

Part Mining Tenements M04/208, M04/209, M04/439 Waterbank Station Project, Broome Flora and Vegetation Survey



PREPARED FOR BROOME CRETE



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Executive Summary

Plantecology Consulting was commissioned by P. S. Connolly Pty Ltd T/A Broomecrete to undertake a reconnaissance vegetation survey at the Waterbank Station Project within parts of Mining Tenements M04/208, M04/209 and M04/439 on Buckleys Rd in the Shire of Broome.

The field survey was conducted by botanists from Plantecology Consulting from the 4th to the 7th November 2025. A detailed survey of the vegetation was undertaken at eight sampling plots (50m x 50m quadrats), which were selected to adequately sample the flora within a stand, and positioned to sample a representative and homogeneous (i.e. not located in transitional areas between communities) area of each community. The chosen plot size was 2500 m² except for Plot 3, which was 1300 m² to fit the plot within the stand. Also, Zone 3 is only slightly larger than 2500 m² and so the entire stand was sampled. The location of the northwest corner of a plot was recorded with a hand-held GPS unit and a photograph of the plot taken looking inward to the quadrat. All vascular plant species were recorded and an estimate of the Percentage Cover (PC) was made for each taxon.

A total of 77 native and 16 non-native (exotic) taxa were recorded within the site, representing 34 families and 82 genera. The dominant families containing mostly native taxa were Poaceae (15 native taxa, 3 exotic taxa), Fabaceae (12 native taxa and 2 exotic taxa) and Malvaceae (8 native taxa).

No Threatened Flora pursuant to the *Biodiversity Conservation Act* (2016) nor the *EPBC Act* (1999) were recorded during the survey.

No Priority Flora were recorded during the survey.

The results of the cluster analysis identified three vegetation units within the site:

Melaleuca alsophila – *Chrysopogon fallax* Woodland

Woodland of *Melaleuca alsophila* and *Atalaya hemiglauc*a over tussock grassland of *Chrysopogon fallax* ***Cenchrus setiger* and *Cyperaceae* sp. in grey medium heavy clays on low-lying flats

Acacia eriopoda – *Lysiphyllum cunninghamii* Open Woodland

Open Woodland of *Acacia eriopoda*, *Lysiphyllum cunninghamii* and *Hakea macrocarpa* over shrubland of *Santalum lanceolatum* and *Atalaya hemiglauc*a over tussock grassland of Poaceae species in brown silty clay loams on flats.

Sporobolus virginicus – *Bothriochloa ewartiana* Grassland

Tussock grassland of *Sporobolus virginicus* – *Bothriochloa ewartiana* with emergent *Melaleuca alsophila* and vines of *Vincetoxicum carnisum* and *Operculina aequise-pala* grey medium heavy clays on low-lying flats.

A separate unit has been mapped in Zone 1 that contains *Sersalisia sericea*. Floristically this unit is continuous with the *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland but is treated as a separate vegetation type due to the presence of mature *Sersalisia sericea*, which is culturally important and the key species in the Priority 1 Minyjuru vegetation type.

The vegetation condition within the site reflects the land use for resource extraction. The extraction pits and infrastructure areas (including tracks with no native vegetation) are rated as 'Completely Degraded' (Figure 9). Most of Zone 2 has previously been quarried and some areas are revegetating in various stages of development. Such areas are rated as either 'Good' or 'Degraded' depending on the extent and dominance of native species. Zones 1 and 3 have little weed infestation and have been mostly rated as 'Excellent'. A small part of Zone 1 that has been bisected by a track and other ground disturbances has been rated as 'Very Good'.

Two PECs were recorded within the survey area:

- Kimberley Vegetation Association 73 (Priority 3) occurs in small patches on the eastern margin of Zone 2; and
- Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria*) *sericea* (Priority 1) occurs in the southwestern part of Zone 1.

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1 Introduction

1.1 Existing Environment

Plantecology Consulting was commissioned by P. S. Connolly Pty Ltd T/A Broomecrete to undertake a reconnaissance vegetation survey at the Waterbank Station Project within parts of Mining Tenements M04/208, M04/209 and M04/439 on Buckleys Rd in the Shire of Broome (Figure 1).

Currently, the site is used for resource extraction and the survey area consists of 3 zones of 4.72 ha (Zone 1), 12.01 ha (Zone 2) and 0.29 ha (Zone 3) each. The site is located in the West Kimberley within the Pindanland subregion of the Dampierland Interim Biogeographic Regionalisation for Australia (IBRA) region. Pindanland comprises sandplains of the Dampier Peninsula and the western part of Dampier Land, as well as the hinterland of Eighty Mile Beach and is the north-western margin of the Canning Basin (Graham 2001). The geomorphology of Pindanland is mainly fine-textured sand sheets with subdued dunes (Graham 2001). The main vegetation types are mangroves, coastal dune communities, ephemeral herblands, various woodlands dominated by *Eucalyptus*, *Melaleuca* and/or boab (*Adansonia gregorii*), with *Acacia* shrublands and hummock grasslands (Graham 2001).

1.2 Climate

The Broome area experiences a semi-arid to tropical monsoonal climate with the majority of rainfall received in summer between November and April. Long-term climatic averages indicate the site is in an area of moderate to high rainfall, receiving 629 mm on average annually (data for Broome Airport, station number 3003, the nearest currently reporting station; Bureau of Meteorology 2026). The area experiences rainfall on an average of 86 days per year. Mean maximum temperatures range from 29.0 °C in July to 34.4 °C in April. Mean minimum temperatures range from 13.7 °C in July to 26.6 °C in December.

1.3 Soils

The Atlas of Australian Soils maps two soil types for the site. Map Unit AB21 is mapped as occurring across Zones 1 and 3, and part of Zone 2 (Figure 2). AB21 comprises gently undulating sand plain with a few small rocky sandstone residuals and no external drainage. The main soils are red earthy sands and patches of siliceous sands (Natural Resource Information Centre 1991). Map unit Jw1 comprises low-lying coastal plains with some sand dunes and is mapped as occurring across most of Zone 2. The main soils range from saline clays on the flat to very gently sloping plains, with areas of saline muds on slopes and flats submerged at high tide (Natural Resource Information Centre 1991).

More recent statewide soil mapping shows the site lying mainly within the Yeeda System, which comprises red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass (DPIRD 2022-). The north-western corner of Zone 2 intersects the Carpentaria Low subsystem, comprising bare coastal mudflats, minor sandy margins and seaward margins supporting little vegetation except for mangrove fringing thickets (DPIRD 2022-).

1.4 Vegetation Types

Most of the site lies within Beard Vegetation Association 750 (Figure 3), which comprises *Acacia* thicket with eucalypt woodland over spinifex, *Acacia tumida*, *Eucalyptus tectifica*, *Corymbia grandifolia*, *Triodia pungens* and *Triodia bitextura* (Graham 2001). Vegetation Association 750 occurs over 1 217 487 ha within the Pindanland subregion, which represents 99.7% of its original 1 221 733 extent (Government of Western Australia 2013).

The northwestern corner of Zone 2 lies within Beard Vegetation Association 73, which comprises annual grasses of *Enneapogon* spp. and *Aristida* spp. etc on dry plains, and salt water grasses *Sporobolus virginicus* on the coast (Graham 2001). Vegetation Association 73 occurs across 2302 ha within the Pindanland subregion, which represents 98.87% of its original 2328 ha extent ((Government of Western Australia 2013).

1.5 Fire

The Broome area has been subjected a number of fires since 2000 but the survey area has not been burnt since 2004 (<https://firenorth.org.au/nafi3/>; Figure 4). Zone 1 and the eastern half of Zone 2 were burnt in 2000, with much of the site burnt again in 2004.

1.6 Conservation Significant Flora

Under the Biodiversity Conservation Act 2016 ('BC Act'), the Minister for the Environment produces a gazetted list of Threatened Flora under three categories: Critically Endangered, Endangered and Vulnerable. The Department of Biodiversity, Conservation and Attractions (DBCA) also produces a list of Priority Flora that have not been assigned statutory protection under the BC Act but may be under some degree of threat (DBCA 2023a). The DBCA recognises four Priority Flora levels. The definitions for each category of Threatened and Priority Flora are shown in Appendix E.

As well as protection under State legislation, selected flora are also afforded statutory protection at a Federal level pursuant to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EPBC Act provides for the protection of Threatened species, pursuant to Schedule 1 of the Act, and are defined as "Critically Endangered", "Endangered", "Vulnerable" or "Conservation Dependent" under Section 179. Definitions of these categories are shown in Appendix E. Any action likely to have a significant impact on a species listed under the EPBC Act requires approval from the Commonwealth Minister for the Environment.

Searches of the State databases identified 34 conservation significant taxa with the potential to occur within the site (Table 1). Those records within approximately 20 km of the site are shown in Figure 5. None of the identified taxa are listed as Threatened under the BC Act.

Given the habitats within the site, the most likely conservation-coded taxa to occur within the site are:

- *Aphyllodium glossocarpum* (P3);
- *Bonamia oblongifolia* (P3);
- *Corymbia paractia* (P2);
- *Glycine pindanica* (P3);
- *Jacquemontia* sp. Broome (A.A. Mitchell 3028) (P1);
- *Polymeria* sp. Broome (K.F. Kenneally 9759) (P3);
- *Terminalia kumpaja* (P3); and
- *Tribulopsis marliesiae* (P3).

A record for one individual of *Aphyllodium glossocarpum* is shown for the track margin on northern side of the Broome Waste Facility within 200 m of Zone 1. This record indicates that this species is the most likely to occur within the survey area.

In recent flora surveys within the region, GHD (2024) recorded five individuals in the Broome environs, mainly near Crab Creek Rd 6 km to the east of the site.

Reynolds et al. (2018) mapped over 2800 individual trees of *Corymbia paractia* in the Broome environs, including to the north and south of the survey area. Fourteen individuals were also recorded

approximately 4.5 km to the east (Spectrum Ecology 2020) and another 36 individuals were recorded by GHD (2024) along Broome Rd.

Thirteen individuals of *Glycine pindanica* were recorded along the verge of the Broome-Cape Leveque Rd approximately 5km to the north-east of the site.

Jacquemontia sp. Broome (A.A. Mitchell 3028) has been recorded approximately 27 km east of Broome (AECOM 2017), a population of 71 individuals were recorded 4.5 km to the east (Spectrum Ecology 2020) and another 25 individuals were recorded in the Broome environs, including along Broome Rd and the Broome-Cape Leveque Rd (GHD 2024).

Polymeria sp. Broome (K.F. Kenneally 9759) was identified by GHD (2024) in the Broome area, and appears to be locally common with over 400 individuals recorded.

Eighty individuals of *Terminalia kumpaja* were recorded 4.5 km to the east of the site (Spectrum Ecology 2020), with two more occurrences totalling 15 individuals recorded by GHD (2024) in the Broome area.

Table 1: Threatened and Priority Flora potentially occurring within the survey area based on database searches. (VU = Vulnerable; EN = Endangered; CR = Critically Endangered; T = Threatened; 1 – 4 = Priority Flora Category)

Taxon	DBCA Rating	Flowering Period	Habitat	Likelihood
<i>Acacia monticola x tumida</i> var. <i>kulparn</i>	3	-	Coastal	Unlikely
<i>Aphyllodium glossocarpum</i>	3	Apr-Oct	Pindan	Possible
<i>Aphyllodium parvifolium</i>	1	Apr, Jul	Sandhills	Unlikely
<i>Atriplex eremitis</i>	1	Aug	<i>Eragrostis xerophila</i> grassland of the Anna land system	Unlikely
<i>Bonamia oblongifolia</i>	3	Feb	Sandy or gravelly soils	Possible
<i>Corymbia paractia</i>	2	Apr-May, Oct-Dec	Skeletal soils. Transition between beach dunes and pindan.	Possible. Recorded in local area
<i>Croton aridus</i>	3	Aug	Deep red sand, pindan.	Unlikely.
<i>Eugenia reinwardtiana</i>	1	Jun	Watercourses	Unlikely
<i>Fuirena incrassata</i>	3	May-Aug	Swamps, creek beds, claypans, semi-saline lakes	Unlikely. Habitat not present
<i>Fuirena nudiflora</i>	3	Apr-May, Jul	Swamps, creek beds	Unlikely. Habitat not present
<i>Glycine pindanica</i>	3	Feb-Mar, Jun	Pindan	Possible
<i>Gomphrena pusilla</i>	2	Mar-Jun	Fine beach sand, Limestone	Unlikely. Habitat not present
<i>Goodenia byrnesii</i>	3	Jan - Feb	Creeks	Unlikely
<i>Haemodorum capitatum</i>	1	Aug, Nov	Low depressions on pindan sand plains	Unlikely. Known associated species not present.
<i>Ipomoea tolmerana</i> subsp. <i>occidentalis</i>	1	Nov	Sandstone	Unlikely
<i>Jacquemontia</i> sp. Broome (A.A. Mitchell 3028)	1	March	Red pindan plain	Possible. Recorded in local area
<i>Goodenia sepalosa</i> var. <i>glandulosa</i>	3	Apr - Jul	Red sandy loams; acacia woodlands	Unlikely
<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>	3	Jan - Dec	Swamps, seepages	Unlikely
<i>Nymphoides beaglensis</i>	3	Mar - Jun	Seasonally inundated depressions	Unlikely
<i>Paranotis halfordii</i>	3	Feb - May	Moist sandy soils; near waterways	Unlikely
<i>Pittosporum timorens</i>	4	-	-	Unlikely
<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759)	3	March	Pindan	Possible
<i>Schoenoplectiella humillima</i>	2	Apr - Aug	Seepages, pools	Unlikely
<i>Schoenus punctatus</i>	3	Aug	Watercourses	Unlikely

Taxon	DBCA Rating	Flowering Period	Habitat	Likelihood
<i>Stylidium costulatum</i>	3	Apr-Aug	Sandy, clayey soils, Seasonally wet areas	Unlikely. Would represent a range extension
<i>Stylidium pindanicum</i>	3	May - Aug	Damp, sandy soils.	
<i>Synostemon hubbardii</i>	3	Mar - Jun	Blacksoil plains	Unlikely
<i>Tephrosia andrewii</i>	3	Apr, Oct.	Pindan	Possible but would represent range extension
<i>Tephrosia pedleyi</i>	3	Jun - Aug	Gently undulating sandplain or dunes; savanna	Unlikely
<i>Tephrosia valleculata</i>	3	Apr-Sep	Shallow soil around outcrops.	Unlikely. Habitat does not exist in survey area.
<i>Terminalia kumpaja</i>	3	May, Aug, Oct	Sand, Sandstone outcrops sand dunes	Possible
<i>Thespidium basiflorum</i>	1	May-Aug	Sandy soils. Creeks.	Unlikely
<i>Tribulopsis marliesiae</i>	3	Aug-Nov	Red sands, pindan	Possible
<i>Utricularia byrneana</i>	1	Apr, Jul	Ephemerally wet swamps	Unlikely

1.7 Conservation Significant Communities

The DBCA defines an ecological community as “a naturally occurring assemblage that occurs in a particular type of habitat” (DBCA 2023b). A Threatened Ecological Community (TEC) is one that has declined in area or was originally limited in distribution. Uncommon ecological communities that do not strictly meet TEC defined criteria, or are inadequately defined, are listed by the DBCA as a Priority Ecological Community (PEC). Definitions of the categories of Threatened and Priority Ecological Communities are given in Appendix E.

As well as protection under State legislation, select ecological communities are also afforded statutory protection at a federal level pursuant to the EPBC Act. The EPBC Act provides for the protection of TECs, which are listed under section 181 of the Act, and are defined as “Critically Endangered”, “Endangered” or “Vulnerable” under Section 182. Similar to flora listed under the EPBC Act, any action likely to have a significant impact on a TEC listed under the EPBC Act requires Commonwealth approval.

Two terrestrial TECs endorsed under State legislation are recorded as occurring within 50 km of the site (Figure 6):

- Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula, listed as Endangered TEC under both State legislation and pursuant to the EPBC Act; and
- Species-rich faunal community of the intertidal mudflats of Roebuck Bay (Roebuck Bay mudflats), listed as Vulnerable under State legislation.

The Monsoon (vine) thickets TEC occurs along the coast to the south of the site. This habitat does not occur within the site. The Roebuck bay mudflats TEC occurs in the tidal zone around Roebuck Bay to the south of the site and this habitat also does not occur within the site.

Nine other terrestrial FCTs listed as PECs are recorded as occurring within 50 km of the site:

- Dwarf pindan heath community of Broome coast (Priority 1);
- Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria sericea*) (Priority 1);
- Kimberley Vegetation Association 770 (Priority 1);
- Eighty Mile Land System (Priority 3);
- Roebuck Land System (Priority 3);
- Kimberley Vegetation Association 37 (Priority 3);
- Kimberley Vegetation Association 67 (Priority 3);
- Kimberley Vegetation Association 73 (Priority 3); and
- Nimalarica Claypan Community (previously Nimalaica) (Priority 4).

The only occurrence of the Dwarf pindan heath community occurs near Gantheaume Point and is not likely to occur within the site. Vegetation Association 770 is comprised of wattle (*Acacia*) shrub thickets along the coast and is unlikely to occur within the site as this habitat has not been recorded in inland locations.

Neither the Eighty Mile Land System (comprising beach foredunes) nor the Roebuck Land System (comprising coastal plains and tidal flats) occur within the Broome environs and are unlikely to occur within the site. Vegetation Association 37 (teatree thickets) and Vegetation Association 67 (grasslands, tall savannah and paperbarks) are also associated with the fringes of Roebuck Bay and are not likely to occur within the site. The Nimalarica Claypan Community comprises spring-fed

wetlands on the eastern edge of Willie Creek, a habitat type that is not known from the environs of the survey area.

The Mangarr (Minyjuru) low woodland community contains frequent mature *Sersalisia sericea* and is mapped across the south-west corner of Zone 1. The defining feature of the type is the presence of *Sersalisia sericea*, which may occur with a variety of other species in di. Mangarr occurs on parallel pindan dunes that contains woodland species such as *Corymbia zygophylla* and *Hakea macrocarpa*, aridlands with species such as *Solanum cunninghamii*, *Goodenia sepulosa* and *Scaevola parvifolia*, or with species more commonly found in the Monsoon vine thicket TEC (Willing and Beames 2015).

Vegetation Association 73 comprises grasslands, short bunch grass savanna and saltwater grass (*Sporobolus virginicus*) and is mapped as intersecting the northeast corner of Zone 2.

1.8 Environmentally Sensitive Areas

Environmentally sensitive areas (ESAs) are classes or areas of native vegetation where the exemptions for clearing vegetation under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations) do not apply. ESAs may include World Heritage Areas, National Parks (including a 50 m buffer), defined wetlands, and the known occurrences of Threatened Flora and Ecological Communities (also with a 50 m buffer).

An ESA covers much of the Broome town site and its environs, and the site lies within that area (Figure 7).

1.9 Purpose

The purpose of the survey was to provide an assessment of botanical values within the site, which could then inform the development process regarding future expansion of quarrying activity.

The objectives of the survey were to:

- Undertake a reconnaissance flora and vegetation survey in accordance with the Environmental Protection Authority's (EPA) Technical Guidance: Flora and Vegetation Survey for Environmental Impact Assessment (2016).
- Identify the presence of any Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs);
- Undertake a systematic search for all vascular plant taxa present; and
- Record the locations and numbers present of any Threatened Flora and Priority Flora.

2 Methods

2.1 Field Survey

The field survey was conducted by botanists from Plantecology Consulting from the 4th to the 7th November 2025. A detailed survey of the vegetation was undertaken at eight sampling plots (50m x 50m quadrats), which were selected to adequately sample the flora within a stand (Figure 8), and positioned to sample a representative and homogeneous (i.e. not located in transitional areas between communities) area of each community. The chosen plot size was 2500 m² except for Plot 3, which was 1300 m² to fit the plot within the stand. Also, Zone 3 is only slightly larger than 2500 m² and so the entire stand was sampled. The location of the northwest corner of a plot was recorded with a hand-held GPS unit and a photograph of the plot taken looking inward to the quadrat. All vascular plant species were recorded and an estimate of the Percentage Cover (PC) was made for each taxon.

Environmental data recorded included topographic position, aspect, slope, soil colour and texture class, rock outcropping, litter cover as well as the degree of disturbance and an estimate of the time since the last fire event. The condition of the vegetation of the site was assessed to assist in determining the conservation values of the site. The vegetation condition was rated according to Trudgen (1988), a vegetation condition scale commonly used in the metropolitan and southwest regions. The categories are listed and defined in Table 2. Data on the vegetation structure was also recorded and included the height of the three main strata and the dominant species within each stratum. The vegetation structural description follows that of Thackway *et al.* (2006).

All plant specimens collected during the field survey were dried, pressed and then sorted in accordance with requirements of the Western Australian Herbarium. Identification of specimens occurred through comparison with named material and through the use of taxonomic keys. Taxonomic determinations were made using reference material at the Western Australian State Herbarium. Taxa names utilise the current terminologies from the Western Australian Herbarium (1998-). Family names utilise the revised phylogeny of the Angiosperm Phylogeny Group - APGIII Western Australian Herbarium (1998-).

2.1 Data Analysis

2.1.1 Cluster Analysis

Hierarchical agglomerative clustering is the usual first stage in classifying vegetation data into community types. This involves calculating the similarity (or more often, the dissimilarity) between plots within the dataset and then sequentially fusing the plots into groups according to their similarity. Species cover values were first transformed to the ratio of each value to the maximum value ('species max') and then to ecologically meaningful values on an ordinal scale that approximates an arc-sine square root transformation. The data were then analysed calculating the Bray-Curtis distance coefficient (or resemblance measure) with the vegan R package (Oksanen *et al.* 2023) and the flexible beta linkage method (beta = -0.25) using the cluster R package (Maechler *et al.* 2023). The clustering result was then refined to check for misclassifications and to confirm the correct number of groups using the optpart R package (Roberts 2020).

Table 2: Vegetation Condition Scale (Trudgen 1988)

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

2.2 Study Limitations and Survey Effort

Various factors can limit the effectiveness of a vegetation survey. Pursuant to EPA Technical Guidance: Flora and Vegetation Survey for Environmental Impact Assessment (EPA 2016), these factors have been identified and their potential impact on the effectiveness of the survey has been assessed (Table 3).

The survey was undertaken in November 2025 after a dry season with near average rainfall and temperatures. As this the usual dry period for the region, it was expected that observability and/or flowering for many taxa would be limited. The lack of flowering material limited the ability to identify all species to at least species level and annual species were unlikely to be present.

Table 3: Potential limitations affecting the vegetation survey

Potential limitations	Constraint	Comment
Availability of contextual information	No	Sufficient regional and local information was available to place the survey site in its environmental context.
Competency and experience of the botanists undertaking the survey	No	The survey was undertaken by botanists with a comprehensive knowledge of Western Australia vegetation, with at least 20 years' experience in vegetation surveys in Western Australia, including surveys in the Kimberley region.
Seasonality	Major	The survey was undertaken in November 2025 at the end of the usual dr period. This limits the identification of species to species level and annual species are not likely to be present.
Adequate ground coverage and intensity of survey effort	No	The survey area was traversed on foot. It is considered the survey quadrats and mapping points provided adequate coverage of the site.
Proportion of Flora identified	Yes	It is estimated that 60% of taxa present within the site at the time of the survey were recorded (Chao2 estimator). Seasonal conditions will have limited the proportion of flora that could be observed.
Disturbance	Minor	The site is used for resource extraction and some of the survey area has been quarried or traversed by vehicle tracks. Most of the site supports intact vegetation and disturbances are not likely to have affected the presence and observability of most taxa.
Resources	No	Adequate resources were available to conduct the survey.
Access restrictions	No	All parts of the site were accessible

3 Results

3.1 Flora

3.1.1 Floristic Summary

A total of 77 native and 16 non-native (exotic) taxa were recorded within the site, representing 34 families and 82 genera. The dominant families containing mostly native taxa were Poaceae (15 native taxa, 3 exotic taxa), Fabaceae (12 native taxa and 2 exotic taxa) and Malvaceae (8 native taxa). For a complete species list and the individual site data refer to Appendix A and Appendix B, respectively.

3.1.2 Threatened and Priority Flora

No Threatened Flora pursuant to the *Biodiversity Conservation Act* (2016) nor the *EPBC Act* (1999) were recorded during the survey.

No Priority Flora were recorded during the survey.

3.2 Vegetation

3.2.1 Plant Associations

The results of the cluster analysis identified three vegetation units within the site (Figure 8; see dendrogram in Appendix F):

Melaleuca alsophila – *Chrysopogon fallax* Woodland (Plates 1, 2, 4 and 9)

Woodland of *Melaleuca alsophila* and *Atalaya hemiglauc*a over tussock grassland of *Chrysopogon fallax* ***Cenchrus setiger* and *Cyperaceae* sp. in grey medium heavy clays on low-lying flats.

This unit occupies most of Zones 2 and 3 on the lower parts of the site on the coastal plain soil types of soil unit Jw1.

Acacia eriopoda – *Lysiphyllum cunninghamii* Open Woodland (Plates 6, 7 and 8)

Open Woodland of *Acacia eriopoda*, *Lysiphyllum cunninghamii* and *Hakea macrocarpa* over shrubland of *Santalum lanceolatum* and *Atalaya hemiglauc*a over tussock grassland of Poaceae species in brown silty clay loams on flats.

This unit occupies Zone 1 on the gently undulating plains of the AB21 soil unit.

A separate unit has been mapped in Zone 1 that contains *Sersalisia sericea*. Floristically this unit is continuous with the *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland but is treated as a separate vegetation type due to the presence of mature *Sersalisia sericea*, which is culturally important and the key species in the Priority 1 Minyjuru vegetation type (Plate 5).

Sporobolus virginicus – *Bothriochloa ewartiana* Grassland (Plate 9)

Tussock grassland of *Sporobolus virginicus* – *Bothriochloa ewartiana* with emergent *Melaleuca alsophila* and vines of *Vincetoxicum carnisum* and *Operculina aequise-pala* grey medium heavy clays on low-lying flats.

This type was recorded in small stands on the eastern side of Zone 2 on the coastal plain soil types of soil unit Jw1.

3.2.2 Vegetation Condition

The vegetation condition within the site reflects the land use for resource extraction. The extraction pits and infrastructure areas (including tracks with no native vegetation) are rated as 'Completely Degraded' (Figure 9). Most of Zone 2 has previously been quarried and some areas are revegetating in various stages of development. Such areas are rated as either 'Good' or 'Degraded' depending on the extent and dominance of native species. Zones 1 and 3 have little weed infestation and have been mostly rated as 'Excellent'. A small part of Zone 1 that has been bisected by a track and other ground disturbances has been rated as 'Very Good'.

3.2.3 Weeds

Sixteen of the taxa recorded during the survey are exotics (weeds). **Azadirachta indica* was recorded from Zone 1 and can be an invasive tree. **Calotropis procera* was recorded on the southern edge of Zone 1. Both **Azadirachta indica* and **Calotropis procera* are Declared Pests under the *Biosecurity and Agriculture Management Act 2007*.

4 Discussion

4.1 Flora

No species of Threatened or Priority Flora were recorded during the survey. As the survey was conducted at the end of the dry season, the possibility that taxa of conservation concern occur in the site cannot be excluded. The nearest record of Priority Flora to the site is for *Aphyllodium glossocarpum* (P3), which was found adjacent to a track on the northern side of the nearby Broome Waste Disposal and Management Facility. This species was not recorded during the survey and given its location, may be a disturbance opportunist.

4.2 Plant Communities

Three floristic community types were identified within the survey area, with an additional type mapped as it contains *Sersalisia sericea* which defines the Minyjuru vegetation type, a Priority 1 Ecological Community.

The *Melaleuca alsophila* – *Chrysopogon fallax* Woodland occupies the low coastal plain clays of the eastern part of the site through Zones 2 and 3. The condition of the vegetation varied dependent on the level of disturbance from past quarrying activity and the time since cessation of such activity that has allowed regeneration to occur. Some areas support infestations of introduced grasses such as **Cenchrus ciliaris* and **Cenchrus setiger* that may inhibit vegetation restoration. The undisturbed areas are mostly in 'Excellent' condition with little weed infestation. This community type is not listed as being of conservation concern.

The *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland occupies most of Zone 1 on the red-brown pindan soils. The type is in 'Excellent' condition, notwithstanding some infestation of exotic species such as **Azadirachta indica* and **Calotropis procera*. This community type is also not listed as being of conservation concern.

Two vegetation types identified within the site are of conservation concern. The *Sporobolus virginicus* – *Bothriochloa ewartiana* Grassland is consistent with the description for Kimberley Vegetation Association 73 of grasslands, short bunch grass savanna and saltwater grass (*Sporobolus virginicus*). Vegetation Association 73 is listed a Priority 3 PEC and is mapped as intersecting the northeast corner of Zone 2. This area was checked (Plate 9) but Vegetation Association 73 does not occur there. Mapping that uses Beard's vegetation types is of a broad scale and is often not accurate at finer scales. The patches of *Sporobolus virginicus* that intrude into Zone 2 are consistent with Vegetation Association 73 and are considered part of that community.

The 'Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria*) *sericea* is a Priority 1 PEC and is currently mapped across the southwest part of Zone 1. This community is defined by the presence of mature trees of *Sersalisia sericea* and another individual tree was recorded near to the existing mapped area. The mapping for the community within the survey area has been extended to include this tree. Another sapling of *Sersalisia sericea* was observed to the northeast of the mapped extent of the community (Figure 8) but was not included as the type is defined by the presence of mature individuals (Willing and Beames 2015).

Two of the sixteen weed species recorded during the survey (**Azadirachta indica* and **Calotropis procera*) are Declared Pests pursuant to the *Biosecurity and Agriculture Management Act 2007* but active management is not required. Both were recorded within Zone 1.

5 Summary

No flora of conservation concern were identified during the survey. The vegetation condition within the surveyed areas ranged from 'Completely Degraded' to 'Excellent', depending on the extent of past quarrying activities. Two PECs were recorded within the survey area:

- Kimberley Vegetation Association 73 (Priority 3) occurs in small patches on the eastern margin of Zone 2; and
- Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria sericea* (Priority 1) occurs in the southwestern part of Zone 1.

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Figures

Figure 1: Locality Plan M04/208, M04/209 & M04/439, Broome Flora and Vegetation Survey

Figure 2: Soil Types within the Survey Area

Figure 3: Beard Vegetation Associations within the Survey Area

Figure 4: Fire Events within the Survey Area

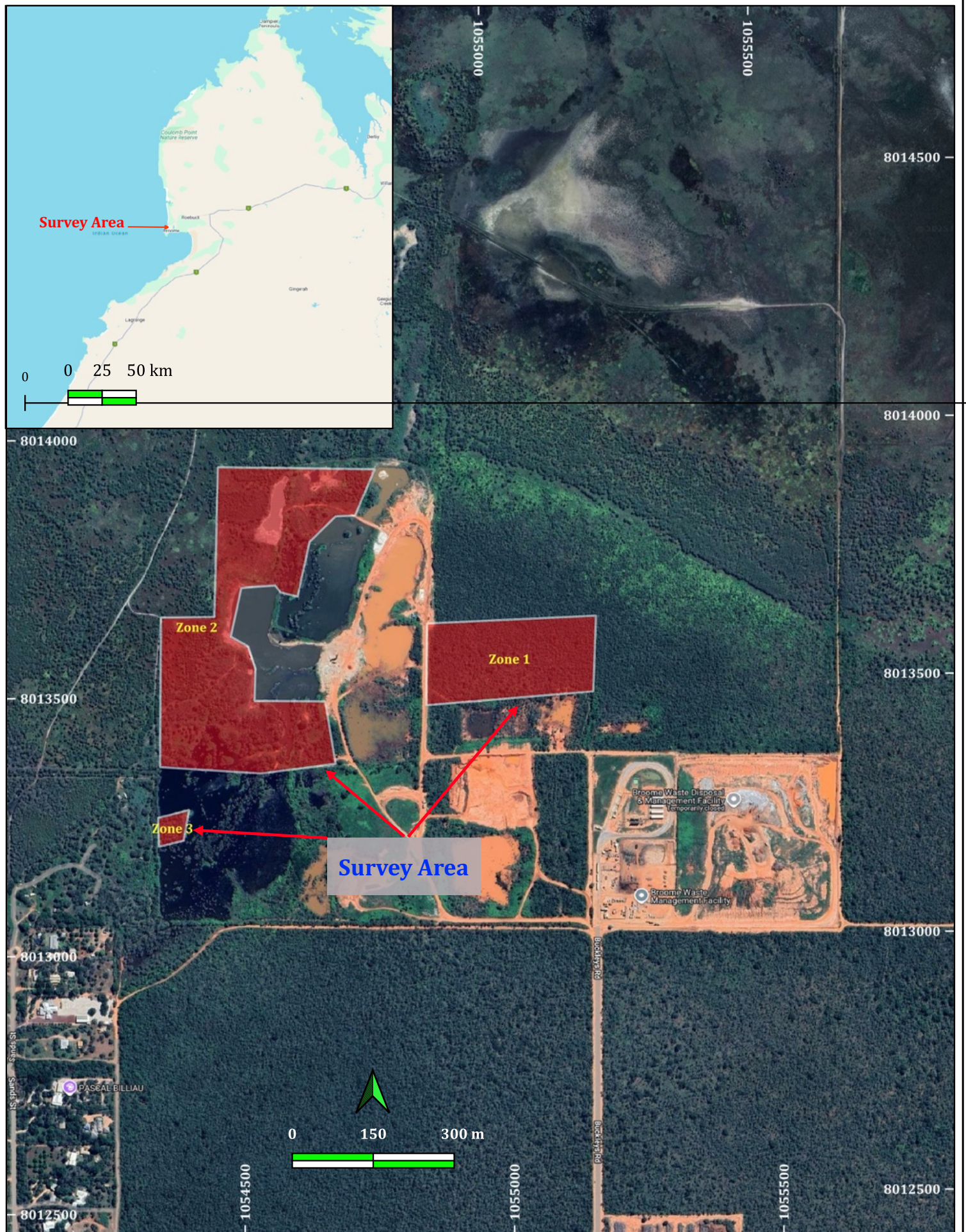
Figure 5: Conservation Significant Flora from the Local Region

Figure 6: Conservation Significant Communities with Potential to Occur within the Site

Figure 7: Environmentally Sensitive Areas

Figure 8: Plant Communities

Figure 9: Vegetation Condition

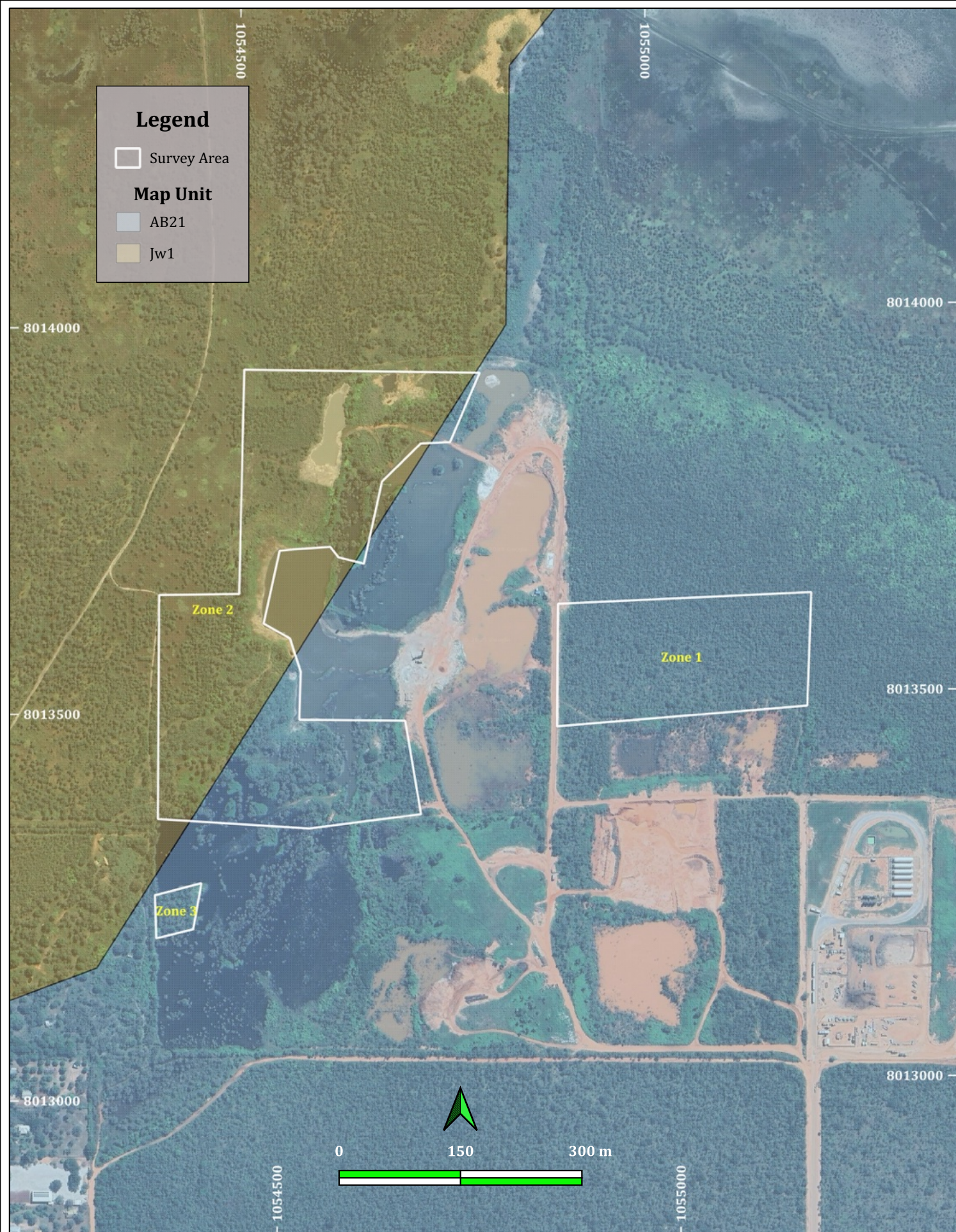


50 New Cross Rd Kingsley WA 6026

Scale: 1: 7 500
 Basemap Source: Google Satellite
 Hybrid
 Datum: GDA2020
 Projection: EPSG7850

Client: Broomecrete Pty Ltd
 Project: Broome Flora and Vegetation
 Survey
 Location: Buckleys Rd, Broome
 Author: S.T.S. Chalwell
 Drawn: S.T.S. Chalwell

**Figure 1:
 Locality Plan**

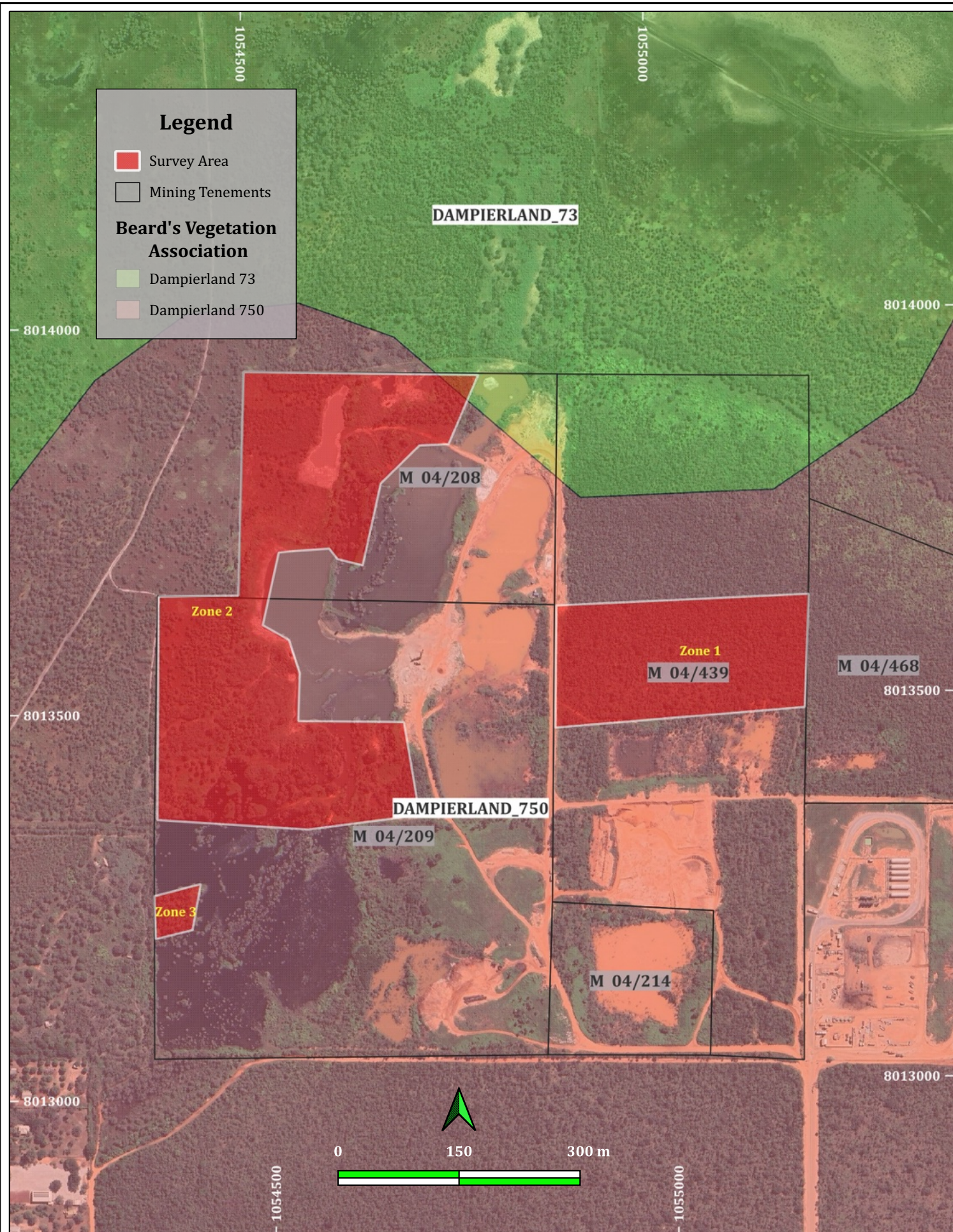


50 New Cross Rd Kingsley WA 6026

Scale: 1: 5 000
 Basemap Source: Google Satellite
 Datum: GDA2020
 Projection: EPSG7850

Client: Broomecrete Pty Ltd
 Project: Broome Flora and Vegetation Survey
 Location: Buckleys Rd, Broome
 Author: S.T.S. Chalwell
 Drawn: S.T.S. Chalwell

Figure 2:
Soils

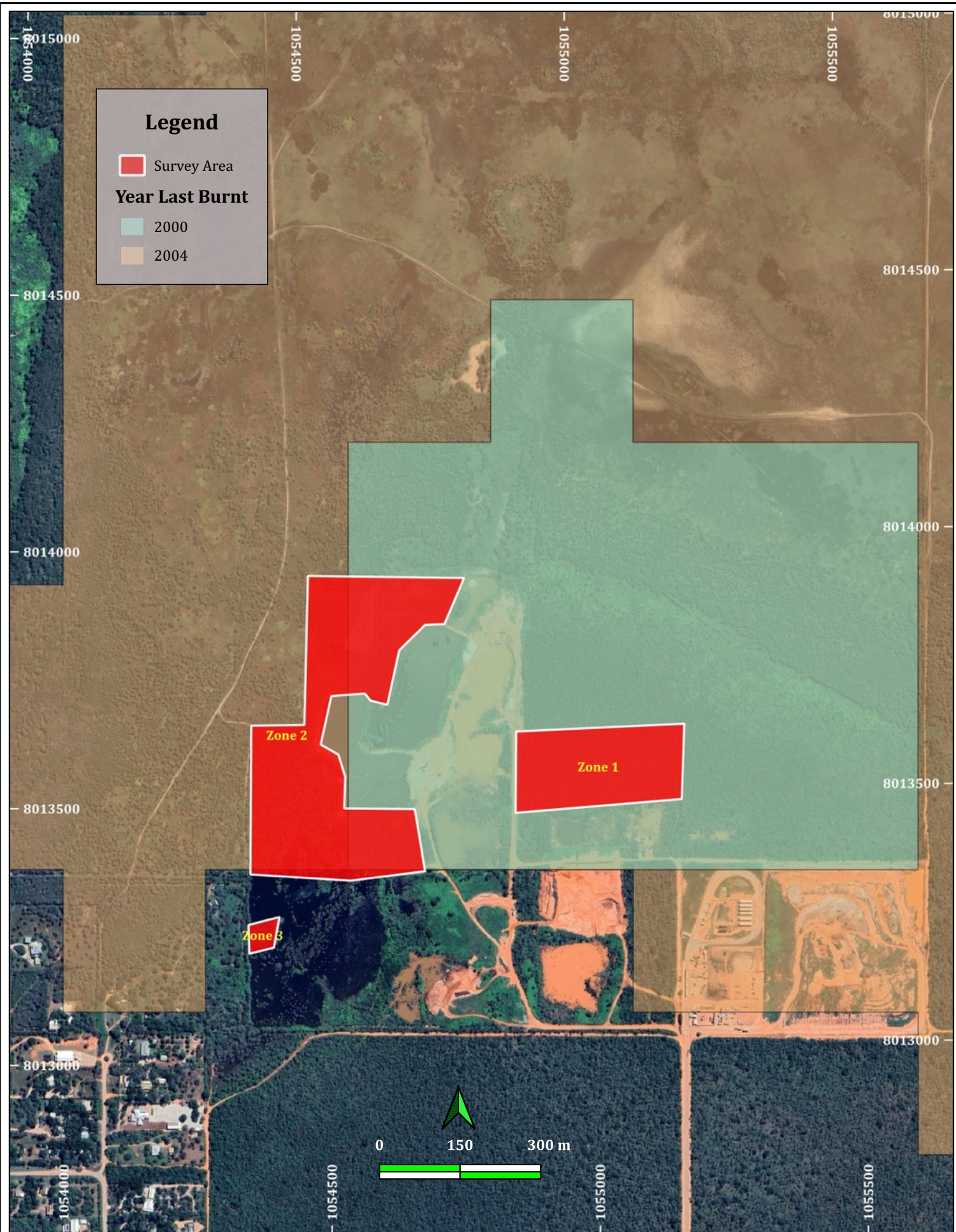


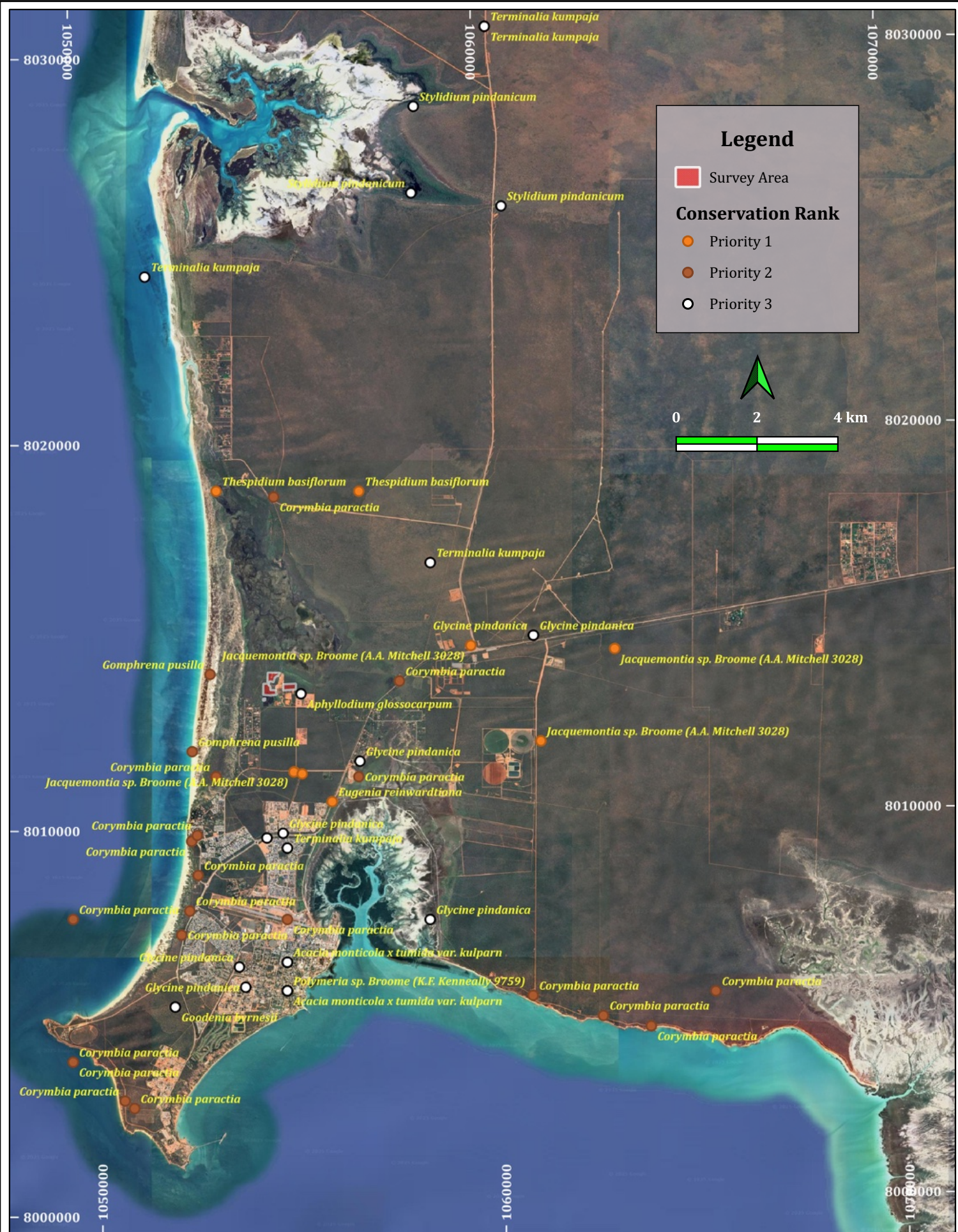
50 New Cross Rd Kingsley WA 6026

Scale: 1: 5 000
 Basemap Source: Google Satellite
 Datum: GDA2020
 Projection: EPSG7850

Client: Broomecrete Pty Ltd
 Project: Broome Flora and Vegetation Survey
 Location: Buckleys Rd, Broome
 Author: S.T.S. Chalwell
 Drawn: S.T.S. Chalwell

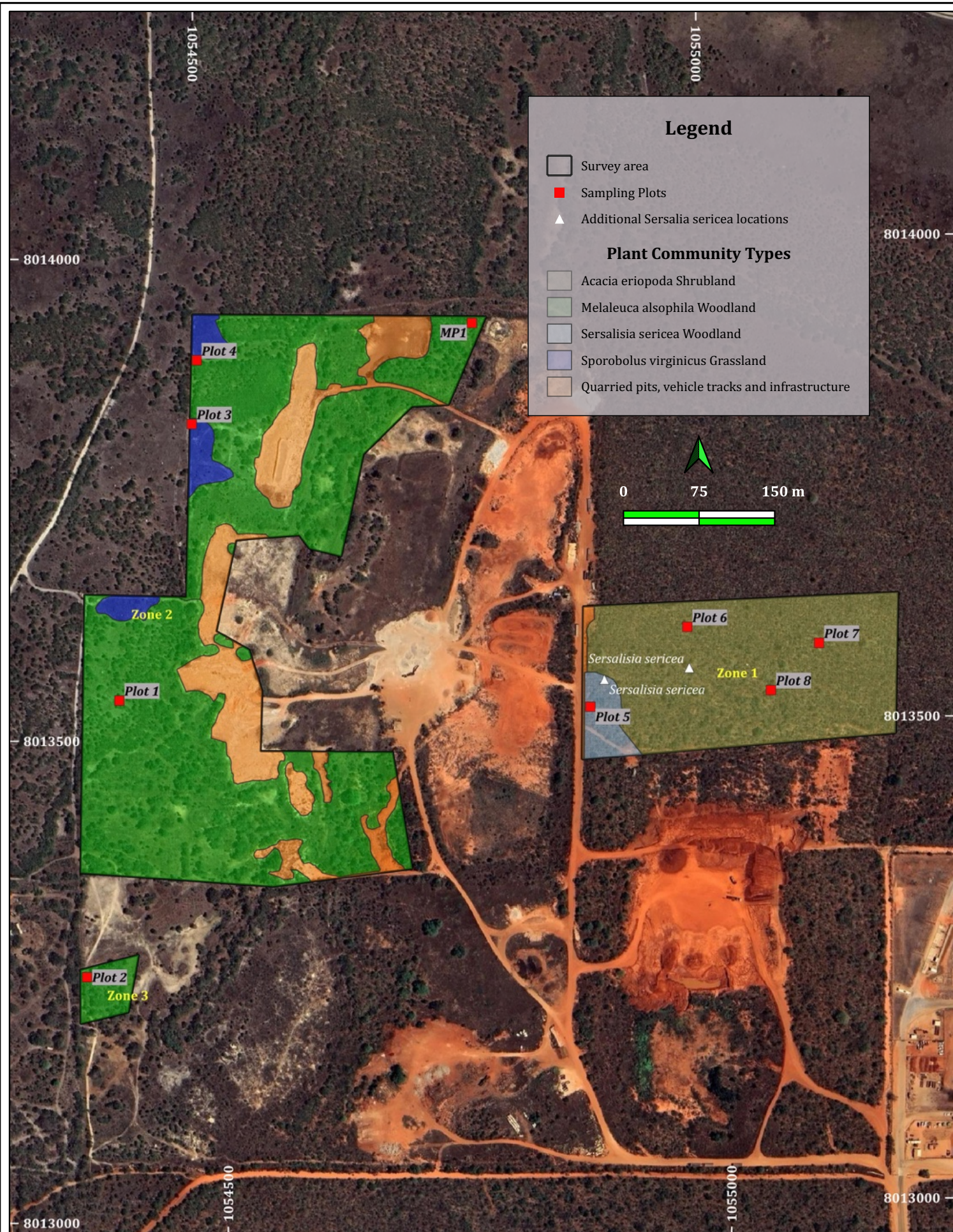
**Figure 3:
 Beard's
 Vegetation
 Associations**

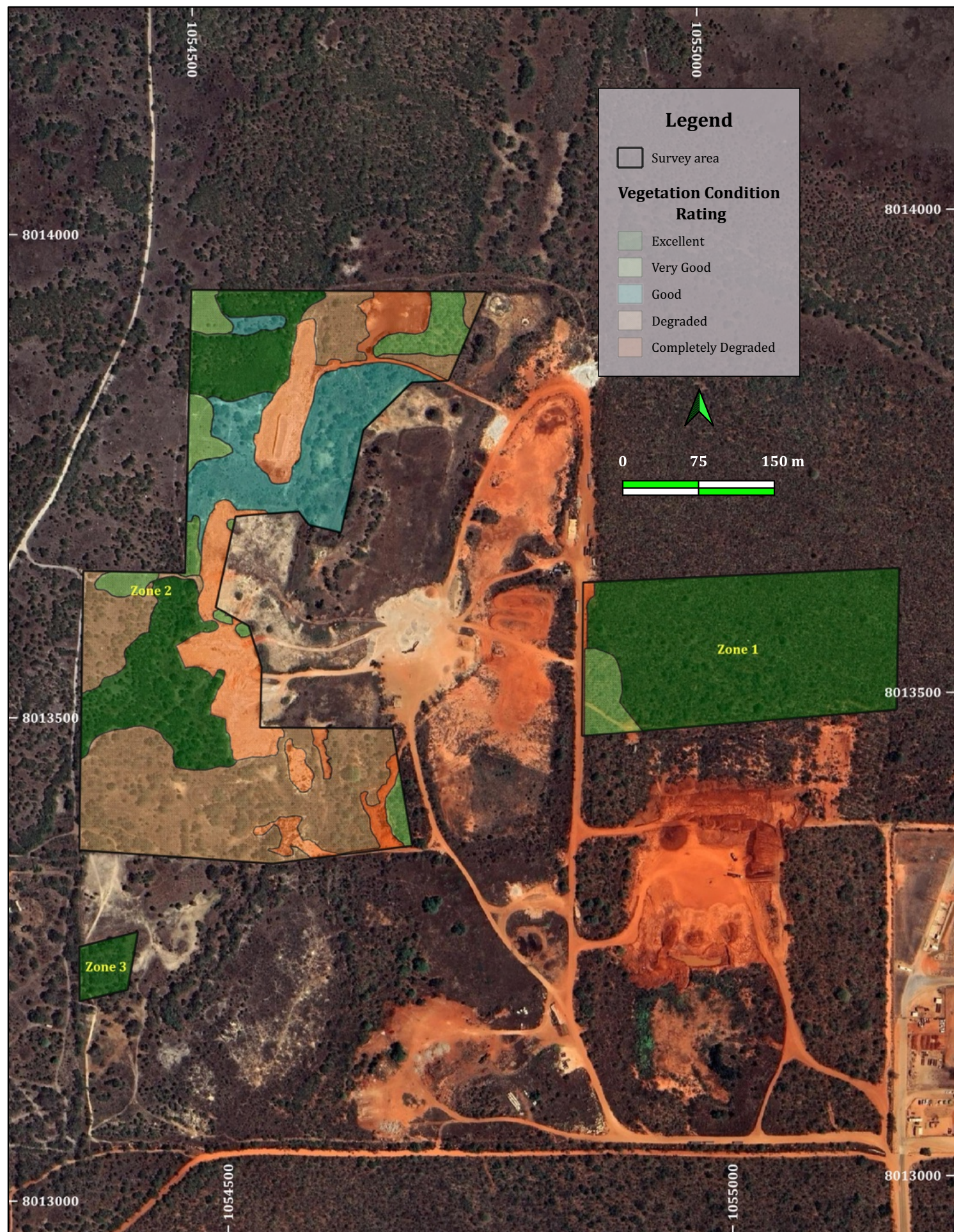














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Plates



Plate 1: View of *Melaleuca alsophila* – *Chrysopogon fallax* Woodland at Plot 1 in 'Excellent' condition.



Plate 2: View of *Melaleuca alsophila* – *Chrysopogon fallax* Woodland at Plot 2 in 'Excellent' condition.



Plate 3: View of *Sporobolus virginicus* – *Bothriochloa ewartiana* at Plot 3 in 'Very Good' condition.



Plate 4: View of *Melaleuca alsophila* – *Chrysopogon fallax* Woodland at Plot 4 in 'Excellent' condition.



Plate 5: View of *Sersalisia sericea* Open Woodland at Plot 5 in 'Very Good' condition.



Plate 6: View of *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland at Plot 6 in a 'Excellent' condition.



Plate 7: View of *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland at Plot 7 in 'Excellent' condition.



Plate 8: View of *Acacia eriopoda* – *Lysiphyllum cunninghamii* Open Woodland at Plot 8 in 'Excellent' condition.



Plate 9: View of *Melaleuca alsophila* – *Chrysopogon fallax* Woodland at MP01 in 'Degraded' condition.



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Appendix A

List of flora recorded within the survey area

NB: * indicates introduced flora

Family	Taxon
Lauraceae	<i>Cassytha filiformis</i>
Cyperaceae	<i>Cyperaceae</i> sp. <i>Cyperus ?conicus</i> * <i>Cyperus rotundus</i> <i>Fimbristylis cymosa</i>
Poaceae	<i>Aristida</i> sp. A <i>Aristida</i> sp. B <i>Bothriochloa ewartiana</i> * <i>Cenchrus ciliaris</i> * <i>Cenchrus setiger</i> <i>Chloris pectinata</i> <i>Chrysopogon fallax</i> * <i>Cynodon dactylon</i> <i>Dactyloctenium radulans</i> <i>Enneapogon pallidus</i> <i>Eragrostis danesii</i> <i>Eragrostis eriopoda</i> <i>Eragrostis speciosa</i> <i>Panicum decompositum</i> <i>Paraneurachne muelleri</i> <i>Poaceae</i> sp. A <i>Poaceae</i> sp. B <i>Sporobolus virginicus</i>
Proteaceae	<i>Hakea macrocarpa</i>
Zygophyllaceae	* <i>Tribulus terrestris</i>
Fabaceae	<i>Abrus precatorius</i> <i>Acacia bivenosa</i> <i>Acacia colei</i> <i>Acacia eriopoda</i> <i>Canavalia rosea</i> <i>Crotalaria cunninghamii</i> <i>Crotalaria medicaginea</i> <i>Cullen martinii</i> <i>Lysiphyllum cunninghamii</i> * <i>Macroptilium atropurpureum</i> <i>Rhynchosia minima</i> <i>Sesbania cannabina</i> * <i>Stylosanthes hamata</i> <i>Tephrosia rosea</i> var. <i>rosea</i>
Moraceae	<i>Ficus aculeata</i> var. <i>indecora</i>
Cucurbitaceae	* <i>Citrullus lanatus</i> <i>Cucumis variabilis</i>

Family	Taxon
Euphorbiaceae	<i>Euphorbia</i> sp. * <i>Jatropha gossypifolia</i>
Phyllanthaceae	? <i>Phyllanthaceae</i> sp. <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> <i>Nellica maderaspatanensis</i>
Passifloraceae	* <i>Passiflora foetida</i>
Combretaceae	<i>Terminalia petiolaris</i>
Myrtaceae	<i>Melaleuca alsophila</i>
Sapindaceae	<i>Atalaya hemiglauca</i>
Meliaceae	* <i>Azadirachta indica</i>
Malvaceae	<i>Abutilon otocarpum</i> <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> <i>Corchorus aestuans</i> <i>Gossypium australe</i> <i>Hibiscus apodus</i> <i>Melhania oblongifolia</i> <i>Sida fibulifera</i> <i>Waltheria indica</i>
Santalaceae	<i>Exocarpos latifolius</i> <i>Santalum lanceolatum</i>
Loranthaceae	<i>Amyema benthamii</i>
Caryophyllaceae	<i>Polycarpaea longiflora</i>
Montiaceae	<i>Calandrinia tepperiana</i>
Amaranthaceae	* <i>Aerva javanica</i> <i>Alternanthera nodiflora</i> <i>Ptilotus polystachyus</i>
Chenopodiaceae	<i>Neobassia astrocarpa</i> <i>Tecticornia indica</i> subsp. <i>leiostachya</i>
Aizoaceae	<i>Sesuvium portulacastrum</i> subsp. <i>portulacastrum</i>
Lecythidaceae	<i>Planchonia careya</i>
Sapotaceae	<i>Sersalisia sericea</i>
Rubiaceae	<i>Psydrax attenuata</i> var. <i>tenella</i>

Family	Taxon
Apocynaceae	<i>Apocynaceae</i> sp. * <i>Calotropis procera</i> <i>Carissa lanceolata</i> <i>Gymnanthera oblonga</i> <i>Vincetoxicum carnosum</i> <i>Vincetoxicum cinerascens</i>
Boraginaceae	<i>?Ehretia saligna</i> var. <i>saligna</i> <i>Euploca ovalifolia</i> <i>Trichodesma zeylanicum</i>
Convolvulaceae	* <i>Distimake dissectus</i> <i>Operculina aequiseipala</i>
Solanaceae	* <i>Physalis angulata</i> <i>Solanum ?cunninghamii</i>
Plantaginaceae	<i>Stemodia florulenta</i>
Lamiaceae	* <i>Ocimum basilicum</i>
Orobanchaceae	<i>Buchnera</i> sp.
Asteraceae	<i>Pluchea rubelliflora</i> <i>Pterocaulon ?intermedium</i> <i>Pterocaulon serrulatum</i> var. <i>velutinum</i>



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Appendix B

Sampling plot raw data

NB: Only taxa recorded within sampling plots included in table.

Plot	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7	Plot 8	MP01
<i>Acacia colei</i>		1			0.1	0.1	0.5	0.1	
<i>Acacia eriopoda</i>	0.5				15	15	15	15	
<i>Aristida</i> sp. A	0.1								
<i>Aristida</i> sp. B					7	5	1	5	
<i>Atalaya hemiglauc</i>	1	3			1	0.5	5	0.1	
<i>Azadirachta indica</i>	1	0.1		0.1	1	1	2	3	
<i>Bauhinia cunninghamii</i>					3	4	4	5	
<i>Bothriochloa ewartiana</i>			10	1					
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	0.5				1	1	0.5	1	
<i>Carissa lanceolata</i>							0.1	0.1	
<i>Cassytha filiformis</i>						0.1		0.1	
<i>Cenchrus ciliaris</i>		10			0.1				
<i>Cenchrus setigerus</i>	10	15		1	0.5				
<i>Chloris pectinata</i>			0.5						
<i>Chrysopogon fallax</i>	15			1	1	1	1	1	1
<i>Crotalaria cunninghamii</i>	0.5								
<i>Cullen martinii</i>	2								
<i>Cyperaceae</i> sp.		25							
<i>?Ehretia saligna</i> var. <i>saligna</i>						0.5	1	0.1	
<i>Enneapogon pallidus</i>								1	1
<i>Exocarpos latifolius</i>		0.5			0.1				
<i>Fimbristylis cymosa</i>			1						
<i>Gossypium australe</i>						0.1			
<i>Hakea macrocarpa</i>					1	1	1	2	
<i>Melaleuca alsophila</i>	40	30	3	60			0.1		
<i>Operculina aequisejala</i>	0.1		5		0.1		0.1		
<i>Panicum decompositum</i>	1								1
<i>Planchonia careya</i>								0.1	5
<i>Pluchea rubelliflora</i>			0.5						
<i>Poaceae</i> sp. A	10	1	1	10	3	5	10	10	
<i>Poaceae</i> sp. B					0.1				
<i>Santalum lanceolatum</i>					5				
<i>Sersalisia sericea</i>					2				
<i>Sesbania cannabina</i>	3		0.1						1
<i>Sida fibulifera</i>								0.1	
<i>Sporobolus virginicus</i>			10						
<i>Stylosanthes hamata</i>	3								
<i>Terminalia petiolaris</i>								0.5	
<i>Trichodesma zeylanicum</i>								0.1	
<i>Vincetoxicum carnosum</i>			2						1
<i>Vincetoxicum cinerascens</i>					0.1	1	1	1	80
<i>Waltheria indica</i>	1				1	2	3	3	1



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Appendix C

Sampling Plot Environmental Data and Vegetation Structural Data

Site Name	Latitude	Longitude	Site Type	Date	Plot Shape	Plot size (m ²)	Topography
Plot 1	-17.895941	122.22805	Quadrat	5/11/2025	Square	2500	Flat
Plot 2	-17.898527	122.227748	Quadrat	5/11/2025	Square	2500	Flat
Plot 3	-17.893356	122.228726	Quadrat	5/11/2025	Square	1300	Flat
Plot 4	-17.89276	122.228774	Quadrat	5/11/2025	Square	2500	Flat
Plot 5	-17.895998	122.232453	Quadrat	6/11/2025	Square	2500	Flat
Plot 6	-17.895251	122.233359	Quadrat	6/11/2025	Square	2500	Flat
Plot 7	-17.895402	122.234591	Quadrat	6/11/2025	Square	2500	Flat
Plot 8	-17.895843	122.234141	Quadrat	6/11/2025	Square	2500	Flat
MP1	-17.892411	122.231345	Recce	5/11/2025			Flat

Site Name	Relief	Slope (°)	Aspect	Soil Colour	Soil Depth (cm)	Texture	Fire Interval (yrs)
Plot 1	LP	0-5		Grey	>50 cm	Medium Heavy Clay	>3 years
Plot 2	LP	0-5		Grey	>50 cm	Clayey Sand	>3 years
Plot 3	LP	0-5		Grey	>50 cm	Medium Heavy Clay	>3 years
Plot 4	LP	0-5		Grey	>50 cm	Medium Heavy Clay	
Plot 5	LP	0-5		Brown	>50 cm	Silty Clay Loam	>3 years
Plot 6	LP	0-5		Brown	>50 cm	Silty Clay Loam	>3 years
Plot 7	LP	0-5		Red Brown	>50 cm	Silty Clay Loam	>3 years
Plot 8	LP	0-5		Red Brown	>50 cm	Silty Clay Loam	>3 years
MP1	LP	0-5		Grey	>50 cm	Clayey Sand	>3 years

Site Name	Gravel Cover (%)	Gravel Size (mm)	Outcrop %	Rock Type	Disturbance Level	Vegetation Condition
Plot 1					Low	Excellent
Plot 2					Low	Excellent
Plot 3					Low	Very Good
Plot 4					Low	Excellent
Plot 5					Moderate	Very Good
Plot 6					Low	Excellent
Plot 7					Low	Excellent
Plot 8					Low	Excellent
MP1					Moderate	Degraded

Site Name	Strata 1 Cover (%)	Strata 2 Cover (%)	Strata 3 Cover (%)	Strata 1 Structure	Strata 2 Structure	Strata 3 Structure	Strata 1 Dominants	Strata 2 Dominants	Strata 3 Dominants
Plot 1	30-70%	2-10%	10-30%	Trees <10 m	Shrubs 1-2 m	Tussock grass	<i>Melaleuca alsophila</i>	<i>Waltheria indica</i>	<i>Poaceae</i> sp.A
Plot 2	30-70%	2-10%	30-70%	Trees <10 m	Shrubs 1-2 m	Tussock grass	<i>Melaleuca alsophila</i>	<i>Atalaya hemiglauca</i>	<i>Chrysopogon fallax</i>
Plot 3	<2%	2-10%	70-100%	Trees <10 m	Shrubs 1-2 m	Tussock grass	<i>Melaleuca alsophila</i>	<i>Abutilon otocarpum</i>	<i>Sporobolus virginicus</i> , <i>Operculina aequisejala</i>
Plot 4	30-70%	<2%	10-30%	Trees <10 m	Shrubs 1-2 m	Tussock grass	<i>Melaleuca alsophila</i>	<i>Santalum lanceolatum</i>	<i>Poaceae</i> sp.A
Plot 5	2-10%	30-70%	10-30%	Trees <10 m	Shrubs >2 m	Tussock grass	<i>Sersalisia sericea</i>	<i>Acacia eriopoda</i>	<i>Poaceae</i> sp.A
Plot 6	2-10%	10-30%	10-30%	Trees <10 m	Shrubs >2 m	Tussock grass	<i>Lysiphyllum cunninghamii</i>	<i>Acacia eriopoda</i> , <i>Hakea macrocarpa</i>	<i>Aristida</i> sp.A
Plot 7	2-10%	10-30%	10-30%	Trees <10 m	Shrubs >2 m	Tussock grass	<i>Lysiphyllum cunninghamii</i>	<i>Acacia eriopoda</i> , <i>Hakea macrocarpa</i>	<i>Poaceae</i> sp.A
Plot 8	2-10%	10-30%	10-30%	Trees <10 m	Shrubs >2 m	Tussock grass	<i>Lysiphyllum cunninghamii</i>	<i>Acacia eriopoda</i>	<i>Poaceae</i> sp.A
MP01	2-10%	2-10%	70-100%	Trees <10 m	Shrubs >2 m	Tussock grass	<i>Melaleuca alsophila</i>	<i>Atalaya hemiglauca</i>	<i>Cenchrus setiger</i>



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Appendix D

EPBC Protected Matters Search Results



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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. Please see the caveat for interpretation of information provided here.

Report created: 30-Jan-2026

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment 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 (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	48
Listed Migratory Species:	70

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 <https://www.dcceew.gov.au/parks-heritage/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 Lands:	34
Commonwealth Heritage Places:	None
Listed Marine Species:	108
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

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

State and Territory Reserves:	9
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	18
Key Ecological Features (Marine):	None
Biologically Important Areas:	25
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Natural			
The West Kimberley	WA	Listed place	In buffer area only

Wetlands of International Importance (Ramsar Wetlands)			[Resource Information]
Ramsar Site Name	Proximity	Buffer Status	
Roebuck bay	Within Ramsar site	In feature area	

Commonwealth Marine Area			[Resource Information]
Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.			
Feature Name			Buffer Status
Commonwealth Marine Areas (EPBC Act)			In buffer area only

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.			
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			

Community Name	Threatened Category	Presence Text	Buffer Status
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.			
Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anous tenuirostris melanops	Vulnerable	Species or species habitat may occur within area	In buffer area only
Australian Lesser Noddy [26000]			
Arenaria interpres	Vulnerable	Roosting known to occur within area	In buffer area only
Ruddy Turnstone [872]			
Calidris acuminata	Vulnerable	Roosting known to occur within area	In feature area
Sharp-tailed Sandpiper [874]			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Chloebia gouldiae listed as Erythrura gouldiae Gouldian Finch [90091]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area	In feature area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area	In buffer area only
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area	In buffer area only
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Sternula albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In buffer area only
MAMMAL			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding known to occur within area	In buffer area only
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sousa sahalensis Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area	In buffer area only
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area	In feature area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
Seringia exastia Fringed Fire-bush [88920]	Critically Endangered	Species or species habitat known to occur within area	In feature area
REPTILE			
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In buffer area only
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Varanus mertensi Mertens' Water Monitor [1568]	Endangered	Species or species habitat may occur within area	In feature area

SHARK			
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat known to occur within area	In feature area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species [Resource Information]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
null			
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area	In buffer area only

Migratory Marine Birds

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area	In buffer area only
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Breeding known to occur within area	In feature area
Migratory Marine Species			
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]		Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In buffer area only
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat known to occur within area	In feature area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area	In buffer area only
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area	In buffer area only
Migratory Terrestrial Species			
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area	In feature area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris falcinellus as Limicola falcinellus Broad-billed Sandpiper [91731]		Roosting known to occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area	In feature area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]	Vulnerable	Breeding known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [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.		
Commonwealth Land Name	State	Buffer Status
Australian Broadcasting Corporation Lot 32 D100296 [AGPR209]	WA	In buffer area only
Bureau of Meteorology Lot 146 P023266 [AGPR5860]	WA	In buffer area only
Lot 2163 P216952 [AGPR5858]	WA	In buffer area only
Department of Agriculture, Fisheries and Forestry		

Commonwealth Land Name	State	Buffer Status
Lot 2275 P217326 [AGPR5881]	WA	In buffer area only
Lot 2279 P217326 [AGPR5880]	WA	In buffer area only
Department of Defence		
ANC TS BROOME - Broome [DD_0130]	WA	In buffer area only
Broome Rifle Range [DD_0678]	WA	In buffer area only
Broome Training Depot [AGPR4285]	WA	In buffer area only
Broome Training Depot [AGPR4286]	WA	In buffer area only
Broome Training Depot [DD_1528]	WA	In buffer area only
JORN Radar Site - Broome Airport [DD_3207]	WA	In buffer area only
Department of Home Affairs		
Lot 202 P023724 [AGPR6110]	WA	In buffer area only
Lot 257 P069434 [AGPR6092]	WA	In buffer area only
Lot 532 DP 72758 [AGPR6095]	WA	In buffer area only
Lot637 DP37858 [AGPR6096]	WA	In buffer area only
Lot 812 P047361 [AGPR6111]	WA	In buffer area only
Lot 823 P044086 [AGPR6108]	WA	In buffer area only
Lot 824 P044086 [AGPR6109]	WA	In buffer area only
National Indigenous Australians Agency		
Lot 200 P062535 [AGPR6192]	WA	In buffer area only
Lot 2191 P217084 [AGPR6195]	WA	In buffer area only
Lot 2304 P217326 [AGPR6194]	WA	In buffer area only
Lot 2540 P217611 [AGPR6198]	WA	In buffer area only
Lot 2542 P217611 [AGPR6197]	WA	In buffer area only
Lot 2554 P217611 [AGPR6199]	WA	In buffer area only
Lot 2580 P217611 [AGPR6196]	WA	In buffer area only
Lot 2873 P218501 [AGPR6193]	WA	In buffer area only
Lot 2879 P218503 [AGPR6201]	WA	In buffer area only
Lot 325 P024195 [AGPR6210]	WA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Lot 3 S057609 [AGPR6191]	WA	In buffer area only
Lot 67 P222187 [AGPR6241]	WA	In buffer area only
Lot 7 S061844 [AGPR6200]	WA	In buffer area only
Lot 864 P059296 [AGPR6211]	WA	In buffer area only

Services Australia		
Lot 256 P024193 [AGPR6043]	WA	In buffer area only
Lot 69 P015330 [AGPR6041]	WA	In buffer area only

Listed Marine Species			[<u>Resource Information</u>]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris falcinellus as Limicola falcinellus Broad-billed Sandpiper [91731]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In buffer area only
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area overfly marine area	In feature area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]	Endangered	Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius phaeopus Whimbrel [849]	Endangered	Roosting known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Papasula abbotti Abbott's Booby [59297]		Species or species habitat may occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area	In buffer area only
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area	In buffer area only
Phaethon rubricauda Red-tailed Tropicbird [994]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area overfly marine area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa glareola Wood Sandpiper [829]	Endangered	Roosting known to occur within area overfly marine area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Fish			
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area	In buffer area only
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area	In buffer area only
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area	In buffer area only
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area	In buffer area only
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area	In buffer area only
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area	In buffer area only
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area	In buffer area only
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area	In buffer area only
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area	In buffer area only
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area	In buffer area only
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area	In buffer area only
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area	In buffer area only
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area	In buffer area only
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area	In buffer area only
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area	In buffer area only
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area	In buffer area only
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area	In buffer area only
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area	In buffer area only
Mammal			
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Reptile			
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]		Species or species habitat may occur within area	In buffer area only
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area	In buffer area only
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area	In buffer area only
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]	Endangered	Species or species habitat may occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]	Endangered	Species or species habitat may occur within area	In feature area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]		Breeding likely to occur within area	In buffer area only
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]		Breeding likely to occur within area	In buffer area only
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area	In buffer area only
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area	In buffer area only
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area	In buffer area only
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area	In buffer area only
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area	In buffer area only
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area	In buffer area only
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area	In buffer area only
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area	In buffer area only
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In buffer area only
Whales and Other Cetaceans [Resource Information]			
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area	In buffer area only
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Sousa sahalensis Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Stenella attenuata			
Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus			
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus (Arafura/Timor Sea populations)			
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area	In buffer area only
Tursiops truncatus s. str.			
Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Australian Marine Parks		[Resource Information]	
Park Name	Zone & IUCN Categories	Buffer Status	
Roebuck	Multiple Use Zone (IUCN VI)	In buffer area only	

Habitat Critical to the Survival of Marine Turtles		[Resource Information]	
Scientific Name	Behaviour	Presence	Buffer Status
All year (Jun - Aug)			
Natator depressus			
Flatback Turtle [59257]	Nesting	Known to occur	In buffer area only

Extra Information

State and Territory Reserves		[Resource Information]	
Protected Area Name	Reserve Type	State	Buffer Status
Broome Bird Observatory	5(1)(h) Reserve	WA	In buffer area only
Broome Wildlife Centre	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51105	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51162	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51497	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51583	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51617	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA52354	5(1)(h) Reserve	WA	In feature area

Protected Area Name	Reserve Type	State	Buffer Status
Yawuru Nagulagun / Roebuck Bay	Marine Park	WA	In buffer area only

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Broome Water Supply Borefield Bushfire Mitigation Program	2023/09597		Referral Decision	In buffer area only
Broome Wharf Extension Project	2024/09823		Completed	In buffer area only
Derby Tidal Power Project	2010/5544		Assessment	In buffer area only
Ocean Barramundi Expansion Project	2022/09272		Assessment	In buffer area only

Controlled action				
Broome Boating Facility	2021/9098	Controlled Action	Referral Decision	In buffer area only
Broome International Airport Relocation Project	2000/74	Controlled Action	Post-Approval	In buffer area only
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed	In buffer area only

Not controlled action				
Broome Borefield Bushfire Mitigation Program	2020/8680	Not Controlled Action	Completed	In buffer area only
Broome Motorplex Relocation Project, Lot 591 Broome Road	2017/8117	Not Controlled Action	Completed	In buffer area only
Broome Road Industrial Estate	2020/8811	Not Controlled Action	Completed	In buffer area only
Kimberley Marine Offloading Facility	2020/8736	Not Controlled Action	Completed	In buffer area only
Native Orchard Development, 10km northeast of Broome WA	2019/8501	Not Controlled Action	Completed	In buffer area only
Port of Broome Channel Optimisation Project, West Roebuck Bay, WA	2018/8162	Not Controlled Action	Completed	In buffer area only
Power Station Upgrade	2001/357	Not Controlled Action	Completed	In buffer area only
Power Station Upgrade (South Port Site)	2001/414	Not Controlled Action	Completed	In buffer area only
Wastewater Treatment Plant	2008/4545	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Not controlled action (particular manner)				
Construction of a 43km long sealed access road to the Browse LNG precinct	2011/5852	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Establishment of AQIS washdown facility, logistics support base and ancillary businesses	2012/6364	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas		[Resource Information]	
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]	Breeding	Known to occur	In buffer area only
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]	Calving	Known to occur	In buffer area only
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]	Foraging (high density prey)	Known to occur	In buffer area only
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur	In buffer area only
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]	Calving	Known to occur	In buffer area only
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Known to occur	In buffer area only
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur	In buffer area only
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Calving	Known to occur	In buffer area only
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur	In buffer area only
Dugong			

Scientific Name	Behaviour	Presence	Buffer Status
Dugong dugon Dugong [28]	Foraging	Likely to occur	In buffer area only
Dugong dugon Dugong [28]	Foraging	Known to occur	In buffer area only
Dugong dugon Dugong [28]	Migration likely	Known to occur	In buffer area only
Marine Turtles			
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur	In buffer area only
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur	In buffer area only
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur	In buffer area only
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur	In buffer area only
River shark			
Pristis pristis Largetooth Sawfish [60756]	Foraging	Known to occur	In buffer area only
Pristis pristis Largetooth Sawfish [60756]	Juvenile	Known to occur	In buffer area only
Pristis pristis Largetooth Sawfish [60756]	Pupping	Known to occur	In buffer area only
Pristis zijsron Green Sawfish [68442]	Foraging	Known to occur	In buffer area only
Pristis zijsron Green Sawfish [68442]	Pupping	Known to occur	In buffer area only
Seabirds			
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur	In feature area
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur	In feature area

Scientific Name	Behaviour	Presence	Buffer Status
Sternula albifrons sinensis			
Little Tern [82850]	Resting	Known to occur	In buffer area only

Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Migration (north and south)	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and 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

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

Where little information is available for a 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 detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

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 E

Definitions of Threatened and Priority Flora and Communities

Conservation Codes for Western Australian Flora and Fauna

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such. Conservation codes have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018*.

T **Threatened species – Schedules 1-4**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

- **Threatened fauna** is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.
- **Threatened flora** is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife*

Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

EX Presumed extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

Priority 2: Poorly-known species

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

Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

Priority 4: Rare, Near Threatened and other species in need of monitoring

- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
- (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
- (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

Western Australian Ecological Communities

Threatened Ecological Communities

The BC Act provides for the statutory listing of threatened ecological communities (TECs) by the Minister.

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

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.

Priority Ecological Communities

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or 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.

Priority One: 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 $\leq 100\text{ha}$).

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 Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of $\leq 200\text{ha}$). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) 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.

Priority Three: 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 (within approximately 10 years), or;
- (iii) munities 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, inappropriate fire regimes, clearing, hydrological change etc.

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 Four: 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 a higher threat category.
- (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: 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.

Commonwealth of Australia Conservation Codes

Threatened Flora and Fauna

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following six categories:

Extinct

A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

Extinct in the wild

A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:

- a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
- b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

Critically endangered

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered

A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable

A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.

Conservation dependent

A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

- a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
- b) the following subparagraphs are satisfied:
 - i. the species is a species of fish;

- ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
- iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory;
- iv. cessation of the plan of management would adversely affect the conservation status of the species.

The EPBC Act does not provide for listing in a data deficient category. Where sufficient data (evidence) is unavailable to allow assessment by the Threatened Species Scientific Committee against the criteria for listing, the species are found to be ineligible. A recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be data deficient. As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

Threatened Ecological Communities

Threatened Ecological communities under the EPBC Act are listed in three categories.

Critically endangered

If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).

Endangered

If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).

Vulnerable

If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium-term future (indicative timeframe being the next 50 years).

Categories of Threatened Species pursuant to the Environment Protection and Biodiversity Conservation Act 1999

EPBC Act Category	Department of Environment and Energy Definition
Extinct	A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Extinct in the wild	A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:
	(a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically endangered	A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered	A native species is eligible to be included in the endangered category at a particular time if, at that time
	(a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable	A native species is eligible to be included in the vulnerable category at a particular time if, at that time:
	(a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.
Conservation dependent	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; (iv) cessation of the plan of management would adversely affect the conservation status of the species.

CONSERVATION CATEGORY DEFINITIONS

for Western Australian Ecological Communities

GENERAL DEFINITIONS

An **ecological community** is a naturally occurring assemblage of organisms that occurs in a particular habitat, as defined in the *Biodiversity Conservation Act 2016* (BC Act). Ecological communities may comprise various life forms including plants, animals and microorganisms.

Note: The scale at which ecological communities are defined will often depend on the level of detail in the information source, therefore no particular scale is specified.

A **threatened ecological community** (TEC) means an ecological community that is listed under section 27(1) of the BC Act as a critically endangered, endangered or vulnerable ecological community, or is a rediscovered ecological community to be regarded as a threatened ecological community under section 33 of the BC Act.

An **assemblage** is a defined group of biological entities.

Habitat, as defined in the BC Act, means the biophysical medium or media —

- a) occupied (continuously, periodically or occasionally) by an organism or group of organisms, or
- b) once occupied (continuously, periodically or occasionally) by an organism, or group of organisms, and into which organisms of that kind have the potential to be reintroduced.

An **occurrence** is a discrete example of an ecological community, separated from other examples of the same community by more than 20 metres with, for example: a different ecological community, a sealed road, a building, a water body (for terrestrial communities), or a terrestrial body (for aquatic communities). There is no minimum size of an occurrence of a threatened or priority ecological community. By ensuring that every discrete occurrence is recognised and recorded, future changes in status can be readily monitored.

Adequately surveyed is defined as an ecological community that has been searched for thoroughly in most likely habitats, by relevant experts.

Community structure is defined as the spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage. For example, the vegetation structure (e.g., *Eucalyptus salmonophloia* woodland over scattered small shrubs over dense herbs) or the trophic structure in a faunal assemblage (e.g., dominance by feeders on detritus as distinct from feeders on live plants).

To **modify** an occurrence of an ecological community, as defined in section 44 of the BC Act, means to take action that results in —

- (a) the modification of the occurrence of the threatened ecological community to such an extent that the occurrence is unlikely to recover —
 - (i) its species composition or structure; or
 - (ii) its species composition and structure; or
- (b) the destruction of the occurrence of the threatened ecological community.

Destruction of an occurrence of an ecological community means modification such that reestablishment of ecological processes, species composition or community structure within the range of variability exhibited by the original community is unlikely within the foreseeable future even with positive human intervention.

Modification and destruction are difficult concepts to quantify, and their application will be determined by scientific judgement. Refer to the document [Guidance note – Modification of an occurrence of a threatened ecological community](#) for more information on what constitutes modification and how to determine whether an action is likely to modify an occurrence of a threatened ecological community.

Threatening process means a process that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community, as defined under the BC Act. Examples of some of the continuing threatening processes in Western Australia include: vegetation clearance; competition and land degradation by introduced fauna; dieback caused by the root-rot fungus (*Phytophthora cinnamomi*); competition and displacement of native plants by introduced flora; hydrological changes (declining groundwater levels); drying climate, fire regimes that cause declines in biodiversity; direct human exploitation and disturbance of ecological communities.

Restoration is defined as returning an ecological community to its pre-disturbance or natural state in terms of abiotic conditions, community structure and species composition.

Rehabilitation is defined as the re-establishment of ecological attributes in a damaged ecological community although the community will remain modified.

LISTED ECOLOGICAL COMMUNITIES

Assessment of the conservation status of ecological communities is carried out in accordance with the BC Act listing criteria and the requirements of [Ministerial Guideline Number 1](#) and [Ministerial Guideline Number 4](#) that adopt the use of the International Union for Conservation of Nature (IUCN) [Red List of Ecosystems Categories and Criteria](#).

CO Collapsed ecological communities

An ecological community listed by order of the Minister as collapsed under section 31(1) of the BC Act. As determined by criteria set out in section 32 of the BC Act, 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.

CR Critically endangered ecological communities

A threatened ecological community listed in the category of critically endangered under section 27(1)(a) of the BC Act, as determined by criteria set out in section 28 of the BC Act and the ministerial guidelines. A critically endangered ecological community faces an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Assemblages of the organic springs and mound springs of the Mandora Marsh area' is listed as a critically endangered threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Assemblages of the organic springs and mound springs of the Mandora Marsh area' is listed as critically endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: CR.

EN Endangered ecological communities

A threatened ecological community listed in the category of endangered ecological community under section 27(1)(b) of the BC Act, as determined by criteria set out in section 29 of the BC Act and the ministerial guidelines. A threatened ecological community faces a very high risk of becoming eligible for listing as a collapsed ecological community in the near future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson *et al.* (1994))' is listed as an endangered threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson *et al.* (1994))' is listed as endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: EN.

VU Vulnerable ecological communities

A threatened ecological community listed in the category of vulnerable ecological community under section 27(1)(c) of the BC Act, as determined by criteria set out in section 30 of the BC Act and the ministerial guidelines. A vulnerable ecological community faces a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Calothamnus graniticus subsp. graniticus heaths on south west coastal granites' is listed as a vulnerable threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Calothamnus graniticus subsp. graniticus heaths on south west coastal granites' is listed as vulnerable under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: VU.

PRIORITY ECOLOGICAL COMMUNITIES

Priority is not a listing category under the BC Act. The Priority Ecological Communities list is maintained by the department and is published on the department's website.

All fauna and flora that may be present in an ecological community are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when these species occur in an ecological community that is not listed as threatened, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Possible threatened ecological communities that do not meet survey criteria or are not adequately defined to enable listing are added to the department's [Priority Ecological Communities for Western Australia list](#) under priority 1, 2 or 3. Ecological communities that are adequately known and not threatened but rare, near threatened, or have recently been removed from the threatened list are placed in priority 4. Conservation dependent ecological communities are placed in priority 5.

P1 Priority 1: Poorly known ecological communities – very few occurrences, very restricted distribution

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.

Examples of use:

- 'Banded Ironstone Hills with *Dryandra arborea*' is listed as a Priority 1 ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Banded Ironstone Hills with *Dryandra arborea*' is listed as Priority 1 on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P1.

P2 Priority 2: Poorly known ecological communities – few occurrences, restricted distribution

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 (within approximately 10 years) 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.

Examples of use:

- 'Aquatic invertebrate communities of peat swamps' is listed as a Priority 2 ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Aquatic invertebrate communities of peat swamps' is listed as Priority 2 on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P2.

P3 Priority 3: Poorly known ecological communities – inadequately surveyed or not well defined

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. This category includes three sub-categories:

- (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.
- (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 (within approximately 10 years).
- (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, inappropriate fire regimes, clearing, hydrological change, etc.

Examples of use:

- 'Assemblages of gypsum dunes of the central and southern wheatbelt' is listed as a Priority 3(iii) ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Assemblages of gypsum dunes of the central and southern wheatbelt' is listed as Priority 3(iii) on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P3(iii).

P4 Priority 4: Adequately known ecological communities – rare, near threatened, or recently removed from the threatened list

Ecological communities that are adequately known and either rare but not threatened, near threatened, or have recently been 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 as conservation dependent, but that are close to qualifying for a higher threat category.
- (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Examples of use:

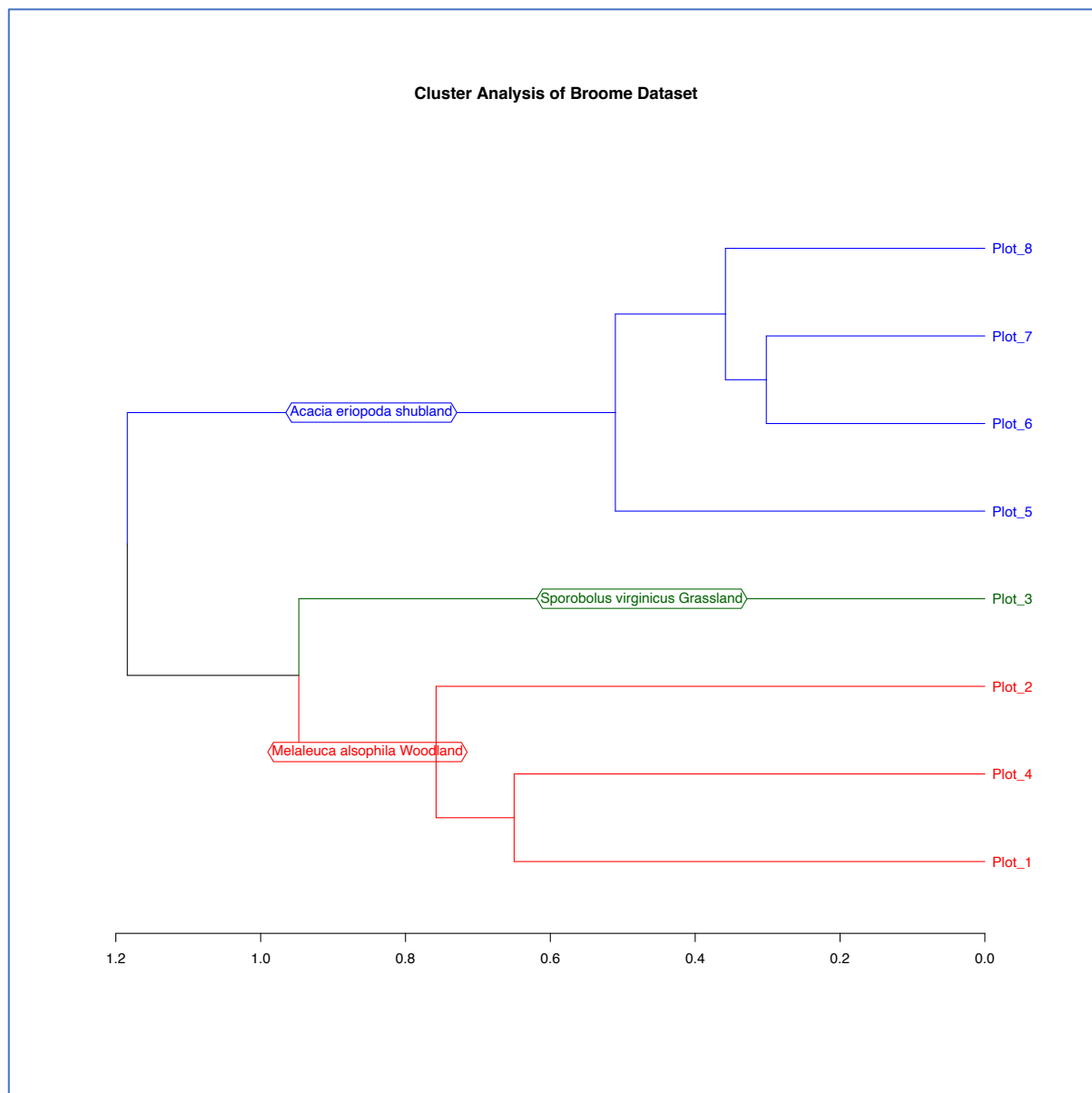
- 'Nimalaica (Nimalarragun) claypan and associated wetland assemblages' is listed as a Priority 4(ii) ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Nimalaica (Nimalarragun) claypan and associated wetland assemblages' is listed as Priority 4(ii) on the DBCA Priority Ecological Communities List.
- Listing reference in a table: column heading: DBCA, row text: P4(ii).

P5 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.

Appendix F

Dendrogram output from hierarchical clustering analysis of Meda Dataset



Dendrogram from hierarchical clustering of the Broome dataset. Plot names have been colour-coded by group membership.