Horizon Power

Burrup Expansion Project

Flora and Vegetation Survey

July 2020

Executive summary

Horizon Power is proposing the development of new transmission lines and a substation to supply electricity from the Maitland Strategic Industrial Area (MSIA) to the Burrup Strategic Industrial Area (BSIA), located in the Pilbara Region of Western Australia.

Horizon Power commissioned GHD Pty Ltd to undertake a vegetation and flora survey of the proposed transmission line (survey area) which will require clearing of native vegetation. The purpose of the assessment is to delineate key flora and vegetation values and potential impact to areas of sensitivity. The outcomes of the assessment will inform the project design and provide information to support a native vegetation clearing permit application under Part V of the *Environmental Protection Act 1986*.

This report is subject to and must be read in conjunction with, the limtations set out in section 1.6 and the assumptions and qualifications contained throughout this report.

Key findings

- Ninteen vegetation types were identified and described for the survey area, as well as cleared and/or highly degraded areas. The survey area is mostly located along the existing power line corridor and some adjacent access tracks. The southernmost portion of the survey area, particularly the east-west stretch of the proposed corridor is less developed. The vegetation condition throughout the survey area varied, but was mostly in Very Good and Good condition.
- No vegetation communities identified within the survey area are representative of a Threatened Ecological Community (TEC). The presence of two Priority Ecological Communities (PECs) were identified within the survey area:
  - Horseflat land system of the Roebourne Plains (Priority 3). Vegetation type 11 (VT11) is representative of this PEC. There is 173.47 ha of this PEC occurring within the survey area and contains areas of Excellent, Very Good, Good and Degraded condition.
  - Burrup Peninsula rock pile communities (Priority 1). Vegetation type 1 (VT01) is representative of this PEC. There is 4.67 ha of this PEC occurring within the survey area and is of Very Good condition.
- The survey recorded a total of 131 flora taxa (including subspecies and varieties) representing 35 families and 86 genera within the survey area.
- No Threatened flora species listed under the EPBC Act and/or BC Act were recorded within the survey area. Four Priority species listed by the DBCA, *Rhynchosia bungarensis* (Priority 4), *Terminalia supranitifolia* (Priority 3), *Vigna triodiophila* (Priority 3) and *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479) were recorded in the survey area.

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1. Introduction

1.1 Background

Horizon Power is proposing to develop new transmission lines and substation infrastructure to supply electricity from the Maitland Strategic Industrial Area (MSIA) to the Burrup Strategic Industrial Area (BSIA) and Karratha, in the Pilbara region of Western Australia.

The generation of power at the MSIA will require a transmission line to Burrup Peninsula, which is approximately 35 km northeast by road. Currently, Horizon Power has a single 33 kV feeder on the Burrup fed from Dampier substation, which is not suitable for the future BSIA load cases.

A Flora and Vegetation Survey is required to support the environmental approval, anticipated to be a Native Vegetation Clearing Permit under Part V of the *Environmental Protection Act 1986* (EP Act)

1.2 Purpose of this report

GHD Pty Ltd (GHD) was commissioned by Horizon Power to complete a detailed vegetation and flora survey of the new proposed transmission line route. The purpose of the assessment is to delineate key flora and vegetation values within the survey area and potential impact to areas of sensitivity. The outcomes of the biological survey will be used to inform the project design and provide information to support a native vegetation clearing permit application under Part V of the EP Act.

1.3 Location

The transmission line route extends from Dampier to Karratha and further south. There is some crossover with an existing transmission line, in the northern and eastern sections. The survey area (Figure 1, Appendix A) is approximately 31 km long (north, south) and covers 805.87 hectares (ha). The clearing footprint will be wholly contained within the survey area.

1.4 Scope of works

GHD completed the following scope of works to achieve the purpose of the commission:

- Undertake a desktop assessment of the survey area to guide survey effort prior to the commencement of the survey
- Undertake a flora and vegetation survey to map vegetation units, condition and identify conservation significant flora and ecological communities within the disturbance footprint
- Prepare a technical report (this report) that documents the methods and results of the desktop assessment and field survey, and includes an assessment of the survey area against the ten clearing principles as a separate memorandum
- Provide spatial data suitable to support the submission of a native vegetation clearing permit application to the Department of Water, Environmental and Regulation (DWER).

1.5 Relevant legislation and background information

Key Commonwealth and WA environmental legislation that may be relevant to the project is outlined in Table 1. An overview of key legislation and guidelines, conservation codes and background information relevant to this project is provided in Appendix B.

Table 1 Key environmental legislation relevant to the project

Legislation	Responsible agency	Aspect
Commonwealth legislation		
Environment Protection and Biodiversity Conservation Act 1999	Department of the Environmental and Energy (DEE)	Matters of National Environmental Significance (MNES) including threatened flora and fauna
WA legislation		
Biodiversity Conservation Act 2016	Department of Biodiversity, Conservation and Attractions (DBCA)	Conservation and protection of biodiversity and biodiversity components in WA.
Biosecurity and Agricultural Management Act 2007	Department of Primary Industries and Regional Development (DPIRD)	Weeds and feral animals
Conservation and Land Management Act 1984	DBCA	Use, protection and management of public lands and waters and its flora and fauna
Environmental Protection Act 1986	Environmental Protection Authority (EPA) (Part IV) DWER (Part V)	Environmental impact assessment and management
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	DWER	Clearing of native vegetation
Rights in Water and Irrigation Act 1914	DWER	Access to and use of water resources; protection and management of river flows and drainage
Soil and Land Conservation Act 1945	DPIRD	Protection of soil and prevention/management of soil erosion

1.6 Limitations and assumptions

This report has been prepared by GHD for Horizon Power and may only be used and relied on by Horizon Power for the purpose agreed between GHD and the Horizon Power as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Horizon Power arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on information obtained from specific sample points. Site conditions at other areas of the site may be different from the site conditions found at the specific sample points. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Horizon Power and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2. Methodology

2.1 Desktop assessment

The desktop assessment was for the survey area with a 20 km buffer (study area), to identify environmental values and constraints by viewing GIS spatial files largely sourced from Government of Western Australia (GoWA) (2020a) and reviewing publically available, government managed databases. The information sources utilised in this assessment are presented in Table 2.

Table 2 Information sources

Aspect	Information source
Climate	Bureau of Meteorology (BoM) Climate Data Online (2020)
Geology, landforms and soil	1:500 000 State linear structures layer (DMIRS-015) Soil Landscape Mapping – Systems (DPIRD-064)
Acid Sulphate Soils (ASS)	Acid Sulfate Soil Risk Map, Pilbara Coastline (DWER-053)
Environmentally Sensitive Areas (ESAs)	Clearing Regulations – Environmentally Sensitive Areas (DWER-046)
Conservation reserves and areas	DBCA – Legislated Land and Waters (DBCA-011) DBCA – Lands of interest (DBCA-012)
Hydrology	Public Drinking Water Source Areas (DWER-033) RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037) RIWI Act, Groundwater Areas (DWER-034) RIWI Act, Rivers (DWER-036) Waterways Conservation Act Management Areas (DWER-072) Ramsar Sites (DBCA-010) Directory of Important Wetlands in Australia – Western Australia (DBCA-045) Water Information Reporting System (DWER 2019) City of Karratha Water Management Strategy (Essential Environmental 2016)
Vegetation	Pre-European Vegetation (DPIRD-006) Native Vegetation Extent (DPIRD-005) Statewide Vegetation Statistics (DoWA 2019b)
Threatened and Priority Ecological Communities (TECs and PECs)	DBCA Threatened Ecological Community (TEC) and Priority Ecological Community (PEC) spatial dataset Priority Ecological Communities for Western Australia Version 28 (DBCA 2019)
Conservation significant flora and fauna	DBCA NatureMap database (DBCA 2007-) DBCA Threatened and Priority Flora database (TPFL) Western Australian Herbarium database (WAHerb)
Matters of National Environmental Significance	EPBC Act Protected Matters Search Tool (PMST) (DAWE 2020a)

Where spatial data was available from the desktop assessment, this has been presented on Figure 2, Appendix A.

2.2 Field survey

2.2.1 Previous studies

GHD undertook a Level 1 flora and fauna survey for Horizon Power in 2019 for the 132kV Line Upgrade Project (GHD 2019). Part of the survey area scoped for this project (this report) directly aligns with the 2019 project, and some results have been utilised from the previous report to provide consistency. The vegetation types VT08, VT09 and VT16 (refer section 4.1.1) align with sample sites KAR_18, KAR_05, KAR_06, KAR_07, KAR_08 and KAR_21 (GHD 2019).

2.2.2 Flora and vegetation

The detailed flora and vegetation field survey was carried out by GHD botanist Joel Collins (flora license no. FB62000200) and ecologist Sarah Flemington (flora license no. FB62000202) over six days from 23 – 28 April 2020. This is the preferred survey timing from an ecological perspective (EPA 2016).

The flora and vegetation survey methodology and reporting has been conducted with references to the Environmental Protection Authority (EPA) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016).

The field survey included the following:

- GHD placed 23 non-permanent quadrats and 19 relevés across the survey area to adequately characterise the vegetation (Figure 3, Appendix A). In addition to quadrat and relevé sampling, the survey area was traversed in representative vegetation types to delineate extent and allow opportunistic collection of flora species. GHD have compiled an inventory of flora species (native and exotic) by vegetation type (Appendix D).
- Collected quadrat data included physical features (e.g. landform, soil types, litter cover), a list of dominant flora from each structural layer and a list of all species (native and introduced) within the quadrat including average height and cover (using the National Vegetation Information System (NVIS)). A photograph of each quadrat, and other presentative vegetation types and conditions were taken
- Vegetation units have been delineated using a combination of aerial photography, topographical features and field data. Vegetation mapping has been conducted in the field with boundaries drawn over aerial photography using handheld GPS equipment (Samsung tablet). Vegetation units were described based on structure, dominant taxa and cover characteristics as defined by quadrat and relevé data and field observations. Vegetation unit descriptions follow the NVIS and are consistent with NVIS Level V (Association). At Level V up to three taxa per stratum are used to describe the association (NVIS Technical Working Group 2017). Some vegetation was delineated after the survey was completed, due to an extension in the survey area. These vegetation types have been extrapolated by senior botanist Joel Collins and undertaken using aerial imagery and on-ground information obtained during the survey
- The vegetation condition was assessed and mapped in accordance with the vegetation condition rating scale for the Eremaean and Northern Botanical Provinces of Western Australia (IBRA) (devised by Keighery (1994) and adapted by EPA (2016)). The scale recognises the intactness of vegetation and consists of six rating levels. The vegetation condition rating scale is located in Appendix B. The vegetation condition was extrapolated in the extended survey areas using the on-ground information obtained survey the survey and the history of the site
- Based on results of the desktop assessment, GHD identified areas within the survey area that have the potential to contain conservation significant vegetation and flora. During the

field survey GHD undertook non-systematic targeted searches for conservation significant flora and vegetation within these areas. Where conservation significant flora taxa or vegetation were identified in the field, the locations of boundaries and/or individuals were recorded using a GPS

- Flora species that are well known to GHD ecologists were identified in the field. Where field identification of plant taxa was not possible, specimens were collected in a systematic manner and identified at the WA Herbarium by comparison with the reference collection and/or use of identification keys.

The conservation status of all recorded flora was compared against the current lists available on *FloraBase* (WA Herbarium 1998–) and the EPBC Act Threatened species database provided by DAWE (2019b). Nomenclature used in this report follows that used by the WA Herbarium as reported on *FloraBase.*

2.3 Limitations

2.3.1 Desktop limitations

The EPBC Act PMST is based on bioclimatic modelling for the potential presence of species. As such, this does not represent actual records of the species within the area. The records from the DBCA searches of Threatened and Priority flora provide more accurate information for the general area and local occurrence. However, some collection records cannot be dated and often misrepresent the current range of Threatened and Priority species.

2.3.2 Field survey limitations

The EPA (2016) states that flora and fauna survey reports for environmental impact assessment in WA should contain a section describing the limitations of the survey methods used. The limitations and constraints associated with this field survey are discussed in Table 3.

Table 3 Flora and fauna survey limitations

Aspect	Constraint	Comment
Sources of information and availability of contextual information.	Nil	Adequate information is available for the survey area. Broad scale (1:250,000) mapping by Beard (1975) and digitised by Shepherd et al. (2002 Regional biogeography (Van Vreeswyk et al. 2004).
Scope (what life forms were sampled etc).	Nil	Vascular flora were sampled during the survey. Non-vascular flora were not surveyed.
Proportion of flora collected and identified (based on sampling, timing and intensity)	Nil	The survey sampling and intensity was considered adequate, and seasonal conditions were considered satisfactory. All taxonomic groups were considered to be represented. The portion of flora collected and identified was considered moderate; and it is likely the survey under-recorded some grass species (Poaceae), annuals and herbs due to lower than average rainfall and consequently poor flowering material. However, based on the likelihood assessment it is unlikely these species would be conservation significant.
Flora determination	Minor	Flora determination was undertaken by GHD botanist/ecologist in the field and at the WA Herbarium. Six taxa could be identified to genus level only, and one taxon could be tentatively identified to species level, due to lack of

Aspect	Constraint	Comment
		flowering and/or fruiting material required for identification. None of these species were considered to be potential conservation significant flora. The taxonomy and conservation status of the WA flora is dynamic. This report was prepared with reliance on taxonomy and conservation status current at the time of report development, but it should be noted this may change in response to ongoing research and review of the International Union for Conservation Nature criteria.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed)	Minor	Mostly all of the survey area was accessible and was accessed by foot and vehicle. A small portion of the western side of the survey area was inaccessible due to land access (Rio Tinto owned land). Adequate time was available to complete the biological survey to the required standard.
Mapping reliability	Minor	The vegetation was mapped using high-resolution ESRI aerial imagery obtained from Landgate, topographical features, previous broad scale mapping (Beard 1975) and field data. Data was recorded in the field using hand-held GPS tools (e.g. Samsung tablet and Garmin GPS). Certain atmospheric factors and other sources of error can affect the accuracy of GPS receivers. The Garmin GPS units used for this survey are accurate to within ±5 metres on average. Therefore the data points consisting of coordinates recorded from the GPS may contain inaccuracies. The mapping of some additional survey areas were extrapolated as they were introduced after the field survey was completed. The extrapolation of vegetation types and vegetation condition was undertaken by the senior botanist whom undertook the survey. The extrapolation was undertaken using aerial imagery and knowledge of the site. Aerial imagery contains some inaccuracies due to year of publication (may not incorporate changes to vegetation i.e. clearing, a fire or seasonal change).
Timing/weather/season cycle	Minor	The field survey was conducted in April 2020. In the three months prior to the flora survey (January to March 2020) the Karratha weather station recorded a total of 341.8 mm of rainfall. The total rainfall is higher than the long-term average for the same period (Jan – March; 174 mm) (BoM 2020). The weather conditions recorded during the survey were considered unlikely to have impacted the survey results. The survey timings were considered appropriate for the flora and fauna field survey.
Disturbances (e.g. fire, flood, accidental human intervention)	Minor	Some of the survey area has been subject to previous disturbances, including clearing for vehicle tracks, salt ponds and construction of existing power lines and power infrastructure. These disturbances did not limit the biological survey.

Aspect	Constraint	Comment
Resources	Nil	Adequate resources were employed during the field survey. The person days were spent undertaking the survey using a dedicated botanist and ecologist.
Access restrictions	Minor	Only one small section of the survey area could not be accessed due to land ownership (Rio Tinto governed area).
Experience levels	Nil	The ecologists who executed the survey were practitioners suitably qualified in their respective fields. Joel Collins and Sarah Flemington are botanists/ecologists with over 17 and 4 years experience undertaking ecological surveys in the Pilbara bioregion in WA, respectively.

3. Desktop assessment

3.1 Physical environment

3.1.1 Climate

The project is located in the Pilbara region of Western Australia and experiences a semi-arid climate. Temperatures are warm to hot all year and rainfall is generally low, mostly falling in the late summer months due to the influence of tropical cyclones and monsoon. The closest meteorological recording station is located in Karratha (No. 004083) approximately 1.4 km from the survey area. Climatic data from this station indicates that the mean maximum temperature ranges from 36.3 °C in March, to 26.4 °C in July. The mean minimum temperature ranges from 26.9 °C in January to 13.8 °C in July. The mean annual rainfall for all years is 292.4 mm. 2019 was a dry year, receiving only 110.4 mm (BoM 2020).

3.1.2 Geology, landforms and soils

The project is located in the Karratha Coast Zone of the Pilbara Province. The Pilbara Province lies over the Pilbara Craton, which consists of two different tectonic components. The two broad geologic sequences are the ancient Archaean granite-greenstone terrain and the younger volcano-sedimentary sequence of the Hamersley Basin (Tille 2006).

The Karratha Coast Zone is characterised by coastal mudflats with sandy coastal plains and some hills on marine deposits and some sedimentary and volcanic rocks of the Pilbara Craton. Soils include tidal soils with some calcareous loamy earths, salt lake soils and red/brown noncracking clays (Tille 2006).

3.1.3 Land systems

The Pilbara region has been surveyed for the purposes of land classification, mapping and resource evaluation. One hundred and two land systems which are grouped into 20 broad land types have been described for the region, which are distinguished on the basis of topography, geology, soils and vegetation (Van Vreeswyk et al. 2004). The survey area intersects six land systems; details of these land systems are presented in Table 4.

Table 4 Land systems within the study area

Land system	Description	Location
Granitic	Rugged granitic hills supporting shrubby hard and soft spinifex grasslands. Geology: Archaean and Proterozoic granite, gneiss, granodiorite and porphyry. Geomorphology: Erosional surfaces; hill tracts and domes on granitic rocks with rough crests, associated rocky hill slopes, restricted lower stony plains; narrow, widely spaced tributary drainage floors and channels.	Intersects the north of the survey area, on the Burrup Peninsula.
Littoral	Bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches. Geology: Quaternary mudflat deposits, clay, salt and sand; eolian sand. Geomorphology: Depositional surfaces; saline coastal flats; estuarine and littoral surfaces with extensive bare saline tidal flats subject to infrequent tidal inundation, slightly higher samphire flats and alluvial plains, mangrove seaward fringes with dense branching patterns of shallow tidal creeks, minor coastal dunes, limestone ridges, sandy plains and beaches.	Intersects the north and centre of the survey area.

Land system	Description	Location
Cheerawarra	Sandy coastal plains and saline clay plains supporting soft and hard spinifex grasslands and minor tussock grasslands. Geology: Quaternary eolian sand and alluvium. Geomorphology: Depositional surfaces; gently undulating, sandy surfaced coastal plains and level plains with saline clay soils and bare saline scalds with wind hummocks; very rare distributary drainage lines.	Intersects the north and centre of the survey area.
Horseflat	Gilgaied clay plains supporting tussock grasslands and minor grassy snakewood shrublands. Geology: Quaternary alluvium. Geomorphology: Depositional surfaces; gilgaied and nongilgaied clay plains, stony plains, narrow linear drainage depressions and dissected slopes marginal to the River land system; mostly internally drained, some through going trunk drainage channels.	Intersects majority of the survey area, in the centre and southernmost parts.
Calcrete	Low calcrete platforms and plains supporting shrubby hard spinifex grasslands. Geology: Calcrete, alluvium and sand Geomorphology: Calcrete platforms and calcrete plains.	Intersects a small section of the central survey area
Ruth	Hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands. Geology: Archaean and Proterozoic intermediate and basic volcanic rocks; also quartz, minor chert, jaspilite, shale and siltstone. Geomorphology: Erosional surfaces; rounded hills and ridges with restricted lower slopes and stony interfluves, moderately to widely spaced drainage patterns.	Intersects small sections of the southeast survey area.

3.1.4 Acid sulphate soils

Acid sulphate soils (ASS) risk mapping indicates the soils of the survey area have a ‘High to moderate’ and ‘Moderate to low’ risk of causing environmental damage, if those soils are disturbed. The ‘High to moderate’ risk rating suggests there is a high to moderate risk of ASS occurring within 3 m of the natural soil surface and could be disturbed by most land development activities, such as earthworks and dewatering. The ‘Moderate to low’ risk rating suggests a moderate to low risk of ASS occurring within 3 m of the soil surface, but a high to moderate risk of ASS below 3 m of the soil surface (DER 2015).

3.2 Land use

3.2.1 Conservation reserves and areas

The survey area minimally intersects one DBCA managed conservation area, the Murujuga National Park located on the Burrup Peninsula Figure 2, Appendix A. Majority of the survey area is located immediately adjacent the National Park.

3.2.2 Environmentally sensitive areas

No Environmentally Sensitive Areas (ESAs) intersect the survey area. The nearest ESA is the Dampier Archipelago and its offshore Islands, which are located approximately 8 km northwest of the northern point of the survey area.

3.3 Hydrology

Desktop searches of the GoWA data layers identified the water resource aspects present in the study area. These are detailed in Table 5 below.

Table 5 Hydrology aspects within the study area

Aspect	Details	Results
Groundwater Areas	Groundwater areas proclaimed under the RIWI Act	Pilbara Groundwater Area
Surface Water Areas	Surface water areas proclaimed under the RIWI Act	Pilbara Surface Water Area
Irrigation District	Irrigation districts proclaimed under the RIWI Act	None present
Rivers	Rivers proclaimed under the Rights in RIWI Act	None present
Public Drinking Water Source Areas (PDWSA)	PDWSA is a collective term used for the description of Water Reserves, Catchment Areas and Underground Pollution Control Areas declared (gazetted) under the provisions of the *Country Area Water Supply Act 1947*	None present
Waterways Management Areas	Areas proclaimed under *the Waterway Conservation Act 1976*	None present

3.3.1 Groundwater

The survey area lies within the proclaimed Pilbara Groundwater Area (Figure 2, Appendix A). The Water Information Reporting (DWER 2020) system found 94 registered groundwater bores within the study area. This does not include unregistered bores. Groundwater levels recorded from available bore data indicate that groundwater beneath the survey area lies at approximately 12-13 m below ground level. These groundwater levels are expected to vary seasonally and be influenced by tidal processes. The northern section of the survey area is adjacent to evaporation ponds, and groundwater is expected to sit much closer to the surface in this area.

3.3.2 Surface water and drainage

The survey area is located within the proclaimed Pilbara Surface Water Area (Figure 2, Appendix A) and is in close proximity to the ocean. Surface water in the broader area is largely reliant on weather, and surface water in waterways is generally only present or flowing for parts of the year, often in response to larger cyclonic, rainfall events. The City of Karratha Water Management Strategy (Essential Environment 2016) indicate that drainage issues arise from the high erosion tendencies of the red soils and the large volumes of stormwater that flow in the wet season.

3.3.3 Wetlands

No Internationally (Ramsar) or nationally important wetlands are located within 20 km of the survey area.

3.4 Vegetation and flora

3.4.1 Regional biogeography

The survey area is located in the Pilbara bioregion and Roebourne sub-region as described by IBRA.

The Roebourne sub-region is characterised by Quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands. Samphire, *Sporobolus* and mangal occur on marine alluvial flats and river deltas. Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite. Islands are either Quaternary sand accumulations, or composed of basalt or limestone, or combinations of any of these three (Kendrick and Stanley 2001).

3.4.2 Broad vegetation mapping and extent

Broad scale (1:250,000) pre-European vegetation mapping of the area was completed by Beard (1975) at an association level. Mapping indicates four vegetation associations are present within the survey area:

- Hummock grasslands, grass steppe; soft spinifex (association 117)
- Bare areas; mudflats (association 127
- Mosaic: Short bunch grassland – savannah / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex (association 589)
- Hummock grasslands, grass steppe, hard spinifex, *Triodia wiseana* (association 157).

The pre-European mapping has been adapted and digitised by Shepherd et al. (2002). The extent of vegetation associations have been determined by the state-wide vegetation remaining extent calculations maintained by DBCA (last updated April 2019 – GoWA 2020b). As shown in Table 6, the current extents remaining of all vegetation associations are greater than 77% of their calculated pre European extents at all scales (e.g. State, IBRA bioregion, IBRA subregion and Local Government Area (LGA)).

3.4.3 Conservation significant ecological communities

The EPBC Act PMST did not identify any TECs within the survey area. Searches of the DBCA TEC/PEC database identified four PECs within 20 km of the survey area, two of which intersect the survey area boundary (Figure 2, Appendix A). Details of these communities are provided in Table 7.

Table 6 Extent of pre-European vegetation associations mapped within the survey area (Beard 1975, GoWA 2020b)

Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	%current extent in all DBCA managed land (proportion of current extent)
117	State: Western Australia	919,517.05	886,005.79	96.36	14.79
	IBRA bioregion: Pilbara	82,705.78	78,096.64	94.43	22.54
	IBRA subregion: Roebourne	50,962.94	46,901.57	92.03	37.53
	LGA: City of Karratha	41,173.74	31,921.58	77.53	58.03
127	State: Western Australia	737,724.05	697,871.38	94.60	12.30
	IBRA bioregion: Pilbara	177,749.75	159,595.04	89.79	2.32
	IBRA subregion: Roebourne	177,178.87	159,024.16	89.75	2.33
	LGA: City of Karratha	96,204.40	83,703.29	87.01	4.37
589	State: Western Australia	807,698.58	802,713.40	99.38	1.91
	IBRA bioregion: Pilbara	728,768.20	724,695.82	99.44	2.11
	IBRA subregion: Roebourne	675,391.80	671,327.48	99.40	2.14
	LGA: City of Karratha	312,813.64	310,512.32	99.26	0.78
157	State: Western Australia	502,728.56	499,311.84	99.32	18.24
	IBRA bioregion: Pilbara	199,832.17	198,409.23	99.29	5.80
	IBRA subregion: Roebourne	14,972.09	14,451.45	96.52	1.56
	LGA: City of Karratha	73,039.72	71,600.83	98.03	0.31

Table 7 Threatened and Priority Ecological Communities identified in the desktop searches

Community type	EPBC Act	DBCA	Description (DBCA 2020)
Roebourne Plains coastal grasslands with gilgai microrelief on deep cracking clays (Roebourne Plains gilgai grasslands)	-	Priority 1	The Roebourne Plains coastal grasslands with gilgai micro-relief occur on deep cracking clays that are self-mulching and emerge on depositional surfaces. The Roebourne Plains gilgai grasslands occur on microrelief of deep cracking clays, surrounded by clay plains/flats and sandy coastal and alluvial plains. The gilgai depressions supports ephemeral and perennial tussock grasslands dominated by *Sorghum* sp. and *Eragrostis xerophila* along with other native species *including Astrebla pectinata, Eriachne benthamii, Chrysopogon fallax* and *Panicum decompositum*. Restricted to the Karratha area, this community differs from the surrounding clay flats of the Horseflat land system which are dominated by *Eragrostis xerophila* and other perennial tussock grass species (*Eragrostis* mostly).
Horseflat land system of the Roebourne Plains	-	Priority 3	The Horseflat Land System of the Roebourne Plains are extensive, weakly gilgaied clay plains dominated by tussock grasslands on mostly alluvial non-gilgaied, red clay loams or heavy clay loams. Perennial tussock grasses include *Eragrostis xerophila* and other *Eragrostis* spp., *Eriachne* spp. and *Dichanthium* spp. The community also supports a suite of annual grasses including Sorghum spp. and rare *Astrebela* spp. The community extends from Cape Preston to Balla Balla surrounding the towns of Karratha and Roebourne. This community does not include priority ecological communities 'Roebourne Plains gilgai grasslands' and the 'Chenopod association of the Roebourne Plains area.
Coastal dune native tussock grassland dominated by *Whiteochloa airoides*	-	Priority 3	Tussock grassland of *Whiteochloa airoides* occurs on the landward side of foredunes, hind dunes or remnant dunes with white or pinkish white medium sands with marine fragments. There may be occasional *Spinifex longifolius* tussock or *Triodia epactia* hummock grasses and scattered low shrubs of *Olearia dampieri* subsp. *dampieri*, *Scaevola spinescens*, *S. cunninghamii*, *Trianthema turgidifolia* and *Corchorus* species (*C. walcottii, C. laniflorus*). Occurs on Barrow Island, Tent Island and possibly some unaffected littoral areas in West Pilbara. Closest known occurrence is approximately 5.5 km north east of the southern half of the survey area.
Burrup Peninsula rock pile communities	-	Priority 1	Pockets of vegetation in rock piles, rock pockets and outcrops. Comprise a mixture of Pilbara and Kimberley species, communities are different from those of the Hamersley and Chichester Ranges. Short-range endemics land snails. Know occurrences located less than 1 km northwest of the survey area.

3.4.4 Flora diversity

The *NatureMap* database identified 656 taxa previously recorded within 20 km of the survey area (Appendix C). This total comprised 36 naturalised (introduced) taxa and 620 native taxa. The most commonly recorded families were Fabaceae, Poaceae, Malvaceae and Chenopodiaceae.

3.4.5 Conservation significant flora

The EPBC Act PMST (Appendix C), *NatureMap* and DBCA (WA Herbarium and Threatened and Priority Flora) databases, identified the presence/potential presence of 11 conservation significant flora within the study area. The desktop search recorded:

- One Priority 2 taxon
- Nine Priority 3 taxa
- One Priority 4 taxon.

4. Field survey results

4.1 Vegetation

4.1.1 Vegetation types

Nineteen vegetation types were identified and described for the survey area, and additional areas were identified for cleared and/or highly degraded vegetation (92.85 ha). The survey area is mostly located along the existing power line corridor and some adjacent access tracks. The southernmost portion of the survey area, particularly the east-west stretch of the proposed corridor is less developed. Some additional areas were required to be mapped using extrapolation from aerial imagery, survey photographs and site knowledge. This was due to an extension of the survey area occurring after the survey was completed.

The vegetation within the survey area primarily consists of hummock grasslands of *Triodia epactia* and *T. wiseana* with scattered to open shrublands dominated by *Acacia, Hakea, Grevillea* and *Senna* species on rocky sandy loam plains and low undulating rocky rises and slopes. Minor drainage lines which dissect the plain and rocky slopes are lined by *Corymbia hamersleyana* and mostly *Eucalyptus victrix*.

A description of the vegetation types mapped across the survey area (and previously mapped in GHD 2019) and those vegetation types that were extrapolated have been provided in Table 7 and mapped in Figure 4, Appendix A.

Table 7 Vegetation types recorded within the survey area

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT01	*Brachychiton acuminatus* scattered low trees over *Grevillea pyramidalis* subsp. *pyramidalis*, *Terminalia supranitifolia* (P3) and *Flueggea virosa* subsp. *melanthesoides* scattered shrubs over *Triodia epactia* open hummock grassland over *Cymbopogon ambiguus* and **Cenchrus ciliaris* open tussock grassland and *Tinospora smilacina* and *Ipomoea costata* open vineland on rock piles. Associated species includes *Evolvulus alsinoides, Gomphrena cunninghamii, Triumfetta clementii* and *Abutilon lepidum.* Conservation listed species; *Rhynchosia bungarensis* (P4) and	HPKAR_02, HPKAR_09, HPKAR_10	4.67	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
	Vigna triodiophila (P3). Represents Priority 1 PEC Burrup Peninsula rock pile communities.					
VT02	*Corymbia hamersleyiana* open woodland over *Acacia bivenosa, Grevillea pyramidalis* subsp. *pyramidalis* and *Hakea lorea* subsp. *lorea* scattered shrubs over *Triodia epactia* open hummock grassland with **Cenchrus ciliaris* scattered grasss over over *Hybanthus aurantiacus, Cleome viscosa* and *Trichodesma zeylanicum* var. *zeylanicum* open forbland on brown sandy loam on elevated rocky plain. Associated species include *Chrysopogon fallax, Bonamia erecta, Euphorbia tamnesis* subsp.	HPKAR_01	2.74	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
	eremophila and *Sida fibulifera*.					
VT03	*Eucalyptus victrix* open woodland over *Terminalia circumalata* low open woodland over *Triodia wiseana* open hummock grassland with **Cenchrus ciliaris* and *Eriachne benthamii* scattered tussock grasslands over *Hybanthus aurantiacus, Indigofera trita* and *Gossypium australe* scattered herbs on rocky sandy loam on minor drainage lines. Associated species include *Cyperus vaginatus, Rhynchosia minima* and *Boerhavia coccinea*.	HPKAR_03, HPKAR_07, HPKAR_08, HPKAR_12, HPKAR_38	14.10	0.15	14.25	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT04	*Tecticornia ?indica* subsp. *leiostachya* and *Tecticornia ?pterygosperma* low chenopod shrubland with scattered *Avicennia marina* on saline flats with tidal inundation.	HPKAR_04	7.07	1.36	8.43	
VT05	**Cenchrus ciliaris* open grassland over *Trianthema turgidifolia* and *Neobassia astrocarpa* open chenopod shrubland on disturbed edges of saline flats.	HPKAR_05, HPKAR_06	7.12	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT06	*Grevillea pyramidalis* subsp. *pyramidalis* and **Vachellia farnesiana* scattered shrubs over *Ipomoea costata, Indigofera monophylla* and *Scaevola spinescens* open shrubland over *Triodia epactia* open hummock grassland over *Cleome viscosa, Rhynchosia minima* and *Hybanthus aurantiacus* scattered herbs on red/brown sandy loam on rocky slopes with frequent basalt outcropping. Associated species include *Abutilon lepidum, Gomphrena cunninghamii, Streptoglossa decurrens* and *Indigofera monophylla*	HPKAR_11, HPKAR_37	112.16	2.89	115.05	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT07	*Grevillea pyramidalis* subsp. *pyramidalis, Hakea lorea* subsp. *lorea, Acacia inaequilatera* and *Ehretia saligna* var. *saligna* open shrubland over *Solanum lasiophyllum, Diplopeltis eriocarpa* and *Solanum lasiophyllum* scattered shrubs over *Triodia epactia* sparse hummock grassland on flat sandy plains/dunes above saline flats. Associated species include *Indigofera monophylla, Triumfetta propinqua, Acacia orthocarpa, Trichodesma zeylanicum* var. *zeylanicum* and *Acacia ampliceps*.	HPKAR_13, HPKAR_14	5.38	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT08	*Acacia bivenosa, Acacia synchronicia* and *Acacia ancistrocarpa* (Fitzroy Wattle) open shrubland over *Triodia wiseana* open hummock grassland and **Cenchrus ciliaris* (Buffel Grass) sparse tussock grasses on disturbed sandy loam plains (GHD 2019).	KAR_18 (GHD 2019)	3.14	-	-	
VT09	*Acacia inaequilatera, Acacia bivenosa* and *Hakea lorea* subsp. *lorea* open shrubland with occasional scattered *Corymbia hamersleyiana* over *Eremophila longifolia, Senna glutinosa* subsp. *pruinosa* and *Solanum lasiophyllum* sparse shrubland over *Cymbopogon ambiguus* open tussock grassland over *Triodia wiseana* and *Triodia epactia*	HPKAR_15, HPKAR_29, HPKAR_31, HPKAR_32, SFRE_02, SFRE_04, KAR_05 (GHD 2019), KAR_06 (GHD 2019)	117.01	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
	hummock grassland over *Fimbristylis ?dichotoma* and *Bulbostylis barbata* scattered forbs on low undulating rocky rises and slopes. Other associated species include *Acacia stellaticeps.*					
VT10	*Acacia ancistrocarpa* (Fitzroy Wattle) open shrubland over *Triodia wiseana* open hummock grassland on red brown sandy plains.	HPKAR_16	13.51	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT11	*Eragrostis xerophila* and *Chrysopogon fallax* tussock grassland over *Streptoglossa decurrens, Rhynchosia minima* and *Portulaca oleracea* scattered herbs on gilgai light brown clay plains. Other species include *Operculia aequisepala, Ipomoea coptica, Dichanthium sericeum* subsp. *humilius, Heliotropium cunninghamii, Xerochloa ?laniflora, Panicum laevinode* and *Eriachne benthamii*. Conservation listed species; *Oldenlandia* sp. Hamersley Station (A.A. Mitchel PRP1479) P3. Represents Priority 3 PEC Horseflat land system of the Roebourne Plains.	HPKAR_17, HPKAR_18, HPKAR_20, HPKAR_23, HPKAR_25, HPKAR_26, SFRE_01, SFRE_03, HPKAR_33	173.47	51.0	224.47	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT12	*Acacia inaequilatera* and *Ehretia saligna* var. *saligna* open shrubland over *Solanum lasiophyllum, Corchorus incanus* subsp. *incanus* and Hybanthus aurantiacus low open shrubland over *Triodia epactia* and *Triodia wiseana* open hummock grassland with *Eragrostis xerophila* and *Chrysopogon fallax* scattered tussock grasses on brown sandy loam stony plain. Other associated species include *Acacia bivenosa*, *Cleome viscosa, Ptilotus calostachyus, Indigofera linifolia* and *Phyllanthus maderaspatensis*.	HPKAR_19, HPKAR_21	5.00	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT13	*Acacia inaequilatera* and *Acacia bivenosa* open shrubland over *Solanum lasiophyllum, Scaevola spinescens* and *Indigofera monophylla* low open shrubland over *Triodia wiseana* open hummock grassland with **Cenchrus ciliaris* tussock grasses. Other species include *Acacia ancistrocarpa, Diplopeltis eriocarpa, Tephrosia supina, Triumfetta clementii* and *Senna artemisioides*.	HPKAR_22, HPKAR_36	108.37	2.34	110.71	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT14	*Corymbia hamersleyana* and *Acacia coriacea* subsp. *coriacea* scattered trees over *Acacia inaequilatera* and *Hakea lorea* subsp. *lorea* over *Triodia wiseana* very open hummock grassland with **Cenchrus ciliaris* tussock grasses on brown sandy loam on minor drainage lines. Other species include *Acacia xiphophylla, *Vachellia farnesiana, Chrysopogon fallax, Portulaca oleracea* and **Aerva javanica*.	HPKAR24, HPKAR27	44.96	2.35	47.31	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT15	*Acacia xiphophylla*, *Acacia bivenosa* and *Acacia inaequilatera* open shrubland over *Triodia wiseana* scattered hummock grasses on brown sandy loam rocky plain. Other species include *Acacia ancistrocarpa, Cleome viscosa, Hakea lorea* subsp. *lorea* and *Senna artemisioides.*	HPKAR_30, HPKAR_28	3.94	-	-	
VT16	*Acacia pyrifolia* var. *pyrifolia* and *Acacia bivenosa* open shrubland over *Acacia arida, Senna glutinosa* subsp. *pruinosa* and *Indigofera monophylla* sparse shrubland over *Triodia wiseana* hummock grassland on rocky hill and slopes. Other species include *Acacia stellaticeps, Scaevola spinescens, Acacia*	KAR_07, KAR_08, KAR_21 (GHD 2019)	12.72	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
	maitlandii and *Triumfetta clementii.*					
VT17	*Eucalyptus victrix* open woodland over Triodia wiseana scattered hummock grasses and **Cenchrus ciliaris* (Buffel Grass) and *Chrysopogon fallax* tussock grasses over **Passiflora foetida* vines on brown alluvial drainage line. Other species include *Acacia coriacea* subsp. *coriacea, Santalum lanceolatum, Abutilon lepidum* and *Rhynchosia minima.*	HPKAR_34	4.13	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
VT18	*Eucalyptus camaldulensis* (planted) scattered trees over **Cenchrus ciliaris* (Buffel Grass) tussock grasses on brown sandy loam on disturbed road verge.	HPKAR_35	5.44	-	-	
VT19	**Tamarix aphylla* scattered trees over *Sesbania cannibina* herbland on brown loamy clay surrounding wetland.	Not described with quadrat or releve.	8.00	-	-	

Vegetation type code	Vegetation type description	Sample locations	Extent (ha)	Extrapolated extent (ha)	Total extent (ha)	Photograph
Cleared areas/road verge/salt pan	Cleared areas/road verge/salt pan	-	81.79	11.06	92.85	Photo not available

4.1.2 Vegetation condition

The vegetation condition throughout the survey area varied from Completely Degraded to Excellent condition.

Previously cleared and disturbed areas adjacent roads and access tracks and the presence of **Cenchrus cilliaris* (Buffel grass) and **Tamarix aphylla* (Athel pine) created areas of Completely Degraded to Poor condition. *Tamarix aphylla* is a Weed of National Significance (WoNS) and a declared pest under the *Biosecurity and Agricultural Management Act 2007.* It is described as a tree reaching 15 m in height and with leaves a dull greenish/grey similar to a true pine tree (Plate 1). *T. aphylla* was located around an artificial water body in the west of the survey area.

The majority of the survey area contained vegetation of Good to Very Good condition, considering historical clearing for development on the Burrup Peninsula and surrounds. Areas of Excellent condition vegetation were found in the southern portion of the survey area, which were completely undisturbed (i.e. no access tracks, existing power lines or exploration).

Fire history did not have a significant impact on the structure and condition of vegetation in the survey area, as the majority of the vegetation was long unburnt (6 years or longer) or of moderate age (3 to 5 years).

Plate 1 Artificial waterbody and *Tamarix aphylla*

The extent of the vegetation condition mapped within the survey area including the extrapolated condition for the extended survey area is provided in Table 8 and mapped in Figure 5, Appendix A

Table 8 Extent of vegetation condition mapped within the survey area

Vegetation Condition (EPA 2016)	Extent mapped (ha)	Extrapolated extent mapped (ha)	Total extent (ha)
Excellent	18.32		
Very Good	326.91	56.69	383.6
Good	182. 76	3.43	186.19
Poor	103.43		
Degraded	14.39		
Completely Degraded	9.44		

Vegetation Condition (EPA 2016)	Extent mapped (ha)	Extrapolated extent mapped (ha)	Total extent (ha)
Cleared	81.79	11.06	92.85

4.1.3 Conservation significant ecological communities

There are no TECs present within the survey area. The field assessment did identify the presence of two PEC's within the survey area:

- Burrup Peninsula rock pile communities (Priority 1) representated by vegetation type 1 (VT01) (4.67 ha)
- Horseflat land system of the Roebourne Plains (Priority 3) representated by vegetation type 11 (173.47 ha). VT11 coresponds to the Horseflat land system mapping.

The PEC mapping is provided in Figure 4, Appendix A.

4.2 Flora

4.2.1 Flora diversity

The survey recorded 131 flora taxa (including subspecies and varieties) representing 35 families and 86 genera within the survey area. This total comprised 126 native taxa and five introduced taxa, **Cenchrus ciliaris* (Buffel grass), **Aerva javanica* (Kapok), **Vachellia farnesiana* (Mimosa bush), **Passiflora foetida* (Passionflower) and **Tamarix aphylla* (Athel tree).

Buffel grass and Kapok have been rated as having 'high' potential ecological impact under the invasive plant prioritisation process. Buffel grass significantly alters environmental conditions when invading new habitats as it reduces soil fertility, increases soil erosion (which increases surface run-off) and creates unstable watersheds with degraded water quality. It also exudes chemicals that are toxic to other plats (DEC 2013). Buffel grass is most common in disturbed areas such as vehicle tracks, roadsides and other previously cleared areas.

Mimosa bush was present in the northern section of the survey area along the existing pipeline on the rocky slopes and drainage areas.

The list of flora recorded within the survey area is provided in Appendix D.

4.2.2 Conservation significant flora

No threatened flora species listed under the EPBC Act and/or BC Act was recorded within the survey area. Four priority species listed by the DBCA were recorded within the survey area, *Rhynchosia bungarensis* (Priority 4), *Terminalia supranitifolia* (Priority 3), *Vigna triodiophila* (Priority 3) and *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479) (Priority 3).

The location of priority flora recorded within the survey area is provided in Appendix D and mapped on Figure 6, Appendix A

Rhynchosia bungarensis

Rhynchosia bungarensis (Plate 2) is listed Priority 4 and is a compact, prostrate shrub, to 0.5 m high with yellow flowers. It is known to occur on pebbly, shingly coarse sand amongst bouldersand banks of flow line in the mouth of a gully wall (Western Australian Herbarium 1998–).

According to *NatureMap* there are 110 records of this species, with a large number of records concentrated on the Burrup Peninsula.

This species was recorded inside the rockpiles on the Burrup Peninsula, in the cracks of the incised boulders. 78 individuals were recorded, some locations with up to five plants, and one area containing 20 plants.

Plate 2 *Rhynchosia bungarensis*

Terminalia supranitifolia

Terminalia supranitifolia (Plate 3) is a spreading, tangled shrub or tree, 1.5-3 m high with green-yellow flowers appearing in May, July or September. It is listed Priority 3. Habitat includes sandy areas among basalt rocks (Western Australian Herbarium 1998–).

This species was recorded inside the rockpiles on the Burrup Peninsula, and occasionally on rocky and grassy slopes leading to the rockpiles. 111 individuals were recorded in total, with eight collected just outside of the survey area. Some records were isolated plants, whilst most occurred in close proximity along the undulating rockpiles.

Plate 3 *Terminalia supranitifolia*

Vigna triodiophila

Vigna triodiophila (Plate 4) is a fine-stemmed prostrate or scrambling vine with small, ovate to elliptic leaves and known to flower and fruit between May and September. It is listed Priority 3. It is endemic to basalt rockpile habitats in shallow, red-brown or brown, clayey sand or loam.

This species was recorded within rockpiles on the Burrup Peninsula and was not common. 16 individuals were recorded in total from only three locations.

Plate 4 *Vigna triodiophila*

Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)

Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479) (Plate 5) is a spreading annual herb growing to 0.05-0.1 m high. It has blue flowers that appear in March. The species occurs in cracking clay and basalt land systems on gently undulating plains with large surface rocks or flat crabholed plains. It is listed Priority 3 by DBCA.

This species was recorded in the far southwest corner of the survey area in an area of Very Good to Excellent condition vegetation. The vegetation was open, flat grassland habitat over clay to cracking clay soils. Two individuals were recorded from two sites of the same general location (HPKAR17 and HPKAR23).

Plate 5 *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479) dried specimen

Likelihood of occurrence

A likelihood of occurrence assessment was conducted post-field survey for all conservation significant flora taxa identified in the desktop assessment based on the desktop searches (provided in Appendix C). This assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of the species (Appendix D).

The likelihood of occurrence assessment post-field survey concluded there are four priority species known to occur within the survey area (*Vigna triodiophila, Terminalia supranitifolia*, *Rhynchosia bungarensis* and *Oldenlandia* sp. Hamersley Station) and the remaining priority flora are considered unlikely to occur.

5. Discussion

The results of the survey were expected given the seasonality and timing of the survey, and the drier than average year in 2019 prior to the survey. The traceability of four Priority flora, particularly *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479) was considered a better than expected outcome due to the limited number of records that are from the Dampier Peninsula. No range extensions were identified for any of the priority and non-priority flora collected and recorded during the survey.

The flora diversity in the survey area was relatively high considering the historic clearing for development in the Burrup and Dampier areas. A high number of vegetation types were recorded mostly due to the distance across which the survey area was conducted and the variability of landforms that were encountered.

All common weed species that would be expected in this region of the Pilbara, were recorded. The species count was not particularly high and this could be due to parts of the survey area that traversed unoccupied and undeveloped areas far from roadsides.

The vegetation types identified as representing the two PEC communities (Burrup Peninsula rock pile communities and Horseflat land systems of the Roebourne Plains) should be avoided where possible as they each support Priority flora that are well represented in those areas. The density of records are high on the Burrup Peninsula for the three Priority flora recorded during the survey (*Rhynchosia bungarensis* (Priority 4), *Terminalia supranitifolia* (Priority 3) and *Vigna triodiophila* (Priority 3)) as they have adapted to the habitat-type that the rock piles provide. *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479) is not well represented in the Dampier region and as a whole in its known range. Clearing of this population should be avoided if possible.

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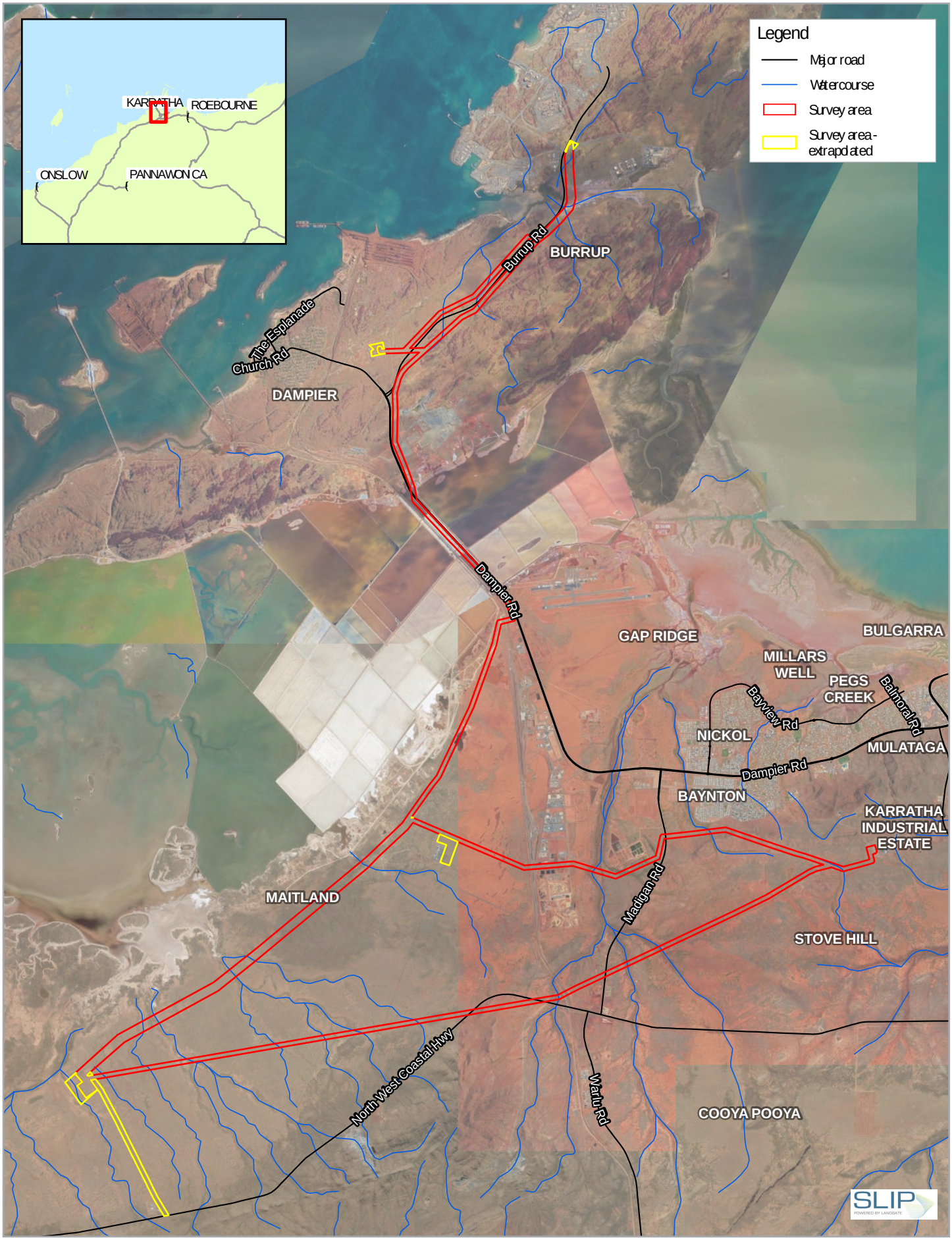
Appendices

Appendix A – Figures



Paper Size ISO A4

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

O

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

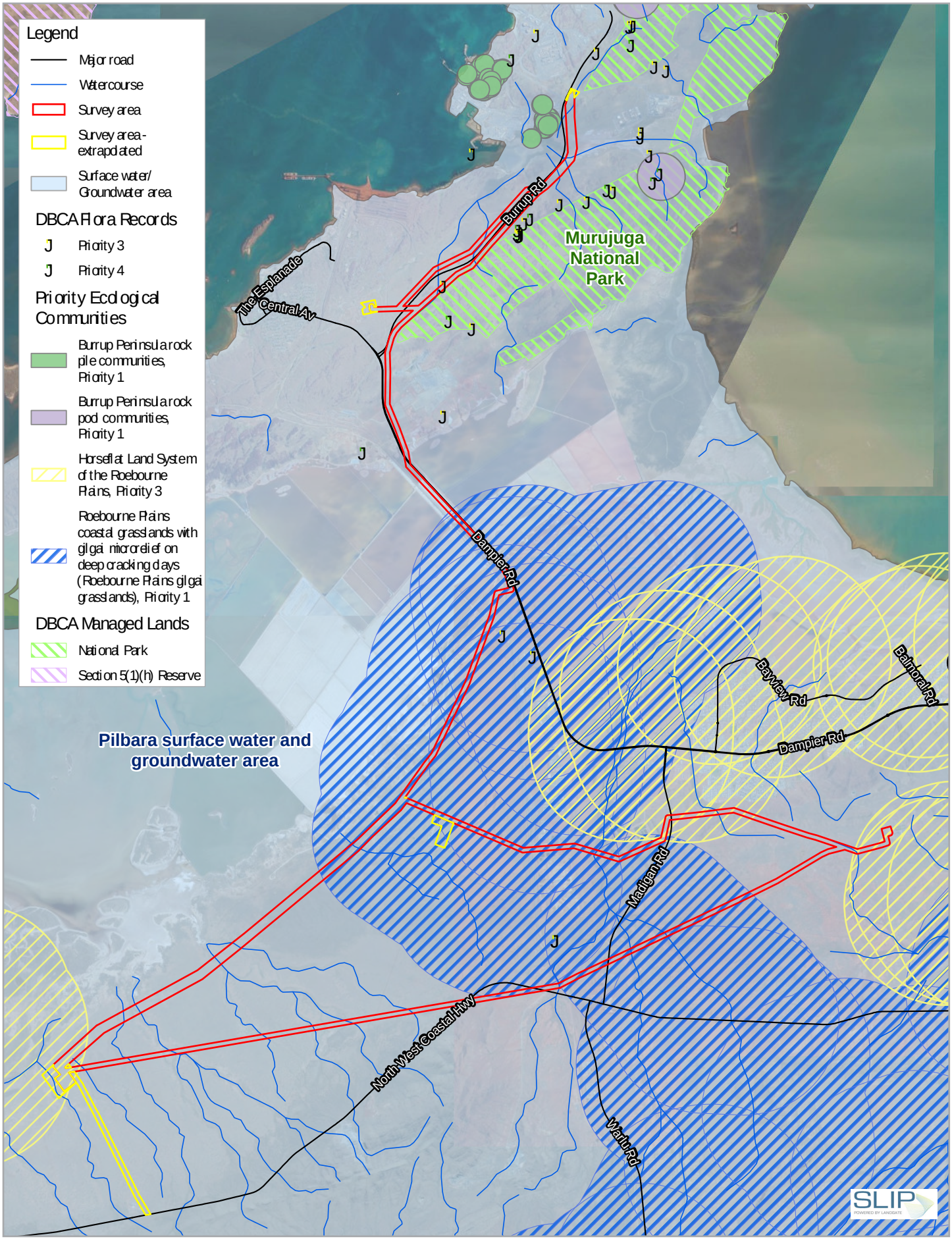
Project Location and Survey Area

Project No. 12530473
Revision No. 0
Date 24 Jul 2020

FIGURE 1

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_001_ProjectLocationAndSurveyArea_RevA
Print date: 24 Jul 2020 - 15:35

Data source: GHD Survey area - 20200511; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANow Landgate/ SLIP. Created by: mnikkonen



Paper Size ISO A4

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

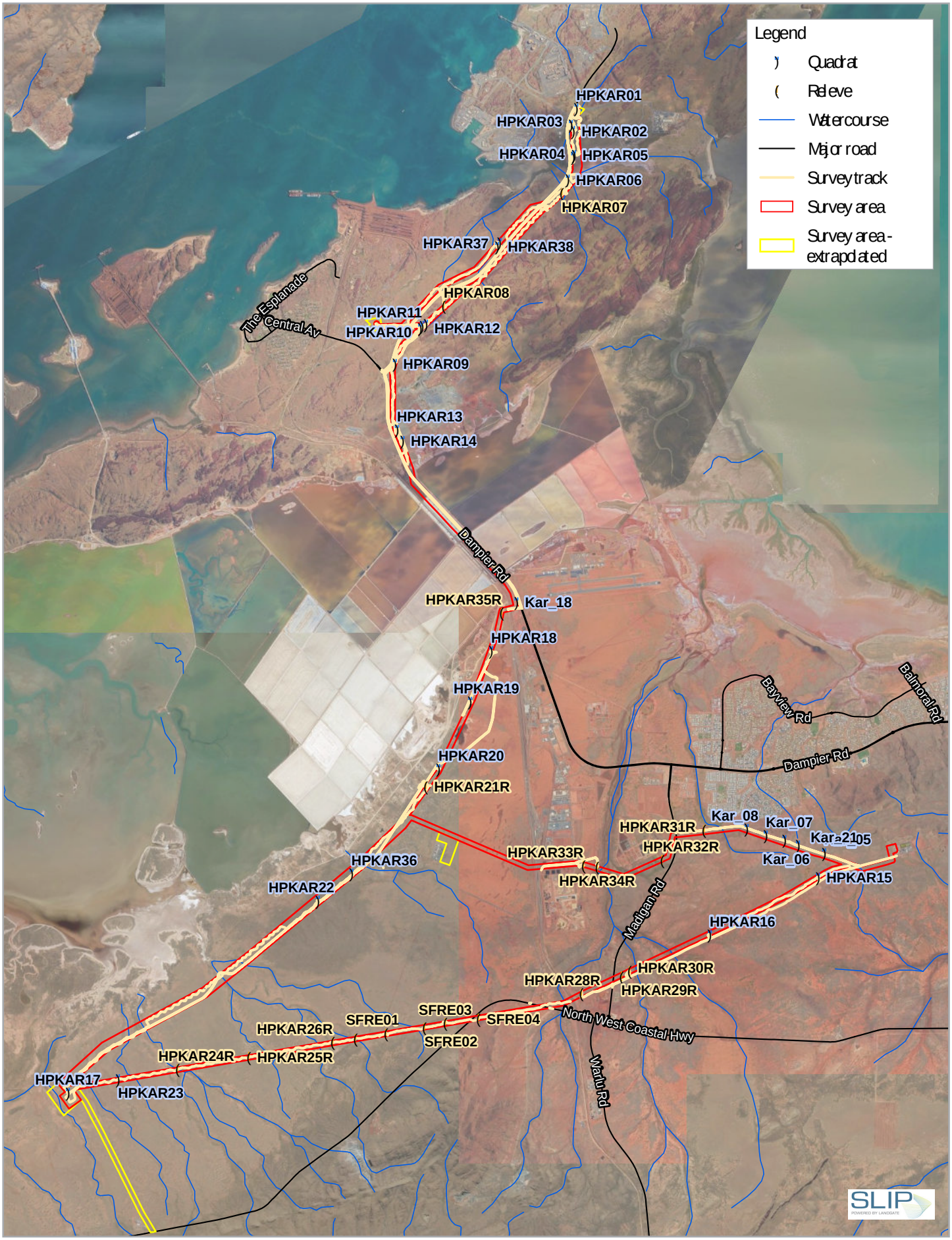
Environmental Constraints

Project No. 12530473
Revision No. 0
Date 24 Jul 2020

FIGURE 2

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_002_Environmental Constraints_RevB
Print date: 24 Jul 2020 - 15:43

Data source: GHD Survey area; DBCA Flora records, Priority ecological communities, Managed lands; DWER Surface water areas, Groundwater areas; Landgate Roads, Imagery - April 2018, Landgate_Subscription_Imagery\WANbw Landgate/ SLIP. Created by: mnikkonen



Paper Size ISO A4

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Survey Sampling Effort

Project No. 12530473
Revision No. 0
Date 24 Jul 2020

FIGURE 3

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_003_SurveySamplingEffort_RevA
Print date: 24 Jul 2020 - 15:47

Data source: GHD Quadrats, Releves, Tracks - 20200511; DWER Watercourses; Landgate Roads, Imagery - April 2018 Landgate_Subscription_Imagery\WANbw Landgate / SLIP. Created by: mmikkonen

Legend

- Major road
- Survey area
- PEC 1 Burrup Peninsula rock pile communities

Vegetation Type

- VT01
- VT02
- VT03
- VT04
- VT05
- VT06
- Cleared

Vegetation Type - extrapolated

- VT03
- VT04

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
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Date 21 Jul 2020

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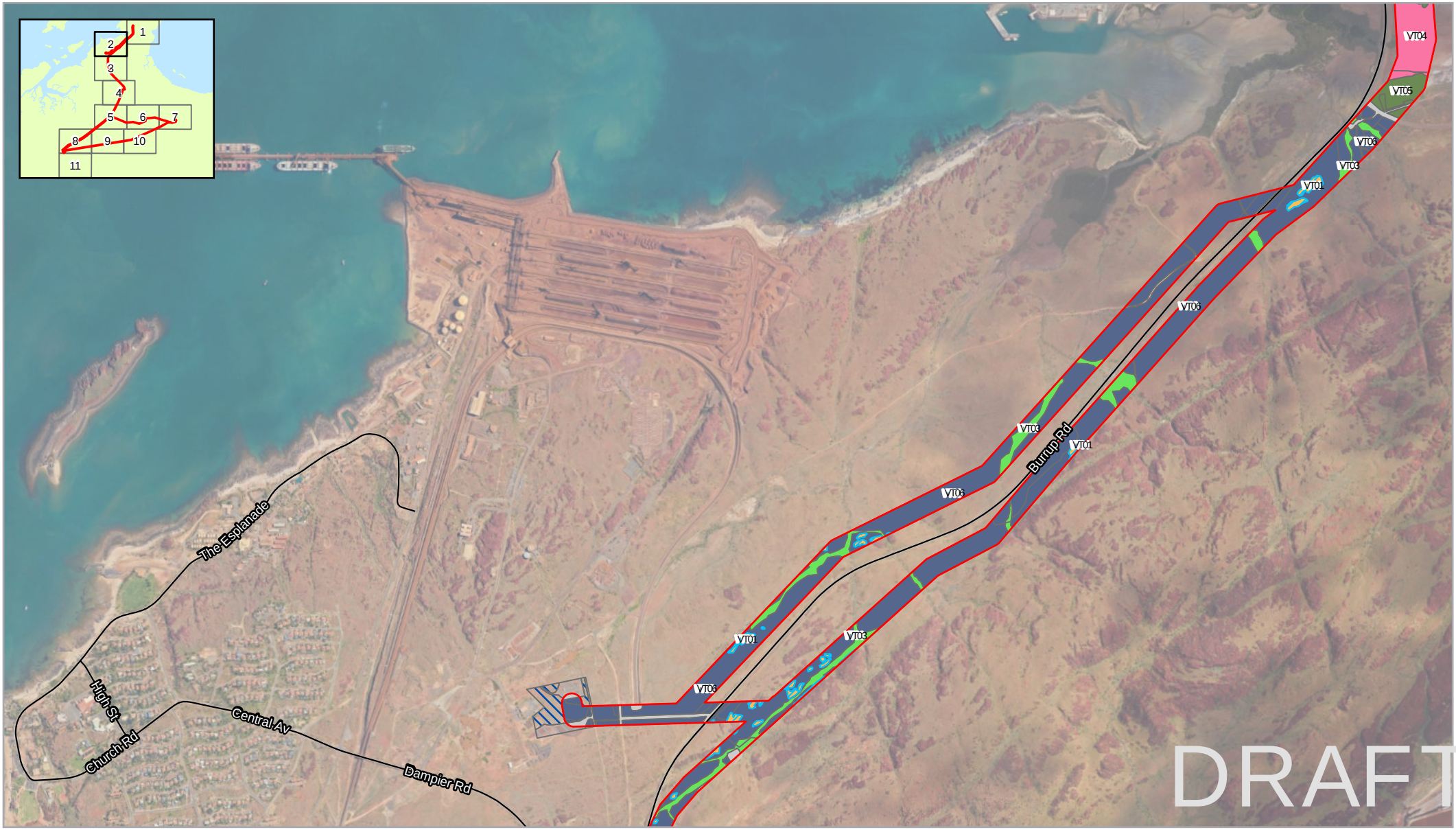
FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:16

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; VMS . Created by: mmikkonen



Legend

- Major road
- Survey area
- PEC 1 Burrup Peninsula rock pile communities

Vegetation Type

- VT01
- VT03
- VT04
- VT05
- VT06

Cleared

Vegetation Type - extrapolated

- VT06
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

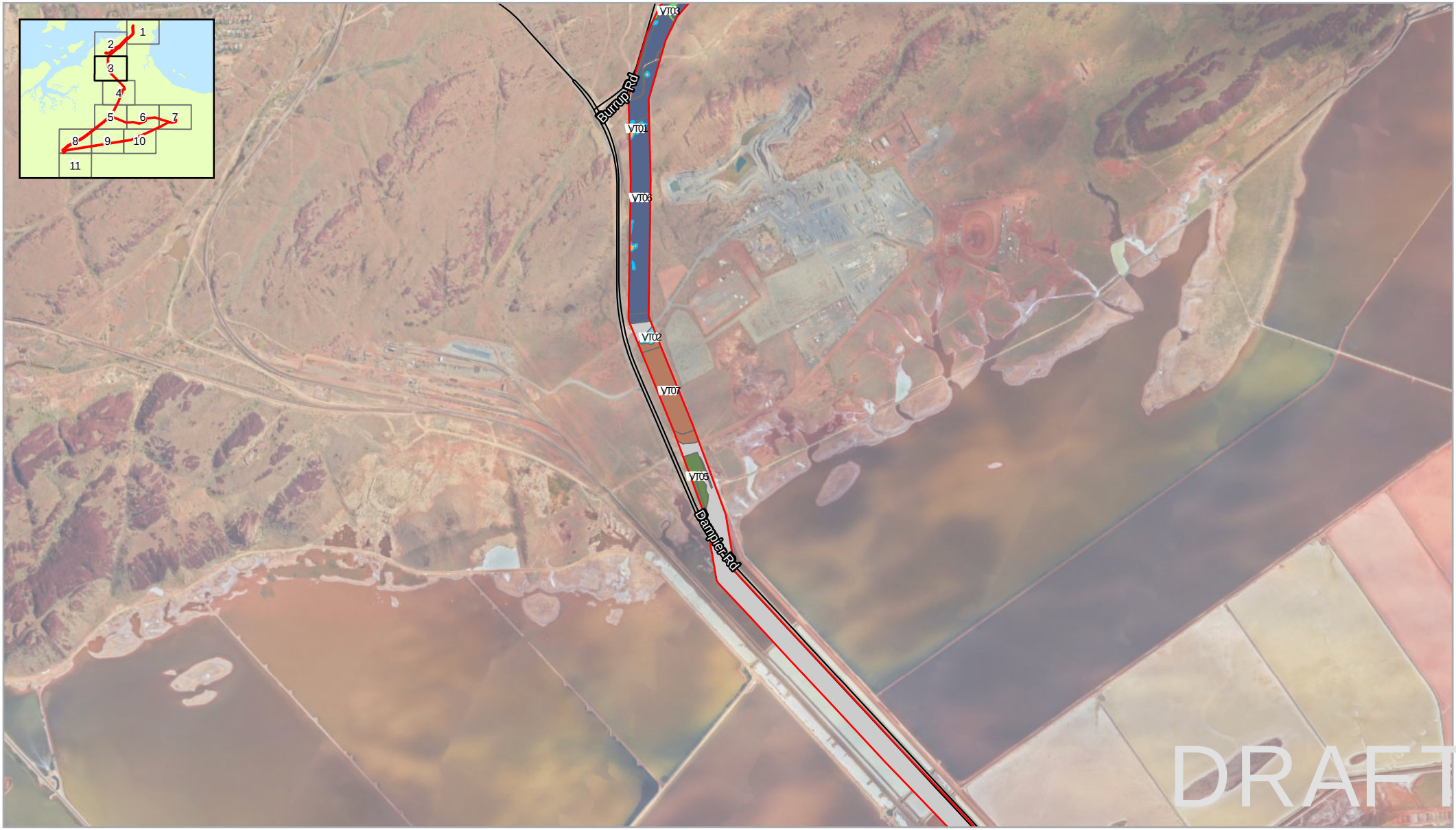
Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:16

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS. Created by: mmikkonen



Legend

- Major road
- Survey area
- PEC 1 Burrup Peninsula rock pile communities

Vegetation Type

- VT01
- VT02
- VT03
- VT05
- VT06
- VT07
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:16

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS . Created by: mmikkonen

Legend

- Major road
- Survey area
- PEC 3 Horseflat land system of the Roebourne Plains

Vegetation Type

- VT08
- VT11
- VT12
- VT18
- VT19
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
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Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:16

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS . Created by: mmikkonen

Legend

- Major road
- Survey area
- PEC 3 Horseflat land system of the Roebourne Plains

Vegetation Type

- VT06
- VT09
- VT11
- VT12
- VT13
- VT14
- VT19
- Cleared

Vegetation Type - extrapolated

- VT11
- VT13
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
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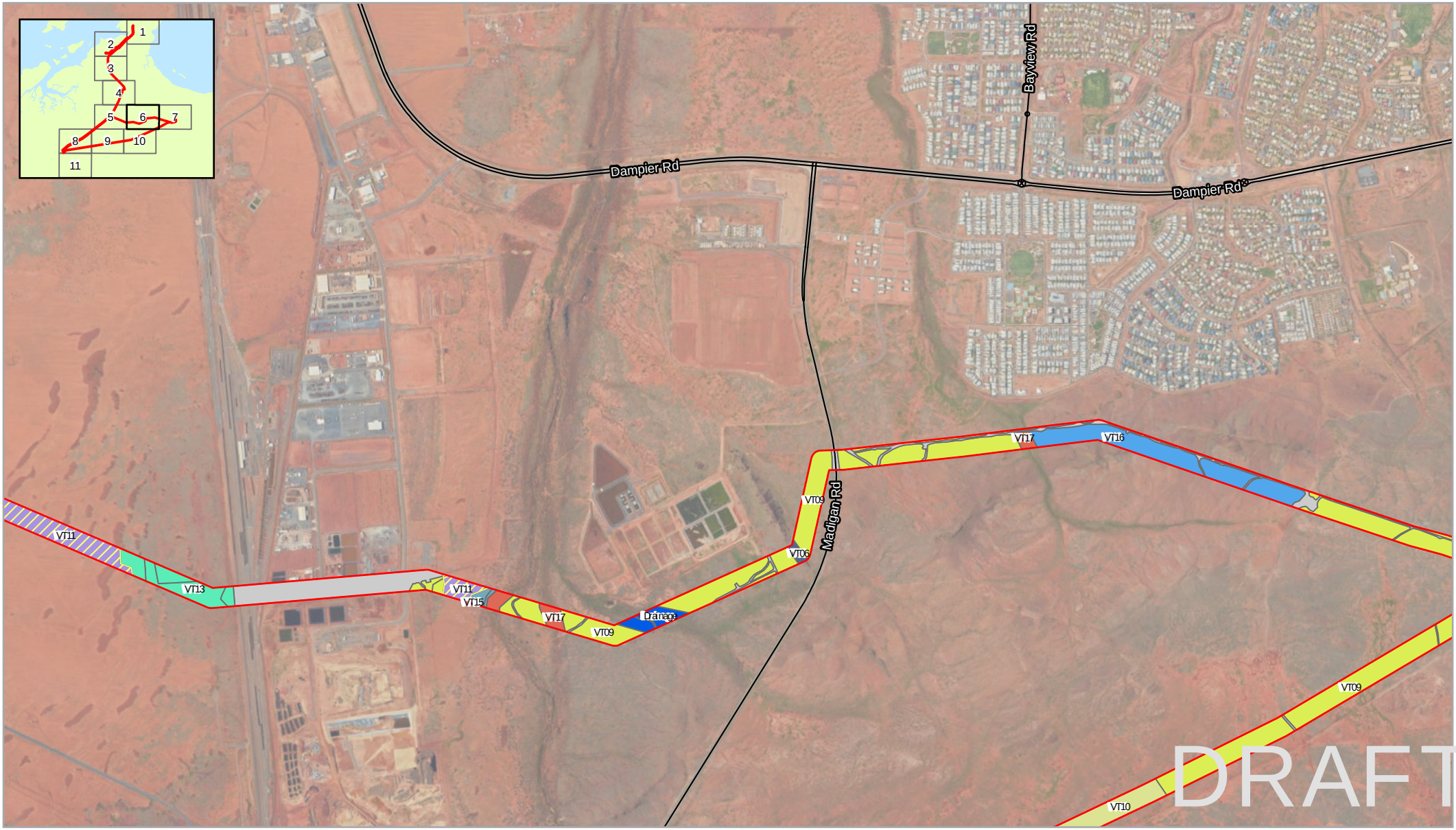
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads; Imagery - April 2018; WMS. Created by: mmikkonen



Legend

- Major road
- Survey area
- PEC 3 Horsefl at land system of the Roebourne Plains

Vegetation Type

- VT06
- VT09
- VT10
- VT11
- VT13
- VT15
- VT16
- VT17
- Drainage
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

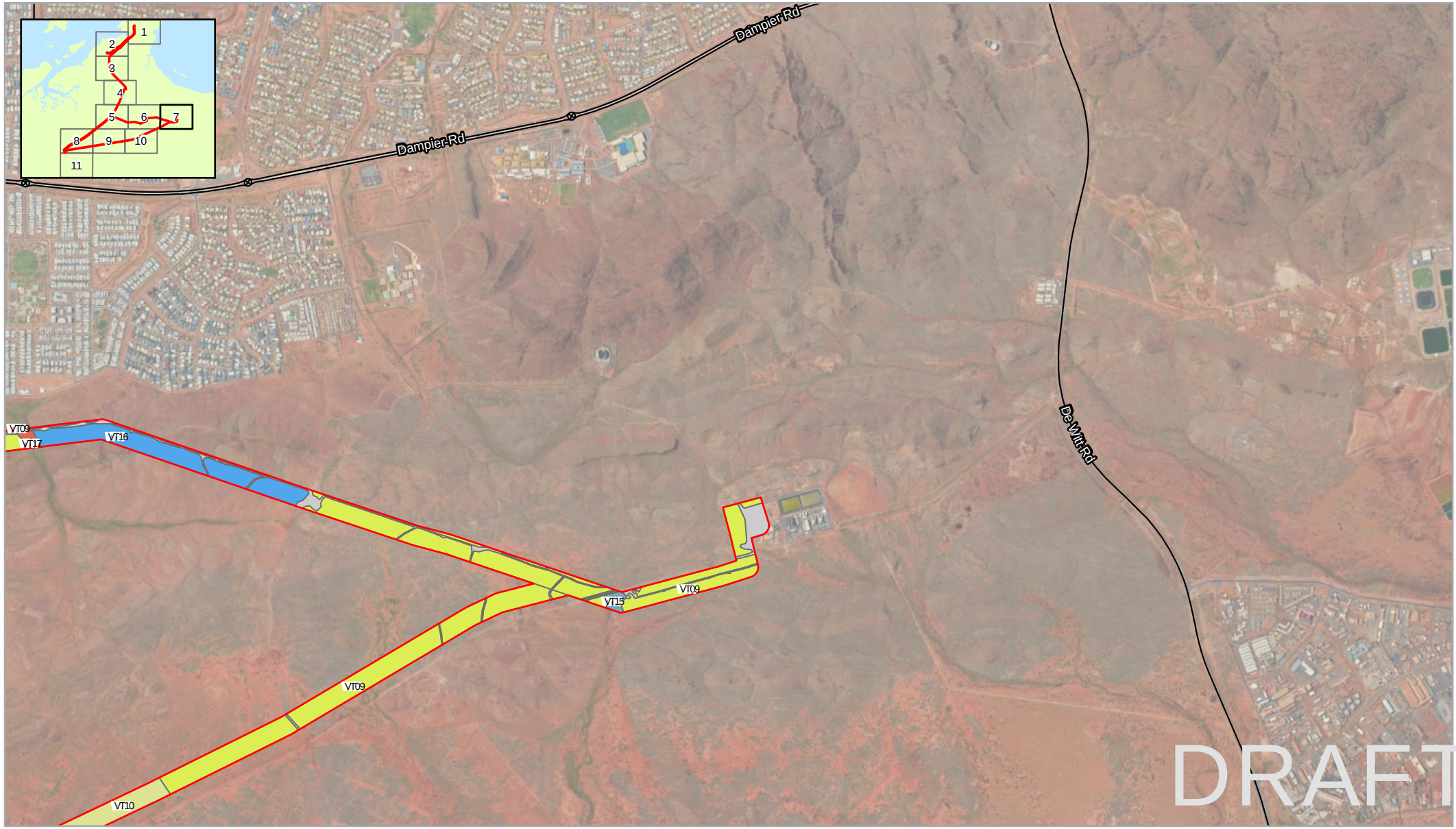
Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS. Created by: mmikkonen



Legend

- Major road
- Survey area

Vegetation Type

- VT09
- VT10
- VT15
- VT16
- VT17
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
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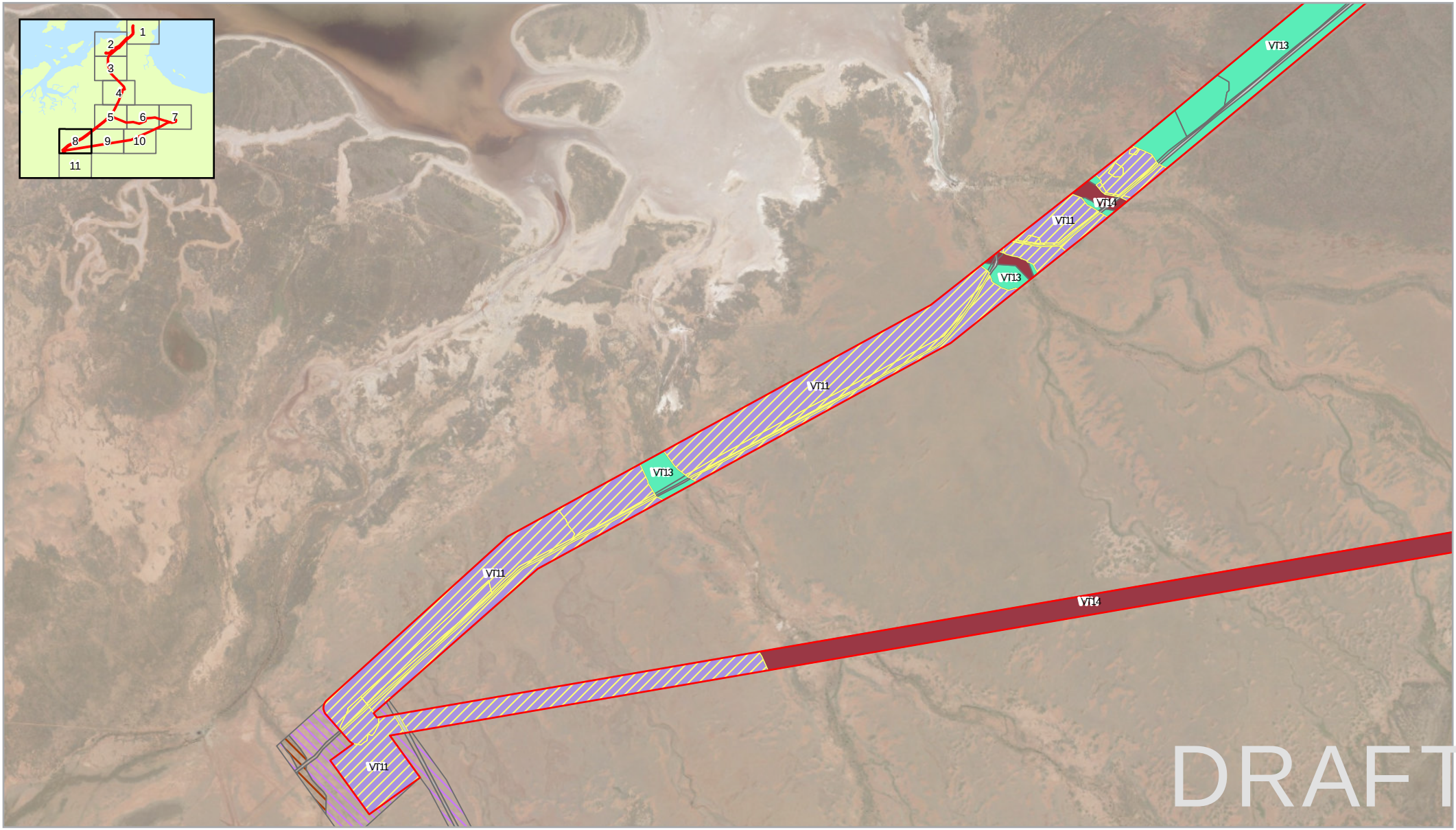
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS. Created by: mmikkonen



Legend

Survey area

PEC 3 Horsefl at land system of the Roebourne Plains

Vegetation Type

VT11

VT13

VT14

Cleared

Vegetation Type - extrapolated

VT11

VT14

Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
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Vegetation Types

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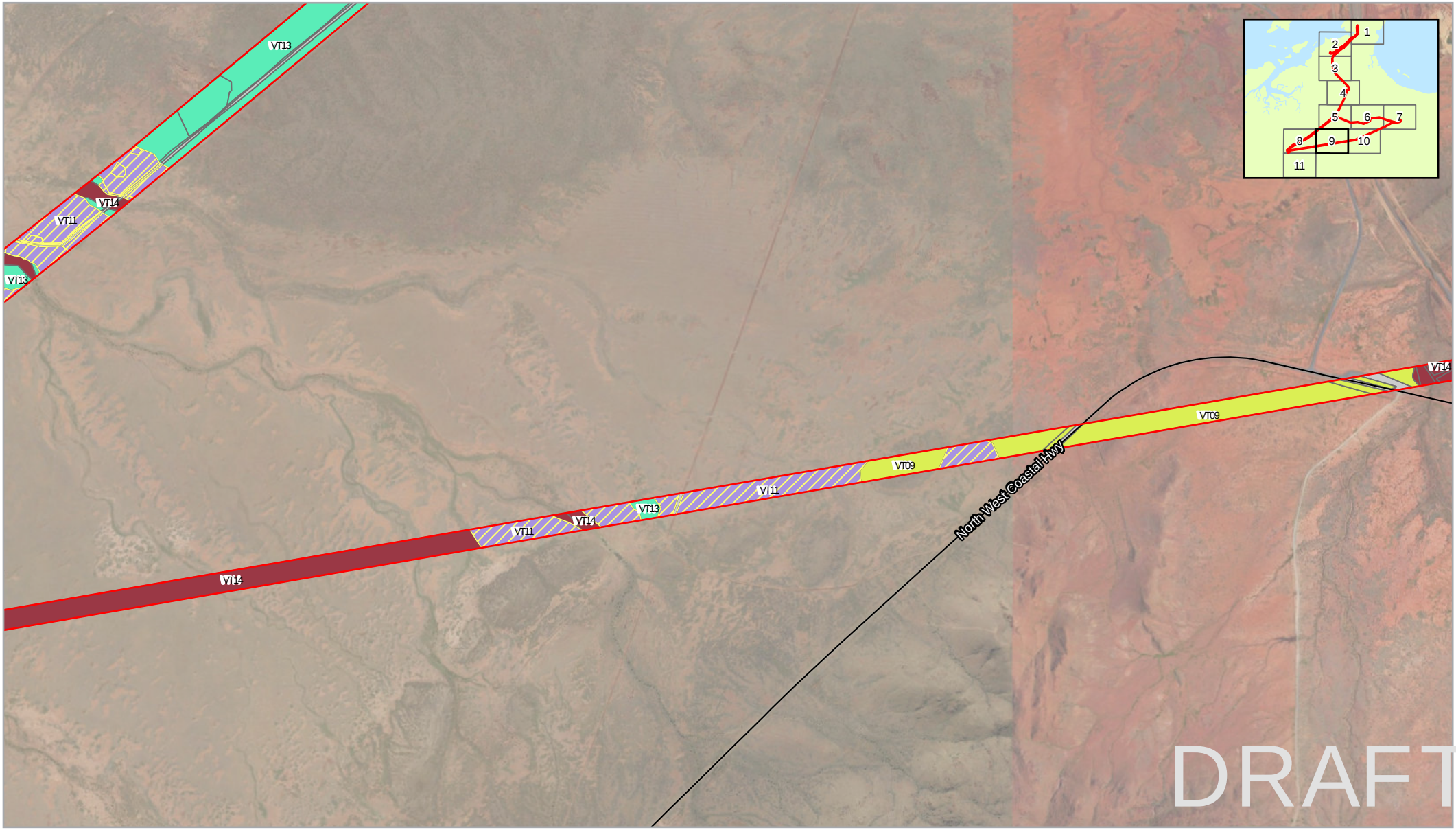
FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; VMS . Created by: mmikkonen



Legend

- Major road
- Survey area
- PEC 3 Horseflat land system of the Roebourne Plains

Vegetation Type

- VT09
- VT11
- VT13
- VT14
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
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Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:21

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS . Created by: mmikkonen

Legend

- Major road
- Survey area
- PEC 3 Horseflat land system of the Roebourne Plains

Vegetation Type

- VT09
- VT10
- VT11
- VT14
- VT15
- VT17
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS. Created by: mmikkonen

Legend

- Major road
- Survey area
- PEC 3 Horseflat land system of the Roebourne Plains

Vegetation Type

- VT11

Vegetation Type - extrapolated

- VT11
- VT14
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Types

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 4

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_004_VegetationTypes_RevA
Print date: 21 Jul 2020 - 16:17

Data source: GHD Survey area, Vegetation types, PECs - 20200528; Landgate: Roads, Imagery - April 2018; WMS. Created by: mmikkonen

Legend

- Major road
- Survey area

Vegetation Condition
- Very Good
- Good
- Poor

- Cleared

Vegetation Condition - extrapolated
- Very Good

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen

Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Completely Degraded
- Cleared

Vegetation Condition - extrapolated

- Good
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

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FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANdow Landgate/ SLIP. Created by: mmikkonen

Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Completely Degraded
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANdow Landgate/ SLIP. Created by: mmikkonen

Legend

Major road

Survey area

Vegetation Condition

Good

Poor

Degraded

Completely Degraded

Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANdow Landgate/ SLIP. Created by: mmikkonen

Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Degraded
- Completely Degraded
- Cleared

Vegetation Condition - extrapolated

- Very Good
- Good
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
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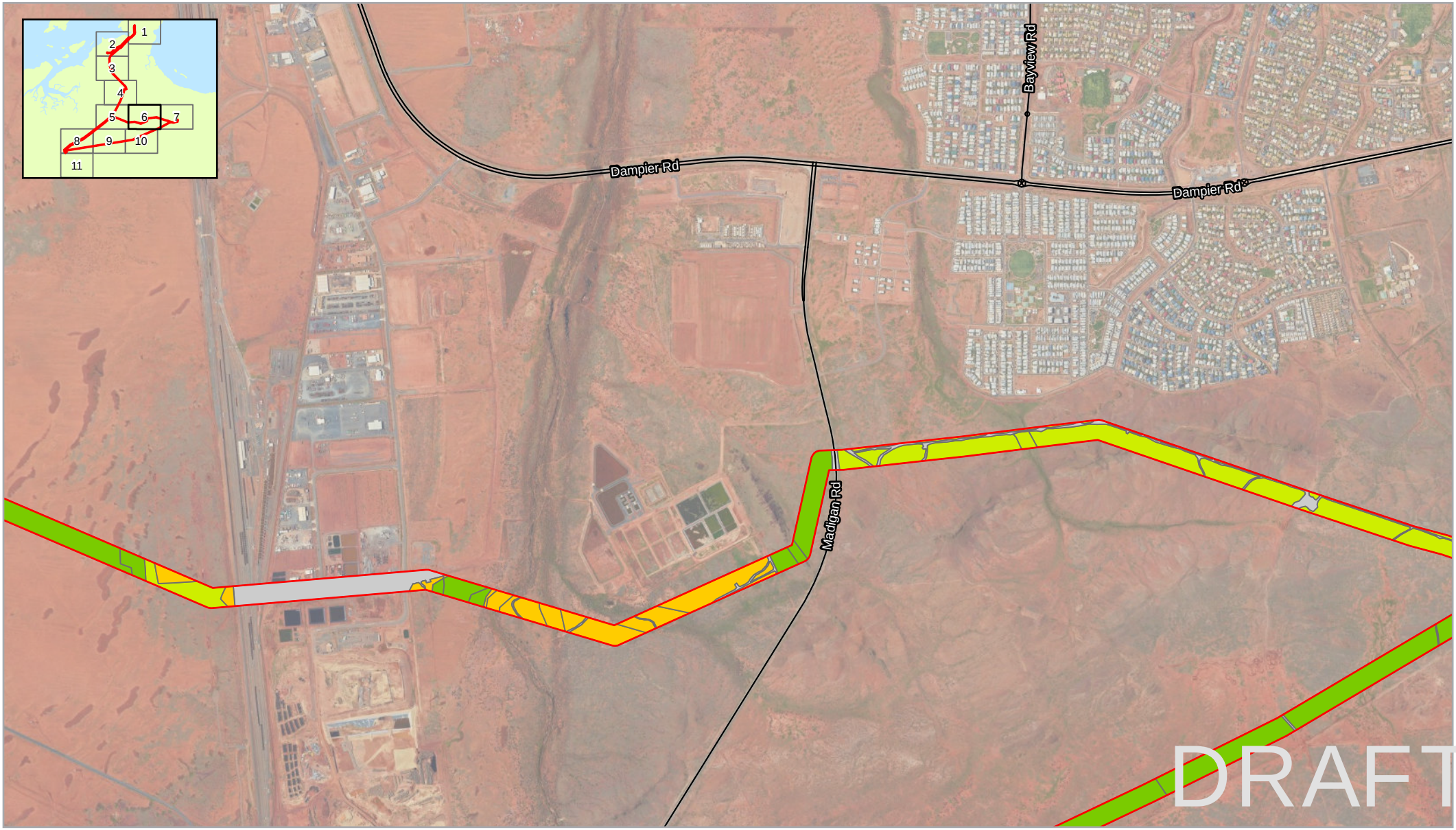
Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen



Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
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Vegetation Condition

Project No. 12530473
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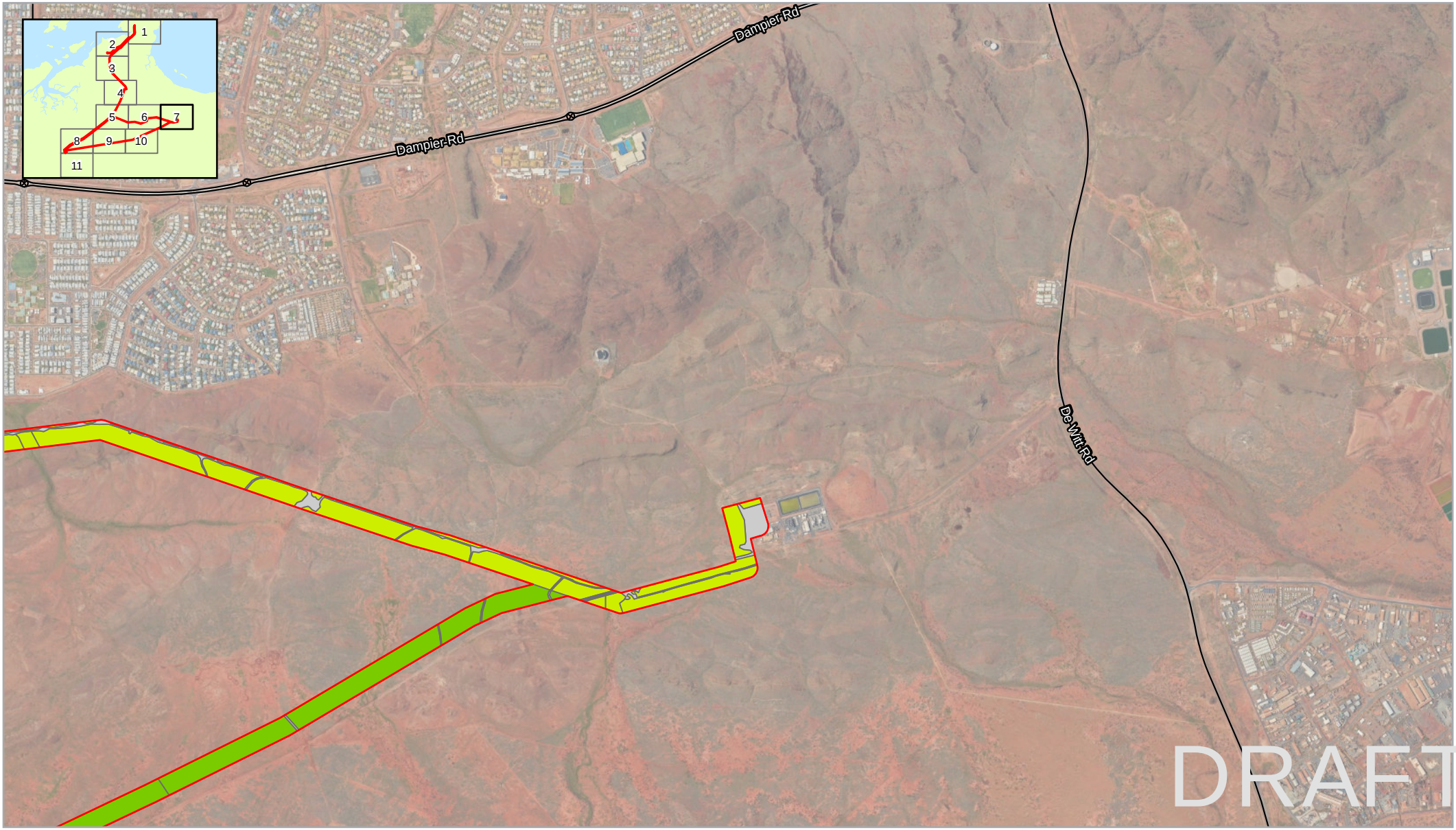
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen



Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

0

GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen

Legend

Survey area

Vegetation Condition

Excellent

Very Good

Good

Poor

Degraded

Cleared

Vegetation Condition - extrapolated

Very Good

Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
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Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
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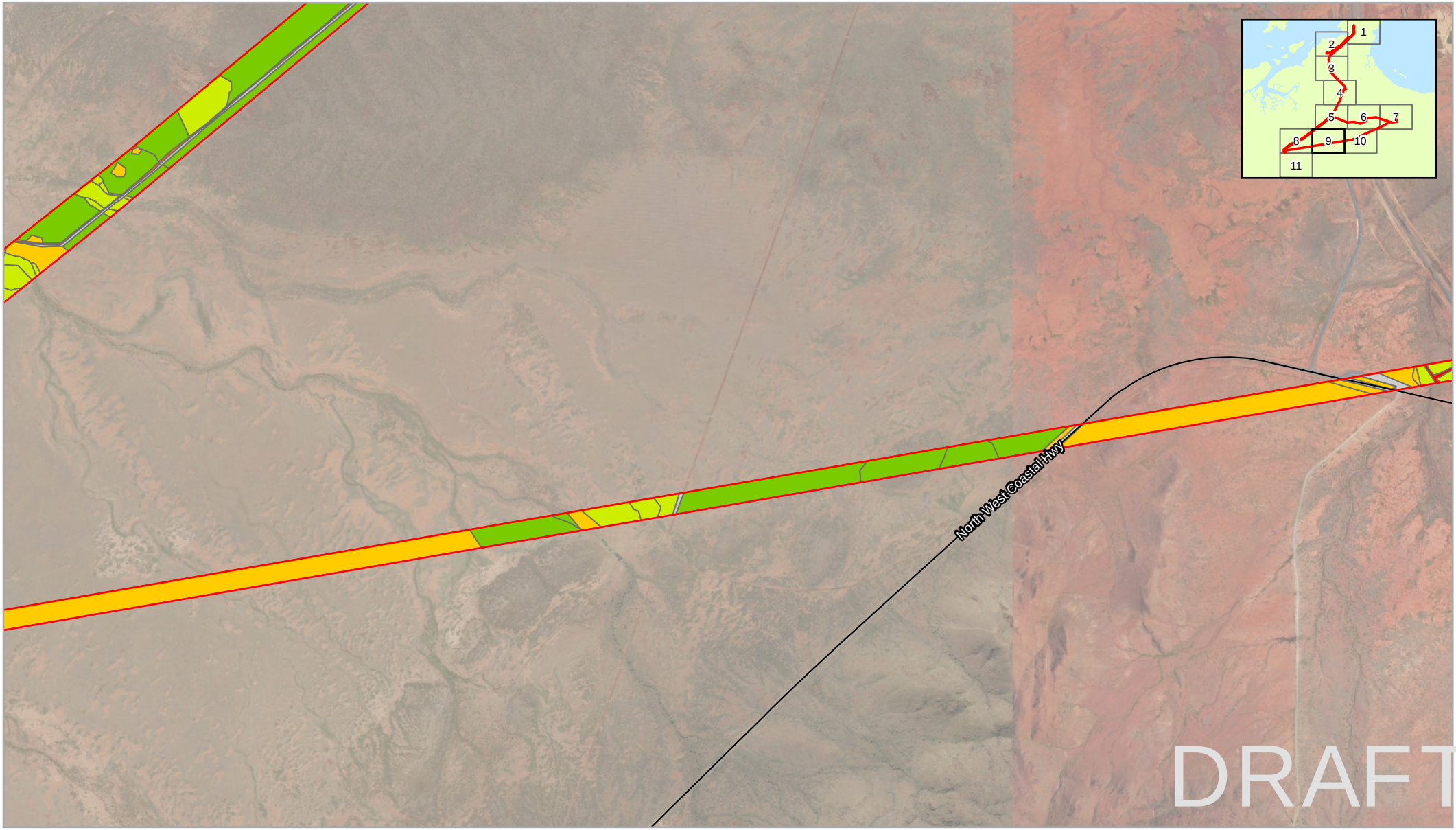
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen



Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Degraded
- Completely Degraded
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

O

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:57

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads; Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen

Legend

- Major road
- Survey area

Vegetation Condition

- Very Good
- Good
- Poor
- Completely Degraded
- Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANdow Landgate/ SLIP. Created by: mmikkonen

Legend

Major road

Survey area

Vegetation Condition

Very Good

Vegetation Condition - extrapolated

Very Good

Cleared

Paper Size ISO A4

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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GHD

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

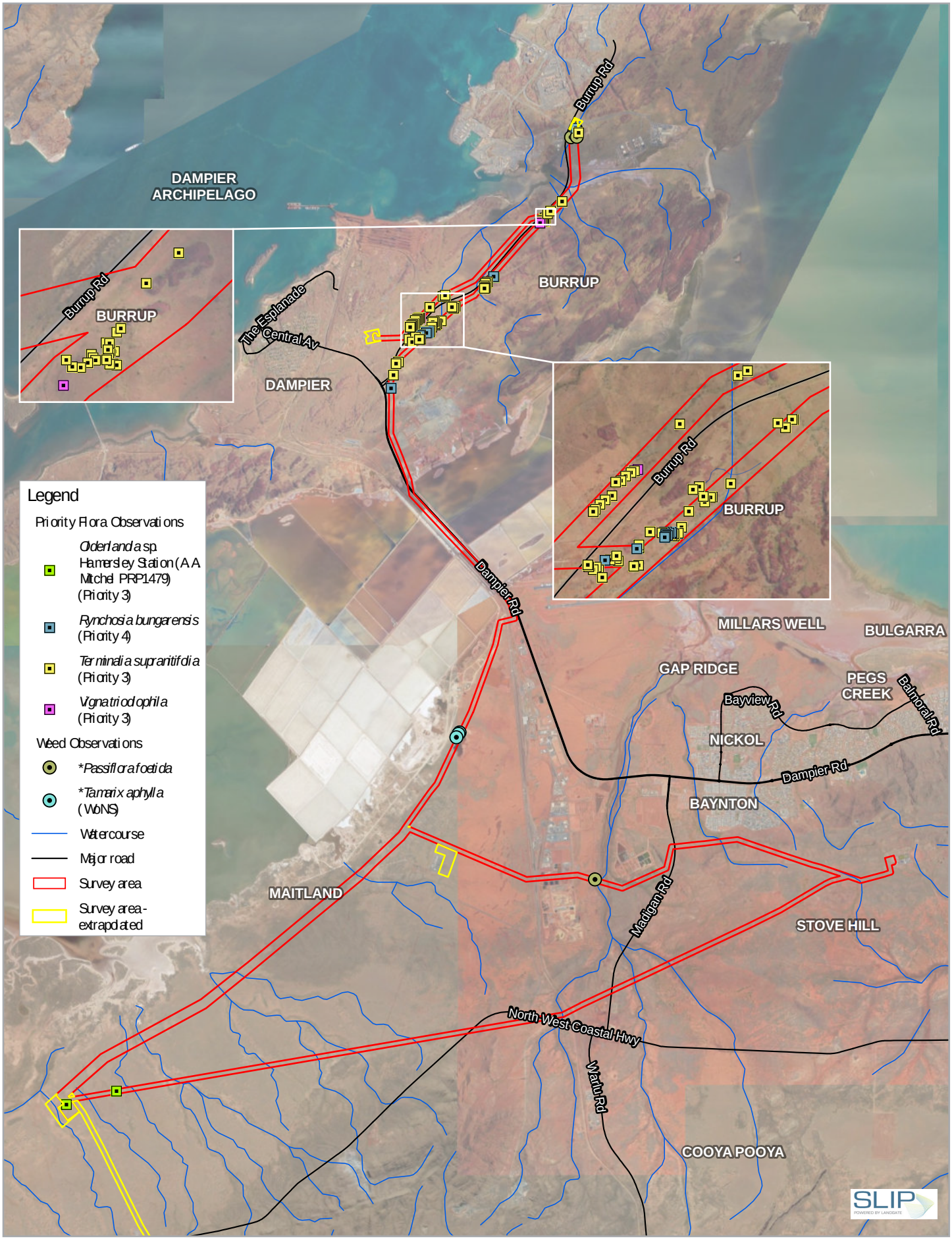
Vegetation Condition

Project No. 12530473
Revision No. B
Date 21 Jul 2020

FIGURE 5

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_005_VegetationCondition_RevA
Print date: 21 Jul 2020 - 16:56

Data source: GHD Survey area, Vegetation condition - 20200528; Landgate Roads, Imagery - April 2018; Landgate_Subscription_Imagery\WANDow Landgate/ SLIP. Created by: mmikkonen



Paper Size ISO A4

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

Horizon Power
287- Burrup Expansion Project
Flora & Vegetation Survey

Project No. 12530473
Revision No. 0
Date 24 Jul 2020

Conservation Significant Flora Records

FIGURE 6

G:\61\12530473\GIS\Maps\Working\12530473_Figures\12530473_Figures.aprx\12530473_006_ConSigFloraRecords_RevA
Print date: 24 Jul 2020 - 16:29

Data source: GHD Flora and weed observations - 20200514; Landgate Roads, Imagery - April 2018; WMS. Created by: mmikkonen

Appendix B – Relevant legislation and background information

Relevant legislation

Federal *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The biological aspects listed as MNES include:

- Nationally threatened flora and fauna species and ecological communities
- Migratory species

A person must not undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Federal Minister for the Environment.

The EPBC Act is administered by the Department of Agriculture, Water and the Environment (DAWE).

State *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is the primary legislative Act dealing with the protection of the environment in Western Australia. The Act allows the Environmental Protection Authority (EPA), to prevent, control and abate pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing. Part IV of the EP Act is administered by the EPA and makes provisions for the EPA to undertake environmental impact assessment of significant proposals, strategic proposals and land use planning schemes.

The Department of Water and Environment Regulation (DWER) is responsible for administering the clearing provisions of the EP Act (Part V). Clearing of native vegetation in Western Australia requires a permit from the DWER, unless exemptions apply. Applications for clearing permits are assessed by the Department and decisions are made to grant or refuse the application in accordance with the Act. When making a decision the assessment considers clearing against the ten clearing principles as specified in Schedule 5 of the EP Act:

a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significance habitat for fauna indigenous to Western Australia.

c) Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora.

d) Native vegetation should not be cleared if it comprises the whole or part of native vegetation in an area that has been extensively cleared.

e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

g) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

h) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

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.

j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Exemptions for clearing include clearing that is a requirement of a written law or authorised under certain statutory processes (listed in Schedule 6 of the EP Act) and exemptions for prescribed low impact day-to-day activities (prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004); these exemptions do not apply in environmentally sensitive areas (ESAs).

State *Biodiversity and Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) provides for the conservation and protection of biodiversity and biodiversity components, as well as the promotion of the ecologically sustainable use of biodiversity components in Western Australia. The BC Act replaces both the repealed *Wildlife Conservation Act 1950* (WC Act) and the *Sandalwood Act 1929* (Sandalwood Act), as well as their associated regulations. To attain the objectives of the BC Act, principles of ecological sustainable development have been established:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- The conservation of biodiversity and ecological integrity should be a fundamental consideration indecision-making
- Improved valuation, pricing and incentive mechanisms should be promoted.

The BC Act is administered by the Department of Biodiversity Conservation and Attractions (DBCA).

State *Biosecurity and Agriculture Management Act 2007*

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) and associated regulations are administered by the Department of Primary Industries and Regional Development (DPIRD) and replace the repealed *Agriculture and Related Resources Protection Act 1976.* The main purposes of the BAM Act and its regulations are to:

- Prevent new animal and plant pests (vermin and weeds) and diseases from entering WA
- Manage the impact and spread of those pests already present in the state
- Safely manage the use of agricultural and veterinary chemicals
- Increased control over the sale of agricultural products that contain violative chemical residues.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act. A Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) of the Act is in force. Declared Pests may be assigned a control category including: C1 (exclusion), C2 (eradication) and C3 (management). The category may apply to the whole of the State, LGAs, districts, individual properties or even paddocks, and all landholders are obliged to comply with the specific category of control. Categories of control are defined below.

DPIRD Categories for Declared Pests under the BAM Act

Control class code	Description
C1 (Exclusion)	Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2 (Eradication)	Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3 (Management)	Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

Background information

Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Minister for Environment under Section 51B of the EP Act. The Table below outlines the aspects of areas declared as ESA in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005.

Aspects of ESAs

Aspects of Environmentally Sensitive Areas
A declared World Heritage property as defined in Section 13 of the EPBC Act.
An area that is included on the Register of the National Estate (RNE), because of its natural values, under the *Australian Heritage Commission Act 1975* of the Commonwealth (the RNE was closed in 2007 and is no longer a statutory list – all references to the RNE were removed from the EPBC Act on 19 February 2012).
A defined wetland and the area within 50 m of the wetland. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands.
The area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
The area covered by a Threatened Ecological Community.
A Bush Forever Site listed in "Bush Forever" Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site is approved to be developed by the Western Australia Planning Commission.
The areas covered by the *Environmental Protection (Gnangara Mound Crown Land) Policy 1992*.
The areas covered by the *Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002*.
The areas covered by the lakes to which the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP Lakes) applies.
Protected wetlands as defined in the *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998*.

Reserves and conservation areas

Department of Biodiversity, Conservation and Attractions managed lands and waters

DBCA manages lands and waters throughout Western Australia to conserve ecosystems and species, and to provide for recreation and appreciation of the natural environment. DBCA managed lands and waters include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest and timber reserves. DBCA managed conservation estate, is vested with the Conservation Commission of Western Australia. Access to, or through, some areas of DBCA managed lands may require a permit or could be restricted due to management activities. Proposed land use changes and development proposals that abut DBCA managed lands will generally be referred to DBCA throughout the assessment process.

Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil.

Ramsar Listed Wetlands

The Convention of Wetlands of International Importance was signed in 1971 at the Iranian town of Ramsar. The Convention has since been referred to as the Ramsar Convention. Ramsar Listed wetlands are “sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity … because of their ecological, botanical, zoological, limnological or hydrological importance” (DAWE 2020b). Once a Ramsar Listed Wetland is designated, the country agrees to manage its conservation and ensure its wise use. Under the Convention, wise use is broadly defined as “maintaining the ecological character of a wetland” (DAWE 2020b).

Nationally important wetlands

Wetlands of national significance are listed under the Directory of Important Wetlands in Australia. Nationally important wetlands are wetlands which meet at least one of the following criteria (DAWE 2020a):

- It is a good example of a wetland type occurring within a biogeographic region in Australia
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail
- The wetland supports one percent or more of the national populations of any native plant or animal taxa
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level
- The wetland is of outstanding historical or cultural significance

Vegetation extent and status

The National Objectives and Targets for Biodiversity Conservation 2001–2005 (Commonwealth of Australia 2001) recognise that the retention of 30 percent or more of the pre-clearing extent of each ecological community is necessary if Australia’s biological diversity is to be protected. This is the threshold level below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia’s Biological Diversity (ANZECC 2000).

The extent of remnant native vegetation in WA has been assessed by Shepherd et al. (2002) and the GoWA (2018), based on broadscale vegetation association mapping by Beard (various publications). The GoWA produces Statewide Vegetation Statistics Reports that are used for a number of purposes including conservation planning, land use planning and when assessing development applications. The reports are updated at least every two years.

Vegetation condition

The vegetation condition can be assessed in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA 2016a). The scale recognises the intactness of vegetation and consists of six rating levels as outlined below.

Vegetation condition rating scale for the South West and Interzone Botanical Provinces

Condition	South West and Interzone Botanical Provinces description
Pristine	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
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.
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.
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.
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.
Completely Degraded	The structure of 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 or shrubs.

Conservation codes

Species of significant flora, fauna and communities are protected under both Federal and State Acts. The Federal EPBC Act provides a legal framework to protect and manage nationally important flora and communities. The State BC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

Ecological communities

Conservation significant communities

Ecological communities are defined as naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth 1997). Federally listed Threatened Ecological Communities (TECs) are protected under the EPBC Act. The BC Act provides for the Minister to list an ecological community as a TEC (section 27), or as a collapsed ecological community (section 31) statutory listing of State TECs by the Minister. The legislation also describes statutory processes for preparing recovery plans for TECs, the registration of their critical habitat, and penalties for unauthorised modification of TECs.

Possible TECs that do not meet survey criteria are added to the DBCA Priority Ecological Community (PEC) List under Priorities 1, 2 and 3. These are ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened. PECs that have been recently removed from the threatened list are placed in Priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in Priority 5. PECs are not listed under any formal Federal or State legislation, however, may be listed as TECs under the EPBC Act.

Conservation codes and definitions for TECs listed under the EPBC Act and/ or BC Act

Categories	Definition
Federal Government Conservation Categories (EPBC Act)	
Critically Endangered (CR)	An ecological community if, at that time, is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Endangered (EN)	An ecological community if, at that time: A) is not critically endangered; and B) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Vulnerable (VU)	An ecological community if, at that time: A) is not critically endangered or endangered; and B) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Western Australia Conservation Categories (BC Act)	
Threatened Ecological Communities	

Categories	Definition
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.
Collapsed ecological communities	
An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time – (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed); or (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover – (i) its species composition or structure; or (ii) its species composition and structure. Section 33 of the BC Act provides for a collapsed ecological community to be regarded as a threatened ecological community if it is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community.	

Conservation categories and definitions for PECS as listed by the DBCA

Category	Description
Priority 1	Poorly known ecological communities. Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100 ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority 2	Poorly known ecological communities. Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200 ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Category	Description
Priority 3	Poorly known ecological communities. (i) 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: (ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; (iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes. Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.
Priority 4	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. (i) Rare. Ecological communities known from few occurrences 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 communities are usually represented on conservation lands. (ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.
Priority 5	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.

Other significant vegetation

Vegetation may be significant for a range of reasons other than a statutory listing. The EPA (2016b) states that significant vegetation may include vegetation that includes the following:

- Restricted distribution
- Degree of historical impact from threatening processes
- Local endemism in restricted habitats
- Novel combinations of taxa
- A role as a refuge
- A role as a key habitat for Threatened species or large population representing a significant proportion of the local to regional total population of a species
- Being representative of a vegetation unit in ‘pristine’ condition in a highly cleared landscape, recently discovered range extensions, or isolated outliers of the main range)
- Being poorly reserved.

This may apply at a number of levels, so the unit may be significant when considered at the fine-scale (intra-locality), intermediate-scale (locality or inter-locality) or broad-scale (local to region).

Flora and fauna

Conservation significant flora and fauna

Species of significant flora are protected under both Federal and State legislation. Any activities that are deemed to have a significant impact on species that are recognised by the EPBC Act, and/or the BC Act can warrant referral to the DAWE and/or the EPA.

The Federal conservation level of flora and fauna species and their significance status is assessed under the EPBC Act. The significance levels for flora and fauna used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species. The EPBC Act also protects land and migratory species that are listed under International Agreements. The list of migratory species established under section 209 of the EPBC Act comprises:

- Migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II)
- Migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China–Australia Migratory Bird Agreement (CAMBA)
- Native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)

The State conservation level of flora and fauna species and their significance status also follows the IUCN Red List criteria. Under the BC Act flora and fauna can be listed as Threatened, Extinct and as Specially Protected species.

Threatened species are those are species which have been adequately searched for and are deemed to be, in the wild, either rare, under identifiable threat of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of Threatened species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria. Specially protected species meet 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 or Extinct species under the BC Act cannot also be listed as Specially Protected 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 flora or fauna.

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.

For the purposes of this assessment, all species listed under the EPBC Act, BC Act and DBCA Priority species are considered conservation significant.

Conservation categories and definitions for EPBC Act and BC Act listed flora and fauna species

Conservation category	Definition
Threatened species	
Critically Endangered (CR)	Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.
Endangered (EN)	Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines
Vulnerable (VU)	Threatened species considered to be “facing a high risk of extinction in the wild in the medium term future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Conservation codes for DBCA listed Priority flora and fauna

Priority category	Definition
Priority 1	Poorly-known taxa 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.
Priority 2	Poorly-known taxa Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3	Poorly-known taxa 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

Priority category	Definition
	known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4	Rare, Near Threatened and other taxa in need of monitoring A. Rare: Taxa 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 taxa are usually represented on conservation lands. B. Near Threatened. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. C. Taxa that have been removed from the list of threatened taxa during the past five years for reasons other than taxonomy.

Other significant flora

Flora species, subspecies, varieties, hybrids and ecotypes may be significant for a range of reasons, other than a statutory listing. The EPA (2016b) states that significant flora may include taxa that have:

- A keystone role in a particular habitat for threatened or Priority flora or fauna species, or large populations representing a considerable proportion of the local or regional total population of a species
- Relictual status, being representation of taxonomic or physiognomic groups that no longer occur widely in the broader landscape
- Anomalous features that indicate a potential new discovery
- Being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
- The presence of restricted subspecies, varieties, or naturally occurring hybrids
- Local endemism (a restricted distribution) or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)
- Being poorly reserved

Introduced plants (weeds)

Declared Pests

Information on species considered to be Declared Pests is provided under *State Biosecurity and Agriculture Management Act 2007.*

Weeds of National Significance

The spread of weeds across a range of land uses or ecosystems is important in the context of socio-economic and environmental values. The assessment of Weeds of National Significance (WoNS) is based on four major criteria:

- Invasiveness
- Impacts
- Potential for spread
- Socio-economic and environmental values

Australian state and territory governments have identified thirty-two Weeds of National Significance (WoNS); a list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012.

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Appendix C – Desktop searches

EPBC Act PMST (10 km buffer)

NatureMap Flora Report (20 km buffer)

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 22/04/2020

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	116° 45' 47" E,20° 40' 14" S
Buffer	20km
Group By	Kingdom

Kingdom	Species	Records
Animalia	713	8527
Chromista	26	68
Fungi	8	9
Plantae	656	3902
TOTAL	**1403**	**12506**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.		*? ?*			
2.		*Abudefduf bengalensis*			
3.		*Acanthopagrus latus*			
4.		*Acanthophis wellsei*			
5.	25332	*Acanthophis wellsi (Pilbara Death Adder)*			
6.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
7.	25536	*Accipiter fasciatus (Brown Goshawk)*			
8.		*Acentrogobius gracilis*			
9.		*Acentrogobius sp.*			
10.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
11.		*Actacarus pacificus*			
12.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
13.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
14.		*Agauopsis arborea*			Y
15.		*Agauopsis dasyderma*			Y
16.		*Agauopsis moorea*			Y
17.		*Agauopsis obtusa*			Y
18.		*Agraptocorixa parvipunctata*			
19.		*Alepes apercna*			
20.		*Alepes mate*			Y
21.		*Allodessus bistrigatus*			
22.		*Alluaudomyia sp.*			
23.		*Alona cf. verrucosa*			
24.		*Alona rigidicaudis*			
25.		*Ambassis vachellii*			
26.		*Amblyeleotris gymnocephala*			
27.		*Amblygobius bynoensis*			
28.		*Amblyomma triguttatum*			
29.		*Amniataba caudavittata*			
30.	30833	*Amphibolurus longirostris (Long-nosed Dragon)*			
31.		*Aname mainae*			
32.		*Aname mellosa*			
33.	24312	*Anas gracilis (Grey Teal)*			
34.	24316	*Anas superciliosa (Pacific Black Duck)*			
35.		*Anax papuensis*			
36.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
37.	44628	*Anilios ammodytes*			
38.	44635	*Anilios grypus*			
39.		*Anisops canaliculatus*			
40.		*Anisops hackeri*			
41.		*Anisops nasutus*			
42.		*Anisops sp.*			
43.		*Anomalohalacarus dampierensis*			Y

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.		*Anopheles annulipes s.l.*			
45.	24505	*Anous stolidus subsp. pileatus (Common Noddy)*		IA	
46.	25317	*Antaresia childreni (Children's Python)*			
47.	25318	*Antaresia perthensis (Pygmy Python)*			
48.	25448	*Antaresia stimsoni (Stimson's Python)*			
49.	25241	*Antaresia stimsoni subsp. stimsoni (Stimson's Python)*			
50.	25670	*Anthus australis (Australian Pipit)*			
51.		*Apistus carinatus*			
52.		*Apogon brevicaudatus*			
53.		*Apogon cavitiensis*			
54.		*Apogon cookii*			
55.		*Apogon fasciatus*			
56.		*Apogon rueppellii*			
57.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
58.	24285	*Aquila audax (Wedge-tailed Eagle)*			
59.	25559	*Ardea intermedia (Intermediate Egret)*			
60.	41324	*Ardea modesta (great egret, white egret)*			
61.	24341	*Ardea pacifica (White-necked Heron)*			
62.	48573	*Ardenna pacifica (Wedge-tailed Shearwater)*		IA	
63.	24610	*Ardeotis australis (Australian Bustard)*			
64.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
65.		*Arius leptaspis*			Y
66.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
67.	25567	*Artamus leucorynchus (White-breasted Woodswallow)*			
68.	24354	*Artamus leucorynchus subsp. leucopygialis (White-breasted Woodswallow)*			
69.	24355	*Artamus minor (Little Woodswallow)*			
70.	24356	*Artamus personatus (Masked Woodswallow)*			
71.	24357	*Artamus superciliosus (White-browed Woodswallow)*			
72.		*Arthrorhabdus paucispinus*			
73.	25320	*Aspidites melanocephalus (Black-headed Python)*			
74.	25236	*Aspidites ramsayi (Woma)*			
75.		*Asterorhombus intermedius*			
76.		*Asterropteryx semipunctatus*			
77.		*Atule mate*			
78.		*Austrostrophus stictopygus*			
79.	24318	*Aythya australis (Hardhead)*			
80.		*Barnardius zonarius*			
81.		*Bathygobius fuscus*			
82.		*Bathygobius laddi*			
83.		*Batrachomoeus dahli*			
84.		*Bdelloidea sp. 2:2*			
85.		*Berosus pulchellus*			
86.		*Bostrychus sinensis*			Y
87.	25331	*Brachyurophis approximans (North-western Shovel-nosed Snake)*			
88.		*Bryaninops loki*			
89.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
90.	47897	*Butorides striata (Striated Heron, Mangrove Heron)*			
91.	25715	*Cacatua roseicapilla (Galah)*			
92.	25716	*Cacatua sanguinea (Little Corella)*			
93.	24727	*Cacatua sanguinea subsp. westralensis (Little Corella)*			
94.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
95.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
96.	24780	*Calidris alba (Sanderling)*		IA	
97.	25738	*Calidris canutus (Red Knot, knot)*		IA	
98.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
99.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
100.	24789	*Calidris subminuta (Long-toed Stint)*		IA	
101.	24790	*Calidris tenuirostris (Great Knot)*		T	
102.		*Callionymus japonicus*			Y
103.		*Callionymus russelli*			
104.		*Callionymus sp.*			
105.	48920	*Canis familiaris (Dog, Dingo)*	Y		
106.	24253	*Capra hircus (Goat)*	Y		
107.		*Carangoides sp.*			
108.		*Caranx bucculentus*			
109.		*Carcharhinus brachyurus*			
110.		*Carenum pulchrum*			
111.		*Carenum subplanatum*			
112.		*Carenum venustum*			
113.	25015	*Carlia munda (Shaded-litter Rainbow Skink)*			

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114.	25017	*Carlia triacantha (Desert Rainbow Skink)*			
115.		*Catadromus lacordairei*			
116.		*Centrogenys vaigiensis*			
117.	25600	*Centropus phasianinus (Pheasant Coucal)*			
118.		*Cephalopholis boenak*			
119.		*Ceriodaphnia cornuta*			
120.		*Ceriodaphnia n. sp. a (Berner sp.#3) (SAP)*			
121.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
122.	24181	*Chaerephon jobensis (Greater Northern Freetail-bat, Northern Mastiff Bat)*			
123.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
124.	25576	*Charadrius mongolus (Lesser Sand Plover)*		T	
125.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
126.	24378	*Charadrius veredus (Oriental Plover)*		IA	
127.		*Cheilopogon arcticeps*			
128.		*Chelmon marginalis*			
129.		*Chelmon muelleri*			
130.	25336	*Chelonia mydas (Green Turtle)*		T	
131.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
132.		*Cheumatopsyche wellsae*			
133.		*Chirocentrus dorab*			
134.		*Chironomus aff. alternans (V24) (CB)*			
135.		*Chlaenius australis*			
136.	41332	*Chlidonias leucopterus (White-winged Black Tern, white-winged tern)*		IA	
137.		*Choerodon cyanodus*			
138.		*Chroicocephalus novaehollandiae*			
139.		*Chromileptes altivelis*			
140.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
141.	24288	*Circus approximans (Swamp Harrier)*			
142.	24289	*Circus assimilis (Spotted Harrier)*			
143.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
144.		*Cloeon sp.*			
145.	24399	*Columba livia (Domestic Pigeon)*	Y		
146.		*Congrogadus subducens*			
147.		*Copidognathus lutarius*			Y
148.		*Copidognathus meridianus*			
149.		*Copidognathus piger*			Y
150.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
151.		*Coris sp.*			
152.	24416	*Corvus bennetti (Little Crow)*			
153.	25593	*Corvus orru (Torresian Crow)*			
154.	24419	*Corvus splendens (House Crow)*			
155.	25701	*Coturnix ypsilophora (Brown Quail)*			
156.	24673	*Coturnix ypsilophora subsp. australis (Brown Quail)*			
157.	24672	*Coturnix ypsilophora subsp. cervina (Brown Quail)*			
158.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
159.	25595	*Cracticus tibicen (Australian Magpie)*			
160.	25596	*Cracticus torquatus (Grey Butcherbird)*			
161.		*Craterocephalus pauciradiatus*			
162.	24919	*Crenadactylus ocellatus subsp. horni (Clawless Gecko)*			
163.	30893	*Cryptoblepharus buchananii*			
164.	25020	*Cryptoblepharus plagiocephalus*			
165.	30892	*Cryptoblepharus ustulatus*			
166.		*Cryptochironomus griseidorsum*			
167.		*Cryptoerithus halli*			
168.		*Cryptoerithus occultus*			
169.	25458	*Ctenophorus caudicinctus (Ring-tailed Dragon)*			
170.	24865	*Ctenophorus caudicinctus subsp. caudicinctus (Ring-tailed Dragon)*			
171.	25459	*Ctenophorus isolepis (Crested Dragon, Military Dragon)*			
172.	24876	*Ctenophorus isolepis subsp. isolepis (Crested Dragon, Military Dragon)*			
173.	24882	*Ctenophorus nuchalis (Central Netted Dragon)*			
174.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			
175.		*Ctenotrypauchen microcephalus*			
176.	25024	*Ctenotus angusticeps (Airlie Island Ctenotus, Northwestern coastal Ctenotus)*		P3	
177.	25027	*Ctenotus australis*			
178.	25036	*Ctenotus duricola*			
179.	25462	*Ctenotus grandis*			
180.	25043	*Ctenotus grandis subsp. titan*			
181.	25045	*Ctenotus helenae*			
182.	25052	*Ctenotus leonhardii*			
183.	25463	*Ctenotus pantherinus (Leopard Ctenotus)*			

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184.	25060	*Ctenotus pantherinus subsp. acripes (Leopard Ctenotus)*			
185.	25064	*Ctenotus pantherinus subsp. ocellifer (Leopard Ctenotus)*			
186.	25072	*Ctenotus rubicundus*			
187.	25073	*Ctenotus saxatilis (Rock Ctenotus)*			
188.	25074	*Ctenotus schomburgkii*			
189.	25077	*Ctenotus serventyi*			
190.		*Culex crinicauda*			
191.		*Culex palpalis*			
192.		*Cybister tripunctatus*			
193.	25466	*Cyclodomorphus melanops (Slender Blue-tongue)*			
194.	25090	*Cyclodomorphus melanops subsp. melanops (Slender Blue-tongue)*			
195.	25371	*Cyclorana australis (Giant Frog)*			
196.	25375	*Cyclorana maini (Sheep Frog)*			
197.	24322	*Cygnus atratus (Black Swan)*			
198.		*Cymbacephalus bosschei*			
199.		*Cynoglossus maculipinnis*			
200.		*Cynoglossus sp.*			
201.		*Cypretta sp PSW074*			
202.		*Cypricercus sp. 422 (CB)*			
203.		*Dasyheleinae sp. P2 (PSW)*			
204.	24091	*Dasykaluta rosamondae (Little Red Kaluta)*			
205.	24093	*Dasyurus hallucatus (Northern Quoll)*		T	
206.	24996	*Delma borea*			
207.	25001	*Delma nasuta*			
208.	25002	*Delma pax*			
209.	25004	*Delma tincta*			
210.	25468	*Demansia psammophis (Yellow-faced Whipsnake)*			
211.	25295	*Demansia psammophis subsp. cupreiceps (Yellow-faced Whipsnake)*			
212.	25297	*Demansia rufescens (Rufous Whipsnake)*			
213.	24325	*Dendrocygna eytoni (Plumed Whistling Duck)*			
214.		*Dexillus muelleri*			
215.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
216.		*Dicrotendipes P5 (=balciunasi?) (PSW)*			
217.		*Difflugia sp. P1*			
218.		*Dinematichthys sp.*			
219.		*Dineutus australis*			
220.		*Diplacodes bipunctata*			
221.		*Diplacodes haematodes*			
222.	24926	*Diplodactylus conspicillatus (Fat-tailed Gecko)*			
223.	41404	*Diplodactylus galaxias (Northern Pilbara Beak-faced Gecko)*			
224.	24937	*Diplodactylus mitchelli*			
225.	24944	*Diplodactylus savagei (Southern Pilbara Beak-faced Gecko)*			
226.		*Dischistodus darwiniensis*			
227.	24470	*Dromaius novaehollandiae (Emu)*			
228.		*Drombus sp.*			
229.	24084	*Dugong dugon (Dugong)*		S	
230.		*Ecnomus pilbarensis*			
231.	25092	*Egernia depressa (Southern Pygmy Spiny-tailed Skink)*			
232.	25101	*Egernia pilbarensis (Pilbara Skink)*			
233.		*Egretta garzetta*			
234.		*Egretta novaehollandiae*			
235.		*Elanus axillaris*			
236.	24290	*Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)*			
237.		*Eleutheronema tetradactylum*			
238.		*Elops hawaiensis*			
239.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
240.	24631	*Emblema pictum (Painted Finch)*			
241.		*Encentridophorus sarasini*			
242.		*Enchytraeidae sp.*			
243.		*Engyprosopon sp.*			
244.		*Enneapterygius gracilis*			
245.		*Enneapterygius philippinus*			
246.		*Enneapterygius sp.*			
247.		*Enochrus deserticola*			
248.		*Eolophus roseicapillus*			
249.	24653	*Eopsaltria pulverulenta (Mangrove Robin)*			
250.	25362	*Ephalophis greyae*			
251.		*Ephemeroporus barroisi s.l.*			
252.	25578	*Ephippiorhynchus asiaticus (Black-necked Stork)*			
253.		*Ephydridae sp. 12 (PSW)*			

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254.		*Epinephelus bilobatus*			
255.		*Epinephelus coioides*			
256.		*Epinephelus malabaricus*			
257.		*Epinephelus quoyanus*			
258.		*Epinephelus sexfasciatus*			
259.	24568	*Epthianura aurifrons (Orange Chat)*			
260.	24570	*Epthianura tricolor (Crimson Chat)*			
261.	42404	*Eremiascincus isolepis*			
262.	41409	*Eremiascincus musivus (Mosaic Desert Skink)*			
263.	24837	*Eremiornis carteri (Spinifex-bird)*			
264.		*Eretes australis*			
265.	25473	*Eretmochelys imbricata (Hawksbill Turtle)*		T	
266.	25342	*Eretmochelys imbricata subsp. bissa (Hawksbill Turtle)*		T	
267.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
268.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
269.		*Ethmostigmus curtipes*			
270.		*Euchlanis lyra*			
271.		*Euglypha sp.*			
272.		*Euristhmus microceps*			
273.		*Euristhmus sandrae*			Y
274.	24368	*Eurostopodus argus (Spotted Nightjar)*			
275.		*Eviota queenslandica*			
276.	25621	*Falco berigora (Brown Falcon)*			
277.	24471	*Falco berigora subsp. berigora (Brown Falcon)*			
278.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
279.	25623	*Falco longipennis (Australian Hobby)*			
280.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
281.	24475	*Falco peregrinus subsp. macropus (Australian Peregrine Falcon)*		S	
282.	24476	*Falco subniger (Black Falcon)*			
283.		*Favonigobius melanobranchus*			
284.		*Favonigobius sp.*			
285.	24041	*Felis catus (Cat)*	Y		
286.		*Festucalex sp.*			
287.	25327	*Fordonia leucobalia (White-bellied Mangrove Snake)*			
288.		*Fowleria aurita*			
289.	24478	*Fregata ariel (Lesser Frigatebird)*		IA	
290.	25727	*Fulica atra (Eurasian Coot)*			
291.	25301	*Furina ornata (Moon Snake)*			
292.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
293.	24765	*Gallirallus philippensis subsp. mellori (Buff-banded Rail)*			
294.	42314	*Gavicalis virescens (Singing Honeyeater)*			
295.	24956	*Gehyra pilbara*			
296.	24958	*Gehyra punctata*			
297.	24959	*Gehyra variegata*			
298.	47954	*Gelochelidon nilotica (Gull-billed Tern)*		IA	
299.	24401	*Geopelia cuneata (Diamond Dove)*			
300.	24402	*Geopelia humeralis (Bar-shouldered Dove)*			
301.	25585	*Geopelia striata (Zebra Dove)*			
302.	24403	*Geopelia striata subsp. placida (Peaceful Dove)*			
303.	24404	*Geophaps plumifera (Spinifex Pigeon)*			
304.		*Geoscaptus laevissimus*			
305.		*Gerres filamentosus*			
306.		*Gerres subfasciatus*			
307.	25530	*Gerygone fusca (Western Gerygone)*			
308.		*Gerygone sp.*			
309.	24276	*Gerygone tenebrosa (Dusky Gerygone)*			
310.	24481	*Glareola maldivarum (Oriental Pratincole)*		IA	
311.		*Glyptophysa sp*			
312.		*Gnatholepis argus*			
313.		*Gobiodon rivulatus*			
314.		*Gobiodon sp.*			
315.	24443	*Grallina cyanoleuca (Magpie-lark)*			
316.	24484	*Grus rubicunda (Brolga)*			
317.		*Gymnothorax pseudothyrsoideus*			
318.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
319.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
320.		*Haematopus ostralegus*			Y
321.		*Halacaridae sp.*			
322.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
323.	25541	*Haliastur indus (Brahminy Kite)*			

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324.	24294	*Haliastur indus subsp. girrenera (Brahminy Kite)*			
325.	24295	*Haliastur sphenurus (Whistling Kite)*			
326.		*Halichoeres nigrescens*			
327.		*Halichoeres sp.*			
328.		*Halieutaea brevicaudata?*			
329.		*Haliichthys taeniophorus*			
330.		*Halophryne diemensis*			
331.	24297	*Hamirostra melanosternon (Black-breasted Buzzard)*			
332.		*Hellyethira sp.*			
333.		*Hemicordulia sp.*			
334.	25232	*Hemidactylus frenatus (Asian House Gecko)*	Y		
335.		*Herklotsichthys koningsbergeri*			
336.		*Heterocypris tatei*			
337.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
338.	47965	*Hieraaetus morphnoides (Little Eagle)*			
339.	25734	*Himantopus himantopus (Black-winged Stilt)*			
340.		*Hippichthys penicillus*			
341.	24491	*Hirundo neoxena (Welcome Swallow)*			
342.	25630	*Hirundo rustica (Barn Swallow)*		IA	
343.		*Hogna crispipes*			
344.		*Hydraena sp.*			
345.	25363	*Hydrelaps darwiniensis*			
346.		*Hydrochus obscuroaeneus*			
347.		*Hydroglyphus grammopterus (=trilineatus)*			
348.		*Hydroglyphus leai*			
349.		*Hydroglyphus orthogrammus*			
350.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
351.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
352.		*Hyphydrus elegans*			
353.		*Hyphydrus lyratus*			
354.		*Hypopterus macropterus*			
355.		*Ilyocypris australiensis*			
356.		*Ilyodromus sp BOS25*			
357.		*Indolpium sp.*			
358.		*Inegocia japonica*			
359.		*Ischnura aurora aurora*			
360.		*Isidorella egraria*			
361.		*Isobactrus australiensis*			Y
362.		*Isobactrus obesus*			Y
363.		*Isopedella gibsandi*			
364.		*Isopedella tindalei*			
365.		*Istiblennius meleagris*			
366.		*Istigobius nigroocellatus*			
367.		*Istigobius ornatus*			
368.		*Keratella procurva*			
369.		*Laccophilus sharpi*			
370.	24367	*Lalage tricolor (White-winged Triller)*			
371.		*Lampona ampeinna*			
372.		*Lampona cylindrata*			
373.		*Lamponina scutata*			
374.		*Larsia albiceps*			
375.	25637	*Larus novaehollandiae (Silver Gull)*			
376.	25638	*Larus pacificus (Pacific Gull)*			
377.		*Latonopsis australis*			
378.		*Latrodectus geometricus*			
379.		*Leberis cf. diaphanus*			
380.		*Lecane bulla*			
381.		*Lecane luna*			
382.		*Lecane punctata*			
383.		*Lecane thalera*			
384.		*Lecane ungulata*			
385.	24217	*Leggadina lakedownensis (Northern Short-tailed Mouse, Lakeland Downs Mouse, Kerakenga)*		P4	
386.		*Leiognathus sp.*			
387.		*Lepadella patella*			
388.		*Lepidotrigla sp.*			
389.	25125	*Lerista bipes*			
390.	30928	*Lerista clara*			
391.	30929	*Lerista jacksoni*			
392.	25155	*Lerista muelleri*			

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393.	30925	*Lerista verhmens*			
394.	25005	*Lialis burtonis*			
395.	25238	*Liasis olivaceus subsp. barroni (Pilbara Olive Python)*		T	
396.	25239	*Liasis olivaceus subsp. olivaceus (Olive Python)*			
397.	25661	*Lichmera indistincta (Brown Honeyeater)*			
398.	24582	*Lichmera indistincta subsp. indistincta (Brown Honeyeater)*			
399.		*Limbodessus compactus*			
400.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
401.		*Limnadopsis "pilbarensis" (ex P2)(PSW)*			Y
402.		*Limnocythere dorsosicula*			
403.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
404.	25741	*Limosa limosa (Black-tailed Godwit)*		IA	
405.		*Liocranium praepositum*			
406.		*Litarachna bartschae*			Y
407.	25392	*Litoria rubella (Little Red Tree Frog)*			
408.		*Liza alata*			
409.		*Liza subviridis*			
410.		*Liza vaigiensis*			
411.		*Lophiocharon trisignatus*			
412.	30933	*Lucasium stenodactylum*			
413.		*Lutjanus argentimaculatus*			
414.		*Lutjanus carponotatus*			
415.		*Lutjanus malabaricus*			
416.		*Lutjanus russellii*			
417.		*Lychas sp. 2*			
418.		*Macrochaetus sp.*			
419.	24180	*Macroderma gigas (Ghost Bat)*		T	
420.	25489	*Macropus robustus (Euro, Biggada)*			
421.	24135	*Macropus robustus subsp. erubescens (Euro, Biggada)*			
422.	24136	*Macropus rufus (Red Kangaroo, Marlu)*			
423.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
424.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
425.	25652	*Malurus leucopterus (White-winged Fairy-wren)*			
426.	24583	*Manorina flavigula (Yellow-throated Miner)*			
427.		*Megacephala greyana*			
428.	24051	*Megaptera novaeangliae (Humpback Whale)*		S	
429.	24736	*Melopsittacus undulatus (Budgerigar)*			
430.	25184	*Menetia greyii*			
431.	25491	*Menetia surda*			
432.	25187	*Menetia surda subsp. surda*			
433.	24598	*Merops ornatus (Rainbow Bee-eater)*			
434.		*Mesocyclops brooksi*			
435.		*Mesovelia hungerfordi*			
436.		*Metacyclops sp. P2 (PSW)*			
437.		*Metavelifer multiradiatus*			
438.		*Micrognathus micronotopterus*			
439.		*Micronecta n. sp. P3 (PSW)*			
440.		*Microvelia (Austromicrovelia) peramoena*			
441.	25542	*Milvus migrans (Black Kite)*			
442.	25545	*Mirafra javanica (Horsfield's Bushlark, Singing Bushlark)*			
443.		*Monacanthus chinensis*			
444.		*Monodactylus argenteus*			
445.		*Monommata sp.*			
446.	25495	*Morethia ruficauda*			
447.	25193	*Morethia ruficauda subsp. exquisita*			
448.		*Mormopterus (Ozimops) cobourgianus*			
449.	24183	*Mormopterus loriae (Little Northern Freetail-bat)*			
450.		*Mugil cephalus*			
451.		*Muraenichthys sp.*			
452.	24223	*Mus musculus (House Mouse)*	Y		
453.		*Muscidae sp. P1*			
454.		*Naididae (ex Tubificidae)*			
455.	25344	*Natator depressus (Flatback Turtle)*		T	
456.		*Nebrius ferrugineus*			Y
457.		*Nematoda sp. P2/P4 (PSW)*			
458.		*Nemipterus celebicus*			
459.	25685	*Neochmia ruficauda (Star Finch)*			
460.		*Neopsephotus bourkii*			
461.		*Nephila edulis*			
462.		*Netuma proxima*			

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463.	24095	*Ningaui timealeyi (Pilbara Ningaui)*			
464.	48016	*Ninox boobook (Boobook Owl)*			
465.	25430	*Notaden nichollsi (Desert Spadefoot)*			
466.	24224	*Notomys alexis (Spinifex Hopping-mouse)*			
467.	25196	*Notoscincus butleri (lined soil-crevice skink (Dampier))*		P4	
468.	25197	*Notoscincus ornatus subsp. ornatus*			
469.	24798	*Numenius madagascariensis (Eastern Curlew)*		T	
470.	24799	*Numenius minutus (Little Curlew, Little Whimbrel)*		IA	
471.	25742	*Numenius phaeopus (Whimbrel)*		IA	
472.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
473.	24192	*Nyctophilus arnhemensis (Arnhem Land Long-eared Bat)*			
474.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
475.		*Nyctophilus geoffroyi subsp. pallescens*			
476.	24742	*Nymphicus hollandicus (Cockatiel)*			
477.	24497	*Oceanites oceanicus (Wilson's Storm-petrel)*		IA	
478.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
479.	24976	*Oedura marmorata (Marbled Velvet Gecko)*			
480.		*Omobranchus punctatus*			
481.		*Omobranchus rotundiceps*			
482.		*Omobranchus sp.*			
483.		*Omoedus orbiculatus*			
484.		*Onigocia pedimacula*			
485.		*Onigocia pedimacula?*			
486.	41347	*Onychoprion anaethetus (Bridled Tern)*		IA	
487.		*Ophichthus celebicus?*			
488.		*Opisthopora sp.*			
489.		*Opistognathus darwiniensis*			
490.		*Orthetrum caledonicum*			
491.		*Orthomorpha coarctata*			
492.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
493.	48034	*Osphranter robustus (Euro, Biggada)*			
494.		*Ostracoda (unident.)*			
495.	34016	*Ovis aries (Sheep)*			
496.		*Oxyopes variabilis*			
497.		*Oxyurichthys sp.*			
498.	24620	*Pachycephala lanioides (White-breasted Whistler)*			
499.	25678	*Pachycephala melanura (Mangrove Golden Whistler)*			
500.	24621	*Pachycephala melanura subsp. melanura (Mangrove Golden Whistler)*			
501.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
502.		*Pandaka lidwilli*			
503.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
504.		*Pantala flavescens*			
505.		*Parachaeturichthys sp.*			Y
506.		*Paracymus pygmaeus*			
507.		*Paracymus spenceri*			
508.		*Paraexocoetus brachypterus*			Y
509.		*Paramonacanthus choirocephalus*			
510.		*Parapercis diplospilus*			
511.		*Parascorpaena picta*			
512.		*Paratanytarsus sp. P2 (PSW)*			
513.	24627	*Pardalotus rubricatus (Red-browed Pardalote)*			
514.	48053	*Pardalotus rubricatus subsp. rubricatus (Red-browed Pardalote)*			Y
515.	25682	*Pardalotus striatus (Striated Pardalote)*			
516.	25687	*Passer domesticus (House Sparrow)*	Y		
517.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
518.		*Pediana horni*			
519.		*Pediana tenuis*			
520.		*Pegasus volitans*			
521.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
522.		*Peneoenanthe pulverulenta*			
523.		*Pentapodus porosus*			
524.		*Pentapodus sp.*			
525.		*Periophthalmus argentilineatus*			
526.	48060	*Petrochelidon ariel (Fairy Martin)*			
527.	48061	*Petrochelidon nigricans (Tree Martin)*			
528.	24144	*Petrogale rothschildi (Rothschild's Rock-wallaby)*			
529.		*Petroscirtes mitratus*			
530.	25697	*Phalacrocorax carbo (Great Cormorant)*			
531.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
532.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			

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533.	25699	*Phalacrocorax varius (Pied Cormorant)*			
534.	24411	*Phaps histrionica (Flock Bronzewing, Flock Pigeon)*			
535.		*Phreodrilid with dissimilar ventral chaetae*			
536.		*Phreodrilid with similar ventral chaetae*			
537.		*Pilbarascutigera incola*			
538.		*Pilbarophreatoicus platyarthricus*			
539.		*Pisodonophis cancrivorus*			
540.	24677	*Pitta moluccensis (Blue-winged Pitta)*			
541.		*Planigale sp. nov.*			
542.	24842	*Platalea regia (Royal Spoonbill)*			
543.		*Platycephalus endrachtensis*			
544.		*Platycephalus sp.*			
545.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
546.		*Pleurosicya sp.*			
547.		*Plotosus lineatus*			
548.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
549.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
550.	25703	*Podargus strigoides (Tawny Frogmouth)*			
551.	24679	*Podargus strigoides subsp. brachypterus (Tawny Frogmouth)*			
552.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
553.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
554.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
555.		*Polydactylus multiradiatus*			
556.		*Polypedilum nubifer*			
557.		*Pomadasys kaakan*			
558.		*Pomadasys maculatus*			
559.		*Pontarachne australis*			Y
560.		*Priacanthus hamrur*			
561.		*Priolepis nuchifasciata*			
562.		*Pristotis obtusirostris*			
563.		*Procladius paludicola*			
564.		*Protonibea diacanthus*			
565.		*Psettodes erumei*			
566.	24105	*Pseudantechinus roryi (Rory's Pseudantechinus)*			
567.	24106	*Pseudantechinus woolleyae (Woolley's Pseudantechinus)*			
568.	25261	*Pseudechis australis (Mulga Snake)*			
569.	24233	*Pseudomys chapmani (Western Pebble-mound Mouse, Ngadji)*		P4	
570.	24234	*Pseudomys delicatulus (Delicate Mouse)*			
571.	24235	*Pseudomys desertor (Desert Mouse)*			
572.	24237	*Pseudomys hermannsburgensis (Sandy Inland Mouse)*			
573.	42416	*Pseudonaja mengdeni (Western Brown Snake)*			
574.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
575.	25264	*Pseudonaja nuchalis (Gwardar, Northern Brown Snake)*			
576.		*Pseudorhombus arsius*			
577.		*Pseudorhombus sp.*			
578.		*Pterapogon mirifica*			
579.		*Pterois volitans*			
580.	24172	*Pteropus alecto (Black Flying-fox)*			
581.	24173	*Pteropus scapulatus (Little Red Flying-fox)*			
582.		*Ptilonorhynchus guttatus*			
583.	24716	*Puffinus pacificus (Wedge-tailed Shearwater)*		IA	
584.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
585.		*Quistrachia legendrei*			
586.		*Rastrelliger kanagurta*			
587.	24245	*Rattus rattus (Black Rat)*	Y		
588.	24246	*Rattus tunneyi (Pale Field-rat)*			
589.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
590.		*Regimbartia attenuata*			
591.		*Repomucenus calcaratus*			
592.		*Rhagada angulata*			
593.		*Rhagada convicta*			
594.		*Rhagada dampierana*			
595.		*Rhagada minima*			
596.		*Rhagada perprima*			
597.		*Rheotanytarsus trivittatus*			
598.	48096	*Rhipidura albiscapa (Grey Fantail)*			
599.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
600.	24457	*Rhipidura phasiana (Mangrove Grey Fantail)*			
601.		*Rhombognathus dispar*			Y
602.		*Rhombognathus ocularis*			Y

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603.		*Rhombognathus scutulatus*			
604.		*Salarias sexfilum*			
605.		*Scaptognathides hawaiiensis*			Y
606.		*Scaptognathides ornatus*			Y
607.		*Scatophagus argus*			
608.		*Scirtidae sp.*			
609.		*Scolecenchelys macroptera*			
610.		*Scolopendra laeta*			
611.		*Scolopendra morsitans*			
612.		*Scolopsis taenioptera*			
613.		*Secutor insidiator*			
614.		*Selaroides leptolepis*			
615.		*Sillago burrus*			
616.		*Sillago lutea*			
617.		*Simaetha tenuior*			
618.		*Simognathus platyaspis*			Y
619.		*Simognathus salebrosus*			Y
620.		*Simognathus tener*			Y
621.		*Simulium ornatipes*			
622.	30948	*Smicrornis brevirostris (Weebill)*			
623.	24116	*Sminthopsis macroura (Stripe-faced Dunnart)*			
624.		*Soleichthys heterorhinos*			
625.		*Sorsogona tuberculata*			
626.		*Sphyraena barracuda*			
627.		*Sphyraena sp.*			
628.		*Spratelloides delicatulus*			
629.	48114	*Stenella longirostris (Spinner Dolphin)*		P4	
630.	24521	*Sterna bengalensis (Lesser Crested Tern)*			
631.	25640	*Sterna dougallii (Roseate Tern)*		IA	
632.	25642	*Sterna hirundo (Common Tern)*		IA	
633.		*Sternolophus australis*			
634.	48593	*Sternula albifrons (Little Tern)*		IA	
635.	48594	*Sternula nereis (Fairy Tern)*			
636.		*Stethojulis interrupta*			
637.	24329	*Stictonetta naevosa (Freckled Duck)*			
638.	24482	*Stiltia isabella (Australian Pratincole)*			
639.		*Stratiomyidae sp.*			
640.	25589	*Streptopelia chinensis (Spotted Turtle-Dove)*	Y		
641.	24924	*Strophurus ciliaris subsp. aberrans*			
642.	24927	*Strophurus elderi*			
643.	24932	*Strophurus jeanae*			
644.	24949	*Strophurus wellingtonae*			
645.		*Suggrundus macracanthus*			
646.	25754	*Sula leucogaster (Brown Booby)*		IA	
647.		*Supunna picta*			
648.	25269	*Suta fasciata (Rosen's Snake)*			
649.	25307	*Suta punctata (Spotted Snake)*			
650.		*Synanceia horrida*			
651.		*Tabanidae sp.*			
652.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
653.	24207	*Tachyglossus aculeatus (Short-beaked Echidna)*			
654.	30870	*Taeniopygia guttata (Zebra Finch)*			
655.		*Tanytarsus sp. D (SAP)*			
656.	24175	*Taphozous georgianus (Common Sheath-tailed Bat)*			
657.		*Tasmanocoenis arcuata*			
658.		*Terapon jarbua*			
659.		*Testudinella patina*			
660.		*Thalasseus bengalensis*			
661.	48597	*Thalasseus bergii (Crested Tern)*		IA	
662.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
663.	25202	*Tiliqua multifasciata (Central Blue-tongue)*			
664.	25548	*Todiramphus chloris (Collared Kingfisher)*			
665.	24306	*Todiramphus chloris subsp. pilbara (Pilbara Collared Kingfisher)*			
666.	42351	*Todiramphus pyrrhopygius (Red-backed Kingfisher)*			
667.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
668.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
669.		*Tramea stenoloba*			
670.		*Triacanthus sp.*			
671.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
672.		*Trichocyclus nigropunctatus*			

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673.		*Trichonotus setiger*			
674.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
675.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
676.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
677.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
678.	24851	*Turnix velox (Little Button-quail)*			
679.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
680.		*Tylosurus crocodilus*			
681.	30814	*Tympanocryptis cephalus (Pebble Dragon)*			
682.		*Tyto delicatula*			
683.		*Upeneus sulphureus*			
684.		*Urodacus armatus*			
685.		*Valamugil buchanani*			
686.		*Valamugil seheli*			
687.		*Valenciennea muralis*			
688.	25577	*Vanellus miles (Masked Lapwing)*			
689.	24386	*Vanellus tricolor (Banded Lapwing)*			
690.	25209	*Varanus acanthurus (Spiny-tailed Monitor)*			
691.	25210	*Varanus brevicauda (Short-tailed Pygmy Monitor)*			
692.	25212	*Varanus eremius (Pygmy Desert Monitor)*			
693.	25216	*Varanus giganteus (Perentie)*			
694.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
695.	25524	*Varanus panoptes (Yellow-spotted Monitor)*			
696.	25223	*Varanus panoptes subsp. rubidus*			
697.	25224	*Varanus pilbarensis (Pilbara Rock Monitor, Northern Pilbara Rock Goanna)*			
698.	25526	*Varanus tristis (Racehorse Monitor)*			
699.	25227	*Varanus tristis subsp. tristis (Racehorse Monitor)*			
700.		*Venatrix arenaris*			
701.	24205	*Vespadelus finlaysoni (Finlayson's Cave Bat)*			
702.	24040	*Vulpes vulpes (Red Fox)*	Y		
703.		*Wesmaldra nixaut*			
704.		*Wydundra kennedy*			
705.		*Wydundra nixaut*			Y
706.	41351	*Xenus cinereus (Terek Sandpiper)*		IA	
707.		*Yirrkala sp.*			
708.		*Yongeichthys nebulosus*			
709.		*Zebrias quagga*			
710.		*Zenodorus orbiculatus*			
711.		*Zonocypretta kalimna*			
712.	24857	*Zosterops luteus (Yellow White-eye)*			
713.	24248	*Zyzomys argurus (Common Rock-rat)*			

Chromista

714.	35220	*Canistrocarpus cervicornis*			
715.	35910	*Canistrocarpus crispatus*			
716.	26694	*Colpomenia sinuosa*			
717.	26764	*Dictyopteris australis*			
718.	29954	*Dictyopteris woodwardia*			
719.	26775	*Dictyota ciliolata*			
720.	26778	*Dictyota furcellata*			
721.	26946	*Hormophysa cuneiformis*			
722.	26949	*Hydroclathrus clathratus*			
723.	27043	*Lobophora variegata*			
724.	27113	*Padina australis*			
725.	27115	*Padina boryana*			
726.	27116	*Padina elegans*			
727.	48304	*Padina tetrastromatica*			Y
728.	27245	*Sargassum ilicifolium*			
729.	27248	*Sargassum ligulatum*			
730.	27253	*Sargassum peronii*			
731.		*Sargassum siliquosum*			Y
732.	42785	*Sirophysalis trinodis*			
733.	27282	*Spatoglossum macrodontum*			
734.	27293	*Sphacelaria rigidula*			
735.	27321	*Stypopodium flabelliforme*			
736.	27345	*Turbinaria gracilis*			
737.		*Turbinaria mesenterina*			
738.	27346	*Turbinaria ornata*			
739.		*Turbinaria reniformis*			

Fungi

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740.	27576	*Acarospora nodulosa*			
741.	44918	*Caloplaca michelagoensis*			
742.		*Caloplaca sp.*			
743.	27715	*Diploschistes actinostomus*			
744.	27932	*Peltula bolanderi*			
745.		*Phellinus rimosus*			
746.	46616	*Triodiomyces altilis*			
747.	28194	*Xanthoria parietina*			
Plantae					
748.	4886	*Abutilon amplum*			
749.	9080	*Abutilon cunninghamii*			
750.	4891	*Abutilon fraseri (Lantern Bush)*			
751.	18120	*Abutilon fraseri subsp. fraseri*			
752.	4895	*Abutilon lepidum*			
753.	4899	*Abutilon malvifolium (Bastard Marshmallow)*			
754.	4902	*Abutilon oxycarpum (Flannel Weed)*			
755.	43020	*Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)*			
756.	3209	*Acacia ampliceps*			
757.	44580	*Acacia ampliceps x bivenosa*			
758.	44586	*Acacia ampliceps x sclerosperma subsp. sclerosperma*			
759.	3214	*Acacia ancistrocarpa (Fitzroy Wattle)*			
760.	3223	*Acacia arida*			
761.	3241	*Acacia bivenosa*			
762.	44588	*Acacia bivenosa x sclerosperma subsp. sclerosperma*			
763.	17013	*Acacia colei var. colei*			
764.	3270	*Acacia coriacea (Wirewood)*			
765.	13500	*Acacia coriacea subsp. coriacea*			
766.	13502	*Acacia coriacea subsp. pendens*			
767.	16174	*Acacia elachantha*			
768.	12673	*Acacia glaucocaesia*			
769.	3356	*Acacia gregorii (Gregory's Wattle)*			
770.	3372	*Acacia holosericea (Candelbra Wattle, Liringgin)*			
771.	3377	*Acacia inaequilatera (Baderi)*			
772.	3434	*Acacia maitlandii (Maitland's Wattle)*			
773.	3471	*Acacia orthocarpa (Needleleaf Wattle)*			
774.	3506	*Acacia pyrifolia (Ranji Bush, Kandji)*			
775.	29016	*Acacia pyrifolia var. morrisonii*			
776.	29015	*Acacia pyrifolia var. pyrifolia*			
777.	13078	*Acacia sclerosperma subsp. sclerosperma*			
778.	29135	*Acacia sericophylla*			
779.	3551	*Acacia sphaerostachya*			
780.	19456	*Acacia stellaticeps*			
781.	13070	*Acacia synchronicia*			
782.	3573	*Acacia tenuissima*			
783.	3579	*Acacia trachycarpa (Minni Ritchi, Balgali)*			
784.	3606	*Acacia xiphophylla*			
785.	26441	*Acanthophora spicifera*			
786.	48409	*Acetabularia caliculus*			
787.	2645	*Achyranthes aspera (Chaff Flower)*			
788.	172	*Acrachne racemosa*			
789.	4583	*Adriana tomentosa*			
790.	17422	*Adriana tomentosa var. tomentosa*			
791.	6486	*Aegialitis annulata (Club Mangrove)*			
792.	6478	*Aegiceras corniculatum (River Mangrove)*			
793.	2646	*Aerva javanica (Kapok Bush)*	Y		
794.	3680	*Aeschynomene indica (Budda Pea)*			
795.	3609	*Albizia lebbeck*			
796.	4739	*Alectryon oleifolius*			
797.	11487	*Alectryon oleifolius subsp. oleifolius*			
798.	2651	*Alternanthera nana (Hairy Joyweed)*			
799.	2652	*Alternanthera nodiflora (Common Joyweed)*			
800.	17147	*Alysicarpus muelleri*			
801.	20018	*Amaranthus undulatus*			
802.	5277	*Ammannia baccifera*			
803.	5278	*Ammannia multiflora*			
804.	26461	*Amphiroa foliacea*			
805.	26462	*Amphiroa fragilissima*			
806.	35872	*Anadyomene plicata*			
807.	7832	*Angianthus milnei (Cone-spike Angianthus)*			
808.	207	*Aristida contorta (Bunched Kerosene Grass)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
809.	215	*Aristida latifolia (Feathertop Wiregrass)*			
810.	217	*Aristida nitidula (Flat-awned Threeawn)*			
811.	226	*Arundo donax (Giant Reed)*	Y		
812.	6580	*Asclepias curassavica (Redhead Cottonbush)*	Y		
813.	26486	*Asparagopsis taxiformis*			
814.	36140	*Asteromenia exanimans*			
815.	229	*Astrebla pectinata (Barley Mitchell Grass)*			
816.	2450	*Atriplex amnicola (Swamp Saltbush)*			
817.	2451	*Atriplex bunburyana (Silver Saltbush)*			
818.	2453	*Atriplex codonocarpa (Flat-topped Saltbush)*			
819.	2463	*Atriplex isatidea (Coast Saltbush)*			
820.	2466	*Atriplex lindleyi*			
821.	2476	*Atriplex semilunaris (Annual Saltbush)*			
822.	6828	*Avicennia marina (White Mangrove)*			
823.	14555	*Avicennia marina subsp. marina*			
824.	26498	*Avrainvillea obscura*			
825.	7854	*Bidens bipinnata (Bipinnate Beggartick)*	Y		
826.	2769	*Boerhavia burbidgeana*			
827.	2770	*Boerhavia coccinea (Tar Vine, Wituka)*			
828.	8357	*Boerhavia diffusa*			
829.	2772	*Boerhavia gardneri*			
830.	2773	*Boerhavia paludosa*			
831.	2774	*Boerhavia repleta*			
832.	2775	*Boerhavia schomburgkiana*			
833.		*Boerhavia sp.*			
834.	11167	*Bonamia erecta*			
835.	6606	*Bonamia media*			
836.	6608	*Bonamia pannosa*			
837.	44782	*Bonamia pilbarensis*			
838.	6609	*Bonamia rosea (Felty Bellflower)*			
839.	26508	*Boodlea composita*			
840.	26509	*Bornetella oligospora*			
841.	26510	*Bornetella sphaerica*			
842.	26516	*Botryocladia leptopoda*			
843.	12716	*Brachychiton acuminatus*			
844.	2995	*Brassica x napus*	Y		
845.	4603	*Bridelia tomentosa*			
846.	5291	*Bruguiera exaristata (Ribbed Mangrove)*			
847.	750	*Bulbostylis barbata*			
848.	752	*Bulbostylis turbinata*			
849.	11055	*Cajanus cinereus*			
850.	10972	*Cajanus marmoratus*			
851.	11150	*Cajanus pubescens*			
852.	2864	*Calandrinia ptychosperma*			
853.	7905	*Calotis multicaulis (Many-stemmed Burr-daisy)*			
854.	3749	*Canavalia rosea (Wild Jack Bean)*			
855.	2981	*Capparis spinosa*			
856.	48291	*Capparis spinosa subsp. nummularia*			
857.	6567	*Carissa lanceolata (Conkerberry, Marnuwiji)*			
858.	2949	*Cassytha capillaris*			
859.	2950	*Cassytha filiformis (Love Vine, Jirawan)*			
860.	26554	*Caulerpa brachypus*			
861.	42620	*Caulerpa chemnitzia*			
862.	35158	*Caulerpa corynephora*			
863.	26559	*Caulerpa cupressoides*			
864.	47053	*Caulerpa cupressoides var. cupressoides*			
865.	47054	*Caulerpa cupressoides var. elegans*			
866.	27378	*Caulerpa cupressoides var. lycopodium*			
867.	36368	*Caulerpa cupressoides var. mamillosa*			
868.	44539	*Caulerpa cylindracea*			
869.	44547	*Caulerpa lamourouxii*			
870.	26568	*Caulerpa lentillifera*			
871.	26573	*Caulerpa racemosa*			
872.	35122	*Caulerpa racemosa var. racemosa*			
873.	26576	*Caulerpa serrulata*			
874.	26577	*Caulerpa sertularioides*			
875.	26579	*Caulerpa taxifolia*			
876.	26582	*Caulerpa verticillata*			
877.	258	*Cenchrus ciliaris (Buffel Grass)*	Y		
878.	259	*Cenchrus echinatus (Burrgrass)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
879.	41568	*Cenchrus setaceus (Fountain Grass)*	Y		
880.	29721	*Cenchrus setiger (Birdwood Grass)*	Y		
881.	6539	*Centaurium erythraea (Common Centaury)*	Y		
882.	19762	*Centipeda minima subsp. macrocephala*			
883.	26606	*Ceratodictyon spongiosum*			
884.	39680	*Ceriops australis*			
885.	26612	*Chaetomorpha melagonium*			
886.	26619	*Champia stipitata*			
887.	33	*Cheilanthes contigua*			
888.	266	*Chloris barbata (Purpletop Chloris)*	Y		
889.	269	*Chloris pectinata (Comb Chloris)*			
890.	270	*Chloris pumilio*			
891.	33516	*Chrysocephalum gilesii*			
892.	273	*Chrysopogon fallax (Golden Beard Grass)*			
893.	2985	*Cleome oxalidea*			
894.	2988	*Cleome viscosa (Tickweed, Tjinduwadhu)*			
895.	6729	*Clerodendrum floribundum (Lollybush)*			
896.	6732	*Clerodendrum tomentosum*			
897.	13689	*Clerodendrum tomentosum var. lanceolatum*			
898.	3769	*Clitoria ternatea*	Y		
899.	35917	*Codium arabicum*			
900.	26673	*Codium geppiorum*			
901.		*Codium platyclados*			Y
902.	2778	*Codonocarpus cotinifolius (Native Poplar, Kundurangu)*			
903.	26686	*Coelarthrum opuntia*			
904.	1165	*Commelina ensifolia (Wandering Jew, Buargu)*			
905.	2776	*Commicarpus australis (Perennial Tar Vine)*			
906.	19880	*Convolvulus angustissimus*			
907.	6612	*Convolvulus clementii*			
908.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
909.	18411	*Corchorus congener*		P3	
910.	4857	*Corchorus elachocarpus*			
911.	17339	*Corchorus incanus*			
912.	25847	*Corchorus incanus subsp. incanus*			
913.	13659	*Corchorus laniflorus*			
914.	4862	*Corchorus parviflorus*			
915.	4865	*Corchorus tridens*			
916.	13467	*Corchorus trilocularis*			
917.	4867	*Corchorus walcottii (Woolly Corchorus)*			
918.	17093	*Corymbia hamersleyana*			
919.	17092	*Corymbia opaca*			
920.	19565	*Cressa australis*			
921.	3774	*Crotalaria cunninghamii (Green Birdflower, Bilbun)*			
922.	19378	*Crotalaria dissitiflora subsp. benthamiana*			
923.	20179	*Crotalaria medicaginea var. neglecta*			
924.	3785	*Crotalaria novae-hollandiae (New Holland Rattlepod)*			
925.	11231	*Crotalaria novae-hollandiae subsp. novae-hollandiae*			
926.	4809	*Cryptandra pungens*			
927.	41720	*Cucumis argenteus*			
928.	7371	*Cucumis melo (Ulcardo Melon)*			
929.	41721	*Cucumis variabilis*			
930.	17439	*Cullen lachnostachys*			
931.	17118	*Cullen leucanthum*			
932.	17119	*Cullen leucochaites*			
933.	17120	*Cullen pogonocarpum*			
934.	13733	*Cuscuta victoriana*			
935.	279	*Cymbopogon ambiguus (Scentgrass)*			
936.	280	*Cymbopogon bombycinus (Silky Oilgrass)*			
937.	6584	*Cynanchum floribundum (Dumara Bush, Tjipa)*			
938.	48280	*Cynanchum viminale subsp. australe*			
939.	46558	*Cynodon convergens*			
940.	46555	*Cynodon prostratus*			
941.	774	*Cyperus bifax (Downs Nutgrass)*			
942.	12801	*Cyperus blakeanus*			
943.	777	*Cyperus bulbosus (Bush Onion, Tjanmata)*			
944.	786	*Cyperus cunninghamii*			
945.	12811	*Cyperus cunninghamii subsp. cunninghamii*			
946.	798	*Cyperus iria*			
947.	804	*Cyperus nervulosus*			
948.	814	*Cyperus squarrosus*			

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949.	818	*Cyperus vaginatus (Stiffleaf Sedge)*			
950.	290	*Dactyloctenium radulans (Button Grass)*			
951.	26740	*Dasya frutescens*			
952.	6963	*Datura metel (Downy Thornapple)*	Y		
953.	7317	*Dentella asperata*			
954.	7318	*Dentella minutissima*			
955.	3852	*Desmodium campylocaulon*			
956.	3853	*Desmodium filiforme*			
957.	3856	*Desmodium muelleri*			
958.	303	*Dichanthium fecundum (Curly Bluegrass)*			
959.	13741	*Dichanthium sericeum subsp. humilius*			
960.	3612	*Dichrostachys spicata (Pied Piper Bush)*			
961.	7166	*Dicliptera armata*			
962.	26769	*Dictyosphaeria cavernosa*			
963.	26782	*Digenea simplex*			
964.	310	*Digitaria brownii (Cotton Panic Grass)*			
965.	313	*Digitaria ctenantha (Comb Finger Grass)*			
966.	4745	*Diplopeltis eriocarpa (Hairy Pepperflower)*			
967.	48738	*Distimake dissectus var. dissectus*	Y		
968.	4759	*Dodonaea coriacea*			
969.	48390	*Dolichandrone occidentalis*			
970.	2504	*Dysphania plantaginella*			
971.	2506	*Dysphania rhadinostachya*			
972.	11653	*Dysphania rhadinostachya subsp. inflata*			
973.	11890	*Dysphania rhadinostachya subsp. rhadinostachya*			
974.	32348	*Eccremidium arcuatum*			
975.	328	*Echinochloa colona (Awnless Barnyard Grass)*	Y		
976.	343	*Ectrosia leporina (Hare's-foot Grass)*			
977.	6682	*Ehretia saligna (False Cedar)*			
978.	14301	*Ehretia saligna var. saligna*			
979.	827	*Eleocharis geniculata*			
980.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
981.	12064	*Enchylaena tomentosa var. tomentosa (Barrier Saltbush)*			
982.	357	*Enneapogon caerulescens (Limestone Grass)*			
983.	360	*Enneapogon lindleyanus (Wiry Nineawn, Purple-head Nineawn)*			
984.	363	*Enneapogon pallidus (Conetop Nineawn)*			
985.	365	*Enneapogon polyphyllus (Leafy Nineawn)*			
986.	368	*Enteropogon ramosus (Windmill Grass, Curly Windmill Grass)*			
987.	378	*Eragrostis dielsii (Mallee Lovegrass)*			
988.	380	*Eragrostis eriopoda (Woollybutt Grass, Wangurnu)*			
989.	16731	*Eragrostis exigua*			
990.	381	*Eragrostis falcata (Sickle Lovegrass)*			
991.	38505	*Eragrostis surreyana*		P3	
992.	399	*Eragrostis xerophila (Knotty-butt Neverfail)*			
993.	7234	*Eremophila longifolia (Berrigan, Tulypurpa)*			
994.	16363	*Eremophila maculata subsp. brevifolia (Native Fuchsia)*			
995.	400	*Eriachne aristidea*			
996.	403	*Eriachne benthamii (Swamp Wanderrie)*			
997.	413	*Eriachne mucronata (Mountain Wanderrie Grass)*			
998.	414	*Eriachne obtusa (Northern Wandarrie Grass)*			
999.	417	*Eriachne pulchella (Pretty Wanderrie)*			
1000.	16485	*Eriachne pulchella subsp. dominii*			
1001.	16486	*Eriachne pulchella subsp. pulchella*			
1002.	421	*Eriachne tenuiculmis*			
1003.	425	*Eriochloa procera (Cupgrass)*			
1004.	4335	*Erodium cygnorum (Blue Heronsbill)*			
1005.	3871	*Erythrina vespertilio (Yulbah)*			
1006.	5714	*Eucalyptus microtheca (Coolibah)*			
1007.	5752	*Eucalyptus prominens*			
1008.	14548	*Eucalyptus victrix*			
1009.	11011	*Eulalia aurea*			
1010.	4617	*Euphorbia australis (Namana)*			
1011.	35307	*Euphorbia australis var. australis*			
1012.	35303	*Euphorbia australis var. subtomentosa*			
1013.	4619	*Euphorbia biconvexa*			
1014.	4620	*Euphorbia boophthona (Gascoyne Spurge)*			
1015.	9048	*Euphorbia careyi*			
1016.	4623	*Euphorbia coghlanii (Namana)*			
1017.	4626	*Euphorbia drummondii (Caustic Weed, Piwi)*			
1018.	4629	*Euphorbia hirta (Asthma Plant)*	Y		

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1019.	4635	*Euphorbia myrtoides*			
1020.	4647	*Euphorbia tannensis*			
1021.	12097	*Euphorbia tannensis subsp. eremophila (Desert Spurge)*			
1022.	42879	*Euphorbia trigonosperma*			
1023.	13281	*Euphorbia vaccaria*			
1024.	42876	*Euphorbia vaccaria var. vaccaria*			
1025.	6617	*Evolvulus alsinoides (Tropical Speedwell)*			
1026.	11200	*Evolvulus alsinoides var. villosicalyx*			
1027.	25811	*Ficus aculeata*			
1028.	31578	*Ficus aculeata var. indecora (Ranji)*			
1029.	19648	*Ficus brachypoda*			
1030.	1753	*Ficus platypoda (Native Fig, Makartu)*			
1031.	1759	*Ficus virens (Albayi)*			
1032.	12096	*Ficus virens var. virens*			
1033.	851	*Fimbristylis dichotoma (Eight Day Grass)*			
1034.	878	*Fimbristylis rara*			
1035.	35558	*Flaveria trinervia (Speedy Weed)*	Y		
1036.	4654	*Flueggea virosa*			
1037.	12013	*Flueggea virosa subsp. melanthesoides (Dogwood, Guwal)*			
1038.	5188	*Frankenia ambita*			
1039.	5209	*Frankenia pauciflora (Seaheath)*			
1040.	26835	*Galaxaura rugosa*			
1041.	26848	*Gelidium crinale*			
1042.	3938	*Glycine canescens (Silky Glycine)*			
1043.	2674	*Gomphrena affinis*			
1044.	18361	*Gomphrena affinis subsp. pilbarensis*			
1045.	2676	*Gomphrena canescens (Batchelors Buttons)*			
1046.	18363	*Gomphrena canescens subsp. canescens*			
1047.	2680	*Gomphrena cunninghamii*			
1048.	2682	*Gomphrena flaccida (Gomphrena Weed)*			
1049.	18367	*Gomphrena kanisii*			
1050.	11131	*Gomphrena sordida*			
1051.	31074	*Gomphrena sp. Martins Well (K.F. Kenneally 6116)*			Y
1052.	7509	*Goodenia forrestii*			
1053.	7515	*Goodenia heterochila*			
1054.	7521	*Goodenia lamprosperma*			
1055.	7526	*Goodenia microptera*			
1056.	12552	*Goodenia muelleriana*			
1057.	10982	*Goodenia stobbsiana*			
1058.	7556	*Goodenia tenuiloba*			
1059.	4910	*Gossypium australe (Native Cotton)*			
1060.	4913	*Gossypium hirsutum (Upland Cotton)*	Y		
1061.	26873	*Gracilaria salicornia*			
1062.	2079	*Grevillea pyramidalis (Caustic Bush, Tjungu)*			
1063.	19570	*Grevillea pyramidalis subsp. leucadendron*			
1064.	15975	*Grevillea pyramidalis subsp. pyramidalis*			
1065.	13440	*Grevillea wickhamii subsp. aprica*			
1066.	12832	*Gymnanthera cunninghamii*		P3	
1067.	2177	*Hakea lorea (Witinti)*			
1068.	19137	*Hakea lorea subsp. lorea*			
1069.	47313	*Halimeda borneensis*			
1070.	26891	*Halimeda cylindracea*			
1071.	26892	*Halimeda discoidea*			
1072.	26894	*Halimeda macroloba*			
1073.	47213	*Halimeda versatilis*			
1074.	131	*Halodule uninervis*			
1075.	162	*Halophila decipiens*			
1076.	163	*Halophila minor*			
1077.	164	*Halophila ovalis (Sea Wrack)*			
1078.	165	*Halophila spinulosa*			
1079.	37642	*Halymenia durvillei*			
1080.	37640	*Halymenia floresii*			
1081.	17301	*Heliotropium chrysocarpum*			
1082.	6704	*Heliotropium conocarpum*			
1083.	6706	*Heliotropium cunninghamii*			
1084.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1085.	6712	*Heliotropium heteranthum*			
1086.	17307	*Heliotropium inexplicitum*			
1087.	17315	*Heliotropium tanythrix*			
1088.	6718	*Heliotropium tenuifolium (Mamukata)*			

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1089.	26930	*Heterosiphonia crassipes*			
1090.	29316	*Hibiscus austrinus*			
1091.	29317	*Hibiscus austrinus var. austrinus*			
1092.	4923	*Hibiscus brachysiphonius*			
1093.	4925	*Hibiscus coatesii*			
1094.	4933	*Hibiscus leptocladus*			
1095.	4942	*Hibiscus sturtii (Sturt's Hibiscus)*			
1096.	5215	*Hybanthus aurantiacus*			
1097.	5219	*Hybanthus enneaspermus*			
1098.	14587	*Indigastrum parviflorum*			
1099.	3973	*Indigofera colutea (Sticky Indigo)*			
1100.	3980	*Indigofera linifolia*			
1101.	3981	*Indigofera linnaei (Birdsville Indigo)*			
1102.	3982	*Indigofera monophylla*			
1103.	3987	*Indigofera trita*			
1104.	6623	*Ipomoea coptica*			
1105.	6624	*Ipomoea costata (Rock Morning Glory, Kanti)*			
1106.	6631	*Ipomoea lonchophylla (Cowvine)*			
1107.	6633	*Ipomoea muelleri (Poison Morning Glory, Yumbu)*			
1108.	6635	*Ipomoea pes-caprae*			
1109.	11312	*Ipomoea pes-caprae subsp. brasiliensis*			
1110.	6637	*Ipomoea polymorpha*			
1111.	458	*Iseilema dolichotrichum*			
1112.	459	*Iseilema eremaeum*			
1113.	465	*Iseilema vaginiflorum (Red Flinders Grass)*			
1114.	8088	*Ixiochlamys cuneifolia*			
1115.	6501	*Jasminum didymum*			
1116.	12059	*Jasminum didymum subsp. lineare (Desert Jasmine)*			
1117.	8095	*Lactuca saligna (Wild Lettuce, Willow-leaf Lettuce)*	Y		
1118.	4960	*Lawrencia viridigrisea*			
1119.		*Lawsonia inermis*			
1120.	3035	*Lepidium pedicellosum*			
1121.	3038	*Lepidium pholidogynum*			
1122.	3613	*Leucaena leucocephala (Leucaena)*	Y		
1123.	27037	*Lithophyllum kotschyanum*			
1124.	4060	*Lotus australis (Austral Trefoil)*			
1125.	4061	*Lotus cruentus (Redflower Lotus)*			
1126.	2544	*Maireana georgei (Satiny Bluebush)*			
1127.	2556	*Maireana planifolia (Low Bluebush)*			
1128.	2564	*Maireana stipitata*			
1129.	11662	*Maireana tomentosa subsp. tomentosa*			
1130.	4962	*Malvastrum americanum (Spiked Malvastrum)*	Y		
1131.	27056	*Martensia elegans*			
1132.	5051	*Melhania oblongifolia*			
1133.	7082	*Mimulus gracilis*			
1134.	8109	*Minuria integerrima (Smooth Minuria)*			
1135.	8110	*Minuria leptophylla (Minnie Daisy)*			
1136.	6490	*Muellerolimon salicorniaceum*			
1137.	27079	*Mychodea carnosa*			
1138.	17158	*Myoporum montanum (Native Myrtle)*			
1139.	139	*Najas tenuifolia (Water Nymph)*			
1140.	2573	*Neobassia astrocarpa*			
1141.	44548	*Neomeris bilimbata*			
1142.	3614	*Neptunia dimorphantha (Sensitive Plant)*			
1143.	6971	*Nicotiana benthamiana (Tjuntiwari)*			
1144.	6976	*Nicotiana occidentalis (Native Tobacco)*			
1145.	11331	*Nicotiana occidentalis subsp. obliqua*			
1146.	11856	*Nicotiana occidentalis subsp. occidentalis*			
1147.	38421	*Notoleptopus decaisnei*			
1148.	38422	*Notoleptopus decaisnei var. decaisnei*			
1149.	7338	*Oldenlandia crouchiana*			
1150.	19640	*Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)*		P3	
1151.	6651	*Operculina aequisepala*			
1152.	6652	*Operculina brownii (Potato Vine, Bara)*			
1153.	5227	*Opuntia stricta (Common Prickly Pear)*	Y		
1154.	36400	*Palisada perforata*			
1155.	503	*Panicum decompositum (Native Millet, Kaltu-kaltu)*			
1156.	504	*Panicum effusum (Hairy Panic Grass)*			
1157.	505	*Panicum laevinode*			
1158.	515	*Paraneurachne muelleri (Northern Mulga Grass)*			

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1159.	10975	*Paspalidium basicladum*			
1160.	518	*Paspalidium clementii (Clements Paspalidium)*			
1161.	523	*Paspalidium rarum (Rare Paspalidium)*			
1162.	525	*Paspalidium tabulatum*			
1163.	5226	*Passiflora foetida (Stinking Passion Flower)*	Y		
1164.	27121	*Penicillus nodulosus*			
1165.	13494	*Pentalepis trichodesmoides*			
1166.	42160	*Pentalepis trichodesmoides subsp. trichodesmoides*			
1167.	18462	*Peplidium sp. E Evol. Fl. Fauna Arid Aust. (A.S. Weston 12768)*			
1168.	3675	*Petalostylis labicheoides (Slender Petalostylis)*			
1169.	4673	*Phyllanthus amarus*	Y		
1170.	9056	*Phyllanthus baccatus*			
1171.	17626	*Phyllanthus erwinii*			
1172.	4680	*Phyllanthus maderaspatensis*			
1173.	20652	*Physalis angulata*	Y		
1174.	5230	*Pimelea ammocharis*			
1175.	41300	*Pittosporum phillyreoides (Weeping Pittosporum, Yaliti)*			
1176.	8167	*Pluchea dentex*			
1177.	17816	*Pluchea ferdinandi-muelleri*			
1178.	43944	*Pluchea longiseta*			
1179.	8168	*Pluchea rubelliflora*			
1180.	8170	*Pluchea tetranthera*			
1181.	6491	*Plumbago zeylanica (Native Plumbago)*			
1182.	2901	*Polycarpaea holtzei*			
1183.	2903	*Polycarpaea longiflora*			
1184.	41365	*Polygala glaucifolia*			
1185.	4572	*Polygala isingii*			
1186.	6653	*Polymeria ambigua (Morning Glory)*			
1187.	6655	*Polymeria calycina*			
1188.	17513	*Polymeria lanata*			
1189.		*Polymeria sp.*			
1190.		*Pomax Desert (A.S. George 11968)*			Y
1191.	2878	*Portulaca conspicua*			
1192.	2879	*Portulaca cyclophylla*			
1193.	43981	*Portulaca decipiens*			
1194.	2882	*Portulaca intraterranea*			
1195.	2884	*Portulaca oleracea (Purslane, Wakati)*			
1196.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1197.		*Pterocaulon sp.*			
1198.	8192	*Pterocaulon sphacelatum (Apple Bush, Fruit Salad Plant)*			
1199.	8193	*Pterocaulon sphaeranthoides*			
1200.	2690	*Ptilotus aervoides*			
1201.	2696	*Ptilotus astrolasius*			
1202.	2698	*Ptilotus auriculifolius*			
1203.	2699	*Ptilotus axillaris (Mat Mulla Mulla)*			
1204.	2704	*Ptilotus calostachyus (Weeping Mulla Mulla)*			
1205.	2706	*Ptilotus carinatus*			
1206.	2711	*Ptilotus clementii (Tassel Top)*			
1207.	2717	*Ptilotus divaricatus (Climbing Mulla Mulla)*			
1208.	2721	*Ptilotus exaltatus (Tall Mulla Mulla)*			
1209.	2725	*Ptilotus fusiformis*			
1210.	2728	*Ptilotus gomphrenoides*			
1211.	2731	*Ptilotus helipteroides (Hairy Mulla Mulla)*			
1212.	2745	*Ptilotus murrayi*			
1213.	2746	*Ptilotus nobilis (Tall Mulla Mulla)*			
1214.	2747	*Ptilotus obovatus (Cotton Bush)*			
1215.	2751	*Ptilotus polystachyus (Prince of Wales Feather)*			
1216.	2766	*Ptilotus villosiflorus*			
1217.	2582	*Rhagodia eremaea (Thorny Saltbush)*			
1218.	2584	*Rhagodia preissii*			
1219.	11240	*Rhagodia preissii subsp. obovata*			
1220.	5295	*Rhizophora stylosa (Spotted-leaved Red Mangrove)*			
1221.	13301	*Rhodanthe floribunda*			
1222.	13246	*Rhodanthe humboldtiana*			
1223.	13310	*Rhodanthe margarethae*			
1224.	4190	*Rhynchosia australis (Rhynchosia)*			
1225.	20862	*Rhynchosia bungarensis*		P4	
1226.	4191	*Rhynchosia minima (Rhynchosia)*			
1227.		*Riccia albida*			
1228.	48900	*Roepera retivalvis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1229.	2443	*Rumex vesicarius (Ruby Dock)*	Y		
1230.	30434	*Salsola australis*			
1231.	2357	*Santalum lanceolatum (Northern Sandalwood, Yarnguli)*			
1232.	12578	*Scaevola acacioides*			
1233.	12723	*Scaevola amblyanthera*			
1234.	7606	*Scaevola crassifolia (Thick-leaved Fan-flower)*			
1235.	7608	*Scaevola cunninghamii*			
1236.	7614	*Scaevola globulifera*			
1237.	7644	*Scaevola spinescens (Currant Bush, Maroon)*			
1238.	41660	*Schenkia australis*			
1239.	41646	*Schenkia clementii*			
1240.	16257	*Schoenoplectus subulatus*			
1241.	1010	*Schoenus punctatus*		P3	
1242.	2604	*Sclerolaena costata*			
1243.	2607	*Sclerolaena densiflora*			
1244.	2609	*Sclerolaena diacantha (Grey Copperburr)*			
1245.	8877	*Sclerolaena gardneri*			
1246.	2633	*Sclerolaena uniflora (Two-spined Saltbush)*			
1247.	27274	*Sebdenia flabellata*			
1248.	12279	*Senna artemisioides subsp. helmsii*			
1249.	12280	*Senna artemisioides subsp. oligophylla*			
1250.	18444	*Senna charlesiana*			
1251.	12303	*Senna costata*			
1252.	18443	*Senna ferraria*			
1253.	18346	*Senna glutinosa*			
1254.	12305	*Senna glutinosa subsp. chatelainiana*			
1255.	12307	*Senna glutinosa subsp. glutinosa*			
1256.	12309	*Senna glutinosa subsp. pruinosa*			
1257.	12308	*Senna glutinosa subsp. x luerssenii*			
1258.	18451	*Senna hamersleyensis*			
1259.	12312	*Senna notabilis*			
1260.	18450	*Senna symonii*			
1261.	12319	*Senna venusta*			
1262.	4196	*Sesbania cannabina (Sesbania Pea)*			
1263.	2818	*Sesuvium portulacastrum*			
1264.	606	*Setaria dielsii (Diels' Pigeon Grass)*			
1265.	613	*Setaria verticillata (Whorled Pigeon Grass)*	Y		
1266.		*Sida Excedentifolia (J.L. Egan 1925)*			
1267.	31758	*Sida arsiniata*			
1268.	4971	*Sida cardiophylla*			
1269.	4976	*Sida echinocarpa*			
1270.	4977	*Sida fibulifera (Silver Sida)*			
1271.	4988	*Sida rohlenae*			
1272.	33698	*Sida sp. Pilbara (A.A. Mitchell PRP 1543)*			
1273.	16617	*Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)*			
1274.	4989	*Sida spinosa (Spiny Sida)*			
1275.	6998	*Solanum cleistogamum*			
1276.	7002	*Solanum diversiflorum*			
1277.	7007	*Solanum esuriale (Quena)*			
1278.	7009	*Solanum gabrielae*			
1279.	7014	*Solanum horridum*			
1280.	7018	*Solanum lasiophyllum (Flannel Bush, Mindjulu)*			
1281.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
1282.	7029	*Solanum phlomoides*			
1283.	7036	*Solanum sturtianum (Thargomindah Nightshade)*			
1284.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
1285.	619	*Sorghum plumosum (Plume Canegrass)*			
1286.	12919	*Sorghum plumosum var. plumosum*			
1287.	622	*Sorghum timorense*			
1288.	625	*Spinifex longifolius (Beach Spinifex)*			
1289.	44523	*Spongophloea tissotii*			
1290.	629	*Sporobolus australasicus (Fairy Grass)*			
1291.	635	*Sporobolus virginicus (Marine Couch)*			
1292.	27310	*Spyridia filamentosa*			
1293.	4729	*Stackhousia clementii*		P3	
1294.	4731	*Stackhousia intermedia*			
1295.	19555	*Stackhousia muricata subsp. annual (W.R. Barker 2172)*			
1296.	7098	*Stemodia grossa (Marsh Stemodia, Mindjaara)*			
1297.	7099	*Stemodia kingii*			
1298.	8234	*Streptoglossa adscendens*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1299.	8235	*Streptoglossa bubakii*			
1300.	8236	*Streptoglossa cylindriceps*			
1301.	8237	*Streptoglossa decurrens*			
1302.	8238	*Streptoglossa liatroides*			
1303.	8240	*Streptoglossa odora*			
1304.	8241	*Streptoglossa tenuiflora*			
1305.	7729	*Stylidium fluminense*			
1306.	3182	*Stylobasium spathulatum (Pebble Bush)*			
1307.	12353	*Stylosanthes hamata (Verano Stylo)*	Y		
1308.	2638	*Suaeda arbusculoides*			
1309.	43203	*Surreya diandra*			
1310.	12356	*Swainsona formosa*			
1311.	4231	*Swainsona kingii*			
1312.	4233	*Swainsona leeana*			
1313.	4234	*Swainsona maccullochiana (Ashburton Pea)*			
1314.	4242	*Swainsona pterostylis*			
1315.	7363	*Synaptantha tillaeacea*			
1316.	13339	*Synaptantha tillaeacea var. tillaeacea*			
1317.	132	*Syringodium isoetifolium*			
1318.	31616	*Tecticornia auriculata*			
1319.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
1320.	33240	*Tecticornia halocnemoides subsp. longispicata*			
1321.	33238	*Tecticornia halocnemoides subsp. tenuis*			
1322.	33317	*Tecticornia indica*			
1323.	33319	*Tecticornia indica subsp. bidens*			
1324.	33356	*Tecticornia indica subsp. indica*			
1325.	33357	*Tecticornia indica subsp. julacea*			
1326.	33318	*Tecticornia indica subsp. leiostachya (Samphire)*			
1327.	33299	*Tecticornia pergranulata subsp. elongata*			
1328.	31618	*Tecticornia pruinosa*			
1329.	33220	*Tecticornia pterygosperma subsp. denticulata*			
1330.		*Tephrosia Fortescue (A.A. Mitchell 606)*			Y
1331.	4263	*Tephrosia clementii*			
1332.	49016	*Tephrosia densa*			
1333.	4272	*Tephrosia leptoclada*			
1334.	4280	*Tephrosia rosea (Flinders River Poison, Bungoo'dah)*			
1335.	19531	*Tephrosia rosea var. clementii*			
1336.	15947	*Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)*			
1337.	17768	*Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)*			
1338.	15949	*Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)*			
1339.	42442	*Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)*			
1340.	40060	*Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)*			
1341.	4285	*Tephrosia supina*			
1342.	5300	*Terminalia canescens (Joolal)*			
1343.	45698	*Terminalia circumalata*			
1344.	5310	*Terminalia platyphylla (Wild Plum, Durin)*			
1345.	5313	*Terminalia supranitifolia*		P3	
1346.	169	*Thalassia hemprichii*			
1347.	672	*Themeda avenacea (Native Oatgrass)*			
1348.	17820	*Themeda sp. Hamersley Station (M.E. Trudgen 11431)*		P3	
1349.	17819	*Themeda sp. Mt Barricade (M.E. Trudgen 2471)*			
1350.	673	*Themeda triandra*			
1351.	2644	*Threlkeldia diffusa (Coast Bonefruit)*			
1352.	2942	*Tinospora smilacina (Snakevine, Oondala)*			
1353.	27335	*Tolypiocladia calodictyon*			
1354.	27336	*Tolypiocladia glomerulata*			
1355.	6270	*Trachymene didiscoides*			
1356.	6273	*Trachymene glaucifolia (Wild Carrot)*			
1357.	6278	*Trachymene oleracea*			
1358.	19043	*Trachymene oleracea subsp. oleracea*			
1359.	2830	*Trianthema portulacastrum (Giant Pigweed)*	Y		
1360.	44362	*Trianthema triquetrum*			
1361.	44360	*Trianthema turgidifolium*			
1362.	4375	*Tribulus cistoides*			
1363.	4377	*Tribulus hirsutus*			
1364.	4379	*Tribulus macrocarpus*			
1365.	4380	*Tribulus occidentalis (Perennial Caltrop)*			
1366.	4381	*Tribulus platypterus (Cork Hopbush)*			
1367.	4383	*Tribulus terrestris (Caltrop)*	Y		
1368.	6727	*Trichodesma zeylanicum (Camel Bush, Kumbalin)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1369.	11750	*Trichodesma zeylanicum var. zeylanicum*			
1370.	7381	*Trichosanthes cucumerina*			
1371.	12032	*Trichosanthes cucumerina var. cucumerina*			
1372.	8252	*Tridax procumbens (Tridax, Tridax Daisy)*	Y		
1373.	48201	*Trigastrotheca molluginea*			
1374.	679	*Triodia angusta*			
1375.	13131	*Triodia epactia*			
1376.	696	*Triodia pungens (Soft Spinifex)*			
1377.	704	*Triodia wiseana (Limestone Spinifex)*			
1378.	706	*Triraphis mollis (Needle Grass)*			
1379.	4873	*Triumfetta appendiculata*			
1380.	14694	*Triumfetta clementii*			
1381.	14942	*Triumfetta maconochieana*			
1382.	27348	*Udotea argentea*			
1383.	27349	*Udotea flabellum*			
1384.	35302	*Udotea glaucescens*			
1385.	30716	*Vachellia farnesiana (Mimosa Bush)*	Y		
1386.	27357	*Valoniopsis pachynema*			
1387.	7660	*Velleia glabrata (Pee the Bed)*			
1388.	4846	*Ventilago viminalis (Supplejack, Barndaragu)*			
1389.	4323	*Vigna lanceolata (Maloga Vigna, Wega)*			
1390.	31391	*Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)*			
1391.	46577	*Vigna triodiophila*		P3	
1392.	5106	*Waltheria indica*			
1393.	17910	*Washingtonia filifera*	Y		
1394.	725	*Whiteochloa airoides*			
1395.	728	*Whiteochloa cymbiformis*			
1396.	6578	*Wrightia saligna*			
1397.	729	*Xerochloa barbata (Rice Grass)*			
1398.	731	*Xerochloa laniflora (Rice Grass)*			
1399.	732	*Yakirra australiensis*			
1400.	2834	*Zaleya galericulata (Hogweed)*			
1401.	29095	*Zaleya galericulata subsp. galericulata*			
1402.	4326	*Zornia albiflora*			
1403.	12679	*Zornia muelleriana subsp. congesta*			

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.

Australian Government
Department of the Environment and Energy

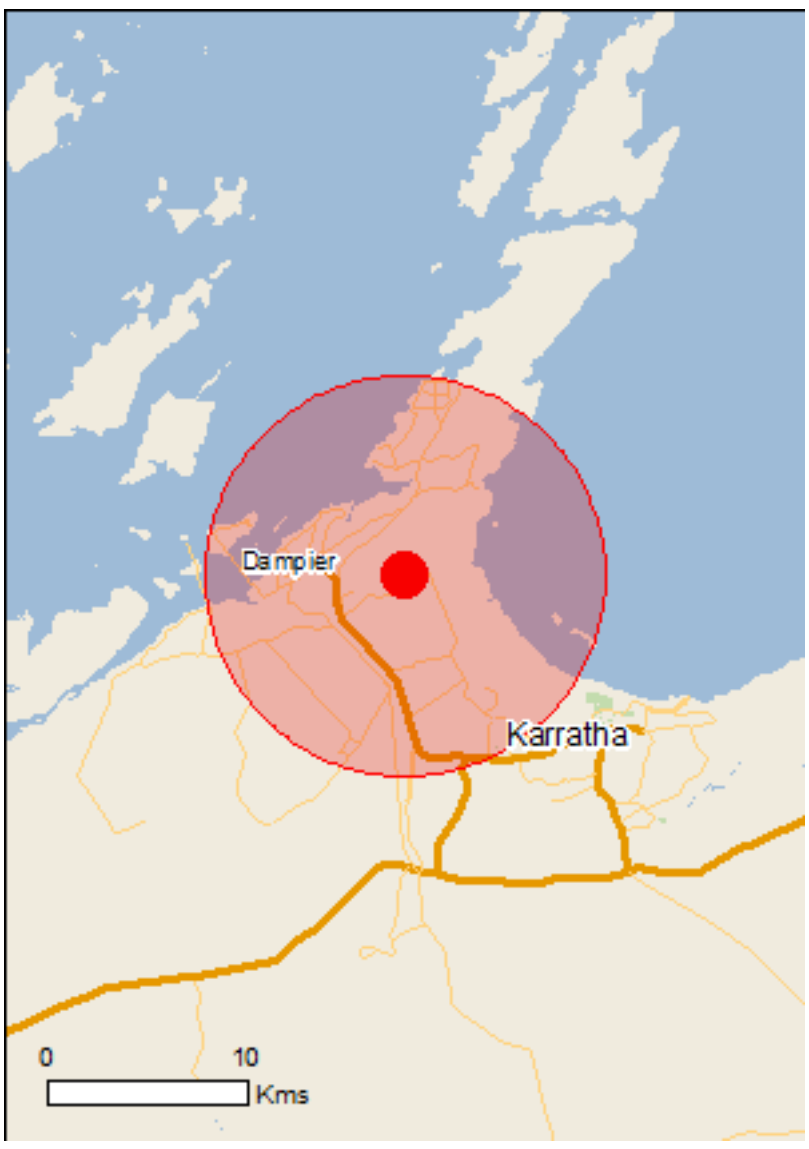
EPBC Act Protected Matters Report

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: 22/04/20 13:01:03



Coordinates
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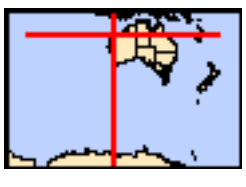

Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	29
Listed Migratory Species:	56

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	96
Whales and Other Cetaceans:	12
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:	1
Regional Forest Agreements:	None
Invasive Species:	16
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

National Heritage Properties		[Resource Information]
Name	State	Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	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
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area

Name	Status	Type of Presence
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Sharks		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		

Name	Threatened	Type of Presence
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat known to occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Name	Threatened	Type of Presence
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Xenus cinereus		
Terek Sandpiper [59300]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat may 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 known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres		
Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba		
Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may 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
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Stiltia isabella Australian Pratincole [818]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat known to occur within area
Fish		
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Seasnake [1121]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis czeblukovi Fine-spined Seasnake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis mcdowelli null [25926]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [1111]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Murujuga	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
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		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

Name	Status	Type of Presence
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		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		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		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

-20.67067 116.76301

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact Us page.

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Appendix D – Flora data

Flora species list

Flora species matrix

Site landform and environmental data

Quadrat and releve data

Conservation significant flora locations

Flora likelihood of occurrence assessment

Flora species recorded within the survey area

Family	Taxon	Status
Acanthaceae	*Avicennia marina*	
Aizoaceae	*Trianthema triquetrum*	
Aizoaceae	*Trianthema turgidifolia*	
Amaranthaceae	**Aerva javanica*	*
Amaranthaceae	*Amaranthus undulates*	
Amaranthaceae	*Gomphrena ?sordida*	
Amaranthaceae	*Gomphrena cunninghamii*	
Amaranthaceae	*Ptilotus astrolasius*	
Amaranthaceae	*Ptilotus auriculifolius*	
Amaranthaceae	*Ptilotus calostachyus*	
Amaranthaceae	*Ptilotus carinatus*	
Amaranthaceae	*Ptilotus helipteroides*	
Amaranthaceae	*Ptilotus nobils*	
Araliaceae	*Trachymene oleracea subsp. oleracea*	
Asteraceae	*?*Flaveria trinervia*	*
Asteraceae	*Pluchea rubelliflora*	
Asteraceae	*Streptoglossa decurrens*	
Boraginaceae	*Ehretia saligna var. saligna*	
Boraginaceae	*Heliotropium chrysocarpum*	
Boraginaceae	*Heliotropium cunninghamii*	
Boraginaceae	*Trichodesma zeylanicum var. zeylanicum*	
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*	
Chenopodiaceae	*Neobassia astrocarpa*	
Chenopodiaceae	*Salsola australis*	
Chenopodiaceae	*Tecticornia ?indica subsp. leiostachya*	
Chenopodiaceae	*Tecticornia ?pterygosperma*	
Cleomaceae	*Cleome viscosa*	
Combretaceae	*Terminalia circumalata*	
Combretaceae	*Terminalia supranitifolia*	P3
Commelinaceae	*Commelina ensifolia*	
Concolvulaceae	*Evolvulus alsinoides*	
Convolculaceae	*Operculina aequisepala*	
Convolvulaceae	*Bonamia erecta*	
Convolvulaceae	*Ipomoea coptica*	
Convolvulaceae	*Ipomoea costata*	
Convolvulaceae	*Polymeria ambigua*	
Cucurbitaceae	*Cucumis variabilis*	
Cyperaceae	*Cyperus bifax*	
Cyperaceae	*Cyperus vaginatus*	
Euphorbiaceae	*Adriana tomentosa var. tomentosa*	
Euphorbiaceae	*Euphorbia australis*	
Euphorbiaceae	*Euphorbia biconvexa*	
Euphorbiaceae	*Euphorbia coghlanii*	
Euphorbiaceae	*Euphorbia tamnesis subsp. eremophila*	

Family	Taxon	Status
Fabaceae	**Vachellia farnesiana*	*
Fabaceae	*Acacia ancistrocarpa*	
Fabaceae	*Acacia arida*	
Fabaceae	*Acacia bivenosa*	
Fabaceae	*Acacia coriacea subsp. coriacea*	
Fabaceae	*Acacia inaequilatera*	
Fabaceae	*Acacia pyrifolia var. pyrifolia*	
Fabaceae	*Acacia sclerophylla*	
Fabaceae	*Acacia stellaticeps*	
Fabaceae	*Acacia tumida var. pilbarensis*	
Fabaceae	*Acacia xiphophylla*	
Fabaceae	*Alysicarpus muelleri*	
Fabaceae	*Crotalaria medicaginea var. neglecta*	
Fabaceae	*Indigofera colutea*	
Fabaceae	*Indigofera linifolia*	
Fabaceae	*Indigofera monophylla*	
Fabaceae	*Indigofera trita*	
Fabaceae	*Neptunia dimorphantha*	
Fabaceae	*Rhynchosia minima*	
Fabaceae	*Rynchosia bungarensis*	P4
Fabaceae	*Senna artemisioides*	
Fabaceae	*Senna artemisioides subsp. oligophylla*	
Fabaceae	*Senna glutinosa subsp. pruinosa*	
Fabaceae	*Senna notablis*	
Fabaceae	*Sesbania cannabina*	
Fabaceae	*Swainsona Formosa*	
Fabaceae	*Tephrosia sp*	
Fabaceae	*Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)*	
Fabaceae	*Tephrosia supine*	
Fabaceae	*Vigna triodiophila*	P3
Gentianaceae	*Schenkia australis*	
Goodeniaceae	*Goodenia microptera*	
Goodeniaceae	*Scaevola spinescens*	
Lauraceae	*Cassytha capillaris*	
Malvaceae	*Abutilon lepidum*	
Malvaceae	*Brachychiton acuminatus*	
Malvaceae	*Corchorus incanus subsp. incanus*	
Malvaceae	*Corchorus walcottii*	
Malvaceae	*Gossypium australe*	
Malvaceae	*Hibiscus sturtii var. ?platychlamys*	
Malvaceae	*Sida fibulifera*	
Malvaceae	*Sida rohlenae subsp. rohlenae*	
Malvaceae	*Triumfetta clementii*	
Malvaceae	*Triumfetta propinqua*	
Menispermaceae	*Tinospora smilacina*	

Family	Taxon	Status
Myrtaceae	*Corymbia hamersleyana*	
Myrtaceae	*Eucalyptus camaldulensis (planted)*	
Myrtaceae	*Eucalyptus victrix*	
Nyctaginaceae	*Boerhavia coccinea*	
Oleaceae	*Jasminum didymum subsp. lineare*	
Passifloraceae	**Passiflora foetida*	*
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*	
Phyllanthaceae	*Notoleptopus decaisnei*	
Phyllanthaceae	*Phyllanthus maderaspatensis*	
Poaceae	*Aristida contorta*	
Poaceae	*Aristida latifolia*	
Poaceae	**Cenchrus ciliaris*	*
Poaceae	*Cenchrus setiger*	
Poaceae	*Chrysopogon fallax*	
Poaceae	*Dactyloctenium radulans*	
Poaceae	*Dichanthium sericeum subsp. humilius*	
Poaceae	*Eragrostis desertorum*	
Poaceae	*Eragrostis xerophila*	
Poaceae	*Eriachne benthamii*	
Poaceae	*Eriachne pulchella*	
Poaceae	*Iseilema dolichotrichum*	
Poaceae	*Panicum decompositum*	
Poaceae	*Panicum laevinode*	
Poaceae	*Paraneurachne muelleri*	
Poaceae	*Paspalidium clementii*	
Poaceae	*Triodia epactia*	
Poaceae	*Triodia wiseana*	
Poaceae	*Xerochloa ?laniflora*	
Portulacaceae	*Portulaca oleracea*	
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*	
Proteaceae	*Hakea lorea subsp. lorea*	
Rubiaceae	*Dentella minutissima*	
Rubiaceae	*Oldenlandia* sp. Hamersley Station (A.A. Mitchel PRP1479)	P3
Santalaceae	*Santalum lanceolatum*	
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*	
Sapindaceae	*Diplopeltis eriocarpa*	
Solanaceae	*Solanum diversiflorum*	
Solanaceae	*Solanum lasiophyllum*	
Tamaricaceae	**Tamarix aphylla*	*
Violaceae	*Hybanthus aurantiacus*	
Zygophyllaceae	*Tribulus hirsutus*	
Zygophyllaceae	*Tribulus occidentalis*	

Flora species by site matrix

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
**Cenchrus ciliaris*	1	1	1		1	1	1		1	1	1		1	1	1			1	1		1	1		1			1	1	1		1	1		1	1	1	1					1
**Passiflora foetida*																								1			1															
**Vachellia farnesiana*			1														1																									
*?*Flaveria trinervia*		1							1	1	1																							1			1					
Abutilon lepidum															1	1						1						1	1						1	1						
Acacia ancistrocarpa													1	1	1	1					1	1					1	1	1		1	1				1						1
Acacia bivenosa	1																							1			1							1								

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Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Acacia coriacea subsp. coriacea															1	1			1		1	1		1			1	1	1		1	1				1				1	1	1
Acacia inaequilatera			1																																							
Acacia pyrifolia var. pyrifolia			1									1																														
Acacia sclerophylla	1												1	1																												
Acacia stellaticeps													1																													
Acacia tumida var. pilbarensis																1								1		1	1	1		1												
Acacia xiphophylla																																										

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Adriana tomentosa var. tomentosa	1				1																						1															
Aerva javanica		1								1																																
Alectryon oleifolius subsp. oleifolius																			1																							
Alysicarpus muelleri		1							1	1	1																															
Amaranthus undulatus															1	1				1	1	1														1						
Aristida contorta																				1																						
Aristida latifolia				1																																						

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Avicennia marina		1	1						1	1	1	1							1																		1	1				
Boerhavia coccinea											1				1	1																					1					
Bonamia erecta	1	1								1																																
Brachychiton acuminatus												1	1	1	1	1						1														1		1				
Cassytha capillaris																								1			1															
Cenchrus setiger	1																																									
Chrysopogon fallax	1									1								1	1	1	1		1	1									1	1	1						1	

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Cleome viscosa	1	1							1	1	1								1	1				1			1	1									1			1	1	1
Commelina ensifolia		1																																								
Corchorus incanus subsp. incanus	1												1	1	1	1			1		1	1														1					1	1
Corchorus walcottii											1																				1						1					
Corymbia hamersleyana	1		1									1			1									1			1		1					1								
Crotalaria medicaginea var. neglecta	1																																									
Cucumis variabilis	1														1						1																					

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Cyperus bifax			1			1	1	1				1																										1				
Cyperus vaginatus			1									1																										1				
Dactyloctenium radulans	1	1			1	1												1	1																							
Dichanthium sericeum subsp. humilius																	1						1		1																	
Diplopeltis eriocarpa													1	1	1							1							1													
Ehretia saligna var. saligna													1	1					1																							
Enchylaena tomentosa var. tomentosa		1																																								

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Eragrostis desertorum					1	1																																				
Eragrostis xerophila																	1	1	1	1			1		1	1							1						1		1	
Eriachne benthamii						1	1	1				1	1	1			1																					1				
Eriachne pulchella																1																										
Eucalyptus camaldulensis (planted)																																			1							
Eucalyptus victrix			1			1	1	1				1																						1				1				
Euphorbia australis																					1	1		1			1									1						

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Euphorbia biconvexa	1														1							1														1						
Euphorbia coghlanii																	1	1		1			1		1								1									
Euphorbia tamnesis subsp. eremophila	1														1																											
Evolvulus alsinoides		1							1	1	1								1																		1					
Flueggea virosa subsp. melanthesoides									1																																	
Gomphrena ?sordida																		1																								
Gomphrena cunninghamii		1								1	1																													1		1

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Goodenia microptera															1	1			1																							
Gossypium australe			1																																							
Grevillea pyramidalis subsp. pyramidalis	1	1								1	1		1																								1					1
Hakea lorea subsp. lorea	1														1									1				1			1	1									1	
Heliotropium chrysocarpum																						1																				
Heliotropium cunninghamii																	1			1			1		1								1									
Hibiscus sturtii var. ?platychlamys																1			1																							

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Hybanthus aurantiacus	1	1	1			1	1	1	1	1	1	1	1	1	1	1					1	1							1		1	1				1	1	1				
Indigofera colutea	1										1																															
Indigofera linifolia																	1	1	1	1			1				1						1									
Indigofera monophylla	1										1		1	1	1	1						1														1	1					
Indigofera trita			1									1							1																			1				
Ipomoea coptica												1					1						1										1					1				
Ipomoea costata									1	1	1																															

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Iseilema dolichotrichum																	1	1					1																			
Jasminum didymum subsp. lineare									1	1																																
Neobassia astrocarpa					1	1																																				
Neptunia dimorphantha	1		1															1					1																1	1		
Notoleptopus decaisnei			1													1			1																							
Oldenlandia sp. Hamersley Station (A.A. Mitchel																	1						1																			
Operculia aequisepala	1																1			1			1		1								1									

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Panicum decompositum																		1		1																						
Panicum laevinode																	1	1					1																			
Paraneurachne muelleri										1					1																											
Paspalidium clementii		1													1																											
Phyllanthus maderaspatensis	1		1			1				1		1					1	1	1	1			1															1				
Pluchea rubelliflora			1									1																										1				
Polymeria ambigua																						1																				

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Portulaca oleracea		1								1						1	1	1	1				1	1		1																
Ptilotus astrolasius		1														1						1														1						
Ptilotus auriculifolius															1																1	1										
Ptilotus calostachyus																			1																							
Ptilotus carinatus																							1		1								1									
Ptilotus helipteroides																					1	1														1						
Ptilotus nobilis														1	1	1		1		1			1										1							1		1

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Rhynchosia minima	1	1	1			1	1	1	1	1	1	1					1	1	1	1		1	1		1								1	1		1	1	1				
Salsola australis																		1																								
Santalum lanceolatum																																		1								
Scaevola spinescens													1	1		1		1				1															1					
Schenkia australis																		1																								
Senna artemisioides																1						1						1	1		1	1				1						
Senna artemisioides subsp. oligophylla																1																										

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Senna glutinosa subsp. pruinosa															1																											
Senna notabilis																					1																				1	1
Sesbania cannabina	1		1			1						1																										1				
Sida fibulifera	1				1	1				1							1	1		1			1		1																	
Sida rohlenae subsp. rohlenae																		1		1																						
Solanum diversiflorum															1																											
Solanum lasiophyllum																			1		1	1														1						

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Streptoglossa decurrens	1								1	1	1						1	1		1			1		1	1							1				1					
Swainsona formosa	1		1												1																							1				
Tecticornia ?indica subsp. leiostachya				1		1																																				
Tecticornia ?pterygosperma				1		1																																				
Tephrosia sp																	1																									
Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)		1							1	1	1																															
Tephrosia supina										1	1										1	1														1	1					

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Terminalia circumalata			1			1	1	1																														1				
Terminalia supranitifolia (P3)									1	1																																
Tinospora smilacina		1							1																																	
Trachymene oleracea subsp. *oleracea*		1							1	1	1	1																								1	1				
Trianthema triquetrum	1	1																1																								
Trianthema turgidifolia					1	1																																				
Tribulus hirsutus															1							1						1		1												

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Tribulus occidentalis																	1	1					1																			
Trichodesma zeylanicum var. zeylanicum	1		1			1	1	1	1	1	1	1	1	1	1	1			1			1														1	1	1				
Triodia epactia	1	1							1	1	1		1	1					1		1																			1		1
Triodia wiseana			1			1	1	1				1			1	1					1	1		1		1	1	1	1	1	1	1		1		1	1	1				
Triumfetta clementii		2										1										1														1		1				
Triumfetta propinqua															1	1																										
Vachellia farnesiana	1								1		1																															

Spec	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	S	S	S	S
Xerochloa ?laniflora																	1						1			1																

Site landform and environmental data

SiteName	Landform	Vegetation Condition	Aspect	Slope	Soil Type	Soil Colour	Drainage	Bare Ground Cover	Litter Cover	Time Since Last Fire
HPKAR01	Stony Plain	Very Good	North/ West	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR02	Boulders/ Rockpiles	Good	North/ West	Moderate	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR03	Drainage Line	Good	North/ West	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR04	Saline Flats and Marsh	Very Good	Flat	Negligible	Clay	brown	Permanent wet	31-70%	<2%	Old (6+ yr)
HPKAR05	Drainage Area/ Floodplain	Poor	South	Gentle	Sandy Loam	brown	Good	11-30%	<2%	Old (6+ yr)
HPKAR06	Drainage Area/ Floodplain	Good	Flat	Negligible	Clay	brown	Seasonal wet	11-30%		Old (6+ yr)
HPKAR07	Drainage Line	Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR08	Drainage Line	Very Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR09	Boulders/ Rockpiles	Good	North	Steep	Sandy Loam	brown	Good	31-70%	2-10%	Old (6+ yr)
HPKAR10	Boulders/ Rockpiles	Very Good	North	Steep	Sandy Loam	brown	Good	31-70%	2-10%	Old (6+ yr)
HPKAR11	Footslope	Very Good	North	Moderate	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)
HPKAR12	Drainage Line	Very Good	North	Negligible	Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR13	Sand Plain	Very Good	North	Gentle	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)
HPKAR14	Sand Plain	Very Good	North	Gentle	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)
HPKAR15	Undulating Low Hills	Very Good	North	Gentle	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)

SiteName	Landform	Vegetation Condition	Aspect	Slope	Soil Type	Soil Colour	Drainage	Bare Ground Cover	Litter Cover	Time Since Last Fire
HPKAR16	Sand Plain	Very Good	Flat	Negligible	Sand	red brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR17	Claypan	Very Good	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR18	Claypan	Good	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR19	Stony Plain	Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	<2%	Old (6+ yr)
HPKAR20	Claypan	Very Good	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR21R	Stony Plain	Very Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR22	Stony Plain	Very Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR23	Claypan	Excellent	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR24R	Drainage Line	Poor	North/ East	Gentle	Sandy Loam	brown	Good	11-30%	<2%	Old (6+ yr)
HPKAR25R	Claypan	Excellent	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR26R	Sandy/Stony Plain	Very Good	Flat	Negligible	Sandy Loam	brown	Good	31-70%	<2%	Old (6+ yr)
HPKAR27R	Drainage Line	Poor	North/ East	Gentle	Sandy Loam	brown	Good	11-30%	<2%	Old (6+ yr)
HPKAR28R	Stony Plain	Good	North/ East	Negligible	Sandy Loam	brown	Good	31-70%	<2%	Old (6+ yr)
HPKAR29R	Stony Plain	Good	North/ East	Negligible	Sandy Loam	brown	Good	11-30%	<2%	Old (6+ yr)
HPKAR30R	Stony Plain	Good	East	Gentle	Sandy Loam	brown	Good	31-70%	2-10%	Old (6+ yr)
HPKAR31R	Stony Plain	Good	East	Gentle	Sandy Loam	brown	Good	31-70%	2-10%	Old (6+ yr)
HPKAR32R	Footslope	Very Good	East	Gentle	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)

SiteName	Landform	Vegetation Condition	Aspect	Slope	Soil Type	Soil Colour	Drainage	Bare Ground Cover	Litter Cover	Time Since Last Fire
HPKAR33R	Claypan	Very Good	Flat	Negligible	Clay	brown	Poor	11-30%	<2%	Old (6+ yr)
HPKAR34R	Drainage Line	Poor	Flat	Negligible	Sandy Loam	brown	Good	2-10%	11-30%	Old (6+ yr)
HPKAR35R	Sand Plain	Completely Degraded	Flat	Negligible	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)
HPKAR36	Stony Plain	Good	Flat	Negligible	Sandy Loam	brown	Good	11-30%	2-10%	Old (6+ yr)
HPKAR37	Stony Plain	Very Good	North	Negligible	Sandy Loam	brown	Good	2-10%	2-10%	Old (6+ yr)
HPKAR38	Drainage Line	Very Good	North	Negligible	Loam	brown	Good	31-70%	11-30%	Old (6+ yr)
SFRE01	Claypan	Very Good	Flat	Negligible	Clay	orange	Poor	2-10%		Old (6+ yr)
SFRE02	Hillslope	Very Good	North/ West	Gentle	Clay	orange	Poor	<2%		Old (6+ yr)
SFRE03	Claypan	Very Good	Flat	Negligible	Clay	orange	Seasonal wet	31-70%		Old (6+ yr)
SFRE04	Boulders/ Rockpiles	Very Good	North/ West	Gentle	Sandy Loam	Orange	Good	31-70%		Old (6+ yr)

Quadrat and releve data

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
HPKAR01 	*Corymbia hamersleyana*	2	4.5	Tree, palm (U)	Quadrat
	Acacia bivenosa	2	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Grevillea pyramidalis subsp. pyramidalis	2	4	Tree, palm (U)	
	Hakea lorea subsp. lorea	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Vachellia farnesiana	0.1	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Chrysopogon fallax	0.5	0.75	Tussock grass (G)	
	Triodia epactia	40	0.5	Hummock grass (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Cleome viscosa	0.5	0.25	Forb (G)	
	Hybanthus aurantiacus	15	0.25	Forb (G)	
	Indigofera monophylla	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	3	0.5	Other grass (G)	
	Corchorus incanus subsp. incanus	0.1	0.25	Forb (G)	
	Cenchrus setiger	0.5	0.5	Other grass (G)	
	Swainsona formosa	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Bonamia erecta	0.1	0.25	Forb (G)	
	Euphorbia tamnesis subsp. eremophila	0.1	0.25	Forb (G)	
	Streptoglossa decurrens	0.1	0.25	Forb (G)	
	Dactyloctenium radulans	0.1	0.25	Other grass (G)	
	Acacia sclerophylla	2	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Operculia aequisepala	0.5	0.25	Vine (G)	
	Sida fibulifera	0.1	0.25	Forb (G)	
	Euphorbia biconvexa	0.1	0.25	Forb (G)	
	Sesbania cannabina	0.1	0.5	Forb (G)	
	Indigofera colutea	0.1	0.25	Forb (G)	
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	
	Trianthema triquetrum	0.1	0.1	Forb (G)	
	Cucumis variabilis	0.1	0.25	Forb (G)	
	Adriana tomentosa var. tomentosa	0.1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Neptunia dimorphantha	0.1	0.25	Forb (G)	
	Crotalaria medicaginea var. neglecta	0.1	0.25	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
HPKAR02	*Brachychiton acuminatus*	2	3.5	Tree, palm (U)	Quadrat

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Grevillea pyramidalis subsp. pyramidalis*	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Cleome viscosa	2	0.25	Forb (G)	
	Cenchrus ciliaris	20	0.25	Tussock grass (G)	
	Triodia epactia	10	0.5	Hummock grass (G)	
	Rhynchosia minima	1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Portulaca oleracea	0.1	0.1	Forb (G)	
	Gomphrena cunninghamii	0.1	0.1	Forb (G)	
	Triumfetta clementii	0.1	0.1	Forb (G)	
	Paspalidium clementii	0.1	0.25	Other grass (G)	
	Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)	0.1	0.25	Forb (G)	
	Trianthema triquetrum	0.5	0.1	Forb (G)	
	Boerhavia coccinea	1	0.25	Forb (G)	
	Dactyloctenium radulans	0.1	0.25	Other grass (G)	
	Hybanthus aurantiacus	2	0.25	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Abutilon lepidum	0.1	0.25	Forb (G)	
	Alectryon oleifolius subsp. oleifolius	0.1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Enchylaena tomentosa var. tomentosa	2	0.25	Chenopod shrub (M)	
	Commelina ensifolia	0.1	0.1	Forb (G)	
	Amaranthus undulatus	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Tinospora smilacina	0.1	0.5	Vine (G)	
	Triumfetta clementii	0.1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus astrolasius	0.1	0.25	Forb (G)	
HPKAR03 	*Eucalyptus victrix*	15	7	Tree, palm (U)	Quadrat
	Terminalia circumalata	10	4	Tree, palm (U)	
	Sesbania cannabina	20	1.5	Forb (G)	
	Cenchrus ciliaris	20	0.25	Tussock grass (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Rhynchosia minima	0.2	0.25	Forb (G)	
	Swainsona formosa	0.1	0.25	Forb (G)	
	Triodia wiseana	30	0.5	Hummock grass (G)	
	Hybanthus aurantiacus	1	0.25	Forb (G)	
	Cyperus bifax	2	0.75	Sedge (G)	
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	
	Indigofera trita	0.1	0.25	Forb (G)	
	Pluchea rubelliflora	0.1	0.25	Forb (G)	
	Gossypium australe	0.1	0.1	Forb (G)	
	*?*Flaveria trinervia*	0.4	0.5	Forb (G)	
	Corymbia hamersleyana	0.5	4.5	Tree, palm (U)	
	Boerhavia coccinea	1	0.25	Forb (G)	
	Indigofera trita	0.1	0.25	Forb (G)	
	Cyperus vaginatus	0.5	1	Sedge (G)	
	Notoleptopus decaisnei	0.1	0.1	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Acacia pyrifolia var. pyrifolia	0.1	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia sclerophylla	0.5	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Neptunia dimorphantha	0.5	0.1	Forb (G)	
HPKAR04 	*Tecticornia ?indica subsp. leiostachya*	15	0.25	Chenopod shrub (M)	Quadrat
	Tecticornia ?pterygosperma	5	0.25	Chenopod shrub (M)	
	Avicennia marina	5	2	Tree, palm (U)	
HPKAR05	**Cenchrus ciliaris*	25	0.5	Other grass (G)	Quadrat
	Trianthema turgidifolia	5	0.25	Chenopod shrub (M)	
	Neobassia astrocarpa	1	0.25	Chenopod shrub (M)	
	Dactyloctenium radulans	0.1	0.25	Other grass (G)	
	Aerva javanica	1	0.5	Forb (G)	
	Eragrostis desertorum	0.1	0.5	Tussock grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Sida fibulifera*	0.1	0.25	Forb (G)	
HPKAR06 	**Cenchrus ciliaris*	10	0.5	Other grass (G)	Cenchrus ciliaris
	Trianthema turgidifolia	5	0.25	Chenopod shrub (M)	Trianthema turgidifolia
	Neobassia astrocarpa	1	0.25	Chenopod shrub (M)	Neobassia astrocarpa
	Dactyloctenium radulans	0.1	0.25	Other grass (G)	Dactyloctenium radulans
	Eragrostis desertorum	1	0.5	Tussock grass (G)	Eragrostis desertorum
	Sida fibulifera	0.1	0.25	Forb (G)	Sida fibulifera
	Sesbania cannabina	2	0.5	Forb (G)	Sesbania cannabina
	Tecticornia ?indica subsp. leiostachya	15	0.25	Chenopod shrub (M)	Tecticornia ?indica subsp. leiostachya
	Tecticornia ?pterygosperma	5	0.25	Chenopod shrub (M)	Tecticornia ?pterygosperma

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	Phyllanthus maderaspatensis
HPKAR07 	*Eucalyptus victrix*	5	7	Tree, palm (U)	Releve
	Terminalia circumalata	10	4	Tree, palm (U)	
	**Cenchrus ciliaris*	20	0.25	Tussock grass (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Rhynchosia minima	0.2	0.25	Forb (G)	
	Triodia wiseana	25	0.5	Hummock grass (G)	
	Hybanthus aurantiacus	1	0.25	Forb (G)	
	Cyperus bifax	2	0.75	Sedge (G)	
	Eriachne benthamii	5	0.5	Tussock grass (G)	
HPKAR08 	*Eucalyptus victrix*	5	7	Tree, palm (U)	Releve
	Terminalia circumalata	10	4	Tree, palm (U)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Rhynchosia minima	0.2	0.25	Forb (G)	
	Triodia wiseana	35	0.5	Hummock grass (G)	
	Hybanthus aurantiacus	1	0.25	Forb (G)	
	Cyperus bifax	2	0.75	Sedge (G)	
	Eriachne benthamii	5	0.5	Tussock grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
HPKAR09 	**Cleome viscosa*	2	0.25	Forb (G)	Quadrat
	**Cenchrus ciliaris*	20	0.25	Tussock grass (G)	
	Triodia epactia	5	0.5	Hummock grass (G)	
	Rhynchosia minima	1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Terminalia supranitifolia	0.5	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)	0.2	0.5	Forb (G)	
	Ipomoea costata	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Jasminum didymum subsp. lineare	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Vachellia farnesiana	0.5	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Boerhavia coccinea	0.5	0.5	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Abutilon lepidum	0.1	0.25	Forb (G)	
	Amaranthus undulatus	0.1	0.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Flueggea virosa subsp. melanthesoides	0.4	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Tinospora smilacina	0.1	0.5	Vine (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Hybanthus aurantiacus	0.5	0.25	Forb (G)	
	Streptoglossa decurrens	0.1	0.25	Forb (G)	
HPKAR10 	*Cleome viscosa*	2	0.25	Forb (G)	Quadrat
	Chrysopogon fallax	0.5	1	Tussock grass (G)	
	Triodia epactia	20	0.5	Hummock grass (G)	
	Rhynchosia minima	1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Ipomoea costata	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Jasminum didymum subsp. lineare	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Boerhavia coccinea	0.5	0.5	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Abutilon lepidum	0.1	0.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Hybanthus aurantiacus	0.5	0.25	Forb (G)	
	Streptoglossa decurrens	0.1	0.25	Forb (G)	
	Alectryon oleifolius subsp. oleifolius	1	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Grevillea pyramidalis subsp. pyramidalis	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Brachychiton acuminatus	2	1.75	Tree, palm (U)	
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Abutilon lepidum	0.1	0.25	Forb (G)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Amaranthus undulatus	0.1	0.25	Forb (G)	
	Portulaca oleracea	0.1	0.1	Forb (G)	
	Sida fibulifera	0.1	0.25	Forb (G)	
	Terminalia supranitifolia (P3)	0.5	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Gomphrena cunninghamii	0.1	0.1	Forb (G)	
	Tephrosia supina	0.1	0.25	Forb (G)	
	Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)	0.2	0.5	Forb (G)	
	Paraneurachne muelleri	0.1	0.25	Other grass (G)	
HPKAR11 	*Cleome viscosa*	2	0.25	Forb (G)	Quadrat
	Triodia epactia	40	0.5	Hummock grass (G)	
	Rhynchosia minima	1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Ipomoea costata	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Tephrosia supina	0.1	0.25	Forb (G)	
	Boerhavia coccinea	0.5	0.5	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Abutilon lepidum	0.1	0.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Hybanthus aurantiacus	1	1.25	Forb (G)	
	Grevillea pyramidalis subsp. pyramidalis	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Gomphrena cunninghamii	0.1	0.1	Forb (G)	
	Grevillea pyramidalis subsp. pyramidalis	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Tephrosia sp. D Kimberley Flora (R.D. Royce 1848)	0.2	0.5	Forb (G)	
	Streptoglossa decurrens	0.1	0.25	Forb (G)	
	Vachellia farnesiana	0.5	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Indigofera monophylla	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Amaranthus undulatus	0.1	0.25	Forb (G)	
	Indigofera colutea	0.1	0.25	Forb (G)	
	Corchrus walcottii	0.5	0.5	Forb (G)	
	Bonamia erecta	0.1	0.25	Forb (G)	
HPKAR12	*Eucalyptus victrix*	10	7	Tree, palm (U)	Quadrat
	Triodia wiseana	30	0.5	Hummock grass (G)	
	Cyperus bifax	2	0.75	Sedge (G)	
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	
	Corymbia hamersleyana	0.5	4.5	Tree, palm (U)	
	Boerhavia coccinea	1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Indigofera trita*	0.1	0.25	Forb (G)	
	Cyperus vaginatus	0.5	1	Sedge (G)	
	Triumfetta clementii	0.5	0.5	Forb (G)	
	Cassytha capillaris	0.1	0.25	Vine (G)	
	Acacia sclerophylla	2	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Sesbania cannabina	20	1.5	Forb (G)	
	Rhynchosia minima	0.2	0.25	Forb (G)	
	Pluchea rubelliflora	0.1	0.25	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Eriachne benthamii	0.5	0.5	Tussock grass (G)	
	Hybanthus aurantiacus	0.5	1.25	Forb (G)	
	Ipomoea coptica	0.1	0.25	Vine (G)	
HPKAR13	*Ehretia saligna var. saligna*	15	2	Shrub, cycad, grass-tree, tree-fern (M)	Quadrat
	Acacia bivenosa	10	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Grevillea pyramidalis subsp. pyramidalis	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Diplopeltis eriocarpa	20	0.25	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Triodia epactia*	35	0.25	Hummock grass (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Indigofera monophylla	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Eriachne benthamii	5	0.5	Tussock grass (G)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Cassytha capillaris	0.1	0.25	Vine (G)	
	Scaevola spinescens	0.5	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Acacia tumida var. pilbarensis	0.5	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia stellaticeps	outside	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
HPKAR14	*Ehretia saligna var. saligna*	15	2	Shrub, cycad, grass-tree, tree-fern (M)	Quadrat
	Acacia bivenosa	10	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia stellaticeps	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Diplopeltis eriocarpa*	20	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia epactia	35	0.25	Hummock grass (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Indigofera monophylla	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Eriachne benthamii	5	0.5	Tussock grass (G)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Cassytha capillaris	0.1	0.25	Vine (G)	
	Scaevola spinescens	0.5	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Ptilotus nobilis	0.1	0.25	Forb (G)	
KAR_18 (GHD 2019)	*Acacia bivenosa*	15	1.5	Shrub, cycad, grass-tree, tree-fern (M)	Releve
	Acacia synchronicia	2	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Aristida contorta	5	0.1	Tussock grass (G)	
	Acacia ancistrocarpa	2	1.75	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	**Cenchrus ciliaris*	2	0.25	Tussock grass (G)	
	Solanum lasiophyllum	1	0.25	Forb (G)	
	Ptilotus helipteroides	1	0.1	Forb (G)	
KAR_05 (GHD 2019)	*Acacia inaequilatera*	1	3	Shrub, cycad, grass-tree, tree-fern (M)	Releve
	Hak ea lorea subsp. lorea	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia bivenosa	5	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Indigofera monophylla	2	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia wiseana	20	0.5	Hummock grass (G)	
	Triodia epactia	30	0.5	Hummock grass (G)	
	Fimbristylis ?dichotoma	2	0.1	Sedge (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Solanum diversiflorum	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Gossypium australe	2	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Diplopeltis eriocarpa	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Eremophila longifolia	1	1	Shrub, cycad, grass-tree, tree-fern (M)	
KAR_06 (GHD 2019)	*Acacia inaequilatera*	1	3	Shrub, cycad, grass-tree, tree-fern (M)	Releve
	Hak ea lorea subsp. lorea	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia bivenosa	5	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia stellaticeps	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia wiseana	60	0.5	Hummock grass (G)	
	Fimbristylis ?dichotoma	2	0.1	Sedge (G)	
	Diplopeltis eriocarpa	2	0.25	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Eremophila longifolia	1	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Indigofera monophylla	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia ancistrocarpa	1	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
HPKAR15 	*Triodia wiseana*	55	0.5	Hummock grass (G)	Quadrat
	Hakea lorea subsp. lorea	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia ancistrocarpa	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Corymbia hamersleyana	1	3	Tree, palm (U)	
	Cucumis variabilis	0.1	0.5	Vine (G)	
	Indigofera monophylla	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Diplopeltis eriocarpa	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus auriculifolius	2	0.25	Forb (G)	
	Goodenia microptera	0.1	0.25	Forb (G)	
	Ptilotus nobils	0.1	0.25	Forb (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Swainsona formosa	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Senna glutinosa subsp. pruinosa	0.1	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Triumfetta propinqua	0.5	0.25	Forb (G)	
	Euphorbia biconvexa	0.1	0.1	Forb (G)	
	Acacia inaequilatera	0.2	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia bivenosa	0.5	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Bonamia erecta	0.1	0.1	Forb (G)	
	Solanum diversiflorum	0.1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Euphorbia tamnesis subsp. eremophila	0.1	0.25	Forb (G)	
	Corchorus incanus subsp. incanus	0.1	0.25	Forb (G)	
	Tribulus hirsutus	1	0.25	Forb (G)	
	Paraneurachne muelleri	0.1	0.25	Other grass (G)	
	Aristida contorta	0.1	0.25	Tussock grass (G)	
	Paspalidium clementii	0.1	0.25	Tussock grass (G)	
	Cassytha capillaris	0.1	0.25	Vine (G)	
HPKAR16	*Triodia wiseana*	30	0.5	Hummock grass (G)	Quadrat

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia ancistrocarpa*	20	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Indigofera monophylla	5	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Acacia bivenosa	3	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.1	0.25	Forb (G)	
	Portulaca oleracea	0.1	0.1	Forb (G)	
	Senna artemisioides	0.5	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Notoleptopus decaisnei	0.1	0.1	Forb (G)	
	Scaevola spinescens	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cassytha capillaris	0.1	0.25	Vine (G)	
	Acacia inaequilatera	0.2	0.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus nobils	0.1	0.25	Forb (G)	
	Triumfetta propinqua	0.5	0.25	Forb (G)	
	Goodenia microptera	0.1	0.25	Forb (G)	
	Aristida contorta	0.5	0.25	Tussock grass (G)	
	Bonamia erecta	1	0.1	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Acacia xiphophylla	outside	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus astrolasius	0.1	0.25	Forb (G)	
	Senna artemisioides subsp. oligophylla	0.1	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Eriachne pulchella	0.1	0.1	Other grass (G)	
	Hibiscus sturtii var. ?platychlamys	0.1	0.25	Forb (G)	
HPKAR17 	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Quadrat
	Streptoglossa decurrens	4	0.25	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Operculia aequisepala	0.1	0.25	Forb (G)	
	*?*Flaveria trinervia*	0.1	0.25	Forb (G)	
	Ipomoea coptica	0.5	0.25	Forb (G)	
	Sida fibulifera	0.5	0.25	Forb (G)	
	Dichanthium sericeum subsp. humilius	0.1	0.1	Other grass (G)	
	Heliotropium cunninghamii	4	0.25	Forb (G)	
	Oldenlandia sp. Hamersley Station (A.A. Mitchel PRP1479)	0.1	0.1	Forb (G)	
	Indigofera linifolia	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Iseilema dolichotrichum	0.5	0.1	Other grass (G)	
	Euphorbia coghlanii	0.1	0.1	Forb (G)	
	Xerochloa ?laniflora	0.5	0.1	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Phyllanthus maderaspatensis	1	0.25	Forb (G)	
	Tribulus occidentalis	0.1	0.1	Forb (G)	
	Panicum laevinode	0.1	0.5	Other grass (G)	
	Eriachne benthamii	1	0.5	Tussock grass (G)	
	Tephrosia sp.	0.1	0.25	Forb (G)	
HPKAR18 	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Quadrat
	Streptoglossa decurrens	1	0.25	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Neptunia dimorphantha	0.1	0.25	Forb (G)	
	Cenchrus ciliaris	3	0.5	Tussock grass (G)	
	Iseilema dolichotrichum	0.1	0.1	Other grass (G)	
	Panicum decompositum	0.1	0.5	Tussock grass (G)	
	Ptilotus nobils	0.1	0.1	Forb (G)	
	Salsola australis	0.1	0.25	Forb (G)	
	Scaevola spinescens	0.5	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Gomphrena ?sordida	0.1	0.25	Forb (G)	
	Trianthema triquetrum	4	0.25	Forb (G)	
	Dactyloctenium radulans	0.1	0.1	Other grass (G)	
	Sida rohlenae subsp. rohlenae	1	0.25	Forb (G)	
	Schenkia australis	1	0.25	Forb (G)	
	Panicum laevinode	2	0.5	Tussock grass (G)	
	Chrysopogon fallax	2	1	Tussock grass (G)	
	Indigofera linifolia	4	0.5	Forb (G)	
	Phyllanthus maderaspatensis	1	0.25	Forb (G)	
	Euphorbia coghlanii	0.1	0.1	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Sida fibulifera	0.5	0.25	Forb (G)	
	Tribulus occidentalis	0.1	0.1	Forb (G)	
HPKAR19 	*Acacia inaequilatera*	15	3	Shrub, cycad, grass-tree, tree-fern (M)	Quadrat
	Solanum lasiophyllum	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia epactia	30	0.25	Hummock grass (G)	
	Ehretia saligna var. saligna	3	2.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Boerhavia coccinea	0.5	0.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Phyllanthus maderaspatensis	1	0.25	Forb (G)	
	Cenchrus ciliaris	2	0.25	Tussock grass (G)	
	Indigofera linifolia	0.5	0.5	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
	Ptilotus calostachyus	0.5	0.5	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Goodenia microptera	0.1	0.25	Forb (G)	
	Notoleptopus decaisnei	0.1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Chrysopogon fallax	2	1	Tussock grass (G)	
	Eragrostis xerophila	8	0.5	Tussock grass (G)	
	Cleome viscosa	2	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Hibiscus sturtii var. ?platychlamys	0.1	0.25	Forb (G)	
	Corchorus incanus subsp. incanus	0.5	0.25	Forb (G)	
	Dactyloctenium radulans	0.1	0.1	Other grass (G)	
	Alysicarpus muelleri	0.1	0.25	Forb (G)	
	Indigofera trita	0.1	0.1	Forb (G)	
HPKAR20 	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Quadrat
	Streptoglossa decurrens	4	0.25	Forb (G)	
	Chrysopogon fallax	4	0.75	Tussock grass (G)	
	Operculia aequisepala	0.1	0.25	Forb (G)	
	Aristida contorta	0.1	0.25	Tussock grass (G)	
	Euphorbia coghlanii	0.1	0.1	Forb (G)	
	Heliotropium cunninghamii	3	0.25	Forb (G)	
	Sida fibulifera	0.5	0.25	Forb (G)	
	Panicum decompositum	0.1	0.5	Tussock grass (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Phyllanthus maderaspatensis	1	0.25	Forb (G)	
	Indigofera linifolia	3	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus nobils	0.1	0.1	Forb (G)	
	Cleome viscosa	0.1	0.25	Forb (G)	
	Aristida latifolia	4	1	Tussock grass (G)	
	Sida rohlenae subsp. rohlenae	0.1	0.25	Forb (G)	
HPKAR21R	*Triodia wiseana*	35	0.5	Hummock grass (G)	Releve
	Triodia epactia	3	0.5	Hummock grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia inaequilatera*	15	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Solanum lasiophyllum	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.5	0.25	Forb (G)	
	Acacia bivenosa	1	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Aristida contorta	0.1	0.25	Tussock grass (G)	
	Chrysopogon fallax	1	0.75	Tussock grass (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Ptilotus helipteroides	0.1	0.1	Forb (G)	
	Tephrosia supina	0.5	0.25	Forb (G)	
	Cucumis variabilis	0.1	0.75	Vine (G)	
	Senna notablis	0.1	0.25	Forb (G)	
	Euphorbia australis	0.1	0.1	Forb (G)	
	**Cenchrus ciliaris*	2	0.25	Tussock grass (G)	
HPKAR22	*Triodia wiseana*	30	0.5	Hummock grass (G)	Quadrat
	Acacia inaequilatera	2	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Solanum lasiophyllum	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.5	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia bivenosa*	15	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Aristida contorta	0.1	0.25	Tussock grass (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Ptilotus helipteroides	0.1	0.1	Forb (G)	
	Euphorbia australis	0.1	0.1	Forb (G)	
	Cenchrus ciliaris	2	0.25	Tussock grass (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Scaevola spinescens	0.5	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Indigofera monophylla	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Diplopeltis eriocarpa	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Cassytha capillaris	0.1	0.5	Vine (G)	
	Ptilotus astrolasius	0.1	0.25	Forb (G)	
	Tephrosia supina	0.5	0.25	Forb (G)	
	Triumfetta clementii	0.5	0.25	Forb (G)	
	Heliotropium chrysocarpum	0.1	0.25	Forb (G)	
	Acacia ancistrocarpa	2	2	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Senna artemisioides	0.5	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Polymeria ambigua	0.1	0.25	Forb (G)	
	Tribulus hirsutus	0.1	0.1	Forb (G)	
	Euphorbia biconvexa	0.1	0.1	Forb (G)	
SFRE01 	*Eragrostis xerophila*	40	0.25	Tussock grass (G)	Releve
	Heliotropium cunninghamii	5	0.25	Forb	
	Indigofera linifolia	1	0.1	Shrub, cycad, grass-tree, tree-fern (M)	
	Neptunia dimorphantha	1	0.1	Forb	
	?Dichrostachys spicata	1	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
SFRE02	*Cleome viscosa*	2	0.5	Forb	Releve
	Triodia epactia	50	0.75	Hummock grass	
	Ptilotus nobilis	1	0.25	Forb	
	Neptunia dimophantha	2	0.1	Forb	
	Gomphrena cunninghamii	1	0.25	Forb	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia inaequilatera*	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
SFRE03	*Eragrostis xerophila*	10	0.25	Tussock grass	Releve
	Indigofera linifolia	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Chrysopogon fallax	5	1	Tussock grass	
	Cleome viscosa	2	0.75	Forb	
	Heliotropium cunninghamii	2	0.25	Forb	
	Senna notabilis	1	0.25	Forb	
	Acacia inaequilatera	1	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	3	0.5	Forb	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Hakea lorea subsp. lorea*	1	2	Shrub, cycad, grass-tree, tree-fern (M)	
SFRE04	*Cleome viscosa*	2	0.25	Forb	Releve
	Triodia epactia	40	0.5	Hummock grass	
	Acacia inaequilatera	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Gomphrena cunninghamii	1	0.1	Forb	
	Ptilotus nobilis	1	0.1	Forb	
	Senna notabilis	1	0.1	Forb	
	Corchorus incanus subsp. incanus	2	0.2	Forb	
	Grevillea pyramidalis subsp. pyramidalis	1	2	Shrub, cycad, grass-tree, tree-fern (M)	
	**Cenchrus ciliaris*	1	0.5	Tussock grass	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia bivenosa*	1	1	Shrub, cycad, grass-tree, tree-fern (M)	
HPKAR23	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Quadrat
	Streptoglossa decurrens	4	0.25	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Operculia aequisepala	0.1	0.25	Forb (G)	
	Sida fibulifera	0.5	0.25	Forb (G)	
	Dichanthium sericeum subsp. humilius	0.1	0.1	Other grass (G)	
	Heliotropium cunninghamii	4	0.25	Forb (G)	
	Oldenlandia sp. Hamersley Station (A.A. Mitchel PRP1479)	0.1	0.1	Forb (G)	
	Indigofera linifolia	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Iseilema dolichotrichum	0.5	0.1	Other grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Euphorbia coghlanii*	0.1	0.1	Forb (G)	
	Xerochloa ?laniflora	0.5	0.1	Forb (G)	
	Phyllanthus maderaspatensis	1	0.25	Forb (G)	
	Tribulus occidentalis	0.1	0.1	Forb (G)	
	Panicum laevinode	0.1	0.5	Other grass (G)	
	Chrysopogon fallax	10	1.25	Tussock grass (G)	
	Neptunia dimorphantha	0.1	0.1	Forb (G)	
	Ptilotus nobils	0.1	0.1	Forb (G)	
	Ptilotus carinatus	0.5	0.25	Forb (G)	
	Ipomoea coptica	0.5	0.25	Forb (G)	
HPKAR24R	*Triodia wiseana*	20	0.5	Hummock grass (G)	Releve
	Acacia inaequilatera	10	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	20	0.5	Tussock grass (G)	
	Chrysopogon fallax	1	1.5	Tussock grass (G)	
	Hakea lorea subsp. lorea	1	3	Tree, palm (U)	
	Corymbia hamersleyana	2	7	Tree, palm (U)	
	Acacia coriacea subsp. coriacea	5	6	Tree, palm (U)	
	**Vachellia farnesiana*	2	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Cleome viscosa	2	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia xiphophylla*	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Euphorbia australis	0.1	0.1	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
HPKAR25R	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Releve
	Streptoglossa decurrens	2	0.25	Forb (G)	
	Rhynchosia minima	0.5	0.25	Forb (G)	
	Heliotropium cunninghamii	4	0.25	Forb (G)	
	Euphorbia coghlanii	2	0.1	Forb (G)	
	Sida fibulifera	0.5	0.25	Forb (G)	
	Dichanthium sericeum subsp. humilius	0.1	0.1	Other grass (G)	
	Ptilotus carinatus	0.5	0.1	Forb (G)	
	Operculia aequisepala	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
HPKAR26R	*Acacia xiphophylla*	2	1.5	Shrub, cycad, grass-tree, tree-fern (M)	Releve
	Eragrostis xerophila	25	0.5	Tussock grass (G)	
	Streptoglossa decurrens	2	0.25	Forb (G)	
	Xerochloa ?laniflora	0.1	0.1	Forb (G)	
	Portulaca oleracea	0.5	0.1	Forb (G)	
	Triodia wiseana	2	0.5	Hummock grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
HPKAR27R	*Triodia wiseana*	5	0.5	Hummock grass (G)	Releve
	Acacia inaequilatera	1	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	40	0.5	Tussock grass (G)	
	Corymbia hamersleyana	2	7	Tree, palm (U)	
	Acacia coriacea subsp. coriacea	5	6	Tree, palm (U)	
	**Vachellia farnesiana*	5	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cleome viscosa	2	0.25	Forb (G)	
	Aerva javanica	2	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Acacia xiphophylla*	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Euphorbia australis	0.1	0.1	Forb (G)	
	Acacia bivenosa	2	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Indigofera linifolia	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
HPKAR28R	*Triodia wiseana*	30	0.5	Hummock grass (G)	Releve
	Cenchrus ciliaris	2	0.5	Tussock grass (G)	
	Cleome viscosa	2	0.25	Forb (G)	
	Acacia xiphophylla	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia bivenosa	10	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia inaequilatera	2	3	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Senna artemisioides*	0.5	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia ancistrocarpa	4	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Hakea lorea subsp. lorea	0.1	2.25	Shrub, cycad, grass-tree, tree-fern (M)	
HPKAR29R	*Triodia wiseana*	30	0.5	Hummock grass (G)	Releve
	Cenchrus ciliaris	5	0.5	Tussock grass (G)	
	Acacia bivenosa	10	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia inaequilatera	2	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Senna artemisioides	0.5	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia ancistrocarpa	4	1.75	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Corymbia hamersleyana*	2	6	Tree, palm (U)	
	Diplopeltis eriocarpa	4	0.25	Forb (G)	
	Tribulus hirsutus	2	0.25	Forb (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
HPKAR30R	*Triodia wiseana*	5	0.5	Hummock grass (G)	Releve
	Acacia xiphophylla	25	1.5	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
KAR_07	*Acacia pyrifolia* var. *pyrifolia*	1	3	Shrub, cycad, grass-tree, tree-fern (M)	Quadrat
	Acacia bivenosa	1	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia arida	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia wiseana	60	0.5	Hummock grass (G)	
	Indigofera monophylla	11	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Fimbristylis ?dichotoma	1	0.1	Sedge (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Senna glutinosa subsp. pruinosa	1	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Bulbostylis barbata	1	0.1	Sedge (G)	
	Hybanthus aurantiacus	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Scaevola spinescens	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia maitlandii	1	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Triumfetta clementii	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Ptilotus calostachyus	1	0.5	Forb (G)	
KAR_08	*Acacia inaequilatera*	1	3	Shrub, cycad, grass-tree, tree-fern (M)	Quadrat
	Acacia bivenosa	1	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia arida	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia wiseana	70	0.5	Hummock grass (G)	
	Indigofera monophylla	1	0.25	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Senna glutinosa subsp. pruinosa	1	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Scaevola spinescens	1	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia ancistrocarpa	1	1	Shrub, cycad, grass-tree, tree-fern (M)	
KAR_21 (GHD 2019)	*Acacia stellaticeps*	10	1.3	Shrub, cycad, grass-tree, tree-fern (M)	Releve
	Senna glutinosa subsp. pruinosa	1	0.9	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia pyrifolia var. pyrifolia	1	1.6	Shrub, cycad, grass-tree, tree-fern (M)	
	Cymbopogon ambiguus	1	1	Tussock grass	
	Bonamia erecta	5	0.2	Forb	
	Ptilotus exaltatus	1	0.1	Forb	
	Diplopeltis eriocarpa	4	0.2	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	1	0.2	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia wiseana	70	0.8	Hummock grass	
	Indigofera monophylla	1	0.3	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	Scaevola spinescens	1	0.4	Shrub, cycad, grass-tree, tree-fern (M)	
	Cassytha capillaris	1		Forb	
	Acacia inaequilatera	1	1.7	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia sclerosperma subsp. sclerosperma	1	1.7	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia arida	5	1	Shrub, cycad, grass-tree, tree-fern (M)	
	Triodia epactia	5	0.5	Hummock grass	
	Grevillea pyramidalis subsp. pyramidalis	1	1.8	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia bivenosa	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Trigastrotheca molluginea	1	0.2	Forb	
HPKAR31R	*Triodia wiseana*	30	0.5	Hummock grass (G)	Releve
	Cenchrus ciliaris	5	0.5	Tussock grass (G)	
	Acacia bivenosa	10	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia inaequilatera	2	3	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Senna artemisioides*	0.5	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Hakea lorea subsp. lorea	2	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Tribulus hirsutus	2	0.25	Forb (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	
	Ptilotus auriculifolius	0.1	0.5	Forb (G)	
	Corchorus walcottii	0.1	0.25	Forb (G)	
HPKAR32R	*Triodia wiseana*	55	0.5	Hummock grass (G)	Releve
	Cenchrus ciliaris	0.1	0.5	Tussock grass (G)	
	Acacia bivenosa	10	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Acacia inaequilatera	5	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Senna artemisioides	0.5	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Hakea lorea subsp. lorea	2	1.75	Shrub, cycad, grass-tree, tree-fern (M)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Ptilotus auriculifolius*	0.1	0.5	Forb (G)	
HPKAR33R	*Eragrostis xerophila*	35	0.5	Tussock grass (G)	Releve
	Streptoglossa decurrens	4	0.25	Forb (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Operculia aequisepala	0.1	0.25	Forb (G)	
	Heliotropium cunninghamii	4	0.25	Forb (G)	
	Indigofera linifolia	5	0.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Euphorbia coghlanii	0.1	0.1	Forb (G)	
	Chrysopogon fallax	10	1.25	Tussock grass (G)	
	Ptilotus nobils	0.1	0.1	Forb (G)	
	Ptilotus carinatus	0.5	0.25	Forb (G)	
	Ipomoea coptica	0.5	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
HPKAR34R	*Rhynchosia minima*	0.1	0.25	Forb (G)	Releve
	Chrysopogon fallax	15	1.25	Tussock grass (G)	
	Eucalyptus victrix	12	8	Tree, palm (U)	
	Acacia coriacea subsp. coriacea	5	5	Tree, palm (U)	
	**Passiflora foetida*	20	1.5	Vine (G)	
	Santalum lanceolatum	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	20	0.5	Tussock grass (G)	
	Abutilon lepidum	5	1	Forb (G)	
	Corymbia hamersleyana	2	6	Tree, palm (U)	
	Triodia wiseana	5	0.5	Hummock grass (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
HPKAR35R	*Chrysopogon fallax*	15	1.25	Tussock grass (G)	Releve
	**Cenchrus ciliaris*	50	0.5	Tussock grass (G)	
	Eucalyptus camaldulensis (planted)	2	7	Tree, palm (U)	
	Acacia ancistrocarpa	1	2	Shrub, cycad, grass-tree, tree-fern (M)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
					
HPKAR36	*Triodia wiseana*	30	0.5	Hummock grass (G)	Quadrat
	Acacia inaequilatera	2	3	Shrub, cycad, grass-tree, tree-fern (M)	
	Solanum lasiophyllum	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchorus incanus subsp. incanus	0.5	0.25	Forb (G)	
	Acacia bivenosa	15	1.25	Shrub, cycad, grass-tree, tree-fern (M)	
	Aristida contorta	0.1	0.25	Tussock grass (G)	
	Hybanthus aurantiacus	0.1	1.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Ptilotus helipteroides*	0.1	0.1	Forb (G)	
	Euphorbia australis	0.1	0.1	Forb (G)	
	Cenchrus ciliaris	20	0.25	Tussock grass (G)	
	Rhynchosia minima	0.1	0.25	Forb (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Indigofera monophylla	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cassytha capillaris	0.1	0.5	Vine (G)	
	Ptilotus astrolasius	0.1	0.25	Forb (G)	
	Tephrosia supina	0.5	0.25	Forb (G)	
	Triumfetta clementii	0.5	0.25	Forb (G)	
	Acacia ancistrocarpa	2	2	Shrub, cycad, grass-tree, tree-fern (M)	
	Senna artemisioides	0.5	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Euphorbia biconvexa	0.1	0.1	Forb (G)	
HPKAR37	*Cleome viscosa*	2	0.25	Forb (G)	Quadrat
	Triodia wiseana	50	0.5	Hummock grass (G)	
	Rhynchosia minima	1	0.25	Forb (G)	
	Evolvulus alsinoides	0.1	0.1	Forb (G)	
	Tephrosia supina	0.1	0.25	Forb (G)	
	Boerhavia coccinea	0.5	0.5	Forb (G)	
	Abutilon lepidum	0.1	0.25	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Trichodesma zeylanicum var. zeylanicum*	0.1	0.25	Forb (G)	
	Hybanthus aurantiacus	1	1.25	Forb (G)	
	Grevillea pyramidalis subsp. pyramidalis	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Cenchrus ciliaris	0.5	0.25	Tussock grass (G)	
	Scaevola spinescens	1	0.1	Shrub, cycad, grass-tree, tree-fern (M)	
	Grevillea pyramidalis subsp. pyramidalis	1	1.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Streptoglossa decurrens	0.1	0.25	Forb (G)	
	Indigofera monophylla	2	0.5	Shrub, cycad, grass-tree, tree-fern (M)	
	Corchrus walcottii	0.5	0.5	Forb (G)	
	Bonamia erecta	0.1	0.25	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.1	Forb (G)	
HPKAR38	*Eucalyptus victrix*	5	7	Tree, palm (U)	Quadrat
	Triodia wiseana	35	0.5	Hummock grass (G)	
	Cyperus bifax	2	0.75	Sedge (G)	
	Phyllanthus maderaspatensis	0.1	0.25	Forb (G)	
	Boerhavia coccinea	1	0.25	Forb (G)	
	Indigofera trita	0.1	0.25	Forb (G)	
	Cyperus vaginatus	0.5	1	Sedge (G)	
	Triumfetta clementii	0.5	0.5	Forb (G)	

Site Name and photograph	Taxa	Cover (%)	Height (m)	Form/stratum	Site type
	*Cassytha capillaris*	0.1	0.25	Vine (G)	
	Trichodesma zeylanicum var. zeylanicum	0.1	0.25	Forb (G)	
	Sesbania cannabina	20	1.5	Forb (G)	
	Rhynchosia minima	0.2	0.25	Forb (G)	
	Pluchea rubelliflora	0.1	0.25	Forb (G)	
	Trachymene oleracea subsp. oleracea	0.1	0.25	Forb (G)	
	Eriachne benthamii	0.5	0.5	Tussock grass (G)	
	Hybanthus aurantiacus	0.5	1.25	Forb (G)	
	Ipomoea coptica	0.1	0.25	Vine (G)	
	Terminalia circumalata	4	3	Tree, palm (U)	
	Triumfetta clementii	0.1	0.25	Forb (G)	
	Swainsona formosa	0.1	0.25	Forb (G)	

Conservation significant flora locations

Priority	Species	Population count	Lat	Lon
3	*Oldenlandia* sp. Hamersley Station	1	7698985.78	465338.89
3	*Oldenlandia* sp. Hamersley Station	1	7699270.24	466395.24
3	*Terminalia supranitifolia*	1	-20.64029882	116.7641092
3	*Terminalia supranitifolia*	1	-20.64029348	116.7640285
3	*Terminalia supranitifolia*	1	-20.64014607	116.7639552
3	*Terminalia supranitifolia*	1	-20.63996438	116.7641512
3	*Terminalia supranitifolia*	1	-20.63989923	116.764227
3	*Terminalia supranitifolia*	1	-20.64015732	116.7640184
3	*Terminalia supranitifolia*	1	-20.640269	116.7639898
3	*Terminalia supranitifolia*	1	-20.64041737	116.7640033
3	*Terminalia supranitifolia*	1	-20.64051558	116.7640892
3	*Terminalia supranitifolia*	1	-20.64053575	116.7641505
3	*Terminalia supranitifolia*	1	-20.64051997	116.7640208
3	*Terminalia supranitifolia*	1	-20.6404436	116.7639643
3	*Terminalia supranitifolia*	1	-20.64034732	116.7636847
3	*Terminalia supranitifolia*	1	-20.64040677	116.7637164
3	*Terminalia supranitifolia*	1	-20.6404512	116.7637615
3	*Terminalia supranitifolia*	1	-20.6404944	116.7636167
3	*Terminalia supranitifolia*	1	-20.64057633	116.7634877
3	*Vigna triodiophila*	6	-20.64056178	116.7633281
3	*Terminalia supranitifolia*	1	-20.64056142	116.7633333
3	*Terminalia supranitifolia*	2	-20.64044468	116.7632215
3	*Vigna triodiophila*	5	-20.64088593	116.7631685
3	*Terminalia supranitifolia*	1	-20.63677253	116.7676464

3	*Terminalia supranitifolia*	1	-20.65109185	116.7537325
3	*Terminalia supranitifolia*	1		
4	*Rhynchosia bungarensis*	3	-20.65106892	116.7537613
3	*Terminalia supranitifolia*	1	-20.65206798	116.752534
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1	-20.6523191	116.7521318
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1	-20.65284145	116.7518348
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1	-20.65672848	116.7460219
3	*Terminalia supranitifolia*	1	-20.65672208	116.7459597
3	*Terminalia supranitifolia*	1	-20.65707543	116.7456552
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1	-20.65948547	116.7431445
3	*Terminalia supranitifolia*	1	-20.660057	116.742296
3	*Terminalia supranitifolia*	1	-20.6600703	116.7422302
3	*Terminalia supranitifolia*	1	-20.66007743	116.7422165
3	*Terminalia supranitifolia*	1	-20.66027453	116.7419507
3	*Terminalia supranitifolia*	1	-20.66003593	116.7418873
3	*Terminalia supranitifolia*	1	-20.6606793	116.7412234
3	*Terminalia supranitifolia*	1	-20.66136562	116.7408861
3	*Terminalia supranitifolia*	1	-20.66162442	116.7407376
3	*Terminalia supranitifolia*	1	-20.6616202	116.7407391
4	*Rhynchosia bungarensis*	2	-20.66174268	116.7405523
3	*Terminalia supranitifolia*	1	-20.66172815	116.7404568
3	*Terminalia supranitifolia*	1	-20.66172633	116.740452
3	*Terminalia supranitifolia*	1	-20.66163998	116.7405349

3	*Terminalia supranitifolia*	1	-20.66162007	116.7404496
3	*Terminalia supranitifolia*	1	-20.66159158	116.7404214
4	*Rhynchosia bungarensis*	1	-20.66161338	116.7403118
4	*Rhynchosia bungarensis*	5	-20.66156452	116.7401977
4	*Rhynchosia bungarensis*	5	-20.6615744	116.7401003
4	*Rhynchosia bungarensis*	5	-20.6606793	116.7412234
4	*Rhynchosia bungarensis*	5	-20.66136562	116.7408861
3	*Terminalia supranitifolia*	1	-20.6616031	116.7399915
3	*Terminalia supranitifolia*	1		
4	*Rhynchosia bungarensis*	1	-20.66165677	116.7401577
4	*Rhynchosia bungarensis*	5	-20.6617131	116.7402408
4	*Rhynchosia bungarensis*	5	-20.66173992	116.7401553
4	*Rhynchosia bungarensis*	5	-20.66179425	116.7401155
3	*Terminalia supranitifolia*	2	-20.66225143	116.7389308
3	*Terminalia supranitifolia*	2		
4	*Rhynchosia bungarensis*	5	-20.66228703	116.7388337
3	*Terminalia supranitifolia*	1	-20.66281555	116.7379872
3	*Terminalia supranitifolia*	1	-20.66271015	116.7378871
3	*Terminalia supranitifolia*	1	-20.66276555	116.737607
4	*Rhynchosia bungarensis*	5	-20.66278087	116.7373781
3	*Terminalia supranitifolia*	1	-20.66319423	116.737081
3	*Terminalia supranitifolia*	1	-20.66307348	116.7369763
3	*Terminalia supranitifolia*	1		
3	*Terminalia supranitifolia*	1	-20.6630624	116.7366281
3	*Terminalia supranitifolia*	1	-20.66297965	116.7365889
3	*Terminalia supranitifolia*	1	-20.66259502	116.7379069
3	*Terminalia supranitifolia*	1	-20.66300138	116.7389164
3	*Terminalia supranitifolia*	1		

3	*Terminalia supranitifolia*	1	-20.66732137	116.7344625
3	*Terminalia supranitifolia*	2	-20.66762763	116.7339761
3	*Terminalia supranitifolia*	1	-20.66981397	116.7334498
3	*Terminalia supranitifolia*	1	-20.66304162	116.738696
4	*Rhynchosia bungarensis*	6	-20.62368688	116.7710144
3	*Terminalia supranitifolia*	3	-20.63911767	116.7646959
3	*Terminalia supranitifolia*	1	-20.63859017	116.7652952
3	*Terminalia supranitifolia*	1	-20.6548225	116.7434805
3	*Terminalia supranitifolia*	4		
3	*Terminalia supranitifolia*	1	-20.65690768	116.7408147
3	*Terminalia supranitifolia*	1	-20.65887133	116.7388877
3	*Vigna triodiophila*	5		
3	*Terminalia supranitifolia*	4	-20.65900083	116.7385724
3	*Terminalia supranitifolia*	3	-20.65915537	116.7383253
3	*Terminalia supranitifolia*	5	-20.65935022	116.7381131
3	*Terminalia supranitifolia*	3		
3	*Terminalia supranitifolia*	1	-20.65999795	116.7377012
3	*Terminalia supranitifolia*	1	-20.66017652	116.7373856
3	*Terminalia supranitifolia*	1	-20.66037077	116.7371498
3	*Terminalia supranitifolia*	1	-20.66058635	116.7369386
3	*Terminalia supranitifolia*	4	-20.66068338	116.7368394
3	*Terminalia supranitifolia*	2	-20.67233607	116.732955
4	*Rhynchosia bungarensis*	20	-20.62368688	116.7710144

Flora likelihood of occurrence assessment guidelines

Likelihood of occurrence	Guideline
Known	Species recorded within survey area from field survey results.
Likely	Species previously recorded within 20 km and large areas of suitable habitat occur in the survey area.
Possible	Species previously recorded within 20 km and areas of suitable habitat occur/may occur in the survey area.
Unlikely	Species previously recorded within 20 km, but suitable habitat does not occur in the survey area.
Highly unlikely	Species not previously recorded within 20 km, suitable habitat does not occur in the survey area and/or the survey area is outside the natural distribution of the species.
Other considerations	Intensity of survey, availability of access, growth form type, recorded flowering times

Flora likelihood of occurrence assessment

Family	Taxon	Status		Description (if available) (WA Herbarium 1998–)	Likelihood of occurrence	Source
		EPBC Act	BC Act / DBCA			
Aizoaceae	*Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)		P2	Prostrate to near prostrate annual herb. Flowers pink. Clayey-sand, clayey-loam. Plains, low undulating hills.	**Unlikely –** the closest known record is located approximately 20 km south of the survey area. It has not been previously recorded in the survey area (GHD 2019).	WAHerb
Apocynaceae	*Gymnanthera cunninghamii*		P3	Erect shrub, 1-2 m high. Flowers cream-yellow-green, January to December. Sandy soils.	**Unlikely** – no suitable habitat is present within the survey area.	NatureMap

Family	Taxon	Status		Description (if available) (WA Herbarium 1998–)	Likelihood of occurrence	Source
		EPBC Act	BC Act / DBCA			
Celastraceae	*Stackhousia clementii*		P3	Dense broom-like perennial, herb, to 0.45 m high. Flowers green/yellow/brown. Skeletal soils. Sandstone hills.	**Unlikely –** the species has been recorded within 500 m of the survey area. Suitable habitat is present however given survey effort this species is considered unlikely to occur within the survey area.	NatureMap, TPFL, WAHerb
Combretaceae	*Terminalia supranitifolia*		P3	Spreading, tangled shrub or tree, 1.5-3 m high. Flowers green-yellow, May or July or December. Sand. Among basalt rocks.	**Known** – this species was recorded atop rockpiles on the Burrup Peninsula, and on the slopes adjacent the major rockpile formations.	NatureMap, TPFL, WAHerb
Cyperaceae	*Schoenus punctatus*		P3	Shortly rhizomatous, tufted perennial, grass-like or herb (sedge), ca 0.6 m high. Flowers brown, August. Watercourses.	**Unlikely** – there are no records of the species in close proximity to the survey area. Limited suitable habitat is present however given the survey effort this species is considered unlikely to occur within the survey area.	NatureMap
Fabaceae	*Rhynchosia bungarensis*		P4	Compact, prostrate shrub, to 0.5 m high. Flowers yellow. Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.	**Known**– the species was recorded in the northern section of the survey area on the Burrup Peninsula, inside large rock piles and also aside a flow line around a section of pipeline development. .	NatureMap, WAHerb

Family	Taxon	Status		Description (if available) (WA Herbarium 1998–)	Likelihood of occurrence	Source
		EPBC Act	BC Act / DBCA			
Fabaceae	*Vigna triodiophila*		P3	Fine-stemmed prostrate or scrambling vine, small, ovate to elliptic leaves. Known to flower and fruit between May and September. Endemic to basalt rockpile habitats in shallow, red-brown or brown, clayey sand or loam.	**Known** – The species was recorded atop the rockpiles on the Burrup Peninsula.	NatureMap, WAHerb
Malvaceae	*Corchorus congener*		P3	Spreading shrub, to 0.6 m high. Flowers yellow, April to June or August to November. Sand, red sandy loam with limestone. Sand dunes, plains	**Unlikely –** limited suitable habitat present. Given survey effort this species is unlikely to occur within the survey area.	NatureMap
Poaceae	*Eragrostis surreyana*		P3	Annual tufted grass growing to 0.02 m tall. Occurs in drainage soaks, adjacent river beds and plains bordered by steep hills. Occurs on red-brown clay soils.	**Unlikely** – the species has not been recorded within 10 km of the survey area. No soaks of standing water were located within the survey area.	NatureMap
Poaceae	*Themeda* sp. *Hamersley Station* (M.E. Trudgen 11431)		P3	Tussocky perennial, grass-like or herb, 0.9-1.8 m high. Flowers August. Red clay. Clay pan, grass plain.	**Unlikely** – there is one record immediately adjacent to the survey area (1992). This area was thoroughly searched in the 2019 survey (GHD 2019) and no specimens were identified. The area was also disturbed. Given survey effort this species is unlikely to occur within the survey area.	NatureMap, WAHerb

Family	Taxon	Status		Description (if available) (WA Herbarium 1998–)	Likelihood of occurrence	Source
		EPBC Act	BC Act / DBCA			
Rubiaceae	*Oldenlandia* sp. *Hamersley Station* (A.A. Mitchell PRP 1479)		P3	Spreading annual, herb, 0.05-0.1 m high. Flowers blue, March. Cracking clay, basalt. Gently undulating plain with large surface rocks, flat crabholed plain.	**Unlikely** – the species has been recorded within 5 km of the survey area. Limited suitable habitat is present.	NatureMap

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