

Clearing Assessment Report – CPS 818

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Western Australia.*

Banana Wells Gravel Pit – 2024 Northern Expansion

Budgarjook Road ~SLK [REDACTED]

via Broome-Cape Leveque Road SLK [REDACTED]

Kimberley Region

EOS Number 2597

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1 PROPOSAL

1.1 Purpose and Justification

Broome-Cape Leveque Road is a vital link for the economic and social life of Aboriginal communities living on the Dampier Peninsula. Material is required for the shoulder widening works along Broome Cape Leveque Rd, scheduled to commence in June 2024. These works will enhance public safety on the Broome-Cape Leveque Road (SLK 163-207), northern section of the Dampier Peninsula. Following the December 2023 Geotechnical Investigation, 4.64 ha of suitable base course material has been identified for development within the Banana Wells Gravel Pit to which this project relates.

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities and manages the State Road Network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia's environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads Road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State's Road Network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting and enhancing the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g., speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

This proposal involves a northern expansion to the existing Banana Wells Gravel pit, which will involve approximately 4.64 ha of native vegetation clearing and extraction of ~46,000 m³ of gravel (up to a depth of 2 m) to support shoulder widening works on Broome-Cape Leveque Road.

1.3 Proposal Location

The Project Clearing Footprint is located on Budgarjook Road ~SLK [REDACTED], in Dampier Peninsula accessed via Broome-Cape Leveque Road SLK [REDACTED] in the Shire of Broome as shown in Figure 1. The central coordinate of the proposal is:

Latitude: [REDACTED]

Longitude: [REDACTED]

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: 4.64 ha.

Areas of Native Vegetation Clearing:

The areas of native vegetation to be cleared are shown in Fig 3.

Type of Native Vegetation:

The types of vegetation to be cleared under this Proposal is a mosaic of vegetation units P1 and P2 (Shown in Figure 3) described by Biota (2018a) as below:

- **P1** – *Corymbia greeniana*, *Planchonia careya*, *Brachychiton diversifolius* subsp. *diversifolius*, *Gardenia pyrifolia* subsp. *keartlandii* low woodland over *Bauhinia cunninghamii*, *Ficus aculeata* var. *indecora*, *Hakea arborescens*, *Dodonaea hispidula* var. *arida* tall shrubland over *Crotalaria ramosissima*, *C. brevis*, *Gyrostemon tepperi* low open shrubland over *Sorghum plumosum* var. *plumosum* tussock grassland.
- **P2** – *Corymbia greeniana*, *C. flavescentis*, *Planchonia careya*, *Brachychiton diversifolius* subsp. *diversifolius* low woodland over *Acacia tumida* var. *kulparn*, *Bauhinia cunninghamii*, *Hakea arborescens*, *Dodonaea hispidula* var. *arida* tall shrubland over *Buchnera ramosissima* (*Microstachys chamelaea*, *Galactia tenuiflora*) low open shrubland over *Chrysopogon pallidus*, *Aristida holathera* var. *latifolia*, (*A. hygrometrica*) open tussock grassland.

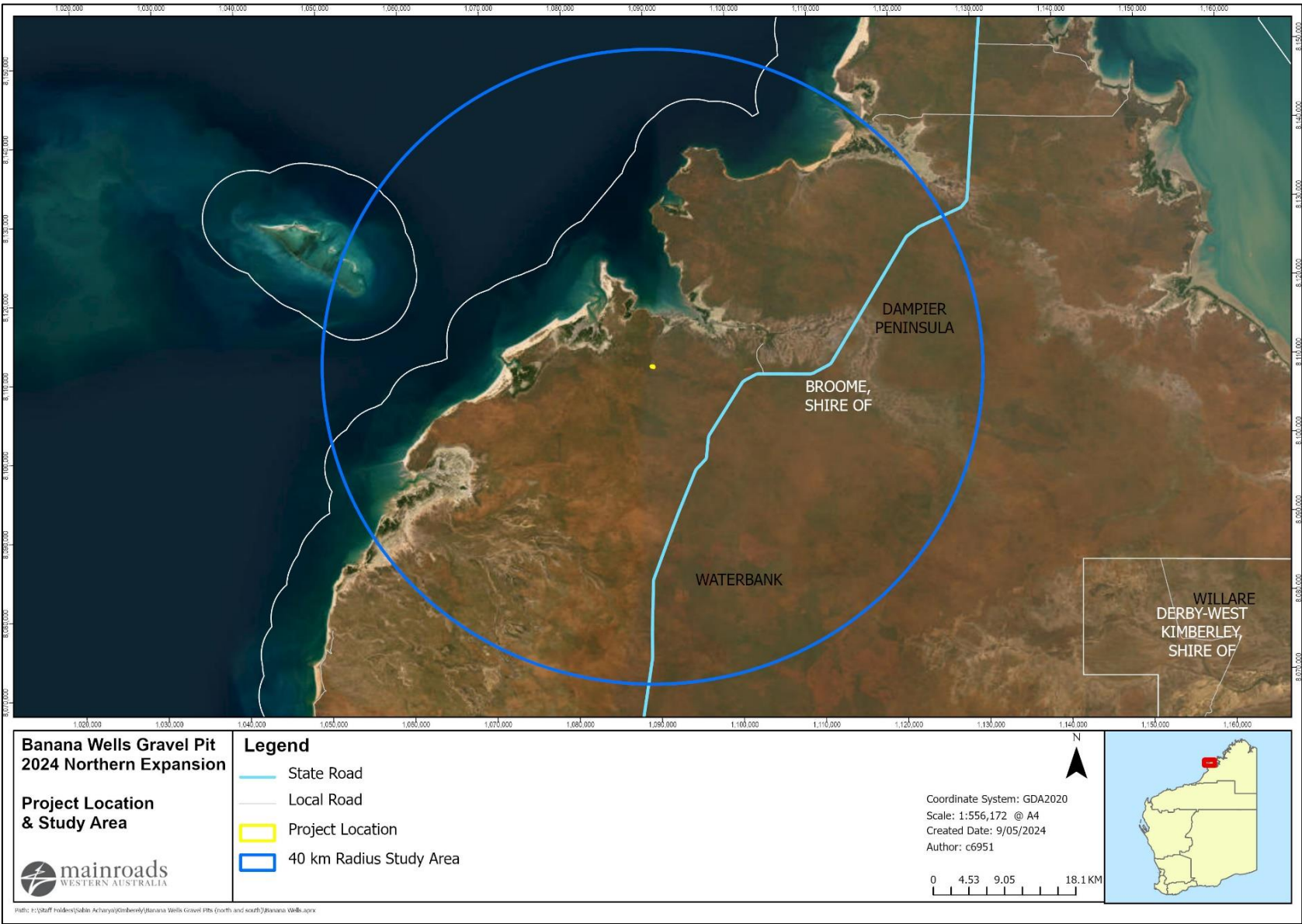


Figure 1. Project Location & Study Area

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Figure 2. Project Area

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Do not upgrade the road, however this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries and further degradation of the State road asset.
- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will be required for gravel extraction. Accordingly, the retention of frangible vegetation does not apply to this proposal.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.
- Outsourcing material from a commercial provider would be cost prohibitive with expenses associated with materials, haulage, and labour hours.

1.6 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the potential clearing impacts of the Proposal are provided in Table 1.

Table 1. Measures Undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management Measure	Discussion and Justification
Use of existing cleared areas for access tracks, construction storage and stockpiling	Prior geotechnical works have determined that the proposed area contains suitable material, thus reducing the potential for unnecessary clearing of areas of unknown material potential. The existing Banana Wells gravel pit will be used as a laydown area, so no new clearing is required for laydowns.
Undertake pre-clearance inspection for Bilby	To reduce the potential for impact on Bilby, a pre-clearance inspection will be undertaken prior to the commencement of works. <u>If a burrow is found, a 30 m exclusion zone will be implemented within which no new clearing will be undertaken.</u>

1.7 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant for assessment of clearing and planning/other matters:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914* (WA)
- *Aboriginal Heritage Act 1972* (WA).

Environmental Protection Policies:

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011.

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2021)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Assessment Report (CAR).

The CAR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Project Clearing Footprint** – The total footprint for the Proposal with which the native vegetation clearing will occur and will also accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during on-ground works.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 40 km radius around the Project Clearing Footprint
- **Survey Area** – Area covered by the Biological Survey, which is typically larger than the Project Clearing Footprint.

2.2 Desktop Assessment

A desktop assessment of the Study Area was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary. Results from searches can be found in Appendix 3.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 10.

2.3 Surveys and Assessments

No biological survey was conducted specifically for this project. A biological survey was conducted by Biota (2018a) for Main Roads to support the approvals process for the future expansion of the existing Banana Wells Gravel Pit. A detailed and targeted flora and vegetation survey and a Level 1 fauna survey and a targeted Bilby survey was undertaken in 2018. The Biota (2018a) survey area wraps around the project clearing footprint on the southern, eastern, and western sides as shown in Figure 3. As such it has been inferred, based on desktop analysis, that the unsurveyed vegetation within the Project Clearing Footprint is the same vegetation as identified in the Biota (2018a) survey. The results of the Biota (2018a) survey have therefore been extrapolated to inform this CAR.

The Biological survey relevant to the proposal is outlined in Table 2 and a summary of the findings in the report are presented in Section 3.1

Table 2. Summary of Biological Survey Relevant to the Proposal

Consultant & Survey Name	Survey Details
Biota, (2018a). Gravel Pit Expansion Biological Survey. Prepared for Main Roads Western Australia. Biota Environmental Sciences Pty Ltd, June 2018.	Survey Area: The survey area comprised of the future works area for the prospective expansion of the Gravel Pit totalling an area of 281 ha, both on the northern and southern sides of Budgarjook Rd located off Broome Cape Leveque Rd at SLK [REDACTED]. Type: A Detailed and Targeted Flora and Vegetation Survey and a Level 1 Fauna Survey and a Targeted Bilby Survey. Timing: A single-phase survey was conducted in the study area. The flora and vegetation assessment was undertaken between 6th - 8th May 2018. The fauna survey and targeted Bilby survey was undertaken between 10th -11th May 2018. Survey Results Shapefile TRIM Ref: D18#609170 Document TRIM Ref: D23#722748

3 SURVEY RESULTS

In accordance with CPS 818 condition 8 (e) (iii), a copy of the relevant sections of the executive summary and report conclusions from the biological survey and/or field assessments are provided in [Appendix 1](#).

3.1 Summary of the Biological Survey by Biota (2018a)

Background

To support the Environmental Impact Assessment and approvals process of the Gravel Pit expansion, Biota Environmental Sciences was commissioned by Main Roads WA to undertake a detailed and targeted flora and vegetation survey, a Level 1 fauna survey and a targeted Bilby survey of the expanded Banana Wells Gravel Pit Area. The surveys aimed to delineate key environmental values and their potential sensitivity to impact. Key findings from the biological surveys are summarised below:

Detailed and Targeted Vegetation and Flora Survey

Two vegetation units, P1 and P2, were identified for the study area. These units occurred on the broad pindan sandplain as a complex mosaic. The mosaic covered 279.7 ha (99.6 %) and was in Excellent condition, with no introduced flora species, or other disturbance being recorded. The remainder of the study area comprised cleared or disturbed ground associated with narrow tracks, a short section of the Budgarjook road, and a gravel pit.

Neither of the vegetation types recorded represent Threatened Ecological Communities, Priority Ecological Communities or Groundwater Dependent Ecosystems. Similar vegetation is widespread on pindan sandplain in the locality and is not considered to be of elevated conservation significance. The proposed activities within the survey area would affect a small proportion of the area occupied by pindan vegetation in the locality, and the Project would therefore not be expected to have any significant impacts with regards to these vegetation types.

A total of 95 native flora species were recorded from the survey area, all of which were typical of the locality. This total included two conservation significant flora species:

- *Jacquemontia* sp. Broome (A.A. Mitchell 3028) (Priority 1); and

- *Polymeria* sp. Broome (K.F. Kenneally 9759) (Priority 3).

Both of these species appear to be poorly collected rather than rare. The Project would therefore not be expected to affect the conservation status of these species.

Level 1 Fauna Survey

Database and literature searches yielded a total of 188 vertebrate species with the potential to occur in the study area, comprising 10 amphibian species, 48 reptile species, eight non-volant (ground-dwelling) mammal species, seven volant mammal (bat) species and 115 avifauna (bird) species. A total of 40 fauna species were recorded during the Level 1 reconnaissance survey of the survey area, comprising 35 avifauna species, four mammal species and one reptile species.

Of the 188 vertebrate species potentially occurring in the study area, 11 are listed as conservation significant species. One of these species was observed during the field survey; the Rainbow Bee-eater (*Merops ornatus*) is a listed Marine species under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Another conservation significant species was considered likely to occur in the study area; potential diggings of the listed Schedule 3/Vulnerable Bilby (*Macrotis lagotis*) were recorded during the field survey, and this species is known to occur in the vicinity. A further five species may occur in the survey area, while the remaining four species were considered unlikely to occur.

A single fauna habitat was present within the study area: *Corymbia* low woodland. This habitat is not considered rare or restricted to the survey area, as it occurs widely in the locality and broader region. The conservation significant species recorded or potentially occurring within the survey area may utilise the habitat available for foraging, commuting or nesting on occasion, however the habitat is not considered to be of critical importance to these species. The Project is therefore unlikely to significantly impact upon the conservation status of these species.

Targeted Bilby Survey

Bilby searches were conducted using a combination of linear foot traverses and 2 ha sign plot searches. Sign evidence (e.g., tracks, scats, diggings and burrows) were recorded, and were assigned a criterion of certainty (High, Moderate or Low) based on the strength of the evidence indicating that the sign was attributable to the Bilby. Prospective Bilby habitat was also mapped based on a joint appraisal of mapped vegetation units and fire history mapping.

Seven diggings were recorded during the transect searches, and one digging was located during the sign plot searches, however these were assigned a Low to Moderate certainty and could not reliably be attributed as positive evidence of Bilby presence within the survey area. Results obtained from this survey suggest that the Bilby is currently absent from the survey area. However, the Bilby has been recorded historically in proximity, and 164.7 ha of High prospective habitat was mapped for the survey area; this suggests that the Bilby has the potential to occur within the survey area given optimal conditions for the species.

The Project is unlikely to directly impact on the Bilby in the immediate future, given its absence from the study area at the time of writing. However, if the Bilby does move into the survey area in response to a renewal in resources, the Project is likely to reduce available suitable habitat as a result of clearing for construction activities. The scale of this impact is considered marginal within the context of regional Bilby distribution and their nomadic nature of habitat use at the landscape level.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The Biological Survey by Biota (2018a) recorded two vegetation types from the survey area surrounding the Project Clearing Footprint as presented in Table 3 below:

Table 3. Summary of Vegetation Types within Project Clearing Footprint

Vegetation Type	Vegetation Condition	Total Extent within Survey Area (ha)
P1 – <i>Corymbia greeniana</i> , <i>Planchonia careya</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> , <i>Gardenia pyriformis</i> subsp. <i>keartlandii</i> low woodland over <i>Bauhinia cunninghamii</i> , <i>Ficus aculeata</i> var. <i>indecora</i> , <i>Hakea arborescens</i> , <i>Dodonaea hispidula</i> var. <i>arida</i> tall shrubland over <i>Crotalaria ramosissima</i> , <i>C. brevis</i> , <i>Gyrostemon tepperi</i> low open shrubland over <i>Sorghum plumosum</i> var. <i>plumosum</i> tussock grassland.	Excellent	279.7 ha
P2 – <i>Corymbia greeniana</i> , <i>C. flavescens</i> , <i>Planchonia careya</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> low woodland over <i>Acacia tumida</i> var. <i>kulparn</i> , <i>Bauhinia cunninghamii</i> , <i>Hakea arborescens</i> , <i>Dodonaea hispidula</i> var. <i>arida</i> tall shrubland over <i>Buchnera ramosissima</i> (<i>Microstachys chamelaea</i> , <i>Galactia tenuiflora</i>) low open shrubland over <i>Chrysopogon pallidus</i> , <i>Aristida holathera</i> var. <i>latifolia</i> , (<i>A. hygrometrica</i>) open tussock grassland.	Excellent	

Figure 3 below provide details of the vegetation types and flora records from around the proposal.

Due to the mosaic of synonymous vegetation identified in Biota's Survey Area which wraps around the Project Clearing Footprint, it has been inferred, based on desktop assessment, that the unsurveyed vegetation within the Project Clearing Footprint is the same vegetation as identified in the Survey Area, P1 and P2.

Table 4 below provides details of the pre-European vegetation association occurring in the Project Clearing Footprint and its remaining extent at the local, regional and statewide scale (Government of Western Australia, 2019).

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 750 described as " Shrublands, pindan; <i>Acacia tumida</i> shrubland with grey	Statewide	1,231,155.50	1,225,687.52	99.56	2.77
	IBRA Bioregion Dampierland	1,229,182.16	1,225,280.52	99.68	2.78
	IBRA Sub-region Pindanland	1,221,734.45	1,217,843.72	99.68	2.79

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
box & cabbage gum medium woodland over ribbon grass & curly spinifex".	Local Government Authority Shire of Broome	1,115,559.36	1,110,131.18	99.51	3.06

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Figure 3. Bio survey Vegetation Mapping and Flora Records Points

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) '*A Guide to the Assessment of Applications to Clear Native Vegetation*' (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is not likely to be at variance with the ten Clearing Principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this Principle.

Vegetation

No Threatened or Priority Ecological Communities (TECs/PECs) listed under the EPBC Act or BC Act or listed by DBCA were recorded within or in the immediate vicinity of the Project Clearing Footprint. The desktop assessment identified the following TECs/PECs from within the project 40 km radius desktop search:

- Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula (VU BC Act, EN EPBC Act)
- Assemblages of Bunda Bunda organic mound springs (VU BC Act)
- Assemblages of Lolly Well Springs wetland complex (P3 BC Act)
- Kimberley Vegetation Association 37 (P3 BC Act)
- Kimberley Vegetation Association 67 (P3 BC Act)

The nearest Ecological Community is 'Kimberley Vegetation Association 67 PEC (P3)' more than 7 km north of the Project Clearing Footprint. The biological survey by Biota (2018a) surrounding the Project Clearing Footprint did not record any vegetation types representing any significant vegetation communities. The TECs/PECs and associated ESAs are therefore considered not present within or in the immediate vicinity of the Project Clearing Footprint.

Two Vegetation Types, P1 and P2, were recorded from around the Project Clearing Footprint as described above in Table 3. These units occurred on the broad pindan sandplain as a complex mosaic and were in Excellent condition, with no introduced flora species, or other disturbance being recorded other than narrow access tracks to the existing Banana Wells gravel pit.

Similarly, as shown in Table 4, the broad scale pre-European vegetation association desktop-mapped as occurring within the Project Clearing Footprint is widespread and well represented locally and regionally, with more than 99% of its pre-European extent remaining at all levels (State, IBRA Bioregion, IBRA Subregion and LGA).

Flora

The desktop assessment identified no records of Threatened flora species within the Study Area. In addition, the detailed and targeted flora search by Biota (2018a) did not record any Threatened flora species from the survey area.

Two Priority flora species were recorded during the field survey by Biota (2018a) as described below:

Jacquemontia sp. Broome (A.A. Mitchell 3028) (P1) – This species is reported to grow in Pindan soils and restricted to the Dampierland IBRA region. A total of 133 plants of this species were recorded from 13 locations in the survey area. Biota (2018a) noted two additional plants from outside the survey area. Biota undertook a biological survey in Broome Cape Leveque Rd between SLK 0 – 25 in 2018, more than 70 km south of the project location. A total of 743 individuals were recorded along the roadside from 47 locations (Biota, 2018b). A recent targeted flora survey was undertaken by 360 Environmental in 2023 along Broome

Cape Leveque Road between SLK 103.6 – 207, approximately 10 km east of the project location. The survey recorded 773 individuals of this species from 210 locations along the roadside. Similar pindan habitat is widespread and abundant on the Dampier Peninsula, and given the number of recent records, it is likely that this taxon is poorly collected rather than genuinely rare. Even if this species is present in the Project Clearing Footprint, the impact to the species as a result of the proposed clearing is unlikely to be significant.

***Polymeria* sp. Broome (K.F. Kenneally 9759) (P3)** – Biota (2018a) recorded a total of 100 individuals of this species from 32 locations spread throughout the survey area. The biological survey by Biota (2018b) in Broome Cape Leveque Rd between SLK 0 – 25, more than 70 km south of the project location, recorded 368 individuals from 74 locations spread throughout an 823 ha survey area. Similarly, a recent targeted flora survey undertaken by 360 Environmental (2023) along Broome Cape Leveque Rd between SLK 103.6 – 207, approximately 10 km east of the project location, recorded another 3,300 individuals spread across the 103 km roadside area. In addition to these surveys, this taxon has been recorded from several other recent surveys as far south as Mandora station (Biota, 2018a). The broad range of documented locations and the abundance of suitable pindan habitat suggests that *Polymeria* sp. Broome (K.F. Kenneally 9759) is poorly collected rather than genuinely rare. Even if this species is present in the Project Clearing Footprint, the impact to the species as a result of the proposed clearing is unlikely to be significant.

A likelihood of occurrence assessment was undertaken by Biota (2018a) for the conservation significant flora species identified from the desktop assessment. None of the species were considered likely to occur in the survey area, either because they are strongly linked to specific habitats that are absent from the survey area, or because they would be expected to have been recorded during the field survey, if present.

Fauna

A single fauna habitat type – ‘Corymbia Low Woodland’ was recorded from the survey area in an excellent condition. This habitat was not considered rare or restricted to the survey area, as it occurs widely in the locality and broader region. Fauna species may utilise the habitat available for foraging, commuting, or nesting on occasion, however the habitat was not considered to be of critical importance to any fauna species.

A Level 1 reconnaissance survey by Biota (2018a) recorded only one species of conservation significance from the survey area; Rainbow Bee-eater / *Merops ornatus* (Marine, EPBC Act). Five individuals of this species were sighted at two locations in the survey area. The Rainbow Bee-eater is common and widespread throughout Western Australia, occurring mainly in open forests and woodlands, shrublands often near permanent water (DCCEEW, 2024b). Given their large distribution and habitat requirements, the proposed small-scale clearing is unlikely to impact upon its conservation status.

A targeted search was conducted for Bilby, *Macrotis lagotis* (VU, EPBC & BC Act). The search detected no records of bilbies, their burrows, their tracks or scats. However, seven diggings were detected from the survey area that had a low to moderate confidence of being attributable to the bilby. The survey area was assessed as ‘High’ prospective Bilby habitat, based on the presence of suitable food source and historical records in the nearby areas. Given their known regional distribution and nomadic nature of habitat use at the landscape scale, the proposed clearing of 4.64 ha is unlikely to impact their habitat availability in a local or regional context. However, as a precautionary measure, a pre-clearance survey will be conducted before the commencement of clearing. If a burrow is found, a 30 m exclusion zone will be implemented within which no new clearing will be undertaken.

A likelihood of occurrence assessment was undertaken by Biota (2018a) for the conservation significant fauna species identified from the desktop assessment. The assessment identified five species as ‘may’ occur in the survey area which are described in detail in Principle (b). The habitat for these species in the Project Clearing Footprint is not ideal though they may use the area for foraging or while occasionally moving through the landscape.

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The desktop assessment shows the records of large number of marine species, shorebirds and non-breeding migratory birds within the project 40 km radius Study Area. This is due to near-coastal location of the project. Habitat suitable for the marine species does not occur in the Project Clearing Footprint. Migratory and shorebirds may only use the area in a fly-over nature while passing through the landscape. Impacts to these species as a result of the proposed minor clearing is unlikely to be significant.

Ecological Linkages

There are no known conservation areas within the immediate vicinity of the Project Clearing Footprint. The small scale of proposed clearing in a region where remnant native vegetation is widespread is unlikely to fragment the landscape.

Based on above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- 360 Environmental Pty Ltd. (2023).
- ALA (2024).
- Biota (2018a).
- Birdlife Australia (2024).
- Birds in Backyard (2024).
- Biota (2018a).
- Biota (2018b).
- DCCEEW (2024a).
- DCCEEW (2024b).
- Government of Western Australia (2019).
- Western Australia Herbarium (1998) (Accessed 13/05/2024).
- Government GIS Shapefiles (Accessed 13/05/2024):
 - DBCA Threatened and Priority Ecological Community database search
 - DBCA Threatened and Priority flora database search
 - DBCA Threatened and Priority fauna database search
 - Pre-European vegetation
 - Watercourses
 - DBCA Legislated Lands and Waters
 - Ramsar Wetlands
 - Important Wetlands

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing is not likely to be at variance to this Principle.

Fauna Habitat

A single fauna habitat type was recorded from the survey area in an excellent condition surrounding the cleared or disturbed areas associated with the existing tracks and gravel pit:

- **Corymbia Low Woodland** – *Corymbia spp.* low woodland over mixed shrubland dominated by *Bauhinia cunninghamii*, *Hakea arborescens* and *Dodonaea hispidula* over a mosaic tussock grassland dominated by *Sorghum plumosum* and/or *Chrysopogon pallidus*.

This habitat was not considered rare or restricted to the survey area, as it occurs widely in the locality and broader region. Fauna species may utilise the habitat available for foraging, commuting, or nesting on occasion, however the habitat was not considered to be of critical importance to any fauna species.

Conservation Significant Fauna

A Level 1 reconnaissance survey by Biota (2018a) recorded one species of conservation significance from the survey area:

- **Rainbow Bee-eater *Merops ornatus*** (Marine, EPBC Act)

Five individuals of the species were sighted at two locations in the survey area. This species is common and widespread throughout Western Australia. It occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats and in open, cleared or lightly timbered areas that are often located near permanent water (DCCEEW, 2024b). Given their large known distribution and habitat requirements, the proposed clearing area is unlikely to represent significant habitat for this species.

Bilby, *Macrotis lagotis* (VU, EPBC & BC Act)

A targeted search was conducted in accordance with DBCA guidelines to detect the presence of bilbies. The search detected no records of bilbies, their burrows, their tracks or scats. However, seven diggings were detected from the survey area, assigned as a 'Low to Moderate' certainty and could not reliably be attributed as positive evidence of Bilby presence within the study area. Most of the survey area was assessed as 'High' prospective Bilby habitat, based on the presence of suitable food source plants within the recorded vegetation. Historical records in the nearby areas and presence of prospective Bilby habitat in the survey area suggest that the Bilby has the potential to occur within the Project Clearing Footprint when seasonal conditions are favourable. Given their known regional distribution and nomadic nature of habitat use at the landscape scale, the proposed clearing is unlikely to significantly impact their habitat availability in a local or regional context. However, as a precautionary measure, a pre-clearance survey will be conducted before the commencement of the clearing. If a burrow is found, a 30 m exclusion zone will be implemented within which no new clearing will be undertaken.

A likelihood of occurrence assessment was undertaken by Biota (2018a) for the conservation significant fauna species identified from the desktop assessment. The likelihood of occurrence was considered by assessing the species habitat preference in relation to the habitat present in the survey area, together with the current known distribution and last known records of the species. The assessment identified five species as 'may' occur in the survey area as described below:

- | | |
|---------------------------------|-----------------------------|
| • <i>Erythrura gouldiae</i> | Gouldian Finch (EN, P4) |
| • <i>Vespadelus douglasorum</i> | Yellow-lipped Cave-bat (P2) |
| • <i>Falco peregrinus</i> | Peregrine Falcon (OS) |
| • <i>Apus pacificus</i> | Fork-tailed Swift (MI) |
| • <i>Cecropis daurica</i> | Red-rumped Swallow (MI) |

Gouldian Finch (EN, P4) – There are five known records of the species within 40 km radius, the closest being 15 km from the Project Clearing Footprint in the proximity of the coast. Gouldian finches feed almost exclusively on grass seed, nest in tree hollows and breed in small patches of open woodland, usually on ridges dominated by cavity bearing trees such as white northern gum (*Eucalyptus brevifolia*) with an understory of grasses such as sorghum (*Sarga spp.*), *Schizachyrium spp.* and spinifex (*Troodia spp.*), usually within 2-4 km of perennial waterholes or springs (DCCEEW (2024b)). The habitat in the Project Clearing Footprint is not ideal for the species though they may use it while occasionally moving through the landscape. As such, the small Project Clearing Footprint is unlikely to constitute significant habitat for this species.

Yellow-lipped Cave-bat (P2) – There are four records of this species within the project's 40 km radius Study Area. The species is restricted to the Kimberley region but is widespread within the region. Very little is known about this species and its habitat requirements other than it forages over riparian habitat and roosts in limestone caves in small colonies (Ecoscape, 2023 & ALA, 2024). This bat species may use the project area

for foraging only, as the caves it requires for roosting and breeding are not known to occur within the clearing footprint or in the immediate surrounding areas. As such, the species is unlikely to be reliant upon the small Project Clearing Footprint given that it doesn't contain core habitat suitable for the species.

Fork-tailed Swift (MI), Peregrine Falcon (OS) and Red-rumped Swallow (MI) are widely distributed across Australia and occur in a wide range of habitats (ALA, 2024, Birdlife Australia, 2024 & DCCEEW, 2024b). They are not restricted to, or dependent upon, the habitat within the Project Clearing Footprint.

Desktop assessment records include a large number of marine species such as whale, dolphin, turtle, sawfish and migratory birds such as Tern, Godwit, Stint, Osprey, Common Greenshank within the project 40 km radius Study Area. This is due to near-coastal location of the project. Habitat suitable for the marine species does not occur in the Project Clearing Footprint. Most of the migratory birds identified in the desktop assessment are non-breeding migrants to Australia with a wide range of known habitats. The preferred habitat for these species occurs outside the Project Clearing Footprint along the coastal and inland wetlands. The other conservation significant species that were identified in the desktop assessment but were not assessed in the likelihood of occurrence assessment in Biota (2018a) are assessed below:

- | | |
|------------------------------------|--------------------------|
| • <i>Calidris tenuirostris</i> | Great knot (CR) |
| • <i>Calidris ferruginea</i> | Curlew Sandpiper (CR) |
| • <i>Numenius madagascariensis</i> | Eastern curlew (CR) |
| • <i>Calidris canutus</i> | Red knot (EN) |
| • <i>Charadrius mongolus</i> | Lesser Sand Plover (EN) |
| • <i>Charadrius leschenaultii</i> | Greater sand plover (VU) |
| • <i>Elanus scriptus</i> | Letter-winged kite (P4) |
| • <i>Tringa brevipes</i> | Grey-tailed tattler (P4) |

The species listed above are shorebirds and non-breeding migrants to Australia and typically prefers coastal areas inhabiting in littoral and estuarine habitats such as intertidal mudflats or sandflats including inlets, bays, harbours, estuaries and lagoons (DCCEEW, 2024b). Given the absence of suitable habitat, they are unlikely to permanently utilise the Project Clearing Footprint, instead using the area only in a fly-over nature.

Letter-winged kite (P4) – The usual habitat of the letter-winged kite is arid and semi-arid open, shrubby or grassy country in arid and semi-arid Australia, where there are tree-lined streams or water courses. When food is plentiful, the species irrupts and birds may disperse to higher rainfall coastal regions. This kite roosts by day in the high canopy of leafy trees and hunts at night (Birds in Backyard, (2024). The species may occur in the vicinity of the Banana Wells area, but the core habitat occurs outside the Project Clearing Footprint.

Based on above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- ALA (2024).
- Birdlife Australia (2024).
- Birds in Backyard(2024).
- Biota (2018a).
- DCCEEW (2024a).
- DCCEEW (2024b).
- Ecoscape (2023).
- Government GIS Shapefiles (Accessed 13/05/2024):
 - DBCA Threatened and Priority fauna database search

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.**Proposal is not likely to be at variance to this Principle.**

The desktop assessment identified no records of Threatened flora species within the project 40 km radius Study Area. A detailed and targeted flora search by Biota (2018a) did not record any Threatened flora species from the larger survey area that immediately surrounds the Project Clearing Footprint.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Biota (2018a).
- DCCEEW (2024a).
- Government GIS shapefiles (Accessed 13/05/2024):
 - DBCA Threatened flora database search

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**Proposed clearing is not at variance to this Principle.**

The desktop assessment indicates that the nearest TEC is a stand of Commonwealth and State-listed 'Monsoon (vine) Thickets on Coastal Sand Dunes of Dampier Peninsula (EN)', located approximately 7.5 km north of the Project Clearing Footprint. However, the biological survey by Biota (2018a) did not record any vegetation communities in the immediate areas surrounding the Project Clearing Footprint that corresponds to any state (DBCA) or Commonwealth (EPBC Act) listed Threatened Ecological Communities (TECs).

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biota (2018a).
- Government GIS shapefiles (Accessed 13/05/2024):
 - DBCA Threatened Ecological Community database search

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

Proposed clearing is not at variance to this Principle.

As evident from Table 4 above, Vegetation Association 750 has more than 99% of its pre-European extent remaining intact at all levels (Statewide, IBRA Bioregion and LGA). As such, the project is not located in an area that has been extensively cleared. Given Vegetation Association 750 is widespread throughout the area and is well-represented locally and regionally, impacts from the proposed clearing are not likely to be significant.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Government of Western Australia (2019).
- Government GIS shapefiles (Accessed 9/05/2024):
 - Pre-European vegetation

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

Proposed clearing is not at variance to this Principle.

A desktop search of ArcGIS shapefiles indicates no watercourses or wetlands are located within or in a proximity to the Project Clearing Footprint.

The nearest watercourse is located over 70 m north-west of the Project Clearing Footprint and is a minor, non-perennial watercourse. This minor drainage feature is not mapped to connect with any major watercourse or systems and flows towards the north-east as it follows the natural elevation of the terrain. Biota(2018a) noted that none of the vegetations recorded in the immediate areas surrounding the Project Clearing Footprint was dependent on groundwater.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biota (2018a).
- Government GIS shapefiles (Accessed 13/05/2024):
 - Watercourses
 - Hydrology north

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

Proposed clearing is not likely to be at variance to this Principle.

The project is located in the Cape Leveque Coast Basin catchment. The land system mapped over the project is:

- Yeeda System – described as “Red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass”.

The land system is generally not prone to degradation or erosion unless the disturbances such as grazing pressure and frequency of burning are not controlled (Schoknecht, N, and Payne, A L., 2011).

The project is located in an area naturally prone to severe rainfall events, which could contribute to land degradation via flooding and heavy runoff. However, the proposal is in a region where pre-European native vegetation extent levels remain largely uncleared. Furthermore, the natural hydrology in the area will not be impacted as a result of clearing which will be undertaken during the dry season. The small extent of proposed clearing is not expected to cause appreciable land degradation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Schoknecht, N, and Payne, A L. (2011).
- Government GIS Shapefiles (Accessed 13/05/2024):
 - CSIRO Acid Sulphate Soil Risk Map
 - Soil Landscape Mapping Systems DPIRD

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

Proposed clearing is not at variance to this Principle.

There are no known conservation areas within the immediate vicinity of the proposed clearing area. The closest conservation areas are the ‘Bunda-Bunda Mound Springs’, listed under the ‘Directory of Important Wetlands in Australia’, located approximately 27 km southwest and the (Coulomb Point Nature Reserve) located approximately 30 km southwest.

Given the distance between the conservation areas and the proposed clearing, no impacts are anticipated. Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Government GIS Shapefiles (Accessed 09/05/2024):
 - DBCA Legislated Lands and Waters
 - Ramsar Wetlands
 - Important Wetlands

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle.

The Project Clearing Footprint is located in the Canning-Kimberley Groundwater Area, proclaimed under the *Rights in Water and Irrigation Act 1914*. However, the proposed clearing of 4.64 ha is unlikely to result in deterioration to the quality of groundwater given the extent of native vegetation remaining beyond the Project Clearing Footprint, and no groundwater dependent vegetation being recorded by Biota (2018a).

No proclaimed surface water areas or public drinking water source areas are located within the proposed clearing area or 40 km radius desktop Study Area. No major watercourses, drainage lines, permanent or semi-permanent water bodies occur within the Project Clearing Footprint. As such, the proposed clearing is not likely to cause deterioration in the quality of surface water.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Biota (2018a).
- Government GIS Shapefiles (Accessed 10/05/2024):
 - RIWI Act, Surface Water Areas and Irrigation Districts
 - RIWI Act, Groundwater Areas
 - Acid Sulphate Soil risk mapping
 - Watercourses

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

Proposed clearing is not at variance to this Principle.

The subregional climate is described as dry winter and hot semi-arid summer with an average annual rainfall of 695.9 mm (Beagle Bay Station, Site ID- 3000) (BoM, 2024). Extreme weather events are a significant component of the Kimberley climate. Tropical cyclones and tropical storms can bring heavy and sustained rainfall, particularly in the months leading up to and during the wet season. It is common for a large proportion of the region's rainfall to be recorded in one single event, leading to extensive flooding of rivers, creeks and roadways.

The proposed clearing will take place in the dry season with Main Roads standard measures for environmental management in place during on ground works to avoid the potential escalation of flooding, waterlogging or erosion. No changes to the existing levels of natural flooding are anticipated given the minor extent of clearing proposed. As noted above, climatic conditions are the main factor influencing flooding and the small amount of proposed clearing will have no measurable influence on flood regimes in the area.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- BoM Website (Accessed 10/05/2024).

6 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum.

7 REHABILITATION, REVEGETATION & OFFSETS

7.1 Revegetation and Rehabilitation

No temporary clearing will be undertaken as part of the Proposal activities.

7.2 Offset Proposal

No offset proposal is required as the proposed clearing will not result in significant residual impacts to native vegetation within the region.

8 STAKEHOLDER CONSULTATION

Main Roads will undertake stakeholder consultation in accordance with CPS 818 Condition 8.

9 COMPLIANCE WITH CPS 818

Table summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>or</u> (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>and</u> (j) the incidence of flooding.	No	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: - has rainfall greater than 400mm; and, - is South of the 26th parallel; and, - works are necessary in 'Other than dry conditions'; and, - works have potential for uninfested areas to be impacted.	No	Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), <u>Hygiene Checklists</u> will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	No	No further action required.
8. Did an environmental specialist conduct the survey or field assessment?	Yes	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

10 REFERENCES

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11 APPENDICES

Appendix 1: CPS 818 condition 8 (e) (iii) Biological Survey and Field Assessment Executive Summary

Summary of the Biological Survey by Biota (2018a)

Background

To support the Environmental Impact Assessment and approvals process of the Gravel Pit expansion, Biota Environmental Sciences was commissioned by Main Roads WA to undertake a detailed and targeted flora and vegetation survey, a Level 1 fauna survey and a targeted Bilby survey of the expanded Gravel Pit area (the study area). The surveys aimed to delineate key environmental values and their potential sensitivity to impact. Key findings from the biological surveys are summarised below:

Detailed and Targeted Vegetation and Flora Survey

Two vegetation units, P1 and P2, were identified for the study area. These units occurred on the broad pindan sandplain as a complex mosaic. The mosaic covered 279.7 ha (99.6 %) and was in Excellent condition, with no introduced flora species, or other disturbance being recorded. The remainder of the study area comprised cleared or disturbed ground associated with narrow tracks, a short section of the Budgarjook road, and a gravel pit.

Neither of the vegetation types recorded represent Threatened Ecological Communities, Priority Ecological Communities or Groundwater Dependent Ecosystems. Similar vegetation is widespread on pindan sandplain in the locality and is not considered to be of elevated conservation significance. The proposed activities within the study area would affect a small proportion of the area occupied by pindan vegetation in the locality, and the Project would therefore not be expected to have any significant impacts with regards to these vegetation types.

A total of 95 native flora species were recorded from the study area, all of which were typical of the locality. This total included two conservation significant flora species:

- *Jacquemontia* sp. Broome (A.A. Mitchell 3028) (Priority 1); and
- *Polymeria* sp. Broome (K.F. Kenneally 9759) (Priority 3).

Both of these species appear to be poorly collected rather than rare. The Project would therefore not be expected to affect the conservation status of these species.

Level 1 Fauna Survey

Database and literature searches yielded a total of 188 vertebrate species with the potential to occur in the study area, comprising 10 amphibian species, 48 reptile species, eight non-volant (ground-dwelling) mammal species, seven volant mammal (bat) species and 115 avifauna (bird) species. A total of 40 fauna species were recorded during the Level 1 reconnaissance survey of the study area, comprising 35 avifauna species, four mammal species and one reptile species.

Of the 188 vertebrate species potentially occurring in the study area, 11 are listed as conservation significant species. One of these species was observed during the field survey; the Rainbow Bee-eater (*Merops ornatus*) is a listed Marine species under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Another conservation significant species was considered likely to occur in the study area; potential diggings of the listed Schedule 3/Vulnerable

Bilby (*Macrotis lagotis*) were recorded during the field survey, and this species is known to occur in the vicinity. A further five species may occur in the study area, while the remaining four species were considered unlikely to occur.

A single fauna habitat was present within the study area: *Corymbia* low woodland. This habitat is not considered rare or restricted to the study area, as it occurs widely in the locality and broader region. The conservation significant species recorded or potentially occurring within the study area may utilise the habitat available for foraging, commuting or nesting on occasion, however the habitat is not considered to be of critical importance to these species. The Project is therefore unlikely to significantly impact upon the conservation status of these species.

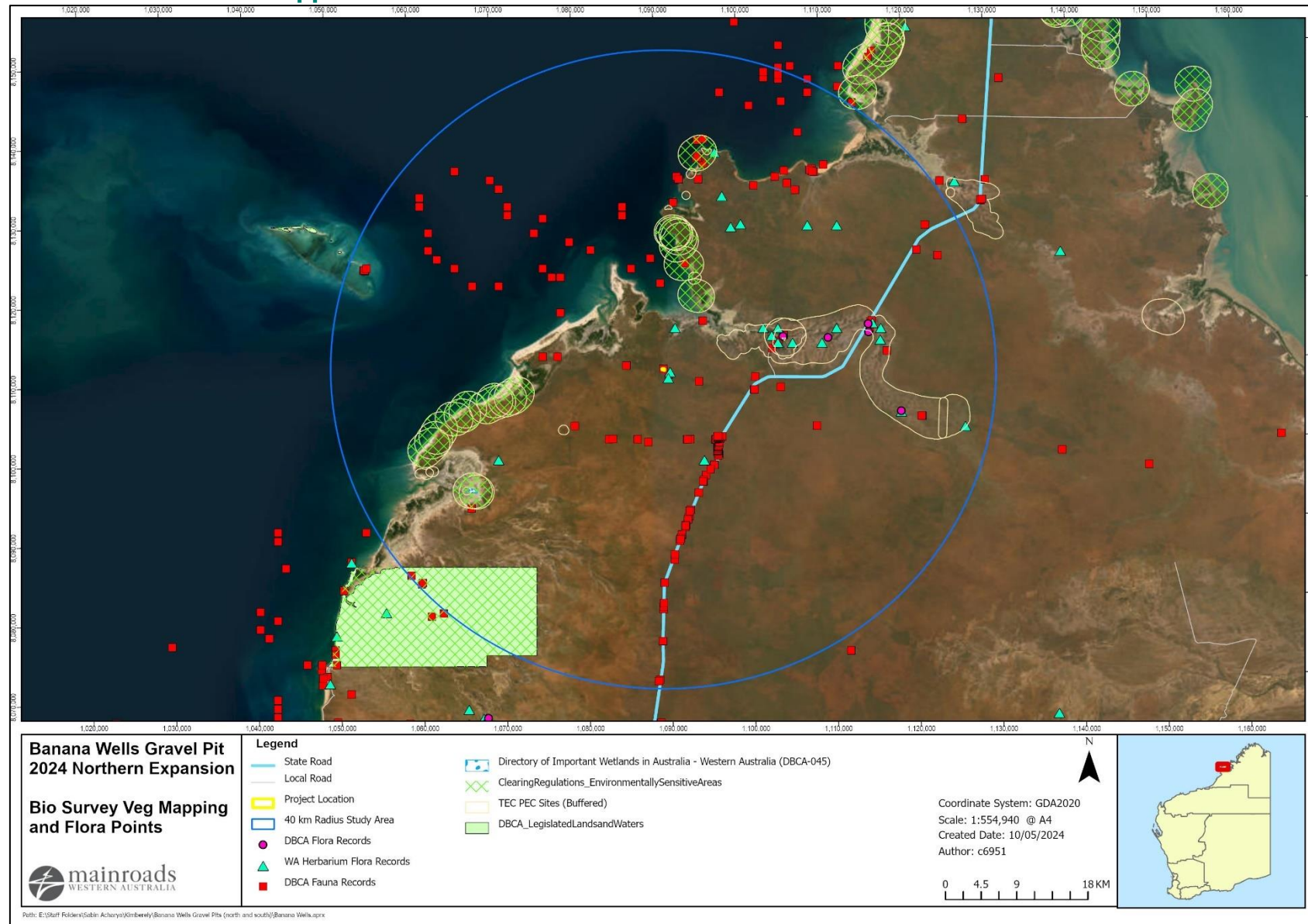
Targeted Bilby Survey

Bilby searches were conducted using a combination of linear foot traverses and 2 ha sign plot searches. Sign evidence (e.g., tracks, scats, diggings and burrows) were recorded, and were assigned a criterion of certainty (High, Moderate or Low) based on the strength of the evidence indicating that the sign was attributable to the Bilby. Prospective Bilby habitat was also mapped based on a joint appraisal of mapped vegetation units and fire history mapping.

Seven diggings were recorded during the transect searches, and one digging was located during the sign plot searches, however these were assigned a Low to Moderate certainty and could not reliably be attributed as positive evidence of Bilby presence within the study area. Results obtained from this survey suggest that the Bilby is currently absent from the study area. However, the Bilby has been recorded historically in proximity, and 164.7 ha of High prospective habitat was mapped for the study area; this suggests that the Bilby has the potential to occur within the study area given optimal conditions for the species.

The Project is unlikely to directly impact on the Bilby in the immediate future, given its absence from the study area at the time of writing. However, if the Bilby does move into the study area in response to a renewal in resources, the Project is likely to reduce available suitable habitat as a result of clearing for construction activities. The scale of this impact is considered marginal within the context of regional Bilby distribution and their nomadic nature of habitat use at the landscape level.

Appendix 2: DBCA Threatened Flora and Fauna Database Searches



Appendix 3: EPBC Act Protected Matters Search Report



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: 09-May-2024

[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)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	46
Listed Migratory Species:	64

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.dceew.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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	101
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	2

Extra Information

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

State and Territory Reserves:	4
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	22
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places		[Resource Information]
Name	State	Legal Status
Natural		
The West Kimberley	WA	Listed place

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

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

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
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within 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
BIRD		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Species or species habitat known to occur within area
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<u>Erythrotriorchis radiatus</u> Red Goshawk [942]	Endangered	Species or species habitat may occur within area
<u>Erythrura gouldiae</u> Gouldian Finch [413]	Endangered	Species or species habitat likely to occur within area
<u>Falco hypoleucos</u> Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
<u>Limnodromus semipalmatus</u> Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
<u>Limosa lapponica menzbieri</u> Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<u>Papasula abbotti</u> Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
<u>Pezoporus occidentalis</u> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<u>Phaethon rubricauda westralis</u> Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
<u>Pluvialis squatarola</u> Grey Plover [865]	Vulnerable	Species or species habitat known to occur within area
<u>Rostratula australis</u> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
<u>Tyto novaehollandiae kimberli</u> Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area
FISH		
<u>Thunnus maccoyii</u> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area
MAMMAL		
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheath-tail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat may occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
REPTILE		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<u>Tiliqua scincoides intermedia</u> Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat known to occur within area
<u>Varanus mertensi</u> Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat may occur within area
<u>Varanus mitchelli</u> Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat may occur within area
SHARK		
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<u>Pristis clavata</u> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<u>Pristis pristis</u> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
<u>Pristis zijsron</u> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<u>Rhincodon typus</u> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<u>Sphyrna lewini</u> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area
Listed Migratory Species		
[Resource Information]		
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		

Scientific Name	Threatened Category	Presence Text
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
<u>Mobula alfredi as Manta alfredi</u> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area
<u>Mobula birostris as Manta birostris</u> Giant Manta Ray [90034]		Species or species habitat may occur within area
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<u>Orcaella heinsohni</u> Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
<u>Orcinus orca</u> Killer Whale, Orca [46]		Species or species habitat may occur within area
<u>Pristis clavata</u> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<u>Pristis pristis</u> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
<u>Pristis zijsron</u> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<u>Rhincodon typus</u> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<u>Sousa sahalensis as Sousa chinensis</u> Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
<u>Tursiops aduncus (Arafura/Timor Sea populations)</u> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		

Scientific Name	Threatened Category	Presence Text
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat likely to occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area
Other Matters Protected by the EPBC Act		
Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat likely to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Fish		
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour likely to occur within area
Reptile		

Scientific Name	Threatened Category	Presence Text
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Scientific Name	Threatened Category	Presence Text
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area

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

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Kimberley	Multiple Use Zone (IUCN VI)

Habitat Critical to the Survival of Marine Turtles		[Resource Information]
Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Bardi Jawi	Indigenous Protected Area	WA
Coulomb Point	Nature Reserve	WA
Lacepede Islands	Nature Reserve	WA
Unnamed WA37168	5(1)(h) Reserve	WA
Nationally Important Wetlands		[Resource Information]
Wetland Name		State

Wetland Name	State
Bunda-Bunda Mound Springs	WA

EPBC Act Referrals		[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status
Ocean Barramundi Expansion Project	2022/09272		Assessment

Controlled action			
Cape Leveque Road upgrade, Stage 3, Shire of Broome, WA	2013/6984	Controlled Action	Post-Approval
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed

Biologically Important Areas		[Resource Information]	
Scientific Name	Behaviour	Presence	
Dolphins			
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]	Foraging likely	Known to occur	
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]	Foraging	Likely to occur	
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging likely	Known to occur	
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Migration likely	Known to occur	

Dugong		
Dugong dugon		
Dugong [28]	Foraging	Likely to occur

Marine Turtles		
Chelonia mydas		
Green Turtle [1765]	Internesting	Known to occur
Chelonia mydas		
Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur
Natator depressus		
Flatback Turtle [59257]	Internesting	Known to occur

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Calving	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Nursing	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	Known to occur

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 are 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

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

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

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
- 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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