



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5228/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Onslow Resources Ltd

1.3. Property details

Property: Mining Lease 08/468
Local Government Area: Shire of Ashburton
Colloquial name: Duck Creek Shingle Project – Stage 2

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
80		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 13 December 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. The following Beard vegetation association is located within the application area (GIS Database):

103: Hummock grasslands, shrub steppe; snakewood over soft spinifex and *Triodia wiseana*.

A flora and vegetation survey of the application area was undertaken by Pilbara Flora as part of a larger survey of five different project areas occurring over 13 mining tenements in the Ashburton Onslow region (Duck Creek Shingle Project being one of the projects). The application area was surveyed between 7 and 8 November 2009 and 22 and 24 March 2010. The survey identified the following nine vegetation types and disturbed area in the application area (Newland Environmental Pty Ltd (Newland Environmental), 2012):

Hills

1. Vegetation type 5: Open grassland of *Triodia wiseana* on low schistose hills.

Plains

2. Vegetation type 26: Low woodland of *Acacia citrinoviridis* and *Eucalyptus victrix* on floodplains.

3. Vegetation type 27: High shrubland of *Acacia synchronicia* on floodplains.

River Banks

4. Vegetation type 31: Woodland of *Melaleuca argentea* and *Eucalyptus victrix* on the Duck Creek river banks.

5. Vegetation type 32: Low open forest of *Eucalyptus victrix*, *Eucalyptus camaldulensis* var. *obtusa* and *Acacia citrinoviridis* on Duck Creek river banks.

6. Vegetation type 33: Open forest of *Eucalyptus victrix* over *Melaleuca glomerata* and *Acacia citrinoviridis* on the Duck Creek river banks.

River Beds

7. Vegetation type 34: Scattered low trees of *Eucalyptus camaldulensis* var. *obtusa* in the Duck Creek river bed.

8. Vegetation type 35: Open forest of *Eucalyptus victrix*, *Eucalyptus camaldulensis* var. *obtusa* and *Acacia citrinoviridis* in the Duck Creek river bed.

9. Vegetation type 37: Mixed species scattered herbs in the disturbed and scoured Duck Creek river bed.

Clearing Description

Onslow Resources Limited has applied to clear 80 hectares within an application area of approximately 194 hectares (GIS Database). The application area is located approximately 130 kilometres south east of Onslow (GIS Database).

The purpose of the application is for sand and shingle mining which involves excavation of sand and shingle from the Duck Creek river bed. The proposed operation includes river bed excavation areas (12 hectares), processing and stockpiling areas (13 hectares) and roads (5 hectares) (Newland Environmental, 2012). A further 50 hectares has been included for a possible Stage 3 mining project. Clearing will be by mechanical means.

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);

To

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

Comment

The vegetation condition of each vegetation type was determined by Pilbara Flora using a scale based on Trudgen (1988). These condition ratings were converted to the Keighery (1994) scale.

The application area is located on Mount Stuart Pastoral Station and Crown Reserve 1108. According to Newland Environmental (2012), Reserve 1108 is vested with the Department of Planning and Infrastructure as a 'Watering Place' and appears to be historical and inactive for a considerable amount of time.

Due to time constraints only reconnaissance and vegetation mapping was undertaken in the western portion of Mining Lease 08/468 (Newland Environmental, 2012). Pilbara Flora (2012) notes that poor rainfall conditions in 2009 and 2010 could have affected the growth of annuals and forbs, however any impact on the flora survey would have been minimised to some extent by the pre-survey rainfall that did occur.

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 Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is generally described as Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

The application area is located within the Duck Creek river bed, river bank and adjacent floodplains and extends along Duck Creek for approximately 3.5 kilometres. According to Newland Environmental (2012), Duck Creek is a major regional river system that only flows after major rainfall events with flows often associated with cyclonic or massive rainfall events.

The vegetation survey identified nine vegetation types within the application area with the vegetation condition ranging from excellent to completely degraded. The application area comprises approximately 86% of Mining Lease 08/468 of which 56.84% was assessed as being in a degraded condition (Newland Environmental, 2012). None of the vegetation types were identified as being rare, restricted or unique (Pilbara Flora, 2012). According to Newland Environmental (2012), the conservation value of Mining Lease 08/468 was considered as being reduced due to Buffel Grass infestations and overgrazing along river banks, Mexican Poppy infestation along the river bed and topsoil loss in some floodplains areas. As a result of the weed infestations and overgrazing there has been significant land degradation (Newland Environmental, 2012).

A total of 40 vascular taxa from 20 genera and 20 families were recorded from Mining Lease 08/468. According to Newland Environmental (2012), this is considered reasonably representative of the typical floristic diversity expected for the Upper Gascoyne Region in the dry season, in a moderate survey area with areas of massive weed infestation and overgrazing. Areas of Buffel Grass infestation had reduced levels of species diversity and resulted in a lack of native species understorey layer (Newland Environmental, 2012).

Six introduced species were recorded within Mining Lease 08/468 including Buffel Grass (*Cenchrus ciliaris*), Birdwood Grass (*Cenchrus setiger*), Kapok Bush (*Aerva javanica*), Mexican Poppy (*Argemone ochroleuca*), Mimosa Bush (*Vachellia farnesiana*) and *Citrullus colocynthis* (Newland Environmental, 2012). None of these species are listed as a 'Declared Plant' for the survey area under the *Agriculture and Related Resources Protection Act 1976* (Newland Environmental, 2012). Potential impacts from weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

According to available databases (GIS Database) and Pilbara Flora (2012), no Threatened Flora, Priority Flora or Threatened or Priority Ecological Communities are located within the application area.

A search of the Department of Environment and Conservation's (DEC's) NatureMap within a 20 kilometre radius of the application area returned records of five mammal, 50 bird and 34 reptile species (DEC, 2012). A fauna habitat assessment conducted in March 2010 did not identify any unique or specialised habitat (Newland Environmental, 2010).

Given vegetation in the application area has been impacted by weeds and grazing and is not considered rare, restricted or unique, it is unlikely the application area comprises a higher level of biological diversity than surrounding areas.

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

Methodology CALM (2002)
DEC (2012)
Newland Environmental (2010)
Newland Environmental (2012)
Pilbara Flora (2012)
GIS Database:
- IBRA WA (Regions – Sub Regions)
- Threatened and Priority Flora
- 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 may be at variance to this Principle

A fauna habitat assessment was conducted by Newland Environmental in March 2010. Four broad habitat types were identified within the survey area including Duck Creek river bed, floodplains, plains and schistose hillsides (Newland Environmental, 2010). No gorges, rock ledges, sheltered valleys, pisolitic mesas, caves, mine shafts, steep elevated cliffs for raptor nesting sites, waterholes, watering points, tussock grasslands, sand dunes or dunefields, spinifex covered undulating scree slopes (Western Pebble-mound Mouse) or pebble mounds of the Western pebble-mound Mouse were recorded within the application area (Newland Environmental, 2010). The fauna survey identified some tall trees in the *Eucalyptus* riparian communities that could act as roosting or nesting sites for bird species, although, few nesting hollows were observed. Habitat within riparian vegetation types 31, 34, 35 and 37 was found to be open with no or little understorey shelter (Newland Environmental, 2010). Newland Environmental (2010) notes that the *Eucalyptus camaldulensis* var. *obtusa* and *Eucalyptus victrix* riverine communities occur extensively throughout the Pilbara Region and are not considered as being unique, rare or geographically restricted.

The desktop study identified a total of 340 fauna species in the Duck Creek region, with 63 species identified with conservation significance (Newland Environmental, 2010). Of these ten have the potential to occur within the application area, however, the majority of these species are either mobile and able to utilise surrounding vegetation, can utilise a variety of habitats, prefer to be in close proximity to a permanent water source or the application area is outside their recorded distribution (Newland Environmental, 2010). The fauna survey found that three of these species may utilise the application area as breeding habitat. These include:

- Rainbow Bee-eater (*Merops ornatus*) – Marine; Migratory under *EPBC Act*, Schedule 3;
- Peregrine Falcon (*Falco peregrinus*) – Schedule 4; and
- Grey Falcon (*Falco hypoleucos*) – Priority 4.

The Peregrine Falcon and Grey Falcon may utilise tall trees within the riparian vegetation as roosting and nesting sites and the Rainbow Bee-eater may utilise the loamy and sandy soils of the river bank for burrowing and nesting (Newland Environmental, 2010).

The presence of potential breeding habitat within the riparian zone and river bank areas indicates the application area may provide significant habitat. Potential impacts as a result of the proposed clearing may be minimised by the implementation of a condition that restricts clearing of larger riparian trees and limits clearing within river bank areas to access tracks only.

Based on this, the proposed clearing may be at variance to this Principle.

Methodology Newland Environmental (2010)

(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). No Threatened Flora were recorded during the vegetation survey undertaken between 7 and 8 November 2009 and 22 and 24 March 2010 (Pilbara Flora, 2012).

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

Methodology Pilbara Flora (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

According to available databases, there are no known Threatened Ecological Communities (TECs) within the

application area (GIS Database). The nearest known TEC is approximately 115 kilometres east, north east of the application area (GIS Database).

The vegetation survey did not record any TECs (Pilbara Flora, 2012).

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

Methodology Pilbara Flora (2012)
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 Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2011).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

103: Hummock grasslands, shrub steppe; snakewood over soft spinifex and *Triodia wiseana*.

Approximately 99.9% of Beard vegetation association 103 remains at both a state and bioregional level (Government of Western Australia, 2011). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	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	~99.6	Least Concern	6.3
Beard veg assoc. – State					
103	614,596	614,464	~99.9	Least Concern	2.0
Beard veg assoc. – Bioregion					
103	614,056	613,924	~99.9	Least Concern	2.0

* 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 – Sub Regions)
- 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 at variance to this Principle

There is one major non-perennial watercourse within the application area (GIS Database) known as Duck Creek (approximately 100 to 200 metres wide within the application area). According to Newland Environmental (2012), Duck Creek is a medium sized tributary of the Ashburton River and is approximately 240 kilometres in length with its upper reaches extending into the central Hamersley Ranges. The application area occurs in the lower portion of Duck Creek, approximately 25 kilometres upstream from the confluence with the Ashburton River. Duck Creek flows only after major rainfall events and remains dry for most of the year with river flows often associated with cyclonic or massive rainfall events that can result in broad flood plains extending well past the river bed (Newland Environmental, 2012).

Three vegetation types were identified on the river banks (vegetation types 31, 32 and 33) and in the river bed (vegetation types 34, 35 and 37) of Duck Creek. According to Newland Environmental (2012), *Eucalyptus camaldulensis* var. *obtusata* and *Eucalyptus victrix* riverine communities occur extensively throughout the Pilbara Region and are not considered as being unique, rare or geographically restricted. The Stage 2 mining project will only utilise the river bank areas for site roads (Newland Environmental, 2012). Onslow Resources Limited has made a commitment to avoid riverine vegetation wherever practical and, in particular, the larger tree

species occurring in Duck Creek (Newland Environmental, 2012). Potential impacts to Duck Creek and riparian vegetation may be minimised by the implementation of a condition that restricts clearing of larger riparian trees and limits the purpose of clearing within river bank areas to access tracks only.

Based on the above, the proposed clearing is at variance to this Principle.

Methodology Newland Environmental (2012)
GIS Database:
- Hydrography, linear
- Rivers

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

Comments Proposal may be at variance to this Principle

The application area has been mapped as occurring on the Ashburton and Capricorn land systems (GIS Database). The Ashburton land system is described as active floodplains and backplains with deep silty loam and clayey soils, shrublands and tussock grasslands (Payne et al., 1988). The Capricorn land system consists of rugged hills and ridges with low shrublands or hard spinifex (Payne et al., 1988). Newland Environmental (2012) identified five landforms in the application area including hills, plains, river banks, river beds and disturbed areas. According to Payne et al. (1988) floodplains in the Ashburton land system are susceptible to wind erosion but are partially stabilised by Buffel Grass. Potential impacts from wind erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

A desktop land degradation risk assessment of the application area was undertaken by the Department of Agriculture and Food Western Australia (DAFWA). This assessment found the removal of sand and shingle material in itself is unlikely to cause accelerated soil erosion, however, it did identify the river bank soils as quite erodible (DAFWA, 2012). These soils are likely to comprise silty loam soils that are reasonably stable if left undisturbed. DAFWA (2012) recommended that removal of protective vegetative cover on the river banks for access to river bed areas be carefully sited and minimised in order to avoid soil erosion. Potential impacts from erosion may be minimised by the implementation of a condition that restricts clearing of larger riparian trees and limits the purpose of clearing within river bank areas to access tracks only.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology DAFWA (2012)
Newland Environmental (2012)
Payne et al. (1988)
GIS Database:
- 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 does not lie within any conservation areas or Department of Environment and Conservation (DEC) managed lands (GIS Database). The nearest conservation area is the former leasehold Nanutarra pastoral station, located approximately 30 kilometres north west of the application area (GIS Database). Based on the distance between the application area and the former leasehold, the proposed clearing is not likely to impact the environmental values of any 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

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There is one major non-perennial watercourse within the application area (GIS Database) known as Duck Creek. River flows in Duck Creek are often associated with cyclonic or massive rainfall events that cause soil erosion and scalding and create continual relocation and re-assortment of alluvial material (Newland Environmental, 2012).

According to Newland Environmental (2012), very little vegetation is required to be cleared in the river bed areas and it is likely that excavations will be refilled and landscaped by river flow events that will result in natural rehabilitation of the river bed mining disturbances. Excavations will result in some areas of the river bed being up to four metres lower, however, mining will not intersect groundwater. Newland Environmental (2012) states the proposed clearing will not alter the Duck Creek watercourse direction or the flow rate and riverine

vegetation will be avoided wherever practicable. River bank soils are considered prone to erosion and may lead to increased sedimentation of Duck Creek where vegetative cover is removed. Potential impacts to Duck Creek may be minimised by the implementation of a condition that restricts clearing of larger riparian trees and limits the purpose of clearing within river bank areas to access tracks only.

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

Methodology Newland Environmental (2012)
GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 is located within the Ashburton River catchment area (GIS Database). Given the size of the area to be cleared (80 hectares) in relation to the size of the catchment area (7,877,743 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

With an average annual rainfall of 400 millimetres and an average annual evaporation rate of 3,400 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments – Catchments
- Rainfall, mean annual

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

Comments

There is one native title claim over the area under application: WC05/4 (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant groups. However, 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*.

According to available databases, there are two registered Aboriginal Sites of Significance within the application area (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. There were no submissions received.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley subregion) Department of Conservation and Land Management, Western Australia.
- DAFWA (2012) Advice to the assessing officer for clearing permit application CPS 5228/1. Received on 4 December 2012.
- DEC (2012) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation. <http://naturemap.dec.wa.gov.au/default.aspx>, viewed October 2012.
- 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.

- Newland Environmental (2010) Habitat Assessment for Vertebrate Fauna at Proposed Mining Areas on M08/456, M08/468 and L08/44, Duck Creek Sand and Shingle Project. Unpublished report for Onslow Resources Ltd dated April 2010.
- Newland Environmental (2012) Supporting Information for a Native Vegetation Clearing Permit Application Purpose Permit Duck Creek Shingle Project – Stage 2 on M08/468. Unpublished report for Onslow Resources Ltd dated August 2012.
- Payne et al. (1988) An inventory and condition survey of the rangelands in the Ashburton River Catchment, Western Australia. Department of Agriculture, Western Australia, Technical Bulletin 62, revised edition 1988.
- Pilbara Flora (2012) Flora and Vegetation Survey for the Duck Creek Sand and Shingle Operation on M08/456, M08/468 and L08/44. Unpublished report for Onslow Resources Ltd dated May 2010 (Revised August 2012).
- Trudgen, M.E. (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished Report Prepared for Bowman Bishaw and Associates, West Perth.

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.