



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5221/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Janerre Corporation Pty Ltd

1.3. Property details

Property: Mining Lease 47/1420
Local Government Area: Shire of Roebourne
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
15.52		Mechanical Removal	Sand Mining

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 25 October 2012

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. One Beard vegetation association has been mapped within the application area:

Beard vegetation association 127: Bare areas; mudflats (Government of Western Australia, 2011; GIS Database).

Astron Environmental Services (2010) conducted a vegetation and flora survey of the application area and surrounding area on 9 June 2010, and described four vegetation communities within the application area:

TiCc – *Triodia ?longiceps* open hummock grassland over tussock grassland on lower slope of coastal dune: *Triodia ?longiceps* very open to open hummock grassland over *Cenchrus ciliaris* tussock grassland;

AcCwWa – *Acacia coriacea* tall shrubland over *Corchorus walcottii* low shrubland over mixed *Whiteochloa airoides* and *Spinifex longifolius* tussock grassland with patchy *Aerva javanica*;

AcAjCc – *Acacia coriacea* shrubland over mixed shrubs and tussock grassland on steep coastal dune: *Acacia coriacea* tall open shrubland over mixed *Aerva javanica* and *Corchorus walcottii* low shrubland over *Cenchrus ciliaris* tussock grassland with patchy *Whiteochloa airoides*, *Triodia ?longiceps* and *Spinifex longifolius*; and

CwCc – *Corchorus walcottii* open swarf shrubland over tussock grassland on coastal dune: Scattered *Acacia coriacea* over *Corchorus walcottii* and *Aerva javanica* open dwarf shrubland over *Cenchrus ciliaris* tussock grassland.

Clearing Description Janerre Corporation Pty Ltd is proposing to clear up to 15.52 hectares of native vegetation within a larger application area of 16 hectares for sand mining.

The vegetation will be cleared using a loader/excavator. The vegetation and topsoil will be stockpiled separately for use in rehabilitation.

Vegetation Condition Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);

To:

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The application area is located in the Roebourne subregion of Western Australia and is situated approximately 36 kilometres west of the Karratha town site (GIS Database).

The vegetation condition was derived from a vegetation survey conducted by Astron Environmental Services (2010).

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the Roebourne sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). This sub-region is characterised as quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. The uplands are dominated by *Triodia hummock* grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands, while Samphire, Sporobolus and mangal occur on marine alluvial flats and river deltas (CALM, 2002).

Astron Environmental Services (2010) conducted a level one flora and vegetation survey over the application area and surrounding areas on 9 June 2010. A total of 39 vascular plant taxa from 30 genera belonging to 15 families were recorded within the survey area (Astron Environmental Services, 2010). Flora taxa recorded within the application area were representative of coastal dune habitat in the Pilbara region (Astron Environmental Services, 2010). The condition of the vegetation was determined to be 'very good' with some areas affected by introduced species in a 'degraded' condition (Astron Environmental Services, 2010; Keighery, 1994). A search of the Department of Environment and Conservation's Threatened and Priority Flora databases revealed that no Threatened Flora species and four Priority species may potentially occur within a 20 kilometre radius of the application area (DEC, 2012). Astron Environmental Services (2010) identified no Threatened flora and no Priority Flora species within the application area.

The application area sits within the buffer of a Priority Ecological Community (PEC) "Roebourne Plains Coastal Grassland"; however, none of the vegetation types identified within the application area are corresponding with the PEC (Astron Environmental Services, 2010; Mattiske, 2009). No Threatened Ecological Communities or Priority Ecological Communities were recorded within the application area (GIS Database).

There were two weed species identified during the survey; Buffel Grass (*Cenchrus ciliaris*) and Kapok (*Aerva javanica*) (Astron Environmental Services, 2010). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

There were two faunal habitat types identified within the application area (Ninox Wildlife Consulting, 2009). These habitats are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to that found in similar habitat located elsewhere in the region (Ninox Wildlife Consulting, 2009; Astron Environmental Services, 2010; GIS Database). There were no unique or significant faunal assemblages found within the application area (GIS Database). The clearing of 15.52 hectares of native vegetation within an application area of 41.4 hectares is unlikely to have a significant impact in a regional and local context.

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

Methodology

Astron Environmental Services (2010)
DEC (2012)
CALM (2002)
Keighery (1994)
Ninox Wildlife Consulting (2009)
Mattiske (2009)
GIS Database:
- Dampier & Extensions 50cm Orthomosaic - Landgate 2008
- IBRA WA (Regions - Subregions)
- Pre-European vegetation
- Threatened Ecological Sites Buffered

(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 indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

Ninox Wildlife Consulting (2009) identified two broad habitat types within the application area during a faunal reconnaissance survey:

- Coastal dunes; and
- Samphire flats.

Ninox Wildlife Consulting (2009) identified no significant faunal assemblages within the application area, and aerial imagery (GIS Database) suggests that the habitat present within the application area appears to be abundant within the local area (GIS Database). The application area does not contain habitats or faunal assemblages that are ecologically significant and the habitats are common throughout the local and regional area (Astron Environmental Services, 2010; Ninox Wildlife Consulting, 2009; GIS Database).

Ninox Wildlife Consulting (2009) conducted a reconnaissance survey over the application area and surrounding region during 2009. Ninox Wildlife Consulting (2009) identified no core habitat for conservation significant fauna. There are four species of conservation significance which could utilise the application area for short periods of time; the Great Egret (*Ardea alba*), Eastern Reef Heron (*Ardea sacra*), White-bellied Sea-eagle (*Haliaeetus leucogaster*) and the Flock Pigeon (*Phaps histrionica*) (DEC, 2012; Ninox Wildlife Consulting, 2009). These species may use the study area for foraging as part of a larger territory area and are considered highly mobile and/or have a wide distribution. Due to the widespread nature of the available habitats, it is unlikely there will be a significant impact on the conservation status of these species (Ninox Wildlife Consulting, 2009). The proposed clearing of 15.52 hectares of native vegetation is not likely to impact critical feeding or breeding habitat for any conservation significant fauna species as the application area does not contain significant habitat for the potential species.

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

Methodology Astron Environmental Services (2010)
 DEC (2012)
 Ninox Wildlife Consulting (2009)
 GIS Database:
 - Dampier & Extensions 50cm Orthomosaic - Landgate 2008

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

Comments **Proposal is not likely to be at variance to this Principle**

According to available databases, there are no records of Threatened Flora within the application area (GIS Database). A search of the Department of Environment and Conservation's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 10 kilometre radius of the application area (DEC, 2012).

Astron Environmental Services (2010) conducted flora and vegetation survey of the application area on 9 June 2010. No Threatened Flora was recorded within the survey area.

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

Methodology Astron Environmental Services (2010)
 DEC (2012)
 GIS Database:
 - Threatened and Priority Flora

(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.

Comments **Proposal is not likely to be at variance to this Principle**

A search of the available databases shows that there are no Threatened Ecological Communities situated within 100 kilometres of the application area (GIS Database).

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

Methodology GIS Database
 - Threatened Ecological Sites Buffered

(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.

Comments **Proposal is not at variance to this Principle**

The application area falls within the Pilbara IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:

Beard vegetation association 127: Bare areas; mudflats (Government of Western Australia, 2011; GIS Database).

Beard vegetation association 127 retains approximately 90% of its pre-European extent within the bioregion (Government of Western Australia, 2011). The surrounding area has been extensively cleared, however the area proposed to be cleared is not a significant remnant of native vegetation.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves

IBRA Bioregion - Pilbara	17,804,427	17,729,352	~99.58	Least Concern	6.32
Beard vegetation associations - State					
127	736,894	696,581	~94.53	Least Concern	8.04
Beard vegetation associations - Bioregion					
127	176,403	158,269	~89.72	Least Concern	20.53

* Government of Western Australia (2011)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2011)
GIS Database:
- IBRA WA (regions - subregions)
- 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.

Comments Proposal is not likely to be at variance to this Principle

According to available databases, the application area sits within a broad expanse of a saline mud flat (GIS Database). Based on vegetation mapping by Astron Environmental Services (2010) there was no riparian vegetation associations found within the application area associated with saline mudflat. As the saline mud flat located within the application area is only likely to inundate following significant rainfall or cyclonic events, the proposed clearing of 15.52 hectares of native vegetation is unlikely to result in any significant impact to any watercourse or wetland provided natural surface water flow patterns are not disturbed.

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

Methodology Astron Environmental Services (2010)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear

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

Comments Proposal is not likely to be at variance to this Principle

The application area is within the Littoral land system (GIS Database).

The Littoral land system is characterised by extensive bare coastal mudflats flanked by mangroves and samphire flats with quaternary coastal mud and silty loams, minor sandy islands, narrow sandy plains, coastal dunes and beaches with Aeolian sands (Payne et al., 1992). This land system is not susceptible to soil erosion however is highly susceptible to wind erosion if vegetative cover is depleted (Payne et al., 1992). The proposed clearing will not impact on coastal dunes, however potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology Payne et al. (1992)
GIS Database:
- Acid Sulfate Soil Risk Map, Pilbara Coastline
- Rangeland Land System Mapping

(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.

Comments Proposal is not likely to be at variance to this Principle

The application area is not located within any conservation area (GIS Database). The nearest conservation area is Millstream Chichester National Park, located approximately 68 kilometres south-east of the application area (GIS Database).

Given the distance of the application area from Millstream Chichester National Park, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

Methodology GIS Database:
- DEC Tenure

(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.

Comments Proposal is not likely to be at variance to this Principle

The application area is not located within a Public Drinking Water Source Area (GIS Database). The application area is located within the proclaimed Pilbara groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

The application area is situated partly on saline coastal flats which are subject to inundation (GIS Database). High sediment loads may enter the tidal areas from overland flow events which result following significant rainfall events. The proposed clearing of 15.52 hectares of native vegetation is not likely to significantly increase sediment entering the tidal areas.

With an average annual rainfall of approximately 269 millimetres (BoM, 2012) and an annual evaporation rate of 3,200 - 3,600 millimetres (GIS Database) there is little surface flow during normal seasonal rains. The sand dunes are highly permeable with sparsely distributed vegetation, so the proposed clearing is not likely to increase surface water run-off.

The application area has a groundwater salinity that is brackish (1,000 - 3,000 milligrams/Litre Total Dissolved solids (TDS)) (GIS Database). With high annual evaporation rates and low annual rainfall, there is little recharge into regional groundwater (BoM, 2012). The proposed clearing of 15.52 hectares of native vegetation is unlikely to further deteriorate the quality of underground water (GIS Database).

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

Methodology BoM (2012)
GIS Database:
- Evaporation Isopleths
- Hydrography, linear
- Public Drinking Water Source Areas
- RIWI Act, Groundwater Areas

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

Comments Proposal is not likely to be at variance to this Principle

The application area consists of vegetation which is predominantly dunal associated, and is largely degraded (Keighery, 1994) due to the presence of weed species (Astron Environmental Services, 2010). Despite the degraded condition of dunal vegetation (Keighery, 1994), complete removal of the dune should be avoided as it may cause movement of inland sediment during king tides, flooding of the Maitland River and when combined with cyclonic activity, and the potential to impact the mangrove system. The samphire flats located behind the dune may periodically become inundated on a very high tide (king tide or cyclonic event) or after sufficient rainfall (Astron Environmental Services, 2010). The proposed clearing of 15.52 hectares of native vegetation is not likely to exacerbate the incidence or intensity of flooding, however, potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Given the size of the area to be cleared (15.52 hectares) compared to the size of the Coastal catchment area (744,302 hectares) and Maitland River catchment (199,380 hectares) (GIS Database) the proposed clearing of native vegetation is not likely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

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

Methodology Astron Environmental Services (2010)
Keighery (1994)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, Linear

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There is one Native Title claim over the area under application. The claim WC96/89 was registered with the National Native Title Tribunal on 1 August 1996. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Site of Significance within the application area (Site ID: 18088) (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 10 September 2012 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology GIS Database:

- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

- Astron Environmental Services (2010) Karratha Earthmoving Tenement M47/1415, Vegetation, Flora and Fauna Survey. Prepared for Karratha Earthmoving, June 2010.
- BoM (2012) Climate Statistics for Australian Locations. A Search for Climate Statistics for Dampier Salt, Australian Government Bureau of Meteorology, viewed 17 October 2012, <http://reg.bom.gov.au/climate/averages/tables/cw_005061.shtml>.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 4 (PIL4 ? Roebourne synopsis), Department of Conservation and Land Management, Western Australia.
- DEC (2012) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation, viewed 17 October 2012, <<http://naturemap.dec.wa.gov.au>>.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Government of Western Australia (2011) 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting Pty Ltd (2009) Flora and Vegetation Assessment of Karratha Earthmoving Tenements M47/1412, M47/1415, M47/1420, M47/769, M47/1405 and L47/233 Desktop Study. Report prepared for John Consulting Services on behalf of Karratha Earthmoving, March 2009.
- Ninox Wildlife Consulting (2009) A Level 1 Vertebrate Fauna Assessment of Tenements M47/1412, M47/1415, M47/1420, M47/796, M47/1405 and L47/233, near Karratha. Report prepared for John Consulting Services on behalf of Karratha Earthmoving, April 2009.
- Payne, A. L. & Tille, P. J (1992) An inventory and condition survey of the Roebourne Plains and surrounds, Western Australia. Technical Bulletin No. 83, Department of Agriculture, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)

GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- 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, 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 need of further survey.
- P4** **Priority Four – 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.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** 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, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1** **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2** **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3** **Schedule 3 – Birds protected under an international agreement:** being 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 need of special protection.
- Schedule 4** **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: 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. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: 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.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU** **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD** **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.