and sandy plains with acacia shrublands and wanderrie grasses. Greenstone is a prominent feature of the underlying geology (as opposed to the other two zones that are dominated by granite intrusions and gneiss).

The Karrara Hills, Plains and Lakes Zone is further divided into soil landscape systems, with the survey area located within six soil landscape systems, as shown in Table 2-1 and Figure 2-1, in accordance with soil landscape system mapping data (Government of Western Australia, 2019).

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

Soil Landscape System	Description	Extent within Survey Area
Challenge System	Gently undulating gritty and sandy surfaced plains, occasional granite hills, tors and low breakaways, supporting acacia shrublands and occasional halophytic shrublands.	19 ha (1.4%)
Tindalarra System	Near level hardpan wash plains, narrow drainage lines and moderately saline drainage floors; supporting tall mixed acacia shrublands with wanderrie grasses, also minor saltbush/bluebush low shrublands.	221 ha (16.4%)
Jundee System	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands.	197 ha (14.6%)
Gabanintha System	Greenstone ridges, hills and footslopes supporting sparse acacia and other mainly non-halophytic shrublands.	454 ha (33.7%)
Gransal System	Stony plains and low rises based on granite supporting mainly halophytic low shrublands.	71 ha (5.3%)
Violet System	Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supporting groved mulga and bowgada shrublands and occasionally chenopod shrublands.	383 ha (28.5%)

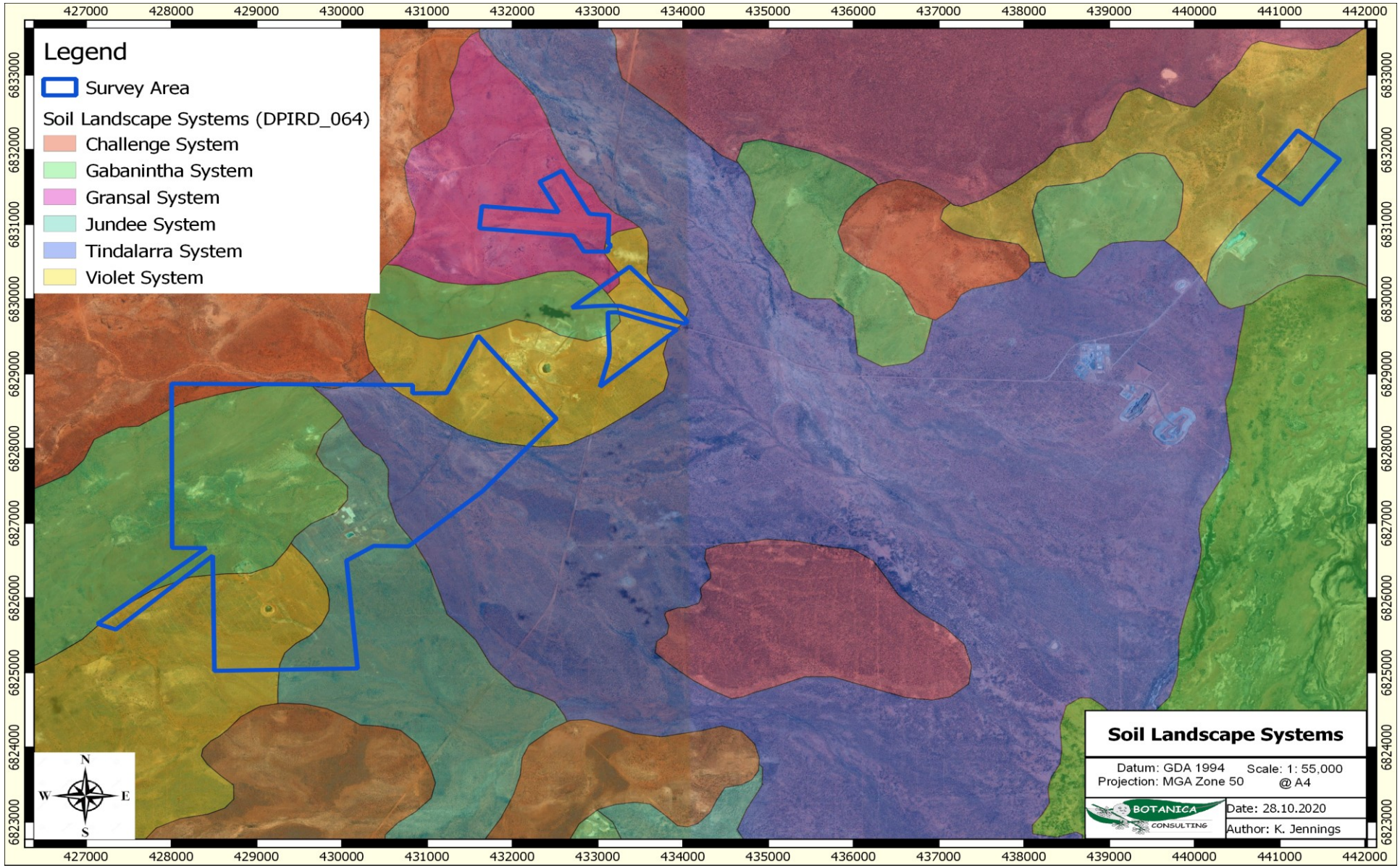


Figure 2-1: Soil Landscape Systems within the survey area

2.4 Regional Vegetation

The vegetation of the Murchison Province is described by Tille (2006) as Mulga (*Acacia aneura*) shrublands and woodlands with gidgee (*A. pruinocarpa*), kurara (*A. tetragonophylla*), *A. linophylla,* bowgada (*A. ramulosa*), jam (*A. acuminata*), minniritchie (*A. grasbyi*), *Senna* spp. and *Eremophila* spp. which dominate the hardpan wash plains. Denser, taller mulga woodlands are found on groves while the sandy banks support mulga, bowgada and kurara shrublands with an understorey of wanderrie grasses (*Eragrostis* and *Eriachne* spp. and *Monachather paradoxa*). Snakewood (*A. xiphophylla*), bluebush (*Maireana* spp.) and saltbush (*Atriplex* spp.) grow on the saline drainage tracts.

The sandplains in the east support grasslands of hard spinifex (*Triodia basedowii*). These grasslands occur with an open tree and shrub steppe of mulga, marble gum (*Eucalyptus gongylocarpa*), mallees (*E. kingsmillii*, *E. longissima*, *E. comitae-vallis* and *E. youngiana*), bowgada and spinifex wattle (*A. coolgardiensis*). In places denser woodlands of mulga, spinifex wattle or mallee are found over the spinifex. On western sandplains shrublands are dominated by bowgada with cypress pine (*Callitris columellaris*), mallees (*e.g. E. leptopoda* and *E. kingsmillii*), mulga and *Grevillea* spp. On the yellow sandplains in the south-west are closed mixed shrublands with *Melaleuca*, *Hakea*, *Calothamnus*, *Baeckea*, *Banksia prionotes*, *Allocasuarina*. and *Acacia* spp. The mesas have bowgada, mulga and *A. linophylla* shrublands above the breakaways, while the footslopes support shrublands with saltbush (*Atriplex* spp.), *Frankenia* spp., *Ptilotus* spp. and *Eremophila pterocarpa*. The hilly terrain has shrublands of mulga, minniritchie, *Eremophila* spp. and cotton bush (*Ptilotus obovatus*). Hills in the far west have woodlands of York gum (*Eucalyptus loxophleba*), salmon gum (*E. salmonophloia*) and jam (*Acacia acuminata).* The stony plains support shrublands of mulga, gidgee, granite wattle (*Acacia quadrimarginea*), minniritchie, prickly wattle, snakewood, jam and *Eremophila* spp. in the valley floors there are shrublands of samphire (*Halosarcia* spp.), saltbush, sage (*Cratystylis subspinescens*) and *Frankenia* spp. surrounding salt lakes. Floodplains along the Murchison and its tributaries have shrublands of bluebush (*Maireana* spp.), saltbush and *Frankenia* spp., as well as mulga, prickly wattle and *Acacia distans* (Tille, 2006)

2.5 Conservation Values

There are two wetlands of national importance within the region, and two considered to have subregional significance. There are twelve Pre-European vegetation associations which have at least 85% of their extent within the region (Desmond & Chant, 2001).

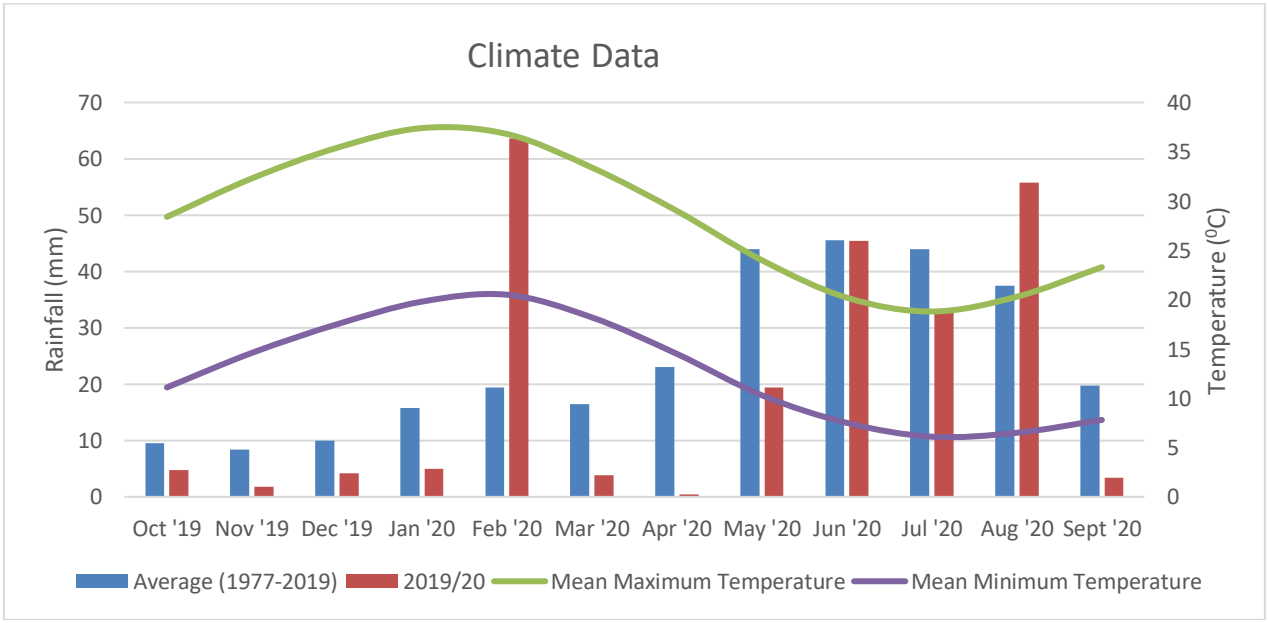
The Yalgoo Bioregion contains 12 vegetation associations that have at least 85 per cent of their total extent in the bioregion. The Bioregion is rich and diverse in flora and fauna but most species are wide ranging and usually occur in adjoining regions. The region is particularly rich in ephemeral species.

There are two wetlands of national importance in the bioregion Thundelarra Lignum Swamp and Wagga Wagga Salt Lake. There are two wetlands considered to be of regional importance: Lake Moore and Lake Monger.

No ecosystems listed as threatened under WA State legislation occur within the Yalgoo Bioregion, numerous communities and vegetation associations are thought to be at risk for a variety of reasons. Grazing from livestock, goats and rabbits and changed fire regimes are the main threatening processes in the region (Desmond & Chant, 2001).

2.6 Climate

The climate of the Tallering subregion is characterised as Mediterranean, semi-arid to arid and warm (Desmond and Chant, 2001). Rainfall data for the Nindethana Farm (#8271) and temperature data for Morawa Airport (#8296), located approximately 30 km south-east and 60 km south of the survey area respectively, is shown in Graph 2-1. Mean monthly rainfall ranges from 45.5 mm in June to 8.4 mm in November, with a mean annual rainfall of 294.4 mm. Rainfall in this region is considered to be episodic and highly variable. The survey was conducted in October 2020, with the preceding months recording small but significant rainfall events. Climate conditions are unlikely to be a major survey constraint for the presence of flowering material and ephemeral species.



Graph 2-1: Rainfall and temperature data of Nindethana Farm (#8271) and Morawa Airport (#8296) (BoM, 2020)

2.7 Hydrology

According to the Geoscience Australia database (2015), there are no permanent or ephemeral inland waters within the survey area. Numerous ephemeral drainage lines occur throughout 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. In accordance with the BoM *Atlas of Groundwater Dependent Ecosystems* (BoM, 2020b) database, there are no potential terrestrial or aquatic GDE's within the survey area.

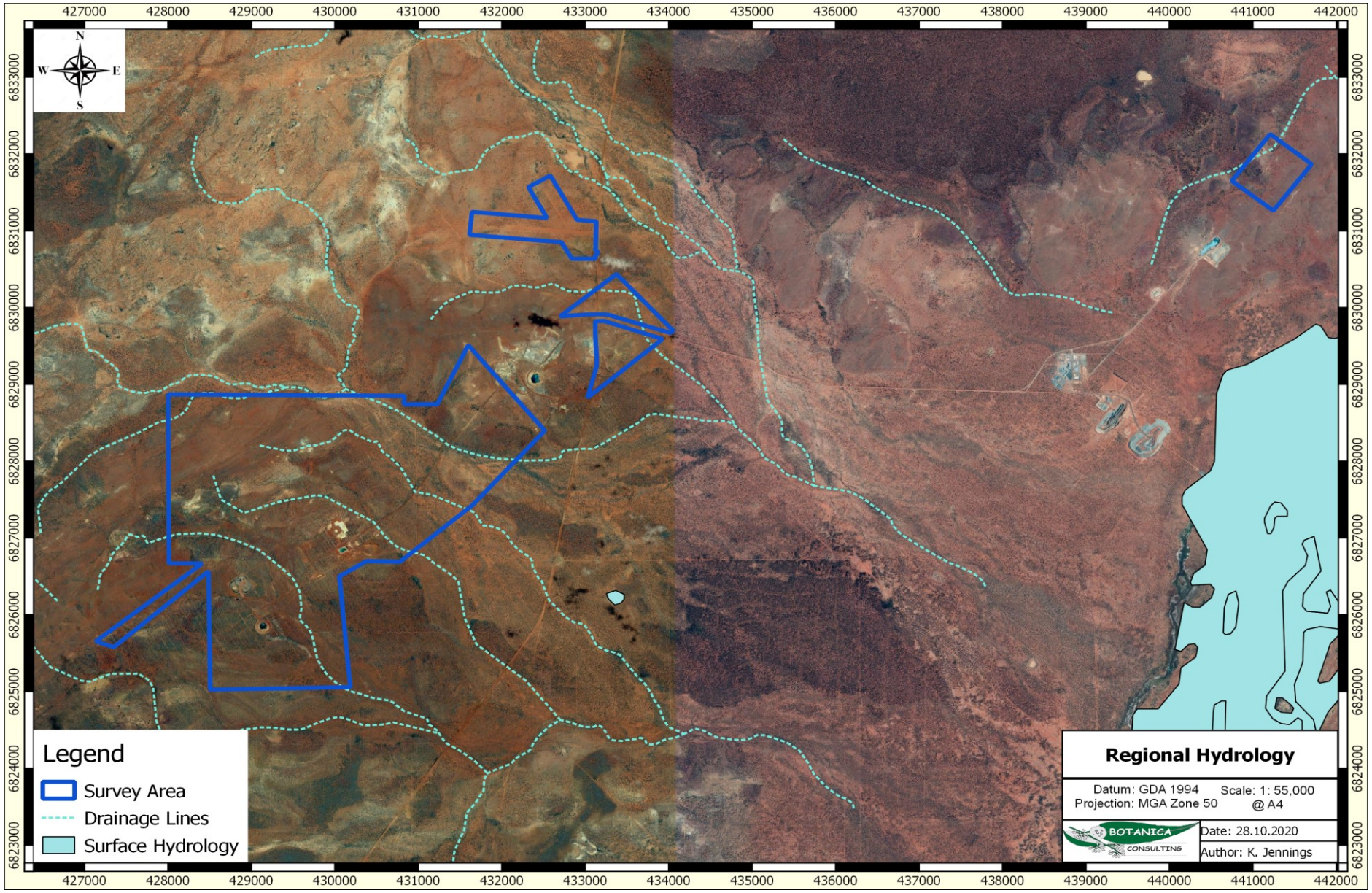


Figure 2-2: Surface Hydrology of the survey area

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 (2019). *Desktop Flora, Vegetation & Fauna Assessment - Deflector Gold Project (M59-442)*. Prepared for Silver Lake Resources, May 2019
- Stantec (2017b). *Deflector Gold Mine - Level 1 Flora, Vegetation and Fauna Survey Rev 1*. Prepared for Doray Minerals Ltd., October 2017
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- Ninox Wildlife Consulting (2012). *Level 1 Vertebrate Fauna Assessment of the Gullewa Copper-Gold Project.* Prepared for Woolard Consulting on behalf of on behalf of Mutiny Gold Ltd., May 2012

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 Database Search (DBCA, 2020a);
- DBCA Threatened/ Priority Flora Database Search (DBCA, 2020b)
- DBCA NatureMap database (DBCA, 2020c); 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 (100 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 January 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 reconnaissance flora/ vegetation and basic fauna survey from the 15th to 16th September 2020, with the area traversed on foot and 4WD by Jim Williams (Director/Principal Botanist, Diploma of Horticulture) and Michelle Luinstra (Graduate Environmental Consultant, BSc. Biology).

3.2.1 Flora Assessment

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 existing vegetation communities. At each sample point, the following information was recorded:

- GPS location;
- Photograph of vegetation;
- Dominant taxa for each stratum;
- All vascular taxa (including annual taxa);
- Landform classification;
- Vegetation condition rating;
- Collection and documentation of unknown plant specimens; and
- GPS location, photograph and collection of flora of conservation significance if encountered.

Unknown specimens collected during the survey were identified with the aid of samples housed at the Botanica Herbarium and Western Australian Herbarium. Vegetation was classified in accordance with NVIS classifications.

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

3.2.2 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 utilising the areas that may be impacted during site development. The habitat information obtained was also used to aid in finalising 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 utilising 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.

3.2.3 Scientific Licences

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

Licensed staff	Permit Number	Valid Until
Jim Williams	FB62000108 (Licence to flora for scientific purposes)	27/05/2022

3.3 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 4WD 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:** Jim Williams **Data Interpretation:** Jim Williams, Kelby Jennings.
Timing of survey, weather & season	Minor constraint	Fieldwork was undertaken outside EPA's recommended primary survey time period (i.e., 6-8 weeks post wet season (March – June) for the Eremaean Province. However, survey work was conducted following above average rainfall received in August and during optimal flowering period for many flora taxa.
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 reconnaissance 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. All observed flora individuals were able to be 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 479 vascular flora species as occurring within 40 km of the survey area, representing 327 genera from 66 families. The most diverse families were Asteraceae (76 species), Fabaceae (74 species) and Myrtaceae (57 species). Significant genera were *Acacia* (52 species) *Eremophila* (28 species) and *Grevillea* (18 species). This total includes 20 introduced (weed) species.

4.1.1.1 Introduced Flora

The desktop review identified 30 introduced flora (weed) species as potentially occurring in the vicinity of the survey area. These species consist of ten families, with the most commonly represented being Poaceae (11 species), Asteraceae (six species) and Brassicaceae (three species). Of these, two are listed as both a Declared Pest on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management* (BAM) *Act 2007,* and a Weed of National Significance (Table 4-1). No other significant weed species were identified.

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

Table 4-1: Potentially occurring Declared Pests and WoNS

Family	Taxon	Common Name	WAOL Status	Control Category	WONS
Asteraceae	*Chrysanthemoides monilifera*	Bitou Bush, Boneseed	C1	Prohibited, Whole of State	Yes
Tamaricaceae	*Tamarix aphylla*		Exempt	No Control Category	Yes

4.1.1.2 Significant Flora

The assessment of the DBCA Priority/ Threatened flora database searches (DBCA, 2020a), NatureMap (DBCA, 2020c) and Protected Matters searches (DAWE, 2020a) and previous relevant literature identified 39 significant flora species recorded within a 40 km radius of the survey area. These consist of ten Threatened, seven Priority 1, three Priority 2, 14 Priority 3 and five 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 five taxa as likely to occur in the survey area, consisting of three Priority 3, and two Priority 4 taxa. Ten taxa were assessed as possibly occurring in the survey area, consisting of two Threatened, two Priority 1, two Priority 2 and four Priority 3 (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
Acacia subsessilis	P3	Red sand or stony gravel over ironstone. Rocky hills.	Records within 5 km, habitat expected to occur.	Likely
Grevillea globosa	P3	Red loam, yellow sand.	Records within 5 km, habitat expected to occur.	Likely
Persoonia pentasticha	P3	Sand, loam. Base of granite outcrops.	Records within 5 km, habitat expected to occur.	Likely
Acacia speckii	P4	Rocky soils over granite, basalt or dolerite. Rocky hills or rises.	Records within 5 km, habitat may occur.	Likely
Eremophila viscida	EN	Granitic soils, sandy loam. Stony gullies, sandplains.	Records within 15 km, habitat likely to occur.	Possible
Stylidium scintillans	VU		Records within 15 km, habitat may occur.	Possible
Chamelaucium sp. Yalgoo (Y. Chadwick 1816)	P1	Granite outcrops.	Records within 15 km, habitat may occur.	Possible
Enekbatus dualis	P1	Orange-brown silty sand, brown clayey sand, granite. Low hills, gentle mid to upper slopes, rock outcrops.	Records over 20 km, habitat may occur.	Possible
Calandrinia sp. Warriedar (F. Obbens 04/09)	P2	-	Records within 15 km, habitat may occur.	Possible
Chthonocephalus muellerianus	P2	Red sand.	Records within 10 km, habitat may occur.	Possible
Acacia drummondii subsp. *affinis*	P3	Lateritic gravelly soils.	On edge of range, habitat may occur.	Possible
Darwinia sp. Morawa (C.A. Gardner 2662)	P3	Clay over granite, yellow/brown clayey sand. Flat, small hill.	Nearest records >20 km, habitat may occur.	Possible
Dicrastylis linearifolia	P3	Red sand. Sandplain.	Records within 15 km, habitat may occur.	Possible
Petrophile pauciflora	P3	Decaying & dissected granite breakaways.	Records within 15 km, habitat likely to occur.	Possible
Dodonaea amplisemina	P4	Red-brown sandy clay on basalt and gabbro and banded ironstone or on dolerite and quartzite. Rocky hills.	Records within 10 km, habitat likely to occur.	Likely

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. The DBCA Ecological Communities database search identified the Priority 1 Ecological Community, *Gullewa vegetation complexes (banded ironstone formation)* as occurring in the south-west of the survey area. This vegetation complex is associated with the Buddadoo Range, Edamura Range, Mugga Mugga Hill and Murdaburia Hill.

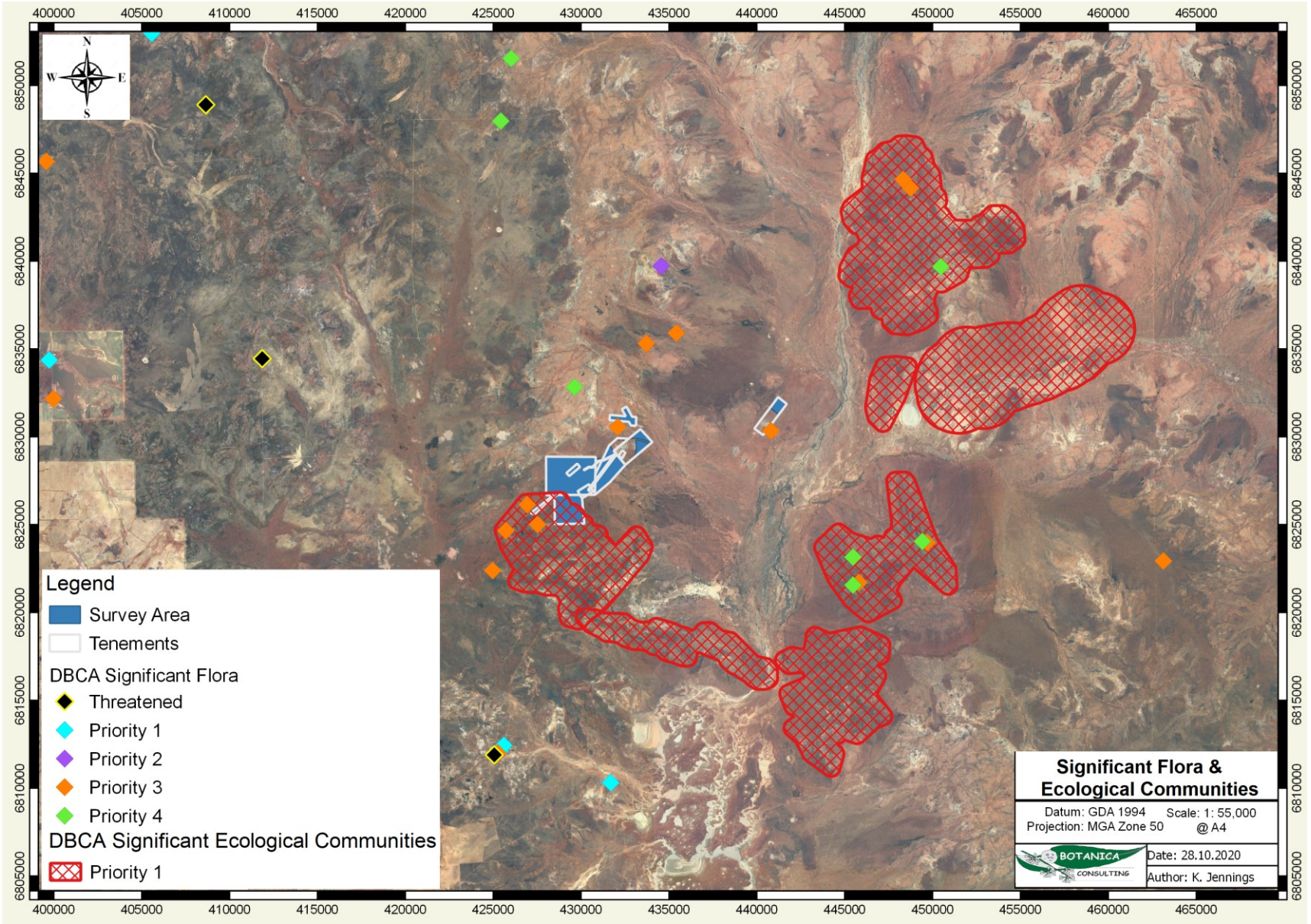

Figure 4-1: DBCA significant flora records

4.1.2 Vegetation Associations

The Pre-European vegetation association dataset (DPIRD, 2018) identified four vegetation associations 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 ≥95% 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	Structural Description	Floristic Description	Area (ha) and % of survey area
Yalgoo 2685	57,771	98.9	0.05	Scrub, open scrub or sparse scrub	Wattle, teatree & other species *Acacia* spp. *Melaleuca* spp.	485 ha (36.1%)
Yalgoo 364	506,124	99.0	31.5	Scrub with open woodland or scattered trees	Wattle with York gum, casuarina, mulga *Acacia* spp. with *Eucalyptus loxophleba*, *Allocasuarina* spp. *Acacia aneura*.	231 ha (17.2%)
Yalgoo 420	830,216	96.6	0.06	Scrub, open scrub or sparse scrub	Wattle, teatree & other species *Acacia* spp. *Melaleuca* spp.	71 ha (5.3%)
Yalgoo 419	296,195	94.6	0	Thicket	Wattle, casuarina and teatree acacia-allocasuarina-melaleuca alliance.	558 ha (41.5%)

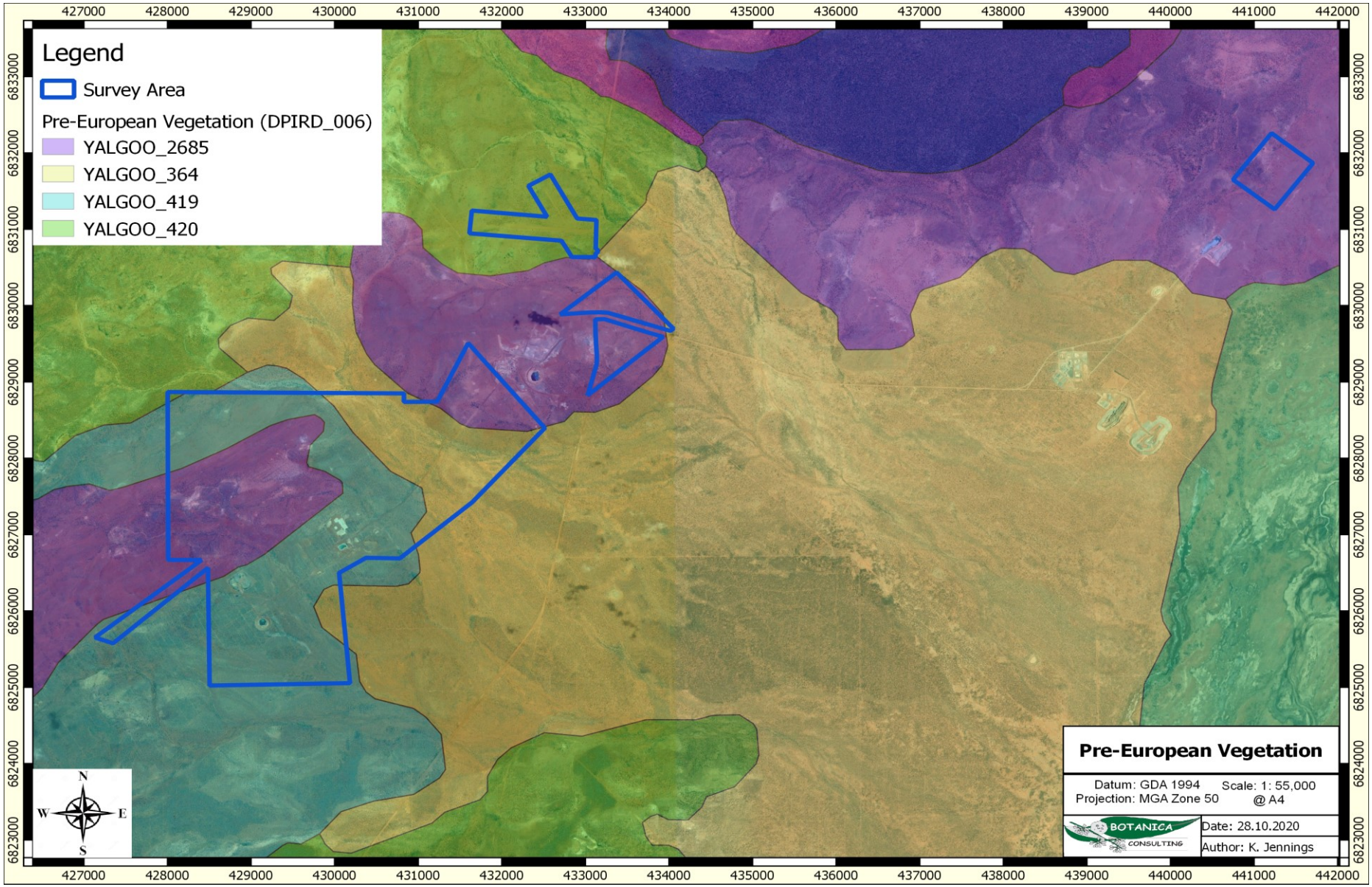

Figure 4-2: Pre-European Vegetation Associations within the survey area

4.1.3 Fauna

According to the results of the NatureMap search (DBCA, 2020), a total of 178 vertebrate fauna taxa have been recorded within a 40 km radius of the survey area, consisting of 125 bird, eight mammal, 39 reptile and six amphibian taxa. This total includes two introduced (feral) species.

4.1.3.1 Introduced (Feral) Fauna

The NatureMap and EPBC database searches identified 11 feral species as potentially occurring in the survey area (Table 4-4).

Table 4-4: Potentially Occurring Introduced Fauna

Family	Taxon	Common Name
Bovidae	*Capra hircus*	Goat
Canidae	*Canis lupus familiaris*	Domestic Dog
	Vulpus vulpus	Red Fox
Columbidae	*Columba livia*	Domestic Pigeon
	Streptopelia senegalensis	Laughing Turtle-Dove
Equidae	Various	Feral deer
Felidae	*Felis catus*	Cat
Leporidae	*Oryctolagus cuniculus*	Rabbit
Muridae	*Mus musculus*	House Mouse
	Rattus rattus	Black Rat
Suidae	*Sus scrofa*	Pig

4.1.3.2 Conservation Significant Fauna

The desktop review identified 11 vertebrate fauna species of conservation significance as previously being recorded in the regional area, consisting of five Threatened, three Priority 4 and two migratory species. In addition, numerous migratory wading/shorebirds 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 five significant fauna species as potentially occurring in the survey area (Table 4-5 4-5).

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

Species	Status	Likelihood
Western Spiny-tailed Skink *(Egernia stokesii* subsp. *badia)*	T (EN)	Possible
Grey Falcon (*Falco hypoleucos)*	T (VU)	Possible
Malleefowl (*Leipoa ocellata)*	T (VU)	Possible
Western brush wallaby (*Notamacropus 24atu)*	P4	Possible

4.1.4 Conservation Areas

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

The survey area is located within the ex. Barnong Station former leasehold (LR3074/589), which is listed as Unallocated Crown Land proposed for conservation which is managed by DBCA.

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 location of proposed and vested Conservation Reserves in relation to the survey area is provided in Figure 4-3.

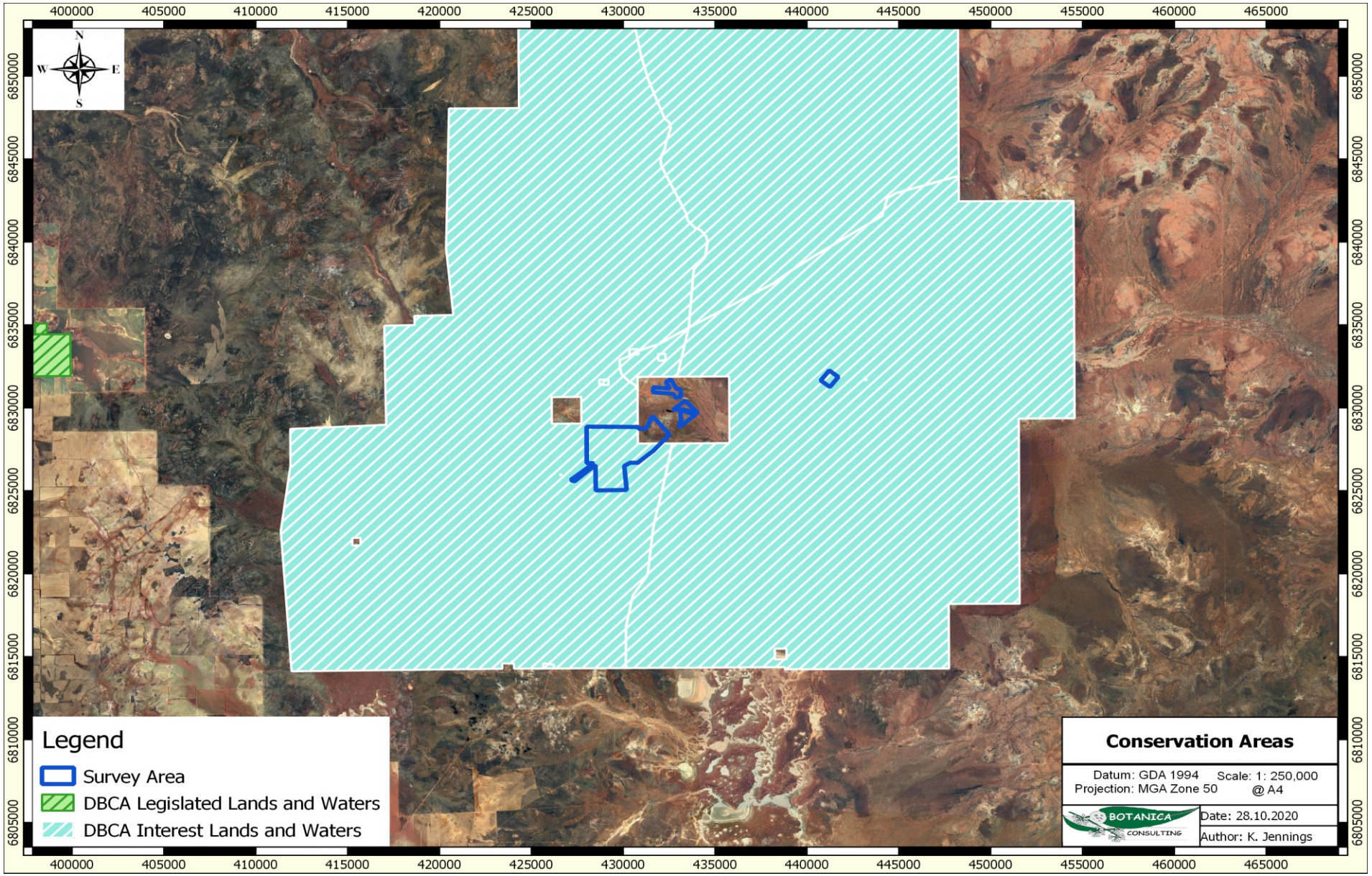

Figure 4-3: Conservation Areas

4.2 Field Assessment

4.2.1 Flora

The field survey identified 65 flora taxa within the survey area, including five introduced (weed) species. These taxa represented 40 genera across 20 families, with the most diverse genera being *Acacia* (11 species), *Ptilotus* (four species) and *Maireana* (four species). The full field species inventory is listed in Appendix 5.

4.2.1.1 Introduced Flora

Five species of introduced flora were recorded within the survey area: 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
Aizoaceae	*Mesembryanthemum nodiflorum*
Asteraceae	*Arctotheca calendula*
Chenopodiaceae	*Salsola australis*
Convolvulaceae	*Cuscuta epithymum*
Polygonaceae	*Rumex vesicarius*

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 or Priority flora species were recorded within the survey area. No other significant flora (as described above) were recorded within the survey area.

4.2.2 Vegetation Communities

A total of four vegetation communities were identified within the survey area. Vegetation community descriptions and extent are listed below in Table 4-7 and illustrated spatially in Figure 4-4. Vegetation community descriptions and extents were determined from field survey results, aerial imagery interpretation and extrapolation of the communities.

The survey found RP-AOW1 was the most widespread community in the survey area, occupying 752 ha (55.9%), while Outcrop-AS1 was the most restricted with 32 ha (2.4%).

Table 4-7: Vegetation Community Descriptions and Extent

Vegetation Community	Broad Floristic Formation (NVIS III)	Vegetation Description (NVIS V)	Landform	Image
RP-AOW1 752 ha (55.9%)	*Acacia* low open woodland	*Acacia caesaneura, Acacia acuminata* and *Acacia grasbyi* open woodland over *Eremophila forrestii, Eremophila oldfieldii* and *Acacia tetragonophylla* open shrubland over *Ptilotus obovatus* var. *obovatus* low sparse shrubland.	Rocky Plain	
CLP-AS1 323 ha (24.0%)	*Acacia* tall shrubland	*Acacia grasbyi, Acacia acuminata* and *Acacia ramulosa* tall shrubland over *Rhagodia eremaea* and *Acacia tetragonophylla* open shrubland over *Ptilotus obovatus* var. *obovatus* low sparse shrubland.	Clay/loam plain.	

Vegetation Community	Broad Floristic Formation (NVIS III)	Vegetation Description (NVIS V)	Landform	Image
HS-AS1 204 ha (15.2%)	*Acacia* open shrubland.	*Acacia acuminata* and *Acacia quadrimarginea* tall open shrubland over *Eremophila clarkei, Eremophila forrestii* open shrubland over *Solanum lasiophyllum, Ptilotus obovatus* var. *obovatus* low sparse shrubland.	Undulating plains	
Outcrop-AS1 32 ha (2.4%)	*Acacia* tall open shrubland	*Acacia tetragonophylla* and *Acacia quadrimarginea* tall open shrubland over *Hakea preissii*, *Exocarpos sparteus* open shrubland over *Solanum lasiophyllum*, *Ptilotus obovatus* var. *obovatus* low sparse shrubland	Laterite Outcrop	

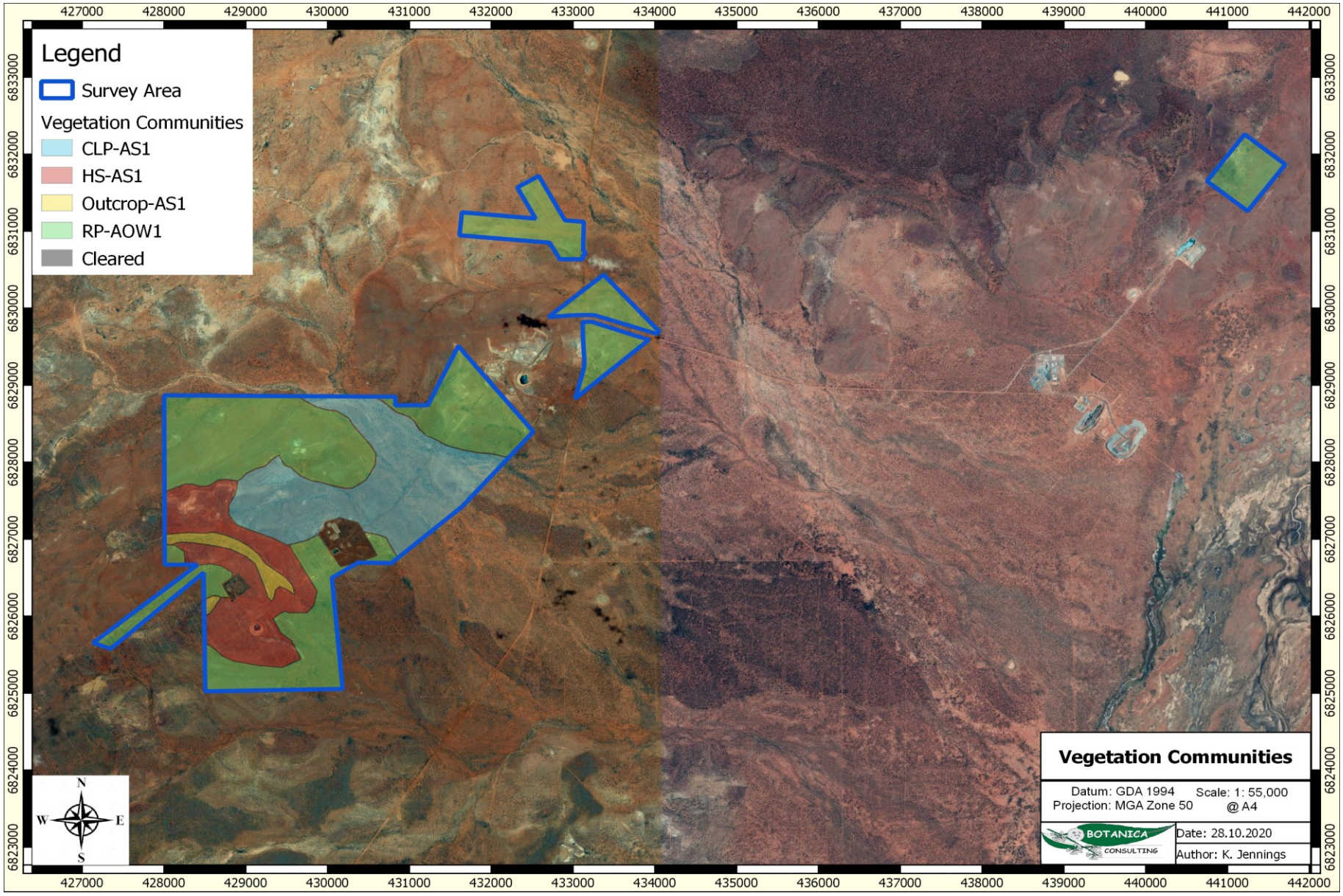

Figure 4-4: Vegetation Communities

4.2.3 Vegetation Condition

Based on the vegetation condition rating scale adapted from Keighery (1994) and Trudgen, (1988), native vegetation within the survey area was rated as 'good' (Table 4-8, Figure 4-5). 'Good' condition depicts more obvious signs of damage caused by human activity since European settlement, including impacts to vegetation structure and composition from low levels of grazing, changed fire regimes and/or slightly aggressive weeds. Cleared areas associated with current mining operations and road infrastructure/ easements were rated as 'completely degraded'.

Table 4-8: Vegetation Condition within the survey area

Condition Rating	Area (ha)	Area (%)
Good	1,312	97.2
Completely Degraded	38	2.8
Total	**1,350**	**100.0**

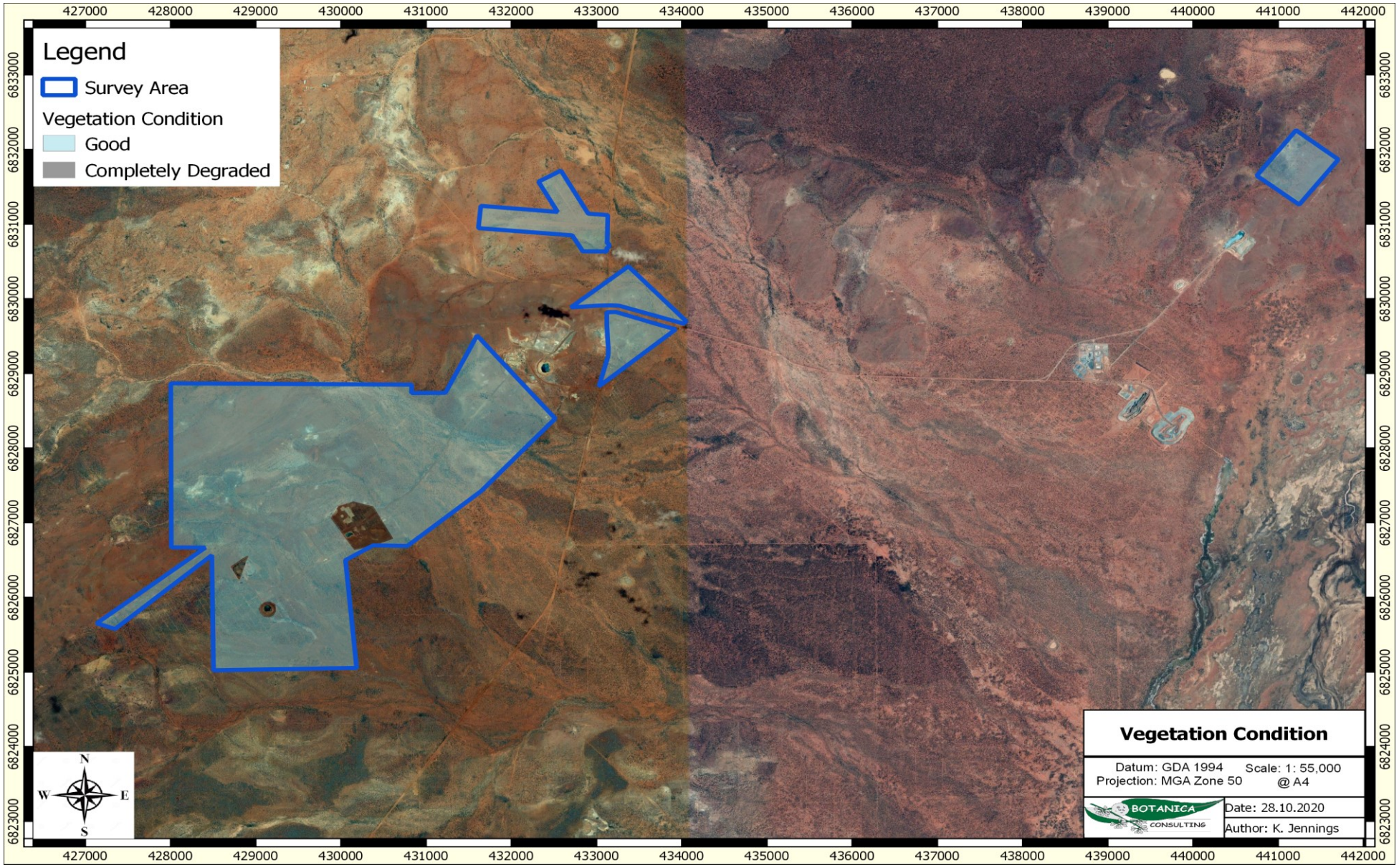

Figure 4-5: Vegetation Condition within the survey area

4.2.4 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 ecological communities were identified within the survey area. The Priority 1 Ecological Community, *Gullewa vegetation complexes (banded ironstone formation)* was identified as likely occurring in the survey area, and is associated with vegetation community Outcrop-AS1, which accounts for 2.4% of the total survey area. No other significant vegetation (as described above) was identified within the survey area.

4.2.5 Fauna Habitat

Based on vegetation and associated landforms identified during the flora and vegetation assessment, the broad scale terrestrial fauna habitat *Acacia* shrubland was identified as occurring over the entirety of the survey area. Table 4-9 provides a visual representation of this habitat type, and the extent of fauna habitat is shown spatially in Figure 4-6.

Table 4-9: Terrestrial Fauna Habitats within the survey area

Fauna Habitat	Example Image
Acacia shrubland Area: 1350 ha (100%)	

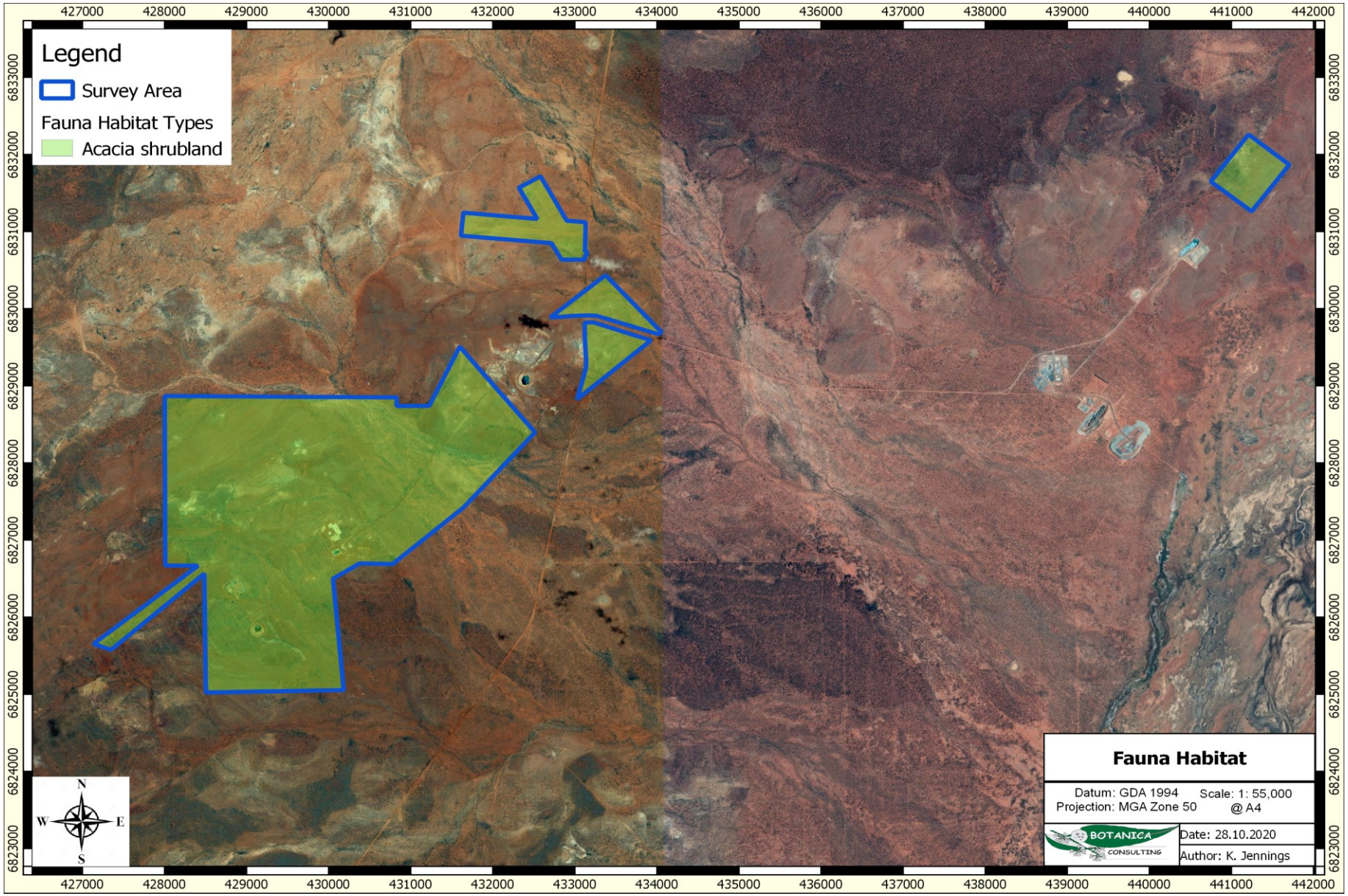

Figure 4-6: Terrestrial Fauna Habitats

4.2.6 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 evidence of significant fauna species were observed during the survey, including no evidence of Malleefowl nesting mounds or other activity.

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:

- **Malleefowl (*Leipoa ocellata)* – Vulnerable (EPBC Act and BC Act)**
  This species is occasionally recorded in the Tallering subregion. Habitat appears marginal/or unsuitable for breeding, however occasional transients could potentially occur. No evidence of malleefowl activity (inactive or active mounds, tracks, feathers or bird observations etc.) were observed within the survey area. Significant impact unlikely.

- **Grey Falcon (*Falco hypoleucos)* – Vulnerable (EPBC Act and BC Act)**
  This species is sparsely recorded throughout inland Australia. Suitable habitat likely to be present but in unlikely to represent critical habitat. Significant impact unlikely.

- **Western Spiny-tailed Skink (*Egernia stokesii* subsp*. badia)* – Endangered (EPBC Act and BC Act)**
  Areas of potential habitat within the survey area were considered marginal and unlikely to host significant populations of this species. Significant impact unlikely.

- **Western Brush Wallaby (*Notamacropus 35atu*) – Priority 3 (DBCA)**
  Although suitable habitat may be present, it is likely to be considered marginal and is unlikely to host significant populations of this species or represent critical habitat. Significant impacts 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.

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 4-10). The assessment found that the proposed vegetation clearing activities may be at variance with clearing principles (f) and (h).

Table 4-10: Assessment against native vegetation clearing principles

Letter	Principle Native vegetation should not be cleared if it:	Assessment	Outcome
(a)	comprises a high level of biological diversity.	The Yalgoo Bioregion is rich and diverse in flora and fauna but most species are wide ranging and usually occur in adjoining regions. Vegetation identified within the survey area is not considered to be of high biological diversity and is well represented outside of the survey area. No Threatened Flora taxa listed under the BC Act and EPBC Act are located 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
I	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 threatened ecological community (TEC).	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
I	is significant as a remnant of native vegetation in an area that has been extensively cleared	All vegetation associations in the survey area retains >95% 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	According to the Geoscience Australia (2015) GIS database, several minor ephemeral drainage lines intersect the survey area. These drainage lines are non-defined with no riparian vegetation associated with these drainage lines. These minor ephemeral drainage lines occurred within the rocky plain-Acacia open woodland vegetation community (RP-AOW1).	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	The survey area is not located within a vested Conservation Reserve; however, the survey area is located within the ex. Barnong Station former leasehold (LR3074/589), which is listed as Unallocated Crown Land proposed for conservation which is managed by DBCA.	Clearing may be at variance to this principle

Letter	Principle	Assessment	Outcome
Native vegetation should not be cleared if it:			
	values of any adjacent or nearby conservation area.	Vegetation community, Outcrop-AS1 is considered as potentially representative of the Gullewa BIF Priority Ecological Community. This vegetation community accounts for 2.4% of the survey area.	
(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 in ephemeral drainage lines is unlikely to result in significant impacts to water 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 events in the Yalgoo region occur sporadically and 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

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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	**Critically Endangered** Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under 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.
EN	**Endangered** Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under 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.
VU	**Vulnerable** Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)l 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.
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	**Extinct** Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.
EW	**Extinct in the Wild** Species that *"is known only to survive in cultivation, in captivity or as a 42aturalized population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.
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	**International Agreement/ Migratory** Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Code	Category
	Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
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 *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
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 *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
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. I 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: (iv) 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:
	• 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	Taxon	Common Name	WAOL Status	Control Category	WONS
Aizoaceae	*Cleretum papulosum* subsp. *papulosum*		Permitted-s11	-	No
	Mesembryanthemum nodiflorum	Slender Iceplant	Permitted-s11	-	No
Asteraceae	*Arctotheca calendula*	Cape Weed, African Marigold	Permitted-s11	-	No
	Centaurea melitensis	Maltese Cockspur, Malta Thistle	Permitted-s11	-	No
	Chrysanthemoides monilifera	Bitou Bush, Boneseed	C1	Prohibited, Whole of State	Yes
	Hypochaeris glabra	Smooth Catsear	Permitted-s11	-	No
	Sonchus oleraceus	Common Sowthistle	Permitted-s11	-	No
	Urospermum picroides	False Hawkbit	Permitted-s11	-	No
Brassicaceae	*Brassica tournefortii*	Mediterranean Turnip	Permitted-s11	-	No
	Carrichtera annua		Permitted-s11	-	No
	Sisymbrium erysimoides	Smooth Mustard	Permitted-s11	-	No
Caryophyllaceae	*Petrorhagia dubia*		Permitted-s11	-	No
	Polycarpon tetraphyllum	Fourleaf Allseed	Permitted-s11	-	No
	Spergula pentandra	Five Anther Spurry	Permitted-s11	-	No
Convolvulaceae	*Cuscuta epithymum*	Lesser Dodder, Greater Dodder	Permitted-s11	-	No
Geraniaceae	*Erodium cicutarium*	Common Storksbill	Permitted-s11	-	No
Polygonaceae	*Rumex hypogaeus*	Doublegee	Permitted-s11	-	No
Poaceae	*Aira caryophyllea*	Silvery Hairgrass	Permitted-s11	-	No
	Brachypodium distachyon	False Brome	Permitted-s11	-	No
	Bromus madritensis	Madrid Brome	Permitted-s11	-	No
	Bromus rubens	Red Brome	Permitted-s11	-	No
	Cenchrus ciliaris		Permitted-s11	-	No
	Lamarckia aurea	Goldentop	Permitted-s11	-	No
	Parapholis incurva	Coast Barbgrass	Permitted-s11	-	No
	Pentameries airoides	False Hairgrass	Permitted-s11	-	No
	Phalaris minor	Lesser Canary Grass	Permitted-s11	-	No
	Rostraria pumila		Permitted-s11	-	No
	Vulpia muralis		Permitted-s11	-	No
Scrophulariaceae	*Zaluzianskya divaricata*	Spreading Night Phlox	Permitted-s11	-	No
Tamaricaceae	*Tamarix aphylla*		Exempt	No Control Category	Yes

Appendix 3: Significant Flora Likelihood Assessment

Taxon	Rank	Habitat	Comments	Likelihood
Dasymalla axillaris	CR	-	No records within 40 km.	Unlikely
Gyrostemon reticulatus		-	Restricted range, nearest records >40 km.	Unlikely
Acacia cochlocarpa subsp. *cochlocarpa*	EN	Clayey, sandy, often gravelly soils.	Outside known range.	Unlikely
Eremophila nivea		Sandy clay, clay loam. Undulating plains, roadverges.	Restricted range, nearest record >35 km.	Unlikely
Eremophila viscida		Granitic soils, sandy loam. Stony gullies, sandplains.	Records within 15 km, habitat likely to occur.	Possible
Roycea pycnophylloides		Sandy soils, clay. Saline flats.	Outside usual range.	Unlikely
Stylidium scintillans	VU		Records within 15 km, habitat may occur.	Possible
Eleocharis papillosa		Red clay over granite, open clay flats. Claypans.	Nearest records >20 km, habitat may occur.	Unlikely
Eucalyptus beardiana		Red or yellow sand. Sand dunes & ridges.	Outside known range.	Unlikely
Eucalyptus synandra		Sandy & lateritic soils.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Chamelaucium sp. Yalgoo (Y. Chadwick 1816)	P1	Granite outcrops.	Records within 15 km, habitat may occur.	Possible
Enekbatus dualis		Orange-brown silty sand, brown clayey sand, granite. Low hills, gentle mid to upper slopes, rock outcrops.	Records over 20 km, habitat may occur.	Possible
Hemigenia sp. major (C.A. Gardner 2677)		-	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Labichea obtrullata		-	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Malleostemon sp. Yalgoo Road (Morawa Tree Committee 329)		Sand.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Millotia dimorpha		Red loamy soils.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Stylidium pendulum		Clayey sand or sandy loam, granite. Upper slopes, often near rock outcrops. Shrubland or open mallee woodland.	Restricted distribution, outside known range	Unlikely
Calandrinia sp. Warriedar (F. Obbens 04/09)	P2	-	Records within 15 km, habitat may occur.	Possible
Chthonocephalus muellerianus		Red sand.	Records within 10 km, habitat may occur.	Possible
Grevillea rosieri		Sandy soils.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Acacia drummondii subsp. *affinis*	P3	Lateritic gravelly soils.	On edge of range, habitat may occur.	Possible
Acacia subsessilis		Red sand or stony gravel over ironstone. Rocky hills.	Records within 5 km, habitat expected to occur.	Likely
Baeckea sp. Walkaway (A.S. George 11249)		Yellow/brown or white sand. Undulating plains, hillslopes.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Calotis sp. Perrinvale Station (R.J. Cranfield 7096)		-	Nearest records >30 km, habitat unlikely to occur.	Unlikely
Darwinia sp. Morawa(C.A. Gardner 2662)		Clay over granite, yellow/brown clayey sand. Flat, small hill.	Nearest records >20 km, habitat may occur.	Possible
Dicrastylis linearifolia		Red sand. Sandplain.	Records within 15 km, habitat may occur.	Possible
Grevillea globosa		Red loam, yellow sand.	Records within 5 km, habitat expected to occur.	Likely

Taxon	Rank	Habitat	Comments	Likelihood
Grevillea granulosa		Gravelly sand, loam, clay. Sandplains.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Persoonia pentasticha		Sand, loam. Base of granite outcrops.	Records within 5 km, habitat likely to occur.	Likely
Petrophile pauciflora		Decaying & dissected granite breakaways.	Records within 15 km, habitat likely to occur.	Possible
Psammomoya implexa		Stony rises.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Rhodanthe collina		Loam. Rocky hills.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Stenanthemum poicilum		Red clay or sandy clay, loam.	Extreme of known range, habitat unlikely to occur.	Unlikely
Triglochin protuberans		Winter-wet sites, claypans, near salt lakes, margins of pools.	Habitat unlikely to occur.	Unlikely
Acacia speckii	P4	Rocky soils over granite, basalt or dolerite. Rocky hills or rises.	Records within 5 km, habitat may occur.	Likely
Banksia benthamiana		Sandy loam, clay-loam, yellow sand, gravel.	Nearest records >30 km, habitat unlikely to occur.	Unlikely
Dodonaea amplisemina		Red-brown sandy clay on basalt and gabbro and banded ironstone or on dolerite and quartzite. Rocky hills.	Records within 10 km, habitat likely to occur.	Likely
Eucalyptus ebbanoensis subsp. *photina*		Sandy clay, red sand. Lateritic breakaways, sandplains.	Nearest records >20 km, habitat unlikely to occur.	Unlikely
Goodenia neogoodenia		Red loam or clay. Near water.	Records over 20 km, habitat unlikely to occur.	Unlikely

Appendix 4: Significant Fauna Likelihood Assessment

Species	Status	Habitat Description	Assessment	Likelihood
Night Parrot *Pezoporus occidentalis*	EN	Most habitat records are of *Triodia* spp. (Spinifex) grasslands and/or chenopod shrublands in the arid and semi-arid zones, or *Astrebla* spp. (Mitchell grass), shrubby samphire and chenopod associations, scattered trees and shrubs, *Acacia aneura* (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 Spinifex (*Triodia spp.*) clumps, but sometimes other vegetation types (DAWE, 2020b).	Unlikely to Occur. No recent records nearby, habitat present appears to be marginal at best.	Unlikely
Grey Falcon *Falco hypoleucos*	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. Non-avian prey recorded by direct observation include small mammals and lizards.	Possibly Occurs, but only rarely. Survey area may form part of larger home range.	Possible
Malleefowl *Leipoa ocellata*	VU	Scrublands and woodlands dominated by mallee and wattle species (DAWE, 2020b).	Possibly Occurs. Previously recorded in region, though generally habitat appears marginal for breeding given history of disturbance.	Possible
Blue-billed Duck *Oxyura australis*	P4	Deep, permanent water or open lakes (Atlas of Living Australia, 2020).	Would Not Occur. No suitable habitat.	Would Not Occur
Fork-tailed Swift *Apus pacificus*	MI	Infrequent visitor, aerial species only.	Unlikely to remain in area for extended periods. Very infrequent, temporary vagrant.	Unlikely
Grey Wagtail *Motacilla cinerea*	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 documented records in the region.	Would Not Occur
Various wading/shorebird species	Various	Inhabit 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).	Would Not Occur. No suitable habitat.	Would Not Occur
Chuditch, Western Quoll *Dasyurus geoffroii*	VU	Previously occurred throughout arid and semi-arid Australia but is now restricted to south-west Western Australia. (DAWE, 2020b).	Regionally extinct. Not recorded within Yalgoo Bioregion in recent times.	Would Not Occur
Long-tailed Dunnart *Sminthopsis longicaudata*	P4	Exposed rock and stony soils with hummock grasses and shrubs. Flat-topped hills, lateritic plateaus, sandstone ranges and breakaways. Sparse mulga over spinifex (WA Museum, 2020).	Unlikely to Occur. Not recorded within Yalgoo Bioregion.	Unlikely
Western brush wallaby *Notamacropus irma*	P4	The western brush wallaby's optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland, and is uncommon in karri forest.	Suitable habitat may occur but would be considered marginal.	Possible
Western Spiny-tailed Skink, Gidgee Skink	EN	The Western Spiny-tailed Skink is known to occur in a broad semi-arid area in south-west WA, between Shark Bay and Minnivale and east to Cue. Most records of the brown form Western Spiny-tailed Skink are in York Gum (Eucalyptus loxophleba) woodland with some records in Gimlet (*E. salubris*) and Salmon Gum (*E. salmonophloia*) woodland. Populations persist in woodland patches as small as one hectare and	Possibly Occurs. Suitable habitat may be present.	Possible

Species	Status	Habitat Description	Assessment	Likelihood
Egernia stokesii subsp. *badia*		completely surrounded by wheatfields. Sites with the greatest number of individuals contain numerous fallen logs and were subjected to low-intensity grazing by domestic stock. Hollow logs are used as refuge sites in woodland habitat. Preferred refuges consist of piles of several, overlapping, hollow logs providing a combination of basking and shelter sites. An increasing number of skinks are being located in altered habitat under piles of wood, scrap metal or under buildings on private property (SPRAT, 2020).		

Appendix 5: List of species identified

(A) and blue text-Annual taxon; (W) and green text-Introduced taxon

Family	Species
Aizoaceae	*Mesembryanthemum nodiflorum (W)*
Amaranthaceae	*Ptilotus helipteroides (A)*
Amaranthaceae	*Ptilotus obovatus* var. *obovatus*
Amaranthaceae	*Ptilotus polystachyus*
Amaranthaceae	*Ptilotus xerophilus*
Asteraceae	*Arctotheca calendula (W)*
Asteraceae	*Calotis multicaulis (A)*
Asteraceae	*Cephalipterum drummondii (A)*
Asteraceae	*Helipterum craspedioides*
Asteraceae	*Podolepis capillaris*
Asteraceae	*Rhodanthe chlorocephala* subsp. *rosea*
Boraginaceae	*Heliotropium curassavicum*
Boryaceae	*Borya nitida*
Campanulaceae	*Lobelia winfridae (A)*
Chenopodiaceae	*Atriplex bunburyana*
Chenopodiaceae	*Atriplex codonocarpa (A)*
Chenopodiaceae	*Atriplex semilunaris*
Chenopodiaceae	*Enchylaena tomentosa*
Chenopodiaceae	*Maireana convexa*
Chenopodiaceae	*Maireana georgei*
Chenopodiaceae	*Maireana tomentosa*
Chenopodiaceae	*Maireana triptera*
Chenopodiaceae	*Maireana villosa*
Chenopodiaceae	*Rhagodia eremaea*
Chenopodiaceae	*Salsola australis (W)*
Chenopodiaceae	*Scaevola spinescens*
Chenopodiaceae	*Sclerolaena densiflora*
Chenopodiaceae	*Sclerolaena diacantha*
Convolvulaceae	*Cuscuta epithymum (W)*
Convolvulaceae	*Duperreya sericea*
Cupressaceae	*Callitris preissii*
Fabaceae	*Acacia aneura*
Fabaceae	*Acacia burkittii*
Fabaceae	*Acacia caesaneura*
Fabaceae	*Acacia craspedocarpa*
Fabaceae	*Acacia grasbyi*
Fabaceae	*Acacia pteraneura*
Fabaceae	*Acacia ramulosa*
Fabaceae	*Acacia tetragonophylla*
Fabaceae	*Acacia umbraculiformis*
Fabaceae	*Acacia victoriae*
Fabaceae	*Acacia victoriae*
Fabaceae	*Goodenia rosea*
Fabaceae	*Mirbelia microphylla*
Fabaceae	*Senna artemisioides* subsp. *filifolia*
Fabaceae	*Senna charlesiana*
Fabaceae	*Senna* sp. Meekatharra (E. Bailey 1-26)

Family	Species
Malvaceae	*Abutilon oxycarpum*
Malvaceae	*Sida ectogama*
Montiaceae	*Calandrinia eremaea (A)*
Myrtaceae	*Melaleuca leiocarpa*
Myrtaceae	*Melaleuca scabra*
Myrtaceae	*Thryptomene decussata*
Poaceae	*Austrostipa nitida (A)*
Poaceae	*Cymbopogon ambiguus*
Polygonaceae	*Rumex vesicarius (W)*
Proteaceae	*Grevillea obliquistigma* subsp. *obliquistigma*
Proteaceae	*Hakea preissii*
Proteaceae	*Hakea recurva* subsp. *recurva*
Santalaceae	*Exocarpos sparteus*
Scrophulariaceae	*Eremophila clarkei*
Scrophulariaceae	*Eremophila forrestii*
Scrophulariaceae	*Eremophila oldfieldii*
Solanaceae	*Solanum lasiophyllum*
Thymelaeaceae	*Pimelea microcephala*

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
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 09/10/2020

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 116° 16' 23" E,28° 40' 27" S
Buffer 40km
Group By Family

Family	Species	Records
Acanthizidae	9	172
Accipitridae	4	26
Actinopodidae	2	3
Aegothelidae	1	7
Agamidae	5	12
Aizoaceae	5	41
Amaranthaceae	17	140
Anatidae	9	20
Apiaceae	2	7
Apocynaceae	5	11
Araliaceae	5	18
Araneidae	1	2
Ardeidae	3	11
Artamidae	3	26
Asparagaceae	7	24
Asteraceae	76	326
Boraginaceae	3	4
Boryaceae	2	4
Branchipodidae	2	8
Brassicaceae	6	9
Bryaceae	1	1
Burhinidae	1	2
Cacatuidae	2	32
Campanulaceae	5	9
Campephagidae	3	36
Caprimulgidae	1	7
Caryophyllaceae	4	6
Casuariidae	1	24
Casuarinaceae	5	11
Celastraceae	4	6
Centrolepidaceae	3	5
Centropagidae	1	1
Charadriidae	4	20
Chenopodiaceae	40	369
Cinclosomatidae	2	6
Cladoniaceae	1	2
Colchicaceae	1	2
Columbidae	2	60
Convolvulaceae	2	10
Corvidae	3	49
Cracticidae	4	96
Crassulaceae	3	37
Cuculidae	3	8
Cupressaceae	3	12
Cyperaceae	9	10
Dasyuridae	3	4
Dicaeidae	1	4
Dicruridae	3	92
Dilleniaceae	3	4
Diplodactylidae	6	11
Droseraceae	3	3
Ecdeiocoleaceae	1	3
Elapidae	10	27
Ericaceae	2	3
Estrildidae	1	28
Euphorbiaceae	7	37
Fabaceae	74	427
Falconidae	2	44
Frankeniaceae	1	1
Gekkonidae	3	68
Geraniaceae	2	9
Goodeniaceae	17	94
Gyrostemonaceae	2	3
Halcyonidae	1	5
Haloragaceae	5	8
Hemerocallidaceae	3	6
Hirundinidae	4	59
Hylidae	1	1
Hypoxidaceae	1	1
Icmadophilaceae	1	4
Idiopidae	1	8
Juncaceae	2	3
Juncaginaceae	4	4
Lamiaceae	17	84
Leporidae	1	5
Limnodynastidae	3	20
Loranthaceae	2	4

Lycosidae	3	3
Macropodidae	2	4
Maluridae	4	66
Malvaceae	15	159
Marsileaceae	1	1
Megalosporaceae	1	5
Megapodiidae	1	28
Meliphagidae	9	128
Meropidae	1	2
Montiaceae	9	22
Muridae	1	11
Myobatrachidae	2	11
Myrtaceae	57	274
Neosittidae	1	2
Orchidaceae	4	5
Otididae	1	7
Pachycephalidae	5	94
Pardalotidae	2	10
Parmeliaceae	3	5
Petroicidae	3	46
Phyllanthaceae	1	5
Pittosporaceae	4	13
Plantaginaceae	2	11
Poaceae	34	321
Podargidae	1	4
Podicipedidae	2	7
Polygalaceae	1	12
Polygonaceae	1	1
Pomatostomidae	2	37
Portulacaceae	1	5
Pottiaceae	1	1
Proteaceae	28	127
Psittacidae	9	73
Psoraceae	3	5
Pteridaceae	5	33
Ptilonorhynchidae	1	13
Pygopodidae	1	1
Rallidae	1	3
Ramalinaceae	1	1
Recurvirostridae	1	2
Rhamnaceae	2	8
Ricciaceae	1	3
Rubiaceae	1	1
Ruppiaceae	1	1
Rutaceae	4	40
Santalaceae	3	15
Sapindaceae	6	42
Scincidae	13	67
Scolopacidae	3	3
Scolopendridae	3	3
Scrophulariaceae	29	152
Solanaceae	13	81
Sparassidae	1	2
Stylidiaceae	6	14
Surianaceae	1	1
Threskiornithidae	2	7
Thymelaeaceae	3	14
Trapeliaceae	1	1
Turnicidae	1	1
Tytonidae	1	1
Urodacidae	2	2
Urticaceae	1	1
Usneaceae	1	1
Varanidae	2	4
Verrucariaceae	3	7
Zosteropidae	1	1
Zygophyllaceae	3	5
TOTAL	**795**	**4802**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Acanthizidae					
1.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
2.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
3.	24264	*Acanthiza robustirostris (Slaty-backed Thornbill)*			
4.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
5.	25528	*Aphelocephala leucopsis (Southern Whiteface)*			
6.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
7.	25530	*Gerygone fusca (Western Gerygone)*			
8.	24278	*Pyrrholaemus brunneus (Redthroat)*			
9.	30948	*Smicrornis brevirostris (Weebill)*			
Accipitridae					
10.	25536	*Accipiter fasciatus (Brown Goshawk)*			
11.	24285	*Aquila audax (Wedge-tailed Eagle)*			
12.	24289	*Circus assimilis (Spotted Harrier)*			
13.		*Elanus axillaris*			
Actinopodidae					
14.		*Missulena granulosa*			
15.		*Missulena occatoria*			
Aegothelidae					
16.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
Agamidae					
17.	24883	*Ctenophorus ornatus (Ornate Crevice-Dragon)*			
18.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			
19.	24904	*Moloch horridus (Thorny Devil)*			
20.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
21.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
Aizoaceae					
22.	20522	*Cleretum papulosum subsp. papulosum*	Y		
23.	2807	*Gunniopsis quadrifida (Sturts Pigface)*			
24.	2814	*Mesembryanthemum nodiflorum (Slender Iceplant)*	Y		
25.	2819	*Tetragonia cristata*			
26.	2821	*Tetragonia diptera*			
Amaranthaceae					
27.	2648	*Alternanthera denticulata (Lesser Joyweed)*			
28.	2690	*Ptilotus aervoides*			
29.	48444	*Ptilotus benlii*			
30.	2717	*Ptilotus divaricatus (Climbing Mulla Mulla)*			
31.	2718	*Ptilotus drummondii (Narrowleaf Mulla Mulla)*			
32.	11260	*Ptilotus drummondii var. drummondii (Pussytail)*			
33.	48602	*Ptilotus eremita*			
34.	2721	*Ptilotus exaltatus (Tall Mulla Mulla)*			
35.	2727	*Ptilotus gaudichaudii*			
36.	2729	*Ptilotus grandiflorus*			
37.	2731	*Ptilotus helipteroides (Hairy Mulla Mulla)*			
38.	2732	*Ptilotus holosericeus*			
39.	2733	*Ptilotus humilis*			
40.	2747	*Ptilotus obovatus (Cotton Bush)*			
41.	2751	*Ptilotus polystachyus (Prince of Wales Feather)*			
42.	2757	*Ptilotus schwartzii*			
43.	2760	*Ptilotus spathulatus*			
Anatidae					
44.	24310	*Anas castanea (Chestnut Teal)*			
45.	24312	*Anas gracilis (Grey Teal)*			
46.	24315	*Anas rhynchotis (Australasian Shoveler)*			
47.	24316	*Anas superciliosa (Pacific Black Duck)*			
48.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
49.	24322	*Cygnus atratus (Black Swan)*			
50.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
51.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
52.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
Apiaceae					
53.	6218	*Daucus glochidiatus (Australian Carrot)*			
54.	14999	*Platysace trachymenioides*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Apocynaceae					
55.	6565	*Alyxia buxifolia (Dysentery Bush)*			
56.	6584	*Cynanchum floribundum (Dumara Bush, Tjipa)*			
57.	12949	*Marsdenia australis*			
58.	16538	*Marsdenia graniticola*			
59.	48986	*Vincetoxicum lineare*			
Araliaceae					
60.	6223	*Hydrocotyle alata*			
61.	6226	*Hydrocotyle callicarpa (Small Pennywort)*			
62.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
63.	6268	*Trachymene cyanopetala*			
64.	6279	*Trachymene ornata (Spongefruit)*			
Araneidae					
65.		*Austracantha minax*			
Ardeidae					
66.	41324	*Ardea modesta (great egret, white egret)*			
67.	24341	*Ardea pacifica (White-necked Heron)*			
68.		*Egretta novaehollandiae*			
Artamidae					
69.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
70.	24352	*Artamus cinereus subsp. melanops (Black-faced Woodswallow)*			
71.	24356	*Artamus personatus (Masked Woodswallow)*			
Asparagaceae					
72.	1266	*Arthropodium dyeri*			
73.	1216	*Chamaexeros macranthera*			
74.	1289	*Dichopogon preissii*			
75.	1338	*Thysanotus manglesianus (Fringed Lily)*			
76.	1346	*Thysanotus pyramidalis*			
77.	1348	*Thysanotus rectantherus*			
78.	1352	*Thysanotus speckii*			
Asteraceae					
79.	7817	*Actinobole uliginosum (Flannel Cudweed)*			
80.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
81.	7846	*Asteridea athrixioides*			
82.	7852	*Bellida graminea (Rosy Bellida)*			
83.	7856	*Blennospora drummondii*			
84.	7878	*Brachyscome iberidifolia*			
85.	7882	*Brachyscome perpusilla*			
86.	7895	*Calocephalus multiflorus (Yellow-top)*			
87.	7903	*Calotis hispidula (Bindy Eye)*			
88.	7905	*Calotis multicaulis (Many-stemmed Burr-daisy)*			
89.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
90.	7922	*Cephalipterum drummondii (Pompom Head)*			
91.	12616	*Chthonocephalus muellerianus*		P2	
92.	7933	*Chthonocephalus pseudevax (Woolly Groundheads)*			
93.	7951	*Cratystylis subspinescens (Australian Sage, Spiny Grey Bush)*			
94.	12721	*Dielitzia tysonii*			
95.	12720	*Erymophyllum glossanthus*			
96.	12622	*Feldstonia nitens*			
97.	12780	*Gilberta tenuifolia*			
98.	11008	*Gilruthia osbornii*			
99.	12624	*Gnephosis angianthoides*			
100.	7988	*Gnephosis arachnoidea (Cobwebby-headed Gnephosis)*			
101.	7989	*Gnephosis brevifolia (Short-leaved Gnephosis)*			
102.	7998	*Gnephosis macrocephala*			
103.	8002	*Gnephosis tenuissima*			
104.	8045	*Helipterum craspedioides (Yellow Billy Buttons)*			
105.	12742	*Hyalosperma demissum*			
106.	15447	*Hyalosperma glutinosum subsp. glutinosum*			
107.	15448	*Hyalosperma glutinosum subsp. venustum*			
108.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
109.	8087	*Isoetopsis graminifolia (Cushion Grass)*			
110.	13289	*Lawrencella davenportii*			
111.	13284	*Lawrencella rosea*			
112.	12628	*Lemooria burkittii*			
113.	8105	*Millotia myosotidifolia*			
114.	8107	*Minuria cunninghamii (Bush Minuria)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
115.	8116	*Myriocephalus guerinae*			
116.	17925	*Myriocephalus oldfieldii*			
117.	14186	*Myriocephalus pygmaeus*			
118.	12734	*Olearia humilis*			
119.	12636	*Olearia incondita*			
120.	8145	*Olearia pimeleoides (Pimelea Daisybush, Burrobunga)*			
121.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
122.	42024	*Olearia sp. Kennedy Range (G. Byrne 66)*			
123.	8151	*Olearia stuartii*			
124.	45238	*Podolepis aristata subsp. affinis*			
125.	45240	*Podolepis aristata subsp. auriculata*			
126.	8173	*Podolepis capillaris (Wiry Podolepis)*			
127.	45239	*Podolepis eremaea*			
128.	8176	*Podolepis kendallii*			
129.	8177	*Podolepis lessonii*			
130.	8184	*Podotheca gnaphalioides (Golden Long-heads)*			
131.		*Podotheca sp.*			
132.	8188	*Pogonolepis stricta*			
133.	13306	*Rhodanthe battii*			
134.	13242	*Rhodanthe chlorocephala subsp. splendida*			
135.	13300	*Rhodanthe citrina*			
136.	13243	*Rhodanthe collina*		P3	
137.	13246	*Rhodanthe humboldtiana*			
138.	13234	*Rhodanthe manglesii*			
139.	13238	*Rhodanthe maryonii*			
140.	45154	*Roebuckiella cheilocarpa var. cheilocarpa*			
141.	45156	*Roebuckiella cheilocarpa var. glabrata*			
142.	45148	*Roebuckiella ciliocarpa*			
143.	8200	*Schoenia cassiniana (Schoenia)*			
144.	13286	*Schoenia filifolia*			
145.	13287	*Schoenia filifolia subsp. filifolia*			
146.	8207	*Senecio glossanthus (Slender Groundsel)*			
147.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
148.	12647	*Sondottia connata*			
149.	48226	*Trichanthodium exilis*			
150.	8254	*Urospermum picroides (False Hawkbit)*	Y		
151.	8268	*Vittadinia humerata*			
152.	8275	*Waitzia acuminata (Orange Immortelle)*			
153.	13331	*Waitzia acuminata var. acuminata*			
154.	13328	*Waitzia nitida*			
Boraginaceae					
155.	30294	*Halgania gustafsenii var. Mid West (G. Perry 370)*			
156.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
157.	6727	*Trichodesma zeylanicum (Camel Bush, Kumbalin)*			
Boryaceae					
158.	1271	*Borya nitida (Pincushions)*			
159.	1273	*Borya sphaerocephala (Pincushions)*			
Branchipodidae					
160.		*Parartemia informis*			
161.		*Parartemia sp.*			
Brassicaceae					
162.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
163.	3033	*Lepidium oxytrichum*			
164.	3044	*Lepidium rotundum (Veined Peppercress)*			
165.	3069	*Sisymbrium erysimoides (Smooth Mustard)*	Y		
166.	3074	*Stenopetalum anfractum*			
167.	3076	*Stenopetalum filifolium*			
Bryaceae					
168.		*Bryum sp.*			
Burhinidae					
169.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
Cacatuidae					
170.		*Eolophus roseicapillus*			
171.		*Lophochroa leadbeateri*			
Campanulaceae					
172.	7402	*Lobelia gibbosa (Tall Lobelia)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
173.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
174.	7409	*Lobelia winfridae (Little Lobelia)*			
175.	7389	*Wahlenbergia preissii*			
176.		*Wahlenbergia sp.*			
Campephagidae					
177.	24361	*Coracina maxima (Ground Cuckoo-shrike)*			
178.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
179.	24367	*Lalage tricolor (White-winged Triller)*			
Caprimulgidae					
180.	24368	*Eurostopodus argus (Spotted Nightjar)*			
Caryophyllaceae					
181.	19825	*Petrorhagia dubia*	Y		
182.	2905	*Polycarpon tetraphyllum (Fourleaf Allseed)*	Y		
183.	2913	*Spergula pentandra (Five Anther Spurry)*	Y		
184.	8900	*Spergularia marina*			
Casuariidae					
185.	24470	*Dromaius novaehollandiae (Emu)*			
Casuarinaceae					
186.	1720	*Allocasuarina acutivalvis*			
187.	13904	*Allocasuarina acutivalvis subsp. acutivalvis*			
188.	13905	*Allocasuarina acutivalvis subsp. prinsepiana*			
189.	1721	*Allocasuarina campestris*			
190.	1742	*Casuarina obesa (Swamp Sheoak, Kuli)*			
Celastraceae					
191.	4725	*Psammomoya choretroides*			
192.	19913	*Psammomoya implexa*		P3	
193.	4734	*Stackhousia muricata*			
194.	19555	*Stackhousia muricata subsp. annual (W.R. Barker 2172)*			
Centrolepidaceae					
195.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
196.	1124	*Centrolepis cephaloformis*			
197.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
Centropagidae					
198.		*Calamoecia clitellata*			
Charadriidae					
199.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
200.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
201.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
202.	24386	*Vanellus tricolor (Banded Lapwing)*			
Chenopodiaceae					
203.	2451	*Atriplex bunburyana (Silver Saltbush)*			
204.	2453	*Atriplex codonocarpa (Flat-topped Saltbush)*			
205.	2470	*Atriplex paludosa (Marsh Saltbush)*			
206.	11525	*Atriplex paludosa subsp. baudinii*			
207.	2476	*Atriplex semilunaris (Annual Saltbush)*			
208.	2481	*Atriplex vesicaria (Bladder Saltbush)*			
209.	2489	*Chenopodium gaudichaudianum (Cottony Saltbush)*			
210.	2498	*Didymanthus roei*			
211.	2500	*Dysphania glandulosa*			
212.	11632	*Dysphania glomulifera subsp. eremaea*			
213.	33479	*Dysphania melanocarpa (Black Crumbweed)*			
214.	33597	*Dysphania melanocarpa forma melanocarpa (Black Goosefoot)*			
215.	2510	*Enchylaena lanata*			
216.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
217.	12064	*Enchylaena tomentosa var. tomentosa (Barrier Saltbush)*			
218.	2514	*Eriochiton sclerolaenoides (Woolly Bindii)*			
219.	2535	*Maireana appressa*			
220.	2538	*Maireana carnosa (Cottony Bluebush)*			
221.	2539	*Maireana convexa (Mulga Bluebush)*			
222.	2543	*Maireana eriosphaera*			
223.	2544	*Maireana georgei (Satiny Bluebush)*			
224.	2556	*Maireana planifolia (Low Bluebush)*			
225.	2560	*Maireana pyramidata (Sago Bush)*			
226.	2566	*Maireana thesioides (Lax Bluebush)*			
227.	2567	*Maireana tomentosa (Felty Bluebush)*			

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228.	11662	*Maireana tomentosa subsp. tomentosa*			
229.	2568	*Maireana trichoptera (Downy Bluebush)*			
230.	2569	*Maireana triptera (Threewinged Bluebush)*			
231.	2571	*Maireana villosa*			
232.	2581	*Rhagodia drummondii*			
233.	2582	*Rhagodia eremaea (Thorny Saltbush)*			
234.	30434	*Salsola australis*			
235.	2607	*Sclerolaena densiflora*			
236.	2609	*Sclerolaena diacantha (Grey Copperburr)*			
237.	2611	*Sclerolaena eriacantha (Tall Bindii)*			
238.	2615	*Sclerolaena fusiformis*			
239.	8877	*Sclerolaena gardneri*			
240.	2622	*Sclerolaena microcarpa*			
241.	2627	*Sclerolaena patenticuspis (Spear-fruit Saltbush)*			
242.	33319	*Tecticornia indica subsp. bidens*			
Cinclosomatidae					
243.	25580	*Cinclosoma castaneothorax (Chestnut-breasted Quail-thrush)*			
244.	24390	*Psophodes occidentalis (Western Wedgebill, Chiming Wedgebill)*			
Cladoniaceae					
245.	48177	*Cladia muelleri*			
Colchicaceae					
246.	31272	*Wurmbea sp. Paynes Find (C.J. French 1237)*			
Columbidae					
247.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
248.	24409	*Phaps chalcoptera (Common Bronzewing)*			
Convolvulaceae					
249.	6663	*Cuscuta epithymum (Lesser Dodder, Greater Dodder)*	Y		
250.	31334	*Duperreya sericea*			
Corvidae					
251.	24416	*Corvus bennetti (Little Crow)*			
252.	25592	*Corvus coronoides (Australian Raven)*			
253.	25593	*Corvus orru (Torresian Crow)*			
Cracticidae					
254.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
255.	25595	*Cracticus tibicen (Australian Magpie)*			
256.	25596	*Cracticus torquatus (Grey Butcherbird)*			
257.	25597	*Strepera versicolor (Grey Currawong)*			
Crassulaceae					
258.	3137	*Crassula colorata (Dense Stonecrop)*			
259.	11709	*Crassula colorata var. acuminata*			
260.	11563	*Crassula colorata var. colorata*			
Cuculidae					
261.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
262.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
263.	24434	*Chrysococcyx osculans (Black-eared Cuckoo)*			
Cupressaceae					
264.	92	*Callitris canescens*			
265.	8466	*Callitris columellaris (White Cypress Pine)*			
266.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
Cyperaceae					
267.	750	*Bulbostylis barbata*			
268.	31017	*Eleocharis papillosa*		P3	
269.	20200	*Isolepis cernua var. setiformis*			
270.	911	*Isolepis congrua*			
271.	930	*Lepidosperma costale*			
272.	955	*Mesomelaena pseudostygia*			
273.	994	*Schoenus humilis*			
274.	1002	*Schoenus nanus (Tiny Bog Rush)*			
275.	17409	*Schoenus variicellae*			
Dasyuridae					
276.	24087	*Antechinomys laniger (Kultarr)*			
277.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
278.	24115	*Sminthopsis longicaudata (Long-tailed Dunnart)*		P4	

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Dicaeidae					
279.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
Dicruridae					
280.	24443	*Grallina cyanoleuca (Magpie-lark)*			
281.	48096	*Rhipidura albiscapa (Grey Fantail)*			
282.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
Dilleniaceae					
283.	5130	*Hibbertia glomerosa (Guinea-flower)*			
284.	19779	*Hibbertia glomerosa var. glomerosa*			
285.	19683	*Hibbertia stenophylla*			
Diplodactylidae					
286.	24940	*Diplodactylus pulcher*			
287.	42415	*Lucasium squarrosum*			
288.	24976	*Oedura marmorata (Marbled Velvet Gecko)*			
289.	24982	*Rhynchoedura ornata (Western Beaked Gecko)*			
290.	25518	*Strophurus spinigerus*			
291.	24946	*Strophurus strophurus*			
Droseraceae					
292.	3088	*Drosera andersoniana (Sturdy Sundew)*			
293.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
294.	3106	*Drosera macrantha (Bridal Rainbow)*			
Ecdeiocoleaceae					
295.	1066	*Ecdeiocolea monostachya*			
Elapidae					
296.	25243	*Acanthophis pyrrhus (Desert Death Adder)*			
297.	42381	*Brachyurophis semifasciatus (Southern Shovel-nosed Snake)*			
298.	25296	*Demansia psammophis subsp. reticulata (Yellow-faced Whipsnake)*			
299.	25301	*Furina ornata (Moon Snake)*			
300.	25254	*Parasuta monachus*			
301.	25261	*Pseudechis australis (Mulga Snake)*			
302.	25262	*Pseudechis butleri (Spotted Mulga Snake)*			
303.	42416	*Pseudonaja mengdeni (Western Brown Snake)*			
304.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
305.	25269	*Suta fasciata (Rosen's Snake)*			
Ericaceae					
306.	6336	*Astroloma serratifolium (Kondrung)*			
307.	19517	*Leucopogon sp. outer wheatbelt (M. Hislop 30)*			
Estrilidae					
308.	30870	*Taeniopygia guttata (Zebra Finch)*			
Euphorbiaceae					
309.	16492	*Calycopeplus paucifolius*			
310.	4620	*Euphorbia boophthona (Gascoyne Spurge)*			
311.	4626	*Euphorbia drummondii (Caustic Weed, Piwi)*			
312.	12097	*Euphorbia tannensis subsp. eremophila (Desert Spurge)*			
313.	19584	*Monotaxis bracteata*			
314.	4704	*Ricinocarpos velutinus*			
315.	20538	*Stachystemon intricatus*			
Fabaceae					
316.	3199	*Acacia acuaria*			
317.	3200	*Acacia acuminata (Jam, Mangard)*			
318.	3216	*Acacia andrewsii*			
319.	3217	*Acacia aneura (Mulga, Wanari)*			
320.	12247	*Acacia anthochaera*			
321.	15467	*Acacia assimilis subsp. assimilis*			
322.	16112	*Acacia aulacophylla*			
323.	3248	*Acacia burkittii (Sandhill Wattle)*			
324.	36417	*Acacia caesaneura*			
325.	15472	*Acacia cavealis*			
326.	3264	*Acacia colletioides (Wait-a-while)*			
327.	3269	*Acacia coolgardiensis (Spinifex Wattle)*			
328.	3273	*Acacia craspedocarpa (Hop Mulga)*			
329.	44536	*Acacia doreta*			
330.	32118	*Acacia effusifolia*			
331.	3321	*Acacia eremaea*			
332.	3323	*Acacia ericifolia*			

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333.	3324	*Acacia erinacea*			
334.	3330	*Acacia exocarpoides*			
335.	36781	*Acacia fuscaneura*			
336.	3355	*Acacia grasbyi (Miniritchie)*			
337.	32117	*Acacia incognita*			
338.	3392	*Acacia jamesiana*			
339.	3395	*Acacia jibberdingensis*			
340.	11611	*Acacia lasiocarpa var. lasiocarpa*			
341.	32116	*Acacia latior*			
342.	3419	*Acacia ligulata (Umbrella Bush, Watarka)*			
343.	3420	*Acacia ligustrina*			
344.	3426	*Acacia longispinea*			
345.	13503	*Acacia masliniana*			
346.	3443	*Acacia microcalyx*			
347.	3452	*Acacia murrayana (Sandplain Wattle)*			
348.	15290	*Acacia neurophylla subsp. erugata*			
349.	3473	*Acacia oswaldii (Miljee, Nelia)*			
350.	36800	*Acacia pteraneura*			
351.	3510	*Acacia ramulosa (Horse Mulga)*			
352.	19483	*Acacia ramulosa var. linophylla*			
353.	19499	*Acacia ramulosa var. ramulosa*			
354.	3515	*Acacia restiacea*			
355.	13078	*Acacia sclerosperma subsp. sclerosperma*			
356.	3545	*Acacia sibina*			
357.	8949	*Acacia sibirica (Bastard Mulga)*			
358.	18615	*Acacia sp. Mullewa (B.R. Maslin 4269)*			
359.	20341	*Acacia sp. Wubin (B.R. Maslin 4131)*			
360.	29118	*Acacia sp. small seed (B.R. Maslin 7830)*			
361.	14615	*Acacia speckii*		P4	
362.	15294	*Acacia stereophylla var. stereophylla*			
363.	14147	*Acacia subsessilis*		P3	
364.	3577	*Acacia tetragonophylla (Kurara, Wakalpuka)*			
365.	3586	*Acacia tysonii*			
366.	31071	*Acacia umbraculiformis*			
367.	3595	*Acacia victoriae (Bramble Wattle, Ngatunpa)*			
368.	3813	*Daviesia grahamii*			
369.	20711	*Eutaxia leptophylla*			
370.	3938	*Glycine canescens (Silky Glycine)*			
371.	14781	*Jacksonia acicularis*			
372.	4026	*Jacksonia rhadinoclada*			
373.	4094	*Mirbelia microphylla*			
374.	4097	*Mirbelia ramulosa*			
375.	41988	*Mirbelia sp. Bursarioides (T.R. Lally 760)*			
376.	17645	*Senna artemisioides*			
377.	12276	*Senna artemisioides subsp. filifolia*			
378.	18444	*Senna charlesiana*			
379.	12305	*Senna glutinosa subsp. chatelainiana*			
380.	12315	*Senna pleurocarpa var. angustifolia*			
381.	14579	*Senna sp. Austin (A. Strid 20210)*			
382.	14577	*Senna sp. Meekatharra (E. Bailey 1-26)*			
383.	12355	*Swainsona affinis*			
384.	4226	*Swainsona elegans*			
385.	4229	*Swainsona gracilis*			
386.	4237	*Swainsona oliveri*			
387.	13586	*Swainsona paucifoliolata*			
388.	12357	*Swainsona purpurea*			
389.	4243	*Swainsona rostellata*			
Falconidae					
390.	25621	*Falco berigora (Brown Falcon)*			
391.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
Frankeniaceae					
392.	5209	*Frankenia pauciflora (Seaheath)*			
Gekkonidae					
393.	24958	*Gehyra punctata*			
394.	24959	*Gehyra variegata*			
395.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
Geraniaceae					
396.	4333	*Erodium cicutarium (Common Storksbill)*	Y		

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397.	4335	*Erodium cygnorum (Blue Heronsbill)*			
Goodeniaceae					
398.	7413	*Brunonia australis (Native Cornflower)*			
399.	7472	*Dampiera salahae*			
400.	13158	*Dampiera tenuicaulis var. curvula*			
401.	7483	*Dampiera tomentosa (Felted Dampiera)*			
402.	7486	*Dampiera wellsiana (Wells' Dampiera)*			
403.	7495	*Goodenia berardiana*			
404.	7514	*Goodenia havilandii*			
405.	12523	*Goodenia helmsii*			
406.	7527	*Goodenia mimuloides*			
407.	7531	*Goodenia occidentalis*			
408.	7565	*Goodenia xanthosperma (Yellow-seeded Goodenia)*			
409.	7583	*Lechenaultia macrantha (Wreath Leschenaultia)*			
410.	7644	*Scaevola spinescens (Currant Bush, Maroon)*			
411.	7648	*Scaevola tomentosa (Raggedleaf Fanflower)*			
412.	7656	*Velleia cycnopotamica*			
413.	7661	*Velleia hispida (Hispid Velleia)*			
414.	7664	*Velleia rosea (Pink Velleia)*			
Gyrostemonaceae					
415.	2778	*Codonocarpus cotinifolius (Native Poplar, Kundurangu)*			
416.	2783	*Gyrostemon racemiger*			
Halcyonidae					
417.	42351	*Todiramphus pyrrhopygius (Red-backed Kingfisher)*			
Haloragaceae					
418.	6176	*Haloragis odontocarpa (Mulga Nettle)*			
419.	11370	*Haloragis odontocarpa forma octoforma*			
420.	16371	*Haloragis odontocarpa forma pterocarpa*			
421.	11440	*Haloragis odontocarpa forma rugosa*			
422.	6180	*Haloragis trigonocarpa*			
Hemerocallidaceae					
423.	1259	*Dianella revoluta (Blueberry Lily)*			
424.	11636	*Dianella revoluta var. divaricata*			
425.	1260	*Stypandra glauca (Blind Grass)*			
Hirundinidae					
426.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
427.	24491	*Hirundo neoxena (Welcome Swallow)*			
428.	48060	*Petrochelidon ariel (Fairy Martin)*			
429.	48061	*Petrochelidon nigricans (Tree Martin)*			
Hylidae					
430.	25376	*Cyclorana platycephala (Water-holding Frog)*			
Hypoxidaceae					
431.	43764	*Pauridia glabella var. leptantha*			
Icmadophilaceae					
432.	28060	*Siphula coriacea*			
Idiopidae					
433.	33917	*Idiosoma nigrum (Shield-backed Trapdoor Spider)*		T	
Juncaceae					
434.	1176	*Juncus aridicola*			
435.	1178	*Juncus bufonius (Toad Rush)*	Y		
Juncaginaceae					
436.	33221	*Triglochin longicarpa*			
437.	147	*Triglochin mucronata*			
438.	18587	*Triglochin nana*			
439.	19174	*Triglochin sp. A Flora of Australia (G.J. Keighery 2477)*			
Lamiaceae					
440.	41025	*Dasymalla terminalis (Native Foxglove)*			
441.	6760	*Dicrastylis fulva*			
442.	6765	*Dicrastylis linearifolia*		P3	
443.	18549	*Dicrastylis soliparma*			
444.	33759	*Hemigenia benthamii*			
445.	33778	*Hemigenia botryphylla*			
446.	6850	*Hemigenia divaricata*			
447.	17397	*Hemigenia sp. Yalgoo (A.M. Ashby 2624)*			

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448.	46414	*Hemigenia yalgensis*			
449.	17209	*Lachnostachys verbascifolia var. verbascifolia*			
450.	17643	*Microcorys sp. Mt Gibson (S. Patrick 2098)*			
451.	15822	*Prostanthera althoferi subsp. althoferi*			
452.	6912	*Prostanthera campbellii*			
453.	6919	*Prostanthera magnifica (Magnificent Prostanthera)*			
454.	6920	*Prostanthera patens*			
455.	41650	*Prostanthera prostantheroides*			
456.	48603	*Teucrium teucriiflorum*			
Leporidae					
457.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
Limnodynastidae					
458.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
459.	25427	*Neobatrachus sutor (Shoemaker Frog)*			
460.	25428	*Neobatrachus wilsmorei (Plonking Frog)*			
Loranthaceae					
461.	2383	*Amyema preissii (Wireleaf Mistletoe)*			
462.	2396	*Lysiana casuarinae*			
Lycosidae					
463.		*Lycosa australicola*			
464.		*Mainosa longipes*			
465.		*Venator yalkara*			
Macropodidae					
466.	24135	*Macropus robustus subsp. erubescens (Euro, Biggada)*			
467.	24136	*Macropus rufus (Red Kangaroo, Marlu)*			
Maluridae					
468.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
469.	24544	*Malurus lamberti subsp. assimilis (Variegated Fairy-wren)*			
470.	25652	*Malurus leucopterus (White-winged Fairy-wren)*			
471.	25654	*Malurus splendens (Splendid Fairy-wren)*			
Malvaceae					
472.	4889	*Abutilon cryptopetalum*			
473.	4902	*Abutilon oxycarpum (Flannel Weed)*			
474.	43020	*Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)*			
475.	4907	*Alyogyne pinoniana (Sand Hibiscus)*			
476.	40910	*Androcalva luteiflora (Yellow-flowered Rulingia)*			
477.	4951	*Lawrencia chrysoderma*			
478.	4959	*Lawrencia squamata*			
479.	4964	*Radyera farragei (Knobby Hibiscus)*			
480.	46818	*Seringia hermanniifolia (Crinkle-leaved firebush)*			
481.	46824	*Seringia velutina (Velvet firebush)*			
482.	4970	*Sida calyxhymenia (Tall Sida)*			
483.	31759	*Sida ectogama*			
484.	16929	*Sida phaeotricha*			
485.	31857	*Sida sp. Golden calyces glabrous (H.N. Foote 32)*			
486.	19712	*Sida sp. dark green fruits (S. van Leeuwen 2260)*			
Marsileaceae					
487.	74	*Marsilea drummondii (Common Nardoo)*			
Megalosporaceae					
488.	27587	*Aspicilia calcarea*			
Megapodiidae					
489.	24557	*Leipoa ocellata (Malleefowl)*		T	
Meliphagidae					
490.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
491.	24561	*Anthochaera carunculata (Red Wattlebird)*			
492.	24564	*Certhionyx variegatus (Pied Honeyeater)*			
493.	24567	*Epthianura albifrons (White-fronted Chat)*			
494.	24570	*Epthianura tricolor (Crimson Chat)*			
495.	42314	*Gavicalis virescens (Singing Honeyeater)*			
496.	25661	*Lichmera indistincta (Brown Honeyeater)*			
497.	24583	*Manorina flavigula (Yellow-throated Miner)*			
498.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
Meropidae					
499.	24598	*Merops ornatus (Rainbow Bee-eater)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Montiaceae					
500.	44184	*Calandrinia baccata*			
501.	2853	*Calandrinia eremaea (Twining Purslane)*			
502.	2854	*Calandrinia granulifera (Pygmy Purslane)*			
503.	41985	*Calandrinia hortiorum*			
504.	2863	*Calandrinia primuliflora*			
505.	2864	*Calandrinia ptychosperma*			
506.	2867	*Calandrinia remota*			
507.	31132	*Calandrinia sp. Truncate capsules (A. Markey & S. Dillon 3474)*			
508.	36116	*Calandrinia sp. Warriedar (F. Obbens 04/09)*		P2	
Muridae					
509.	24223	*Mus musculus (House Mouse)*	Y		
Myobatrachidae					
510.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
511.	25434	*Pseudophryne occidentalis (Western Toadlet)*			
Myrtaceae					
512.	19465	*Aluta aspera subsp. hesperia*			
513.	36061	*Baeckea sp. Dudawa (M.E. Trudgen MET 5369)*			
514.	36062	*Baeckea sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)*			
515.	14476	*Baeckea sp. Walkaway (A.S. George 11249)*		P3	
516.	5408	*Calothamnus gilesii*			
517.	5461	*Calytrix glutinosa*			
518.	5468	*Calytrix oldfieldii*			
519.	28241	*Calytrix sp. Paynes Find (F. & J. Hort 1188)*			
520.	12373	*Calytrix uncinata*			
521.	5490	*Chamelaucium brevifolium*			
522.	35640	*Chamelaucium pauciflorum subsp. Perenjori (B.J. Conn 2181)*			
523.	14728	*Chamelaucium sp. Yalgoo (Y. Chadwick 1816)*		P1	
524.	34809	*Cheyniana microphylla (Bush Pomegranate)*			
525.	5506	*Darwinia capitellata*			
526.	16028	*Darwinia sp. Morawa (C.A. Gardner 2662)*		P3	
527.	20738	*Enekbatus dualis*		P1	
528.	14101	*Eremaea ebracteata var. brachyphylla*			
529.	5595	*Eucalyptus comitae-vallis (Comet Vale Mallee)*			
530.	13550	*Eucalyptus ebbanoensis subsp. photina*		P4	
531.	5641	*Eucalyptus ewartiana (Ewart's Mallee)*			
532.	5673	*Eucalyptus horistes*			
533.	19523	*Eucalyptus kochii subsp. amaryssia*			
534.	20303	*Eucalyptus kochii subsp. borealis*			
535.	15670	*Eucalyptus kochii subsp. plenissima*			
536.	13057	*Eucalyptus leptopoda subsp. arctata*			
537.	13038	*Eucalyptus loxophleba subsp. supralaevis*			
538.	19559	*Eucalyptus obtusiflora subsp. obtusiflora*			
539.	5725	*Eucalyptus oldfieldii (Oldfield's Mallee)*			
540.	5726	*Eucalyptus oleosa (Giant Mallee)*			
541.	12882	*Eucalyptus subangusta subsp. pusilla*			
542.	5783	*Eucalyptus synandra (Jingymia Mallee)*		T	
543.	19816	*Eucalyptus wubinensis*			
544.	5806	*Homalocalyx aureus*			
545.	5815	*Homalocalyx thryptomenoides*			
546.	48656	*Hysterobaeckea setifera subsp. setifera*			
547.	5865	*Malleostemon roseus*			
548.	16726	*Malleostemon sp. Yalgoo Road (Morawa Tree Committee 329)*		P1	Y
549.	5866	*Malleostemon tuberculatus*			
550.	37580	*Melaleuca acutifolia*			
551.	20284	*Melaleuca atroviridis*			
552.	5896	*Melaleuca cordata*			
553.	5908	*Melaleuca eleuterostachya*			
554.	15603	*Melaleuca fulgens subsp. fulgens*			
555.	15602	*Melaleuca fulgens subsp. steedmanii*			
556.	19486	*Melaleuca hamata*			
557.	5925	*Melaleuca lateriflora (Gorada)*			
558.	5929	*Melaleuca leiocarpa*			
559.	18435	*Melaleuca longistaminea*			
560.	9183	*Melaleuca nematophylla (Wiry Honey-myrtle)*			
561.	19449	*Melaleuca stereophloia*			
562.	37725	*Micromyrtus prochytes*			
563.	6000	*Micromyrtus racemosa*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
564.	6003	*Micromyrtus sulphurea*			
565.	19696	*Thryptomene costata*			
566.	6054	*Thryptomene decussata*			
567.	6057	*Thryptomene hyporhytis*			
568.	12436	*Verticordia interioris*			
Neosittidae					
569.	24606	*Daphoenositta chrysoptera subsp. pileata (Varied Sittella, Black-capped Sitella)*			
Orchidaceae					
570.	18029	*Caladenia remota subsp. parva*			
571.	15400	*Cyanicula amplexans*			
572.	16688	*Prasophyllum gracile*			
573.	18657	*Pterostylis sp. inland (A.C. Beauglehole 11880)*			
Otididae					
574.	24610	*Ardeotis australis (Australian Bustard)*			
Pachycephalidae					
575.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
576.	24613	*Colluricincla harmonica subsp. rufiventris (Grey Shrike-thrush)*			
577.	24618	*Oreoica gutturalis (Crested Bellbird)*			
578.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
579.	24624	*Pachycephala rufiventris subsp. rufiventris (Rufous Whistler)*			
Pardalotidae					
580.	25682	*Pardalotus striatus (Striated Pardalote)*			
581.	24630	*Pardalotus striatus subsp. westraliensis (Striated Pardalote)*			
Parmeliaceae					
582.	28169	*Xanthoparmelia pumila*			
583.	28172	*Xanthoparmelia reptans*			
584.	28356	*Xanthoparmelia verrucella*			
Petroicidae					
585.	47997	*Melanodryas cucullata (Hooded Robin)*			
586.	25693	*Microeca fascinans (Jacky Winter)*			
587.	24659	*Petroica goodenovii (Red-capped Robin)*			
Phyllanthaceae					
588.	17626	*Phyllanthus erwinii*			
Pittosporaceae					
589.	3167	*Bursaria occidentalis*			
590.	3168	*Cheiranthera filifolia*			
591.	31768	*Cheiranthera simplicifolia*			
592.	19744	*Pittosporum angustifolium*			
Plantaginaceae					
593.	7299	*Plantago debilis*			
594.	7302	*Plantago hispida*			
Poaceae					
595.	184	*Aira caryophyllea (Silvery Hairgrass)*	Y		
596.	12025	*Amphipogon caricinus var. caricinus*			
597.	38501	*Anthosachne scabra*			
598.	207	*Aristida contorta (Bunched Kerosene Grass)*			
599.	12063	*Aristida holathera var. holathera*			
600.	17237	*Austrostipa elegantissima*			
601.	17246	*Austrostipa nitida*			
602.	19588	*Austrostipa nodosa*			
603.	17251	*Austrostipa scabra*			
604.	17255	*Austrostipa trichophylla*			
605.	8661	*Brachypodium distachyon (False Brome)*	Y		
606.	252	*Bromus madritensis (Madrid Brome)*	Y		
607.	253	*Bromus rubens (Red Brome)*	Y		
608.	279	*Cymbopogon ambiguus (Scentgrass)*			
609.	357	*Enneapogon caerulescens (Limestone Grass)*			
610.	378	*Eragrostis dielsii (Mallee Lovegrass)*			
611.	387	*Eragrostis lanipes (Creeping Wanderrie)*			
612.	392	*Eragrostis pergracilis*			
613.	417	*Eriachne pulchella (Pretty Wanderrie)*			
614.	16485	*Eriachne pulchella subsp. dominii*			
615.	16486	*Eriachne pulchella subsp. pulchella*			
616.	468	*Lamarckia aurea (Goldentop)*	Y		
617.	490	*Monachather paradoxus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
618.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
619.	10975	*Paspalidium basicladum*			
620.	40423	*Pentameris airoides (False Hairgrass)*	Y		
621.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
622.	11151	*Rostraria pumila*	Y		
623.	40427	*Rytidosperma setaceum*			
624.	674	*Thyridolepis mitchelliana (Mulga Grass)*			
625.	675	*Thyridolepis multiculmis (Soft Wanderrie Grass)*			
626.	678	*Tragus australianus (Small Burrgrass)*			
627.	11018	*Vulpia muralis*	Y		
628.		*Vulpia sp.*			
Podargidae					
629.	25703	*Podargus strigoides (Tawny Frogmouth)*			
Podicipedidae					
630.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
631.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
Polygalaceae					
632.	4555	*Comesperma integerrimum*			
Polygonaceae					
633.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			
Pomatostomidae					
634.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
635.	25706	*Pomatostomus temporalis (Grey-crowned Babbler)*			
Portulacaceae					
636.	2884	*Portulaca oleracea (Purslane, Wakati)*			
Pottiaceae					
637.	32346	*Didymodon torquatus*			
Proteaceae					
638.	1956	*Grevillea argyrophylla (Silvery-leaved Grevillea)*			
639.	15763	*Grevillea biformis subsp. biformis*			
640.	1986	*Grevillea deflexa*			
641.	2001	*Grevillea eriostachya (Flame Grevillea, Kaliny-kalinypa)*			
642.	2004	*Grevillea extorris*			
643.	2011	*Grevillea globosa*		P3	
644.	2013	*Grevillea granulosa*		P3	
645.	13430	*Grevillea hakeoides subsp. stenophylla*			
646.	15844	*Grevillea juncifolia subsp. temulenta*			
647.	16797	*Grevillea levis*			
648.	19542	*Grevillea nematophylla subsp. supraplana*			
649.	15984	*Grevillea obliquistigma subsp. funicularis*			
650.	15981	*Grevillea obliquistigma subsp. obliquistigma*			
651.	2056	*Grevillea paniculata*			
652.	2068	*Grevillea pityophylla*			
653.	2071	*Grevillea polybotrya*			
654.	2077	*Grevillea pterosperma*			
655.	2084	*Grevillea rosieri*		P2	
656.	2167	*Hakea invaginata*			
657.	19137	*Hakea lorea subsp. lorea*			
658.	2182	*Hakea minyma*			
659.	2196	*Hakea preissii (Needle Tree, Dandjin)*			
660.	2198	*Hakea pycnoneura*			
661.	17556	*Hakea recurva subsp. arida*			
662.	17557	*Hakea recurva subsp. recurva*			
663.	15629	*Persoonia hexagona*			
664.	14569	*Persoonia pentasticha*		P3	
665.	14441	*Petrophile pauciflora*		P3	
Psittacidae					
666.		*Barnardius zonarius*			
667.	24722	*Cacatua leadbeateri (Major Mitchell's Cockatoo)*			
668.	24725	*Cacatua roseicapilla subsp. assimilis (Galah)*			
669.	25716	*Cacatua sanguinea (Little Corella)*			
670.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
671.	24736	*Melopsittacus undulatus (Budgerigar)*			
672.		*Neopsephotus bourkii*			
673.	24742	*Nymphicus hollandicus (Cockatiel)*			
674.	24748	*Platycercus varius (Mulga Parrot)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Psoraceae					
675.	27998	*Psora crenata*			
676.	27999	*Psora crystallifera*			
677.	28000	*Psora decipiens*			
Pteridaceae					
678.	12796	*Cheilanthes adiantoides*			
679.	31	*Cheilanthes austrotenuifolia*			
680.	32	*Cheilanthes brownii*			
681.	37	*Cheilanthes lasiophylla (Woolly Cloak Fern)*			
682.	12818	*Cheilanthes sieberi subsp. sieberi*			
Ptilonorhynchidae					
683.		*Ptilonorhynchus guttatus*			
Pygopodidae					
684.	25005	*Lialis burtonis*			
Rallidae					
685.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
Ramalinaceae					
686.	28073	*Toninia australis*			
Recurvirostridae					
687.	25734	*Himantopus himantopus (Black-winged Stilt)*			
Rhamnaceae					
688.	15544	*Cryptandra apetala var. apetala*			
689.	14314	*Cryptandra imbricata*			
Ricciaceae					
690.		*Riccia albida*			
Rubiaceae					
691.	7363	*Synaptantha tillaeacea*			
Ruppiaceae					
692.	114	*Ruppia maritima (Sea Tassel)*			
Rutaceae					
693.	18537	*Philotheca brucei subsp. brucei*			
694.	18385	*Philotheca deserti subsp. deserti*			
695.	18508	*Philotheca sericea*			
696.	18506	*Philotheca tomentella*			
Santalaceae					
697.	10977	*Exocarpos aphyllus (Leafless Ballart)*			
698.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
699.	2359	*Santalum spicatum (Sandalwood, Wilarak)*			
Sapindaceae					
700.	11487	*Alectryon oleifolius subsp. oleifolius*			
701.	4752	*Dodonaea adenophora*			
702.	31881	*Dodonaea amplisemina*		P4	
703.	4766	*Dodonaea inaequifolia*			
704.	4773	*Dodonaea petiolaris*			
705.	11247	*Dodonaea viscosa subsp. angustissima*			
Scincidae					
706.	25463	*Ctenotus pantherinus (Leopard Ctenotus)*			
707.	25065	*Ctenotus pantherinus subsp. pantherinus (Leopard Ctenotus)*			
708.	25074	*Ctenotus schomburgkii*			
709.	25075	*Ctenotus severus*			
710.	25092	*Egernia depressa (Southern Pygmy Spiny-tailed Skink)*			
711.	25107	*Egernia stokesii subsp. badia (Western Spiny-tailed Skink, Gidgee Skink)*		T	
712.	25109	*Eremiascincus richardsonii (Broad-banded Sand Swimmer)*			
713.	25137	*Lerista gerrardii*			
714.		*Lerista kingi*			
715.	25157	*Lerista nichollsi*			
716.	42411	*Lerista timida*			
717.	25184	*Menetia greyii*			
718.	25190	*Morethia butleri*			
Scolopacidae					
719.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
720.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
721.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
Scolopendridae					
722.		*Cormocephalus turneri*			
723.		*Scolopendra laeta*			
724.		*Scolopendra morsitans*			
Scrophulariaceae					
725.	7189	*Eremophila clarkei (Turpentine Bush)*			
726.	17157	*Eremophila compacta subsp. compacta*			
727.	14895	*Eremophila decipiens subsp. decipiens*			
728.	14896	*Eremophila decipiens subsp. linearifolia*			
729.	7204	*Eremophila eriocalyx (Desert Pride)*			
730.	7205	*Eremophila exilifolia*			
731.	7208	*Eremophila forrestii (Wilcox Bush)*			
732.	15052	*Eremophila forrestii subsp. forrestii*			
733.	29532	*Eremophila galeata*			
734.	7215	*Eremophila glabra (Tar Bush)*			
735.	17174	*Eremophila glabra subsp. elegans*			
736.	7219	*Eremophila granitica (Thin-leaved Poverty Bush)*			
737.	17189	*Eremophila hygrophana*			
738.	7230	*Eremophila latrobei (Warty Fuchsia Bush, Mintjingka)*			
739.	17576	*Eremophila latrobei subsp. latrobei*			
740.	15158	*Eremophila mackinlayi subsp. spathulata*			
741.	16363	*Eremophila maculata subsp. brevifolia (Native Fuchsia)*			
742.	7242	*Eremophila miniata (Kopi Poverty Bush)*			
743.	17168	*Eremophila oldfieldii subsp. oldfieldii*			
744.	18570	*Eremophila oppositifolia subsp. angustifolia*			
745.	7250	*Eremophila pantonii*			
746.	48949	*Eremophila platycalyx subsp. Granites (D.J. Edinger & G. Marsh DJE 4782)*			
747.	48947	*Eremophila platycalyx subsp. Yalgoo (A. Markey & S. Dillon 3337)*			
748.	15058	*Eremophila platycalyx subsp. platycalyx*			
749.	7257	*Eremophila punicea (Crimson Eremophila)*			
750.	7269	*Eremophila serrulata (Serrate-leaved Eremophila)*			
751.	7282	*Eremophila viscida (Varnish Bush)*		T	
752.	15155	*Eremophila youngii subsp. youngii*			
753.	7113	*Zaluzianskya divaricata (Spreading Night Phlox)*	Y		
Solanaceae					
754.	6952	*Anthotroche pannosa (Felted Anthotroche)*			
755.	6953	*Anthotroche walcottii*			
756.	6966	*Duboisia hopwoodii (Pituri, Kundugu)*			
757.	6972	*Nicotiana cavicola (Talara)*			
758.	11327	*Nicotiana occidentalis subsp. hesperis*			
759.	11331	*Nicotiana occidentalis subsp. obliqua*			
760.	6977	*Nicotiana rosulata (Rosetted Tobacco)*			
761.	11734	*Nicotiana rosulata subsp. rosulata*			
762.	6978	*Nicotiana rotundifolia (Round-leaved Tobacco)*			
763.	6998	*Solanum cleistogamum*			
764.	7018	*Solanum lasiophyllum (Flannel Bush, Mindjulu)*			
765.	7023	*Solanum nummularium (Money-leaved Solanum)*			
766.	11241	*Solanum orbiculatum subsp. orbiculatum (Round-leaved Solanum)*			
Sparassidae					
767.		*Holconia nigrigularis*			
Stylidiaceae					
768.	7671	*Levenhookia leptantha (Trumpet Stylewort)*			
769.	7704	*Stylidium confluens*			
770.	7719	*Stylidium ecorne (Foot Triggerplant)*			
771.	7751	*Stylidium limbatum (Fringed-leaved Triggerplant)*			
772.	7754	*Stylidium longibracteatum (Long-bracted Trigger Plant)*			
773.	40946	*Stylidium scintillans*		T	
Surianaceae					
774.	3181	*Stylobasium australe*			
Threskiornithidae					
775.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
776.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
Thymelaeaceae					
777.	5245	*Pimelea forrestiana*			
778.	5256	*Pimelea microcephala (Shrubby Riceflower, Banjine)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
779.	11185	*Pimelea microcephala subsp. microcephala*			
Trapeliaceae					
780.	28077	*Trapelia coarctata*			
Turnicidae					
781.	24851	*Turnix velox (Little Button-quail)*			
Tytonidae					
782.	24852	*Tyto alba subsp. delicatula (Barn Owl)*			
Urodacidae					
783.		*Urodacus novaehollandiae*			
784.		*Urodacus yaschenkoi*			
Urticaceae					
785.	12670	*Parietaria cardiostegia*			
Usneaceae					
786.	28092	*Usnea scabrida*			
Varanidae					
787.	25211	*Varanus caudolineatus*			
788.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
Verrucariaceae					
789.	27736	*Endocarpon helmsianum*			
790.	27741	*Endocarpon simplicatum*			
791.	27984	*Placidium squamulosum*			
Zosteropidae					
792.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			
Zygophyllaceae					
793.	48890	*Roepera eremaea*			
794.	48897	*Roepera lobulata*			
795.	48901	*Roepera similis*			

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 wholely 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)

Australian Government

Department of Agriculture, Water and the Environment

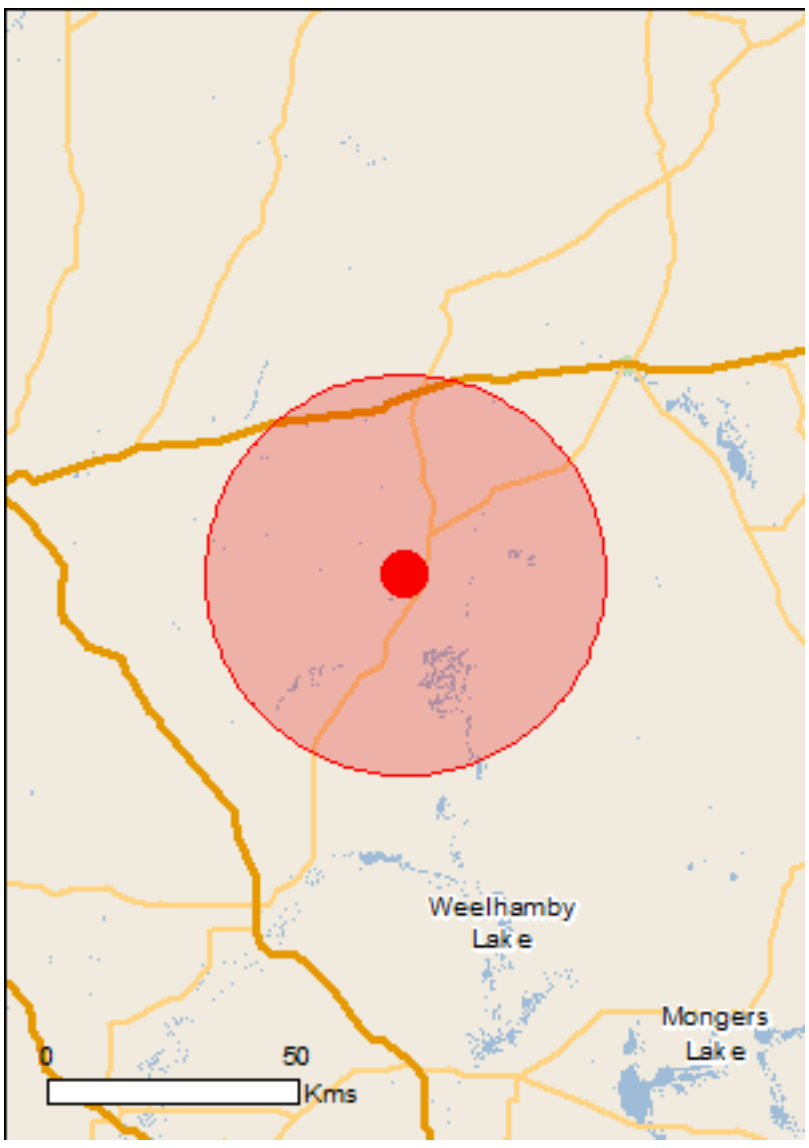
EPBC Act Protected Matters Report

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.

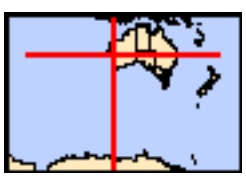
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 13/10/20 03:58:48



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:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	17
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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
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:	6
Regional Forest Agreements:	None
Invasive Species:	15
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

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

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Other		
Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Acacia cochlocarpa subsp. cochlocarpa Spiral-fruited Wattle [23877]	Endangered	Species or species habitat may occur within area
Dasymalla axillaris Native Foxglove [38829]	Critically Endangered	Species or species habitat may occur within area
Eleocharis papillosa Dwarf Desert Spike-rush [2519]	Vulnerable	Species or species habitat known to occur

Name	Status	Type of Presence
		within area
Eremophila nivea Silky Eremophila [14431]	Endangered	Species or species habitat likely to occur within area
Eremophila viscida Varnish Bush [2394]	Endangered	Species or species habitat known to occur within area
Eucalyptus beardiana Beard's Mallee [18933]	Vulnerable	Species or species habitat may occur within area
Eucalyptus synandra Jingymia Mallee [3753]	Vulnerable	Species or species habitat known to occur within area
Gyrostemon reticulatus Net-veined Gyrostemon [8491]	Critically Endangered	Species or species habitat likely to occur within area
Roycea pycnophylloides Saltmat [21161]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Egernia stokesii badia Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely 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 may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Barnong Pastoral Lease	WA
Barnong Pastoral Lease - Western Part	WA
Barrabarra	WA
Doutha Soak	WA
Kadji Kadji	WA
Lochada	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 Resouces 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 senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		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
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Carrichtera annua Ward's Weed [9511]		Species or species habitat may occur within area

Name	Status	Type of Presence
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-28.67607 116.27618

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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