Report for Canning Bridge Precinct

Precinct Analysis

October 2009

Prepared by:

GHD CLIENTS|PEOPLE|PERFORMANCE

Prepared for:

City of Melville

City of South Perth

Western Australian Planning Commission

Government of Western Australia
Department of Planning

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1. Introduction

This document provides the Background Reporting to the Canning Bridge Precinct Vision Report and should be read in conjunction with that document.

2. Precinct Analysis

The following section provides an analysis of the existing environmental and physical factors relating to the study area.

2.1 Existing Character

The Study Area consists of two distinct areas; one being the area within the CoSP and the other within COM. The division is reinforced physically by the Swan and Canning Rivers, and is further reinforced by the Kwinana Freeway which forms a major physical impediment.

The existing character of the Study Area is described in four parts;

- Como and Manning;
- Applecross and Mt Pleasant;
- Kwinana Freeway/Canning Highway interchange; and
- The River.

2.1.1 Como and Manning

The Como and Manning areas are characterised by residential streets with low to medium density housing. Over the recent decades a number of landowners have taken the opportunity to subdivide the old ¼ acre and large residential lots for grouped housing developments of three to five units each. This has led to an increase in crossovers along suburban streets. The servicing (bins etc) and traffic increases over this time has been incremental and dealt with at a local scale.

As an older suburb a number of back yards have trees and this, combined with a number of street trees, contributes to a generally leafy feeling area. This is supported by green spaces at Olives Reserve and McDougal Park, which are well utilised and considered desirable assets to the community (anecdotal – from Community Forums).

Key concerns in the Como and Manning areas since the opening of the Southern Suburbs rail line is substantial informal on street parking, a perceived increase in antisocial behaviour associated with the rail station and safety issues associated with pedestrian access to the station.

2.1.2 Applecross and Mt Pleasant

The Applecross and Mt Pleasant areas are characterised by ageing commercial buildings along the Canning Highway and near to the Canning Bridge, some higher density residential development mostly along the Canning Highway spine, a significant number of large 2-3 storey single residences closer to the river front and some large residential lots which have been maintained with smaller single houses. Many streets are lined with trees contributing to an overall aesthetic appeal which is a significant and defining feature of the area for many members of the community (anecdotal – from Community Forums).

The Canning Highway forms a major divide in the Precinct, with pedestrian accessibility and safety severely compromised. The increased traffic volumes on Canning Highway have, over time, resulted in reduced vehicle access to the Highway from the Precinct, for example; Moreau Mews (no access at all), Kishorn Road (left in, left out only) and Ogilvie Road (left in only). This has led to some informal access

routes, namely the 'rat run' through the IGA patron parking area through to Kintail Road. The peak time traffic volumes see traffic moving at a very slow pace through both the Canning Highway and several of the lesser access roads (particularly Kintail Road).

Limited green spaces exist in the Precinct excepting the foreshore reserve, and limited facilities such as toilets and barbecues etc are provided. Apex Reserve to the south of the Canning Highway has been the home to a number of rowing clubs over the years, and until recently was the location of many of Perth's major rowing regattas (these have now been relocated to Champion Lakes). On the day of a rowing regatta, Apex Reserve is generally characterised by disorganized parking and a mill of activity. Some rowing training still occurs in this location.

Parking in the Precinct is becoming an increasing area of concerns for the local community, with informal street parking increasing since the opening of the rail station. There is a general perception that there is not enough parking available to serve the needs of the community. Local commercial uses also contribute to the parking issues in the Precinct.

2.1.3 Kwinana Freeway/Canning Highway Interchange

The Kwinana Freeway/Canning Highway Interchange is a significant impediment to access from one half of the study area to the other. The interchange is complicated and the infrastructure is neither aesthetically pleasing nor safe to navigate. Pedestrian accessibility to the rail stations is a key issue and is currently an impediment to use of the station.

The community in both the CoM and CoSP consider the interchange to function inadequately for vehicles, deficiently for pedestrians and cyclists and consider it to be unsafe and unattractive (anecdotal – from Community Forums).

The Manning Highway on and off ramps and a small on-highway bus interchange contribute to the general concerns about the adequacy of the infrastructure. Canning Highway is currently one of the busiest bus routes in the metropolitan region. Additional proposed bus routes to service the growing community and specific uses such as the Bentley precinct expansion will be constrained by the lack of space within the interchange in the short term.

2.1.4 The River

The Swan and Canning Rivers are a major contributor to the desirability of the study area, despite being a physical impediment between the CoSP and the CoM. Whilst the River is an impediment to activities which might otherwise integrate the two local governments', it is seen more as an asset than an issue.

The river provides a very high level of amenity and is used as a significant recreation feature in the area, with rowing, skiing, sailing and boating being popular and regular activities. Notwithstanding, the riverbank reserves are not generally well maintained or considered to be well serviced with community facilities on either side (anecdotal – from Community Forums). In particular, the Foreshore Reserve located between the Freeway and the River is considered unsafe, unattractive and underutilised.

The Swan River Trust has indicated a desire to improve the waterside foreshore area to discourage sediment movement.

A major feature on the River is the Canning Bridge itself, which consists of two old wooden bridges, constructed in two parts in the 1930's and 1950's, the northern bridge being the oldest. The bridges are listed on the Municipal Heritage Inventory of the CoM. MRWA advises that wooden bridges generally

have an infrastructure life cycle of approximately 100 years, meaning that the northern bridge has approximately 25 years of remaining life for general traffic use. The bridges require an intense program of maintenance to continue to be operational.

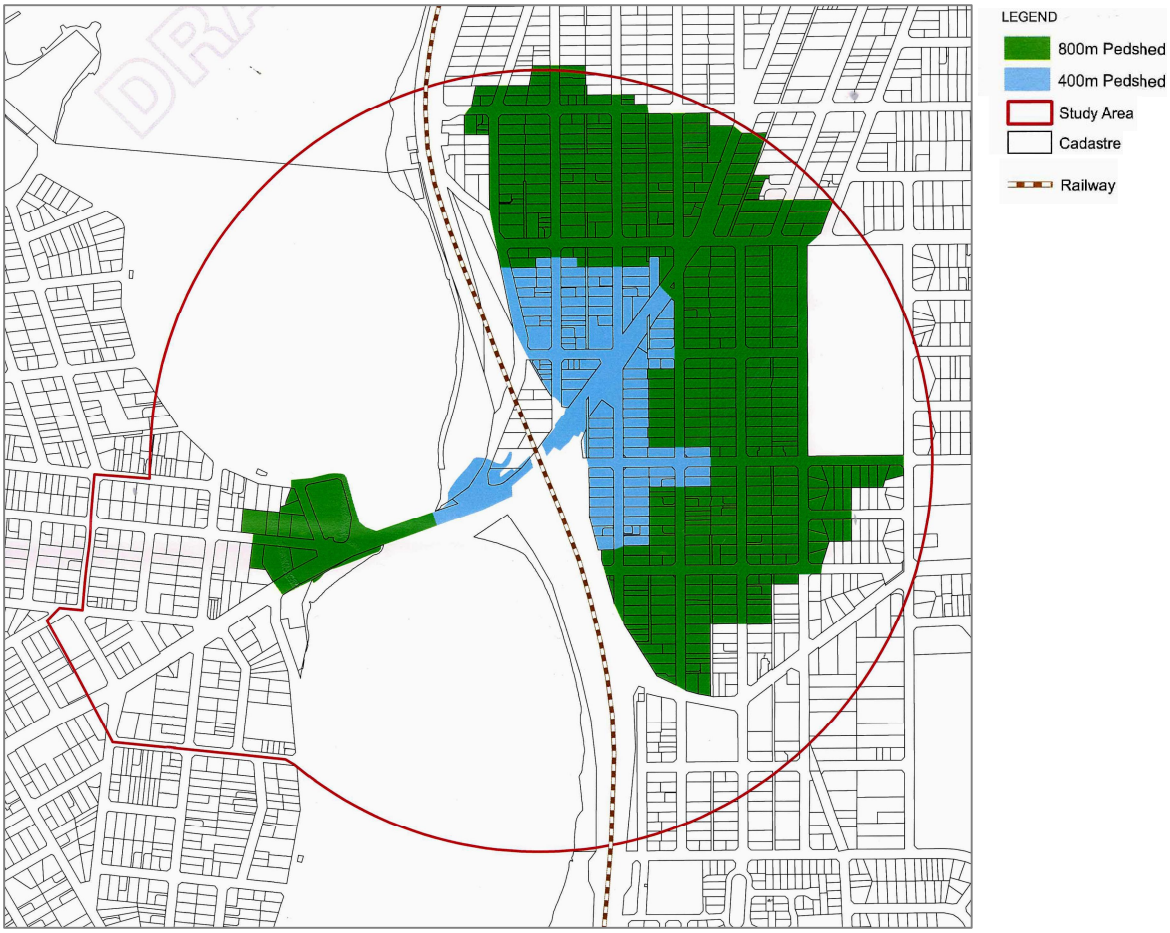
2.2 Walkable Catchment

A walkable catchment ('pedshed') analysis was undertaken for the 5 and 10 minute walkable limits for the Canning Bridge Rail Station. It is well documented that the distance to walk between a public transport station and the workplace or residence has a significant deterring effect on rail commuting.

The aim is to concentrate higher densities, land use mix and population numbers in the areas that are reachable by a 5 minute walk to maximise the potential of the train station.

Figure 1 depicts the 400m and 800m pedshed for Canning Bridge Rail Station, using clearly defined footpaths. It illustrates the difference in the 400m and 800m radii from the station compared to the walkable 400m and 800m pedshed.

Figure 1 – Canning Bridge Rail Station Pedshed



It is clear from Figure 1 that the 10 minute (800m) pedestrian catchment for the Rail Station is limited, particularly in the CoM half of the Precinct, and this has the potential to severely restrict the number of patrons who would consider accessing the station by foot.

The main reason why this catchment in the CoM is so limited is that the footpath leading from the rail station across the Canning Bridge is a complex arrangement of ramps, underpasses and loops avoiding the infrastructure of the Freeway interchange. A direct access route from the rail station across the Canning Bridge would improve the extent of the walkable catchment substantially.

An outcome of this Precinct Vision is to improve the accessibility to this station and to examine opportunities for parking in the precinct.

2.3 Opportunities and Constraints

An exercise has been undertaken to identify the environmental and cultural opportunities and constraints which may affect the precinct planning of the Canning Bridge area. The Canning Bridge Rail Station Precinct Environmental and Cultural Opportunities and Constraints Analysis can be found at Appendix A.

This exercise considered the following elements:

- Acid Sulphate Soils
- Threatened Ecological Communities (TECs)
- Significant Flora Species
- Fauna
- Significant Fauna
- Bush Forever
- Native Title
- Aboriginal Heritage
- European Heritage
- Contaminated Sites
- Geomorphic Wetlands

Essentially, this analysis has found that there are no significant constraints which are either fatal flaws to precinct planning in the area or pose a significant and unmanageable risk to precinct planning in this area. Future planning in the precinct should consider the outcomes of this analysis.

3. References

Belingwe Pty Ltd & Planwest (WA) Pty Ltd. 2006, *City of Melville Local Commercial Strategy*,

City of Melville. 2007, *People, Places, Participation: A Community Plan for the City of Melville 2007-2017*

City of Melville (2008) *Draft Local Planning Strategy 2008 – 2023* Available from: http://www.melvillecity.com.au/our-future/local-planning-strategy

City of South Perth (2004), *Draft Local Commercial Strategy 2004*, Available from the City of South Perth, Unpublished, http://www.southperth.wa.gov.au/ .

City of South Perth (2005) *Municipal Heritage Inventory*, Available from the City of South Perth, Unpublished. http://www.southperth.wa.gov.au/

City of South Perth, *City of South Perth Strategic Plan* Available from the City of South Perth, Unpublished. http://www.southperth.wa.gov.au/

Western Australian Planning Commission. (2006), *State Planning Policy 2.10 – Swan-Canning River System*, gazetted 19 December 2006, Perth

Appendix A

Canning Bridge Rail Station Precinct Environmental and Cultural Opportunities and Constraints Analysis

Report for Canning Bridge Precinct

Environmental and Cultural Opportunities and Constraints Analysis

June 2009

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1.1 Acid Sulphate Soils

Acid sulphate soils are naturally occurring soils and sediments containing sulphide minerals, predominantly pyrite (an iron sulphide). In an undisturbed state below the watertable, these soils are benign and not acidic. However if the soils are drained, excavated or exposed by lowering of the water table, the sulphides will react with oxygen to form sulphuric acid. Inappropriate disturbance of these soils can generate large amounts of sulphuric acid and leaching of contaminants naturally occurring in soils (DEC, 2007).

A majority of the study area is not at risk of containing acid sulphate soils; however, the river banks do have a moderate to low risk of containing acid sulphate soils. Any development along the foreshore will require proper management measures to be implemented prior to any earthworks commencing.

McDougal Park contains a wetland which has a high to moderate risk of containing acid sulphate soils; however, this park is not likely to be subject to development pressure in the short to medium term future.

The river bed itself contains a high to moderate risk of containing acid sulphate soils.

1.2 Threatened Ecological Communities (TECs)

Ecological communities are defined as 'naturally occurring biological assemblages that occur in a particular type of habitat' (English and Blythe, 1997). TECs are ecological communities that have been assessed and assigned to one of four categories related to the status of the threat to the community, i.e. *Presumed Totally Destroyed*, *Critically Endangered*, *Endangered*, and *Vulnerable*.

Some TECs are protected under the *EPBC Act*. Although TECs are not formally protected under the State *Wildlife Conservation Act 1950,* the loss of, or disturbance to, some TECs triggers the *EPBC Act*. The Environmental Protection Authority's (EPA) position on TECs states that proposals that result in the direct loss of TECs are likely to require formal assessment.

Possible TECs that do not meet survey criteria are added to the DEC's Priority Ecological Community (PEC) Lists under Priorities 1, 2 and 3. Ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

A search of the DEC's TEC Database indicates that there are no records of TECs or PECs within the site.

1.3 Significant Flora Species

Species of significant flora are protected under both State and Commonwealth Acts. Any activities that are deemed to have a significant impact on species that are recognised by the *EPBC Act,* and the *Wildlife Conservation Act 1950* can trigger referral to those authorities. A description of Conservation Categories delineated under the *EPBC Act* is detailed in Table 1, **Appendix A.** These are applicable to threatened flora and fauna species.

A search of the *EPBC Act* Protected Matters Search Tool identified the presence of one significant flora species (*Lepidosperma rostratum*) that is deemed likely to occur within the vicinity of the site.

In addition to the *EPBC Act,* significant flora in Western Australia is protected by the *Wildlife Conservation Act 1950*. This *Act*, which is administered by the DEC, protects Declared Rare Flora (DRF) species. The DEC also maintains a list of Priority Flora species. Priority Flora are not currently protected under the *Wildlife Conservation Act 1950*. Priority Flora may be rare or threatened, but cannot be considered for declaration as rare flora until adequate surveys have been undertaken of known sites and the degree of threat to these populations clarified. Special consideration is often given to sites that contain Priority Flora, despite not having formal legislatory protection. A description of the DEC's Conservation Codes that relate to flora species is provided in Table 2, **Appendix A**.

A search of the DEC's Threatened Flora Database and Western Australian Herbarium (WAHERB) records indicate that a number of DRF and Priority Flora species are known to exist within the general vicinity of the site. These species are outlined in Table 3**, Appendix A**. The presence or absence of these species, within the study area, would be confirmed by a flora survey.

1.4 Fauna

A search of the Western Australian Museum records (*Faunabase)* was undertaken for a 5 km radius of the study site. The museum records indicate 18 mammals, 123 birds, 47 reptiles and 12 amphibians have previously been collected from this area. A list of these species with their conservation status is provided in Table 4, **Appendix A**.

1.5 Significant Fauna

The conservation status of fauna species is assessed under State and Commonwealth Acts: in particular the *Western Australian Wildlife Conservation Act 1950* and the *EPBC Act 1999*.

The significance levels for fauna used in the *EPBC Act* are those recommended by the International Union for the Conservation of Nature and Natural Resources (IUCN). A description of Conservation Categories delineated under the *EPBC Act* is detailed in **Appendix A**. These are applicable to threatened flora and fauna species. The *WA Wildlife Conservation Act* 1950 uses a set of Schedules but also classifies species using some of the IUCN categories. These categories and Schedules are described in Table 5, **Appendix A**.

The *EPBC Act* also protects migratory species that are listed under the following International Agreements:

- Appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals) for which Australia is a Range State under the Convention;
- The Agreement between the Government of Australia and the Government of the Peoples Republic of China for the Protection of Migratory Birds and their Environment (CAMBA); and
- The Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (JAMBA).

Listed migratory species also include species identified in other international agreements approved by the Commonwealth Environment Minister.

The Act also protects marine species on Commonwealth lands and waters.

In Western Australia, the DEC also produces a supplementary list of Priority Fauna, these being species that are not considered Threatened under the Western Australian *Wildlife Conservation Act 1950* but for which the DEC feels there is a cause for concern. These species have no special legislatory protection, but their presence would normally be considered. Such taxa need further survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna. Levels of Priority are described in Table 6, **Appendix A**.

The DEWHA maintains a database of matters of national environmental significance that are protected under the *EPBC Act.* An *EPBC Act* Protected Matters Report was generated (from the website of the DEWR), for the matters of significance that may occur in, or may relate to, the site.

A search of the DEC's Threatened Fauna database for any rare and priority species that may occur in the site was undertaken.

From the DEC and DEWHA databases and the records of the WA Museum, a number of protected fauna species were identified as potentially occurring within the site Table 7**, Appendix A**. Marine species have not been included in this table.

It should be noted that some species that appear in the *EPBC Act* Protected Matters Search Tool are often not likely to occur within the specified area, as the search provides an approximate guidance to matters of national significance that require further investigation. The records from the DEC searches of threatened fauna provide more accurate information for the general area; however some records of sightings or trappings can be dated and often misrepresent the current range of threatened species.

1.6 Bush Forever

There are not any Bush Forever sites located directly within the Study Area; however there are two Bush Forever sites located in close proximity to the Study Area.

The first site is the Mr Henry Bushland at Salter Point (Site No. 227), which is located directly to the south of the Study Area. The land area contained within this Bush Forever site is approximately 11.9 ha and is located within the CoSP along the Canning River foreshore and adjacent to the Kwinana Freeway reserve. The site has been entered into the Register of the National Estate and is subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The existing care, control and management intent of the reserve is endorsed by the Bush Forever mechanisms. This Bush Forever site is in close proximity to the study area and as such, the concept plans and recommendations produced as a result of this study will have to have due regard to the location of this site.

Point Heathcote Foreshore, Applecross (Site No. 329) is located approximately 400m to the north-west of the Study Area. The site contains a wetland (estuary water body) and is listed on the Directory of Important Wetlands in Australia (Swan-Canning Estuary). The existing care, control and management intent of the reserve is endorsed by the Bush Forever mechanisms. This site is a considerable distance from the study area and as a result, is not likely to be directly impacted by the recommendations and conclusions of this study.

1.7 Native Title

A single Noongar native title claim (WC03/06) exists over the Perth metropolitan area. This application is pending a decision and would have the potential to have implications on reserve land and unallocated Crown land within the study area.

There may be Native Title implications associated with use and development of land within the study area and the proponent is encouraged to liaise with the Department of Indigenous Affairs and the Native Title Claimants at an early stage to establish a dialogue regarding this study.

1.8 Aboriginal Heritage

A search of the Department of Indigenous Affairs (DIA) Register of Aboriginal Sites was conducted to determine the likelihood of the project impacting on a listed Aboriginal heritage site.

There are a number of Aboriginal Heritage sites listed within and around the study area. The Swan and Canning Rivers are listed Aboriginal Heritage sites and as such, any development along the foreshore will be required to consider and address aboriginal heritage issues.

It may be possible that there are unregistered sites in the project area and it is recommended that the proponent liaise with the Department of Indigenous Affairs (DIA) and potentially the Native Title Claimants concerning any potential unregistered sites.

1.9 European Heritage

A search of the Heritage Council of Western Australia's (2007) Heritage Places database and both City's Municipal Heritage Inventory's was undertaken to identify heritage listed sites within the study area.

Canning Bridge (the Bridge) is listed on the CoSP Municipal Heritage Inventory as a 'Category A' listed property, which means that the bridge is worthy of the highest level of protection. Canning Bridge is also contained on the State Register of Heritage Places as an 'interim' listed property. This listing provides statutory protection of the bridge and as such has implications on the development/redevelopment of the Canning Bridge site. Any development/redevelopment of Canning Bridge will require consultation with the CoSP, COM and the Heritage Council of Western Australia.

The Raffles Hotel and Raffles Precinct are listed on the State Heritage register and are afforded statutory protection. The CoM Municipal Heritage Inventory lists the Raffles Hotel site as having an "A+" management category, which means that any development/redevelopment of the site requires consultation with the Heritage Council of WA and COM.

The Applecross District Hall (known locally as the 'Tivoli') is listed on the State Heritage register and afforded statutory protection. The hall is also listed on the Municipal Heritage Inventory and is afforded an "A+" management category under this inventory, which means that any development/redevelopment of the site requires consultation with the Heritage Council of WA and the COM.

A Depression Era Campsite, located on the Cloisters Foreshore in Salter Point, just outside the study area is another European heritage site of interest. The site is located just to the south of the Study Area and is listed under the CoSP Municipal Heritage Inventory. The depression era campsite was first established in 1930, and was inhabited by unemployed people who had become destitute and homeless. The site can be accessed by a fly-over across the Kwinana Freeway, which takes people to a public boat ramp and car park. The campsite is now earmarked by a commemorative plaque. The site has a

“Category B” classification under the City’s Municipal Heritage Inventory, which states that the site is worthy of a high level of protection. This site will need to be given due regard, when formulating the recommendations for this study.

The Neil McDougall Park and Hazel McDougall House is listed on the CoSP Heritage Inventory and is located within the Study Area. The site has a “Category B” classification under the City’s Municipal Heritage Inventory, which states that the site is worthy of a high level of protection. This site will need to be given due regard, when formulating the recommendations for this study.

1.10 Contaminated Sites

A search of the Department of Environment and Conservation’s contaminated sites database was undertaken to determine if there were any potential contaminated sites located within the Study Area. The search did not identify any potential contaminated sites within the Study Area.

A potentially contaminated site (393 Canning Highway, Como) is located approximately 400m to the north-east of the Study Area. Under the Contaminated Sites Act 2003, this site has been classified as "Contaminated - remediation required". The contamination appears to have been caused by the use of the site for a Service Station.

A contamination assessment was conducted in 2003 during the removal of site infrastructure as part of the re-development and upgrading of the service station. The assessment found that:

“Hydrocarbons and polycyclic aromatic hydrocarbons (such as from petrol, diesel and kerosene fuels) were present in soils at concentrations exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003). The soil impact is present in sub-surface soils near the water table, approximately 8 metres below surface, in the central part of the site associated with the former forecourt bowsers and underground storage tanks” (DEC Report, generated at 16/05/2008).

This site will not be directly affected by the recommendations of this study, due to the site being located approximately 400m outside the Study Area boundaries.

1.11 Geomorphic Wetlands

The Swan and Canning Rivers are classified as “Conservation Category Wetlands”. The objective for Conservation Category wetlands is to preserve the natural attributes and functions of the wetlands. These wetlands can attract buffers of between 50-100m, depending on the threat to and nature of the wetlands. Any development within land or reserves located adjacent to the Swan and Canning Rivers may attract buffer requirements and the proponent should be made aware of this.

Appendix A

Flora and Fauna

Table 1 - Conservation Categories and Definitions for *EPBC Act* Listed Flora and Fauna Species

Conservation Category	Definition
Extinct	Taxa not definitely located in the wild during the past 50 years
Extinct in the Wild	Taxa known to survive only in captivity
Critically Endangered	Taxa facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Taxa facing a very high risk of extinction in the wild in the near future
Vulnerable	Taxa facing a high risk of extinction in the wild in the medium-term
Near Threatened	Taxa that risk becoming Vulnerable in the wild
Conservation Dependent	Taxa whose survival depends upon ongoing conservation measures. Without these measures, a conservation dependent taxon would be classified as Vulnerable or more severely threatened.
Data Deficient (Insufficiently Known)	Taxa suspected of being Rare, Vulnerable or Endangered, but whose true status cannot be determined without more information.
Least Concern	Taxa that are not considered Threatened

Table 2 – Conservation Codes and Descriptions for DEC Declared Rare and Priority Flora Species

Conservation Code	Description
R: Declared Rare Flora – Extant Taxa	Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
P1: Priority One – Poorly Known Taxa	Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2: Priority Two – Poorly Known Taxa	Taxa which are known from one or a few (generally<5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3: Priority Three – Poorly Known Taxa	Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
P4: Priority Four – Taxa in need of monitoring	Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5 – 10 years.

Table 3 – Significant Flora Species Known to Occur in the General Region of the Study Site (Source: DEC, WAHERB Databases and *EPBC Act* Protected Matters Search Tool; Description and Habitat from *FloraBase*)

Family	Genus	Species	Common Name	DEC Status	Description	Habitat
Cyperaceae	*Lepidosperma*	*rostratum*	Beaked Lepidosperma	DRF / Endangered (*EPBC Act)*	Rhizomatous, tufted perennial, grass-like or herb (sedge), 0.5 m high. Fl: brown.	Peaty sand, clay
Dilleniaceae	*Hibbertia*	*spicata subsp. leptotheca*		Priority 3	Erect or spreading shrub, 0.2-0.5 m high. Fl: yellow, Jul-Oct	Sand. Near-coastal limestone ridges, outcrops and cliffs
Goodeniaceae	*Anthotium*	*juciforme*		Priority 4	Open, erect to prostrate perennial, herb, 0.05-0.4m high, leaves linear to terete, 0.5-1 mm wide flowering stems 12-40cm long. Fl: blue, violet, purple, Nov – Mar	Sandy clay, clay. Winter-wet depressions, drainage lines.
Mimosaceae	*Acacia*	*horridula*		Priority 3	Harsh, slender, single-stemmed shrub, 0.3-0.6(-1)m high. Fl: yellow, May-Aug	Gravelly soils over granite, sand. Rocky hillsides
Papilionaceae	*Aotus*	*cordifolia*		Priority 3	Erect of straggling shrub, 0.3-1.5m high. Fl: yellow, Aug-Jan	Peaty soils. Swamps
Papilionaceae	*Dillwynia*	*dillwynioides*		Priority 3	Decumbent or erect, slender shrub, 0.3-1.2m high. Fl: red, yellow, orange, Aug-Dec	Sandy soils. Winter-wet depressions.

Table 4 – Fauna species recorded within 5km of project area – Western Australian Museum (*Faunabase*) database

Family	Genus	Species	Common Name	Status[†]
Birds				
Acanthizidae	*Acanthiza*	*apicalis*	Broad-tailed Thornbill	Reg.sig (BF)
Acanthizidae	*Acanthiza*	*chrysorrhoa*	Yellow-rumped Thornbill	Reg.sig (BF)
Acanthizidae	*Acanthiza*	*inornata*	Western Thornbill	Reg.sig (BF)
Acanthizidae	*Gerygone*	*fusca*	Western Warbler	
Accipitridae	*Accipiter*	*cirrocephalus cirrocephalus*	Collared Sparrowhawk	Reg.sig (BF)
Accipitridae	*Accipiter*	*fasciatus fasciatus*	Brown Goshawk	
Accipitridae	*Elanus*	*caeruleus axillaris*	Australian Black-shouldered Kite	
Accipitridae	*Hamirostra*	*isura*	Square-tailed Kite	Reg.sig (BF)
Accipitridae	*Pandion*	*haliaetus cristatus*	Osprey	Migratory
Anatidae	*Anas*	*superciliosa x platyrhynchos*	Pacific Black Duck	
Anhingidae	*Anhinga*	*melanogaster novaehollandiae*	Darter	
Ardeidae	*Ardea*	*alba modesta*	Great Egret	
Ardeidae	*Ardea*	*novaehollandiae*	White-faced Heron	
Ardeidae	*Ixobrychus*	*minutus dubius*	Little Bittern	
Ardeidae	*Nycticorax*	*caledonicus hilli*	Rufous Night Heron	
Campephagidae	*Coracina*	*novaehollandiae*	Black-faced Cuckoo-Shrike	
Campephagidae	*Coracina*	*novaehollandiae novaehollandiae*	Black-faced Cuckoo-Shrike	
Campephagidae	*Lalage*	*tricolor*	White-winged Triller	
Charadriidae	*Charadrius*	*rubricollis*	Hooded Plover	Priority 4
Charadriidae	*Charadrius*	*ruficapillus*	Red-capped Plover	
Climacteridae	*Climacteris*	*rufa*	Rufous Treecreeper	Reg.sig (BF)
Columbidae	*Streptopelia*	*chinensis tigrina*	Spotted Turtle-dove	*

Columbidae	*Streptopelia*	*senegalensis senegalensis*	Senegal Turtle-Dove	*
Corvidae	*Corvus*	*coronoides perplexus*	Australian Raven	
Cracticidae	*Cracticus*	*tibicen dorsalis*	Australian Magpie	
Cracticidae	*Cracticus*	*torquatus*	Grey Butcherbird	
Cracticidae	*Strepera*	*versicolor*	Grey Currawong	Reg.sig (BF)
Cuculidae	*Cacomantis*	*flabelliformis flabelliformis*	Fan-tailed Cuckoo	
Cuculidae	*Chrysococcyx*	*lucidus plagosus*	Shining Bronze-cuckoo	
Cuculidae	*Cuculus*	*pallidus*	Pallid Cuckoo	
Dicaeidae	*Dicaeum*	*hirundinaceum*	Mistletoe Bird	
Dicruridae	*Rhipidura*	*fuliginosa*	Grey Fantail	
Dicruridae	*Rhipidura*	*leucophrys leucophrys*	Willie Wagtail	
Falconidae	*Falco*	*berigora berigora*	Brown Falcon	Reg.sig (BF)
Falconidae	*Falco*	*cenchroides cenchroides*	Nankeen Kestrel	
Falconidae	*Falco*	*longipennis longipennis*	Little Falcon	
Falconidae	*Falco*	*perigrinus*	Peregrine Falcon	Schedule 4
Fringillidae	*Carduelis*	*carduelis britannica*	European Golfinch	*
Halcyonidae	*Dacelo*	*novaeguineae novaeguineae*	Laughing Kookaburra	*
Halcyonidae	*Todiramphus*	*sanctus sanctus*	Sacred Kingfisher	
Hirundinidae	*Hirundo*	*neoxena*	Welcome Swallow	
Hirundinidae	*Hirundo*	*nigricans*	Tree Martin	
Laridae	*Anous*	*tenuirostris melanops*	Lesser Noddy	
Laridae	*Larus*	*novaehollandiae novaehollandiae*	Silver Gull	
Laridae	*Sterna*	*bergii*	Crested Tern	
Laridae	*Sterna*	*fuscata nubilosa*	Sooty Tern	
Laridae	*Sterna*	*nereis nereis*	Fairy Tern	
Maluridae	*Malurus*	*elegans*	Red-winged Fairy-wren	Reg.sig (BF)
Maluridae	*Malurus*	*splendens*	Splendid Fairy-wren	Reg.sig (BF)

Meliphagidae	*Acanthorhynchus*	*superciliosus*	Western Spinebill	
Meliphagidae	*Anthochaera*	*carunculata*	Red Wattlebird	
Meliphagidae	*Anthochaera*	*lunulata*	Western Little Wattlebird	Reg.sig (BF)
Meliphagidae	*Epthianura*	*albifrons*	White-fronted Chat	
Meliphagidae	*Lichenostomus*	*ornatus*	Yellow-plumed Honeyeater	Reg.sig (BF)
Meliphagidae	*Lichenostomus*	*virescens*	Singing Honeyeater	
Meliphagidae	*Lichmera*	*indistincta indistincta*	Brown Honeyeater	
Meliphagidae	*Manorina*	*flavigula*	White-rumped Miner	
Meliphagidae	*Melithreptus*	*brevirostris leucogenys*	Brown-headed Honeyeater	
Meliphagidae	*Melithreptus*	*chloropsis*	Western White-naped Honeyeater	Reg.sig (BF)
Meliphagidae	*Phylidonyris*	*melanops*	Tawny-crowned Honeyeater	Reg.sig (BF)
Meliphagidae	*Phylidonyris*	*nigra gouldii*	White-cheeked Honeyeater	Reg.sig (BF)
Meliphagidae	*Phylidonyris*	*novaehollandiae*	Yellow-winged Honeyeater	Reg.sig (BF)
Meropidae	*Merops*	*ornatus*	Rainbow Bee-eater	Migratory
Motacillidae	*Anthus*	*australis australis*	Australian Pipit	
Neosittidae	*Daphoenositta*	*chrysoptera pileata*	Sittella	Reg.sig (BF)
Otididae	*Ardeotis*	*australis*	Australian Bustard	Reg.sig (BF)
Pachycephalidae	*Colluricincla*	*harmonica rufiventris*	Grey Shrike-thrush	
Pachycephalidae	*Pachycephala*	*pectoralis fuliginosa*	Golden Whistler	
Pachycephalidae	*Pachycephala*	*rufiventris rufiventris*	Rufous Whistler	
Pardalotidae	*Pardalotus*	*punctatus punctatus*	Spotted Pardalote	
Pardalotidae	*Pardalotus*	*striatus westraliensis*	Striated Pardalote	
Passeridae	*Taeniopygia*	*guttata castanotis*	Zebra Finch	
Pelecanidae	*Pelecanus*	*conspicillatus*	Australian Pelican	
Petroicidae	*Eopsaltria*	*australis griseogularis*	Western Yellow Robin	Reg.sig (BF)

Petroicidae	*Petroica*	*cucullata*	Hooded Robin	Reg.sig (BF)
Petroicidae	*Petroica*	*multicolor campbelli*	Scarlet Robin	Reg.sig (BF)
Phalacrocoracidae	*Phalacrocorax*	*melanoleucos melanoleucos*	Little Pied Cormorant	
Phasianidae	*Coturnix*	*pectoralis*	Stubble Quail	
Phasianidae	*Coturnix*	*ypsilophora*	Brown Quail	
Podargidae	*Podargus*	*strigoides brachypterus*	Tawny Frogmouth	
Procellariidae	*Daption*	*capense*	Cape Petrel	
Procellariidae	*Halobaena*	*caerulea*	Blue Petrel	Vulnerable
Procellariidae	*Macronectes*	*giganteus*	Southern Giant Petrel	Schedule 1 – Endangered / Reg.sig (BF) / Migratory
Procellariidae	*Pachyptila*	*desolata*	Antarctic Prion	
Procellariidae	*Puffinus*	*carneipes*	Fleshy-footed Shearwater	Migratory
Psittacidae	*Cacatua*	*leadbeateri*	Major Mitchell's Cockatoo	Schedule 4
Psittacidae	*Calyptorhynchus*	*banksii naso*	Forest Red-tailed Black Cockatoo	Schedule 1 - Vulnerable
Psittacidae	*Calyptorhynchus*	*latirostris*	Carnaby's Cockatoo	Schedule 1 - Endangered Reg.sig (BF)
Psittacidae	*Calyptorhynchus*	*sp*	Black Cockatoo	Schedule 1 Reg.sig (BF)
Psittacidae	*Glossopsitta*	*porphyrocaphala*	Purple-crowned Lorikeet	
Psittacidae	*Melopsittacus*	*undulatus*	Budgerigar	
Psittacidae	*Platycercus*	*icterotis*	Western Rosella	Reg.sig (BF)
Psittacidae	*Platycercus*	*spurius*	Red-capped Parrot	
Psittacidae	*Platycercus*	*zonarius*	Australian Ringneck	
Psittacidae	*Polytelis*	*anthopeplus anthopeplus*	Regent Parrot	
Psittacidae	*Trichoglossus*	*haematodus moluccanus*	Rainbow Lorikeet	
Rallidae	*Gallinula*	*ventralis*	Black-tailed Native-hen	
Rallidae	*Porphyrio*	*porphyrio*	Purple Swamphen	
Rallidae	*Porzana*	*tabuensis*	Spotless Crake	

Recurvirostridae	*Himantopus*	*himantopus leucocephalus*	Black-winged Stilt	
Scolopacidae	*Calidris*	*acuminata*	Sharp-tailed Sandpiper	Migratory
Scolopacidae	*Calidris*	*ruficollis*	Red-necked Stint	Migratory
Scolopacidae	*Limosa*	*limosa melanuroides*	Black-tailed Godwit	Migratory
Scolopacidae	*Tringa*	*brevipes*	Grey-tailed Tattler	Migratory
Strigidae	*Ninox*	*novaeseelandiae boobook*	Boobook Owl	
Sylviidae	*Acrocephalus*	*australis*	Australian Reed Warbler	
Turnicidae	*Turnix*	*varia varia*	Painted Bustard-Quail	Reg.sig (BF)
Tytonidae	*Tyto*	*alba*	Barn Owl	
Tytonidae	*Tyto*	*alba delicatula*	Barn Owl	
Tytonidae	*Tyto*	*novaehollandiae*	Masked Owl	Reg.sig (BF)
Zosteropidae	*Zosterops*	*lateralis gouldi*		
Reptiles				
Agamidae	*Pogona*	*minor minor*	Western Bearded Dragon	
Agamidae	*Rankinia*	*adelaidensis*	Western Heath Dragon	
Cheloniidae	*Chelonia*	*mydas*	Green Turtle	Schedule 1 - Vulnerable
Cheluidae	*Chelodina*	*oblonga*	Oblong Turtle	
Elapidae	*Brachyurophis*	*semifasciata*	Southern Shovel-nosed Snake	
Elapidae	*Demansia*	*psammophis reticulata*	Yellow-faced Whipsnake	
Elapidae	*Elapognathus*	*coronatus*	Crowned Snake	
Elapidae	*Neelaps*	*bimaculatus*	Black-naped Snake	
Elapidae	*Notechis*	*scutatus*	Tiger Snake	
Elapidae	*Parasuta*	*gouldii*	Gould's Snake	
Elapidae	*Pseudechis*	*australis*	Mulga Snake	
Elapidae	*Pseudonaja*	*affinis affinis*	Dugite	
Elapidae	*Pseudonaja*	*modesta*	Ringed Brown Snake	
Elapidae	*Pseudonaja*	*nuchalis*	Gwardar	
Elapidae	*Simoselaps*	*bertholdi*	Jan's Banded Snake	

Gekkinidae	*Christinus*	*marmoratus*	Marbled Gecko	
Gekkinidae	*Diplodactylus*	*polyophthalmus*	Speckled Stone Gecko	
Gekkinidae	*Gehyra*	*variegata*	Variegated Tree Dtella	
Gekkinidae	*Strophurus*	*spinigerus spinigerus*	Southwestern Spiny-tailed Gecko	
Gekkinidae	*Underwoodisaurus*	*milii*	Barking Gecko	
Pygopodidae	*Aprasia*	*repens*	Sandplain Worm Lizard	
Pygopodidae	*Delma*	*fraseri fraseri*	Fraser's Delma	
Pygopodidae	*Lialis*	*burtonis*	Burton's Legless Lizard	
Pygopodidae	*Pletholax*	*gracilis gracilis*	Keeled Legless Lizard	
Pygopodidae	*Pygopus*	*lepidopodus*	Common Scaly-foot	
Scincidae	*Acritoscincus*	*trilineatum*	Southwestern Cool Skink	
Scincidae	*Cryptoblepharus*	*plagiocephalus*	Fence or Wall Skink	
Scincidae	*Ctenotus*	*australis*		
Scincidae	*Ctenotus*	*fallens*		
Scincidae	*Ctenotus*	*gemmula*		Priority 3
Scincidae	*Cyclodomorphus*	*celatus*	Coastal Slender Bluetongue	
Scincidae	*Egernia*	*kingii*	King's Skink	
Scincidae	*Egernia*	*napoleonis*	Southwestern Crevice Skink	
Scincidae	*Hemiergis*	*quadrilineata*	Two-toed Earless Skink	
Scincidae	*Lerista*	*elegans*		
Scincidae	*Lerista*	*lineata*		Priority 3
Scincidae	*Lerista*	*lineopunctata*		
Scincidae	*Lerista*	*praepedita*		
Scincidae	*Menetia*	*greyii*	Common Dwarf Skink	
Scincidae	*Morethia*	*lineoocellata*	Woodland Flecked Skink	
Scincidae	*Morethia*	*obscura*		
Scincidae	*Tiliqua*	*occipitalis*	Western Bluetongue	
Scincidae	*Tiliqua*	*rugosa rugosa*	Southwestern Bobtail	

Typhlopidae	*Ramphotyphlops*	*australis*		
Varanidae	*Varanus*	*gouldii*	Gould's Sand Monitor	
Varanidae	*Varanus*	*tristis*	Black-headed Monitor	
Mammals				
Dasyuridae	*Dasyurus*	*geoffroii*	Chuditch	Schedule 1 - Vulnerable
Delphinidae	*Tursiops*	*truncatus*	Bottle-nosed Dolphin	
Felidae	*Felis*	*catus*	Feral Cat	*
Leporidae	*Oryctolagus*	*cuniculus*	European Rabbit	*
Macropodidae	*Setonix*	*brachyurus*	Quokka	Schedule 1 - Vulnerable
Muridae	*Hydromys*	*chrysogaster*	Water Rat	Priority 4
Muridae	*Mus*	*musculus*	House Mouse	*
Muridae	*Rattus*	*norvegicus*	Brown Rat	*
Muridae	*Rattus*	*rattus*	Black Rat	*
Mustelidae	*Mustela*	*putorius*	European Polecat, Ferret	*
Peramelidae	*Isoodon*	*obesulus fusciventer*	Southern Brown Bandicoot, Quenda	Priority 5
Phalangeridae	*Trichosurus*	*vulpecula vulpecula*	Common Brushtail Possum	
Sciuridae	*Funambulus*	*pennanti*	Indian Palm Squirrel	*
Tachyglossidae	*Tachyglossus*	*aculeatus*	Short-beaked Echidna	
Tarsipedidae	*Tarsipes*	*rostratus*	Honey Possum	
Thylacomyidae	*Macrotis*	*lagotis*	Bilby	Schedule 1 - Vulnerable
Vespertilionidae	*Chalinolobus*	*gouldii*	Gould's Wattled Bat	
Vespertilionidae	*Nyctophilus*	*geoffroyi*	Lesser Long-eared Bat	
Vespertilionidae	*Vespadelus*	*regulus*	Southern Forest Bat	
Amphibians				

Hylidae	*Litoria*	*adelaidensis*	Slender Tree Frog
Hylidae	*Litoria*	*moorei*	Motorbike Frog
Myobatrachidae	*Crinia*	*georgiana*	Quacking Frog
Myobatrachidae	*Crinia*	*glauerti*	Glauert's Froglet
Myobatrachidae	*Crinia*	*insignifera*	Squelching Froglet
Myobatrachidae	*Crinia*	*pseudinsignifera*	Bleating Froglet
Myobatrachidae	*Heleioporus*	*eyrei*	Moaning Frog
Myobatrachidae	*Heleioporus*	*psammophilus*	Sand Frog
Myobatrachidae	*Limnodynastes*	*dorsalis*	Bullfrog or Banjo Frog
Myobatrachidae	*Myobatrachus*	*gouldii*	Turtle Frog
Myobatrachidae	*Neobatrachus*	*pelobatoides*	Humming Frog
Myobatrachidae	*Pseudophryne*	*guentheri*	Crawling Frog

† **Status Legend:**

Reg. Sig. (BF)	Listed as Regionally Significant under Bush Forever (Government of Western Australia, 2000)
*	Introduced
Schedule 1/Schedule 4	Status under the Western Australian *Wildlife Conservation Act 1950*
Endangered/Vulnerable	Listing under the *EPBC Act*
Migratory	*EPBC Act* listed migratory species

EPBC Act Fauna Conservation Categories

Listed threatened species and ecological communities

An action will require approval from the Environment Minister if the action has, will have, or is likely to have a significant impact on a species listed in any of the following categories:

» extinct in the wild,

» critically endangered,

» endangered, or

» vulnerable.

Critically endangered and endangered species

An action has, will have, or is likely to have a significant impact on a critically endangered or endangered species if it does, will, or is likely to:

» lead to a long-term decrease in the size of a population, or

» reduce the area of occupancy of the species, or

» fragment an existing population into two or more populations, or

» adversely affect habitat critical to the survival of a species, or

» disrupt the breeding cycle of a population, or

» modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or

» result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or

» introduce disease that may cause the species to decline, or

» interfere with the recovery of the species.

**Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a critically endangered or endangered species by direct competition, modification of habitat, or predation.*

Vulnerable Species

An action has, will have, or is likely to have a significant impact on a vulnerable species if it does, will, or is likely to:

» lead to a long-term decrease in the size of an important population of a species, or

» reduce the area of occupancy of an important population, or

» fragment an existing important population into two or more populations, or

» adversely affect habitat critical to the survival of a species, or

» disrupt the breeding cycle of an important population, or

» modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or

» result in invasive species that are harmful a vulnerable species becoming established in the vulnerable species' habitat*, or

» introduce disease that may cause the species to decline, or

» interferes substantially with the recovery of the species.

An important population is one that is necessary for a species' long-term survival and recovery. This may include populations that are:

» key source populations either for breeding or dispersal,

» populations that are necessary for maintaining genetic diversity, and/or

» populations that are near the limit of the species range.

*Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a vulnerable species by direct competition, modification of habitat, or predation.

Listed Migratory Species

An action will require approval from the Environment Minister if the action has, will have, or is likely to have a significant impact on a listed migratory species. Note that some migratory species are also listed as threatened species. The criteria below are relevant to migratory species that are not threatened.

An action has, will have, or is likely to have a significant impact on a migratory species if it does, will, or is likely to:

» substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat of the migratory species, or

» result in invasive species that is harmful to the migratory species becoming established* in an area of important habitat of the migratory species, or

» seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of thespecies.

An area of important habitat is:

» habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, or

» habitat utilised by a migratory species which is at the limit of the species range, or

» habitat within an area where the species is declining.

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, what is an ecologically significant proportion of the population varies with the species (each circumstance will need to be evaluated).

*Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a migratory species by direct competition, modification of habitat, or predation.

The Commonwealth Marine Environment

An action will require approval from the Environment Minister if:

» the action is taken in a Commonwealth marine area and the action has, will have, or is likely to have a significant effect on the environment, or

» the action is taken outside a Commonwealth marine area and the action has, will have, or is likely to have a significant effect on the environment in a Commonwealth marine area.

An action has, will have or is likely to have a significant impact on the environment in a Commonwealth marine area if it does, will, or is likely to:

» result in a known or potential pest species becoming established in the Commonwealth marine area*, or

- modify, destroy, fragment, isolate or disturb an important or substantial area of habitat such that an adverse impact on marine ecosystem functioning or integrity in a Commonwealth marine area results, or
- have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (eg breeding, feeding, migration behaviour, and life expectancy) and spatial distribution, or
- result in a substantial change in air quality** or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- result in persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, social amenity or human health may be adversely affected.

*Translocating or introducing a pest species may result in that species becoming established.

**The Commonwealth marine area includes any airspace over Commonwealth waters.

(Department of Environment and Heritage, 2006)

Table 5 – *Western Australian Wildlife Conservation Act 1950* Conservation Codes

Conservation Code	Description
Schedule 1	"…fauna that is rare or likely to become extinct, are declared to be fauna that is in need of special protection."
Schedule 2	"…fauna that is presumed to be extinct, are declared to be fauna that is in need of special protection."
Schedule 3	"…birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is in need of special protection."
Schedule 4	"…fauna that is in need of special protection, otherwise than for the reasons mentioned [in Schedule 1 – 3]"

Table 6 – DEC Priority Fauna Codes (Species not listed under the *Wildlife Conservation Act 1950*, but for which there is some concern)

Conservation Code	Description
Priority 1	Taxa with few, poorly known populations on threatened lands.
Priority 2	Taxa with few, poorly known populations on conservation lands. Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown Land, water reserves, etc.
Priority 3	Taxa which are known from few specimens or sight records, some of which are on lands not under immediate threat of habitat destruction or degradation.
Priority 4	Rare taxa. Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5 – 10 years.
Priority 5	Taxa in need of monitoring. Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Table 7 – Listing of Potentially Occurring Significant, Rare and Priority Fauna species within the site with Information Source

Genus	Species	Common Name	Listing under *Wildlife Conservation Act 1950* or DEC Priority List	Listing under *EPBC Act*	DEC Database	EPBC Matters Search	WA Museum Records
Birds							
Apus	*pacificus*	Fork-tailed Swift		Migratory		+	
Ardea	*alba*	Great Egret, White Egret		Migratory		+	+
Ardea	*ibis*	Cattle Egret		Migratory		+	
Cacatua	*leadbeateri*	Major Mitchell's Cockatoo	Schedule 4				+
Calidris	*ruficollis*	Red-necked Stint		Migratory			
Calyptorhynchus	*banksii naso*	Forest Red-tailed Black Cockatoo	Schedule 1 - Vulnerable				+
Calyptorhynchus	*baudinii*	Baudin's Black-Cockatoo	Schedule 1 - Endangered	Vulnerable	+	+	
Calyptorhynchus	*latirostris*	Carnaby's Black-Cockatoo	Schedule 1 - Endangered	Endangered	+	+	
Charadrius	*rubricollis*	Hooded Plover	Priority 4		+		+
Falco	*perigrinus*	Peregrine Falcon	Schedule 4 (Other Specially Protected Fauna)		+		+
Haliaeetus	*leucogaster*	White-bellied Sea-Eagle		Migratory		+	
Halobaena	*caerulea*	Blue Petrel		Vulnerable			+
Macronectes	*giganteus*	Southern Giant Petrel	Schedule 1 - Endangered	Endangered			+
Merops	*ornatus*	Rainbow Bee-eater		Migratory		+	
Numenius	*madagascariensis*	Eastern Curlew	Priority 4		+		
Reptiles							

Genus	Species	Common Name	Listing under *Wildlife Conservation Act 1950* or DEC Priority List	Listing under *EPBC Act*	DEC Database	EPBC Matters Search	WA Museum Records
Ctenotus	*gemmula*		Priority 3				+
Lerista	*lineata*		Priority 3				+
Mammals							
Dasyurus	*geoffroii*	Chuditch, Western Quoll	Schedule 1 – Vulnerable	Vulnerable		+	+
Hydromys	*chrysogaster*	Water Rat	Priority 4		+		+
Isoodon	*obesulus fusciventer*	Southern Brown Bandicoot, Quenda	Priority 5				+
Macrotis	*lagotis*	Bilby	Schedule 1 - Vulnerable				+
Phascogale	*calura*	Red-tailed Phascogale	Schedule 1 - Endangered	Endangered		+	
Setonix	*brachyurus*	Quokka	Schedule 1 - Vulnerable	Vulnerable		+	+
Arachnid							
Arbanitis	*inornatus*	Trapdoor spider	Priority 1		+		

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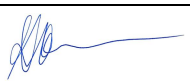
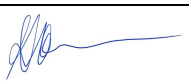
Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	Christine Best	A Kelderman		A Kelderman		2/06/09

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