



1. Application details

1.1. Permit application details

Permit application No.: 2536/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Robe River Pty Ltd

1.3. Property details

Property: Miscellaneous Licence 47/47
Local Government Area: Shire Of Ashburton
Colloquial name: Tom Price Mine Rail

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.042		Mechanical Removal	Miscellaneous

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association is located within the application area; 587: Mosaic: Hummock grasslands, open low tree-steppe; snappy gum over <i>Triodia wiseana</i> / Hummock grasslands, shrub-steppe; Kanji over <i>Triodia pungens</i>.</p> <p>Pilbara Iron conducted a flora survey of the application area, in March 2008. The survey involved traversing the area on foot in 50m wide corridors (Pilbara Iron, 2008).</p> <p>Within the area only one vegetation type was identified;</p> <p>1) Stony Slope: <i>Hakea lorea</i> scattered low trees over <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> low scattered shrubs over <i>Triodia wiseana</i> grassland over various scattered herbs. No fire history.</p>	<p>Robe River Pty Ltd (Robe) intends to clear up to 0.042ha of native vegetation. The purpose of the clearing is to implement a trackside safe working radio system RBS site that will be used for signalling to, and control of, trains (Pilbara Iron, 2008). The area cleared will include solar panels, battery boxes, equipment cabinets, conduits and concrete pads, cable pits and a 20m mast (Pilbara Iron, 2008).</p> <p>The application area is immediately adjacent to the existing railway line and road. Clearing will be by dozer, blade down and cleared vegetation and topsoil will be stockpiled for use in rehabilitation (Pilbara Iron, 2008).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)</p>	<p>The vegetation condition was obtained from Pilbara Iron, 2008. Pilbara Iron reported the overall condition to be very good. The only disturbance is in surrounding areas in the form of tracks. Two weed species were recorded within the application area (Pilbara Iron, 2008).</p>

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 is located within the Chichester Interim Biogeographic Regionalisation for Australia (IBRA) subregion (GIS Database). The plains of the Chichester sub-region primarily consist of a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands (Kendrick and McKenzie, 2001). The region is relatively high in biodiversity as it incorporates the Millstream Chichester National Park. This Park has numerous permanent waterholes which support a variety of species, including up to 108 bird species, nine fish species and 29 species of dragon and damselflies (Department of Environment, Water, Heritage and the Arts, 2008).

The application area is located between an existing railway line and road. Although the vegetation of the application area has been reported as being in very good condition (Pilbara Iron, 2008), aerial photos of the site would suggest that areas surrounding the application area have suffered varying degrees of disturbance from access tracks, and railway construction and maintenance activities.

A flora survey of the application area was conducted by Pilbara Iron in March 2008. The flora survey recorded a total of 20 native vascular flora from 19 genera, belonging to 12 families (Pilbara Iron, 2008). Two weed species were recorded within the application area; Kapok Bush (*Aerva javanica*) and Buffel Grass (*Cenchrus ciliaris*) (Pilbara Iron, 2008). The small species count is likely to be a result of both the small survey area and past disturbance in the area.

Pilbara Iron (2008) reported that no vegetation communities of conservation significance were recorded during the survey. All the vegetation types found within the application area are well represented in the Pilbara region (Pilbara Iron, 2008).

The assessor performed a search of the Western Australian Museum Fauna Database for fauna species that may occur within 50km of the application area. The search reported that up to 150 fauna species may potentially be present at some stage within the application area; 32 mammal species, 76 bird species, 82 reptile species and 7 amphibian species (Western Australia Museum, 2008). This suggests the area is potentially diverse in bird, reptile and mammal species. However due to past disturbance, the fauna within the application area may potentially be less diverse than within other, undisturbed vegetation nearby.

The landforms, vegetation types and fauna habitats in the application area are well represented in the Pilbara region, including within the Millstream Chichester National Park (Pilbara Iron, 2008; GIS Database). Based on the small size of the application area (0.042ha) and the vegetation types within it, the application area is not expected to be an area of high diversity.

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

Methodology

Department of Environment, Water, Heritage and the Arts (2008)
Kendrick and McKenzie (2001)
Pilbara Iron (2008)
Western Australian Museum (2008)
GIS Database
- Pre-European Vegetation
- Interim Biogeographic Regionalisation of Australia

(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

According to available databases, there are no records of Threatened Fauna, or Department of Environment and Conservation (DEC) listed Priority Fauna, within the application area (GIS Database). Threatened fauna have previously been recorded in areas surrounding the application area. A Schedule 1 fauna species has previously been recorded at a site approximately 35km south of the application area, and a Priority 1 and Priority 4 species have been recorded in an area approximately 35km north-west of the application area (GIS Database).

A search by DEC for threatened fauna was performed in May 2008 for up to a 20km radius around the application area (DEC, 2008). The survey found that three fauna species may potentially occur in the search area; the Northern Quoll (*Dasyurus hallucatus*), Western Pebble-mound Mouse (*Pseudomys chapmani*) and the Bush Stone-Curlew (*Burhinus grallarius*) (Pilbara Iron, 2008).

A search of the Western Australia Museum Fauna Database has recorded further species of Threatened fauna that have the potential to occur within the application area; Orange Leaf-nosed bat (*Rhinonictis aurantius*), Ghost Bat (*Macroderma gigas*), Lakeland Downs Mouse (*Leggadina lakedownensis*), Australian Bustard (*Ardeotis australis*) and the Night Parrot (*Pezoporus occidentalis*) (Western Australia Museum, 2008).

Based on preferred habitat it is unlikely that the Orange Leaf-nosed Bat or the Ghost Bat would occur within the application area. These species are generally found in caves or old, abandoned mine tunnels (Armstrong, 2001; Cooper, 2002); habitats not present within the application area.

The Western Pebble-mound Mouse (DEC - Priority 4) colonies generally occur on gentler slopes of rocky ranges where the ground is covered by a stony mulch and vegetated by hard spinifex, often with an overstorey of eucalypts and scattered shrubs (Van Dyck and Strahan, 2008). Mounds are often sited close to narrow ribbons of Acacia-dominated scrub that grow along incised drainage lines (Van Dyck and Strahan, 2008). A survey of the application area did not uncover any mounds, hence it is unlikely to represent significant habitat for this species.

The Northern Quoll (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2006*) can be found in a range of areas but prefer rocky areas and eucalypt forests (Department of Environment, Water, Heritage and the Arts, 2005). During the day the species is known to hide in hollow logs, rock crevices, caves and tree hollows. Based on habitat type, this species is unlikely to use the application area as a den site due to lack of appropriate cover, however it could possibly be used as a foraging ground. The habitat type found within the application area is well represented on a regional and local scale, hence, the vegetation within the application area is unlikely to be significant habitat for this species.

The Bush Stone-Curlew (DEC - Priority 4) prefers relatively undisturbed grasslands and grassy woodlands with a groundcover of fallen timber and leaf litter (Department of Environment and Climate Change, 2005a). The species is known to nest on bare ground and often returns to the same site each year (Department of Environment and Climate Change, 2005a). This species could potentially be found within the application area, however, the vegetation types found within the application area are well represented on a regional and local scale, therefore, vegetation within the application area is unlikely to be significant habitat for this species.

The Lakeland Downs Mouse (DEC - Priority 4) is known to occur on sandy soils and cracking clays that support native grasses (DEC, 2006). It is known that this species experiences great fluctuations in population size depending on seasonal factors, reaching plague proportions in good years (DEC, 2006). The soil types located within the application area appear to be gravelly, stony soils and therefore the area may not be habitat for this species.

The Australian Bustard (DEC - Priority 4) is generally found in areas of tussock grassland, *Triodia* hummock grassland, grassy woodland and low shrublands (Department of Environment and Climate Change, 2005b) The species is known to breed on bare ground on low sandy ridges or stony rises and is dispersive with widespread movements over long distances (Department of Environment and Climate Change, 2005b). This species may occur within the application area, however, given the widespread distribution of this species, the vegetation within the application area is not likely to be significant habitat for this species.

The Night Parrot (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2006*) is known to occupy dense, low vegetation, which provides them shelter during the day (Australian Museum Online, 2007). Most records come from hummock grasslands with spinifex or from areas dominated by samphire. It has been suggested that birds move into the grasslands when *Triodia* is seeding (Australian Museum Online, 2007). Many records have come from waterholes, and almost all reports from areas of *Triodia* have noted the presence of nearby water (Australian Museum Online, 2007). This species could potentially occur in the application area however evidence suggests that this would be unlikely due to the lack of free-standing water. The application area is therefore not likely to be significant habitat for this species.

None of the abovementioned fauna species are likely to be specifically dependant on habitats found within the application area, although they may use the project area as part of a foraging ground. The fauna habitats occurring within the application area are well represented within the Millstream Chichester National Park and throughout the Pilbara region generally (Pilbara Iron, 2008).

The area proposed to clear lies between an existing railway line and road. Aerial photos suggest that areas surrounding the application area have suffered from disturbance, most likely from road and railway construction and maintenance activities. The application area is therefore unlikely to represent an area of significant fauna habitat in comparison to other undisturbed areas in the region.

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

Methodology Armstrong (2001)
Australian Museum Online (2007)
Cooper (2002)
DEC (2006)
DEC (2008)
Department of Environment and Climate Change (2005a)
Department of Environment and Climate Change (2005b)
Department of Environment, Water, Heritage and the Arts (2005)
Pilbara Iron (2008)
Van Dyck and Strahan (2008)

Western Australian Museum (2008)
GIS Database
- Threatened Fauna

(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, no Declared Rare or Priority flora species occur within the application area. The nearest known Priority flora are populations of *Terminalia supranitifolia* (Priority 1), located approximately 35km north-west of the application area (GIS Database). Department of Environment and Conservation databases have no other records of any other populations of Declared Rare or Priority flora within a 50km radius of the application area (GIS Database).

Pilbara Iron conducted a flora survey of the application area in March 2008, focusing primarily on Declared Rare and Priority flora (Pilbara Iron, 2008). No Declared Rare or Priority flora were recorded within the application area.

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

Methodology Pilbara Iron (2008)
GIS Database
- Declared Rare and Priority Flora List

(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

There are no known Threatened Ecological Communities (TEC's) within the area applied to clear (GIS Database). The nearest known TECs are located approximately 40km south of the application area (GIS Database). At such distance from the application area, these ecosystems are unlikely to be affected by the proposed clearing.

Pilbara Iron (2008) reported that no Threatened Ecological Communities were identified during the flora survey of the application area.

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

Methodology Pilbara Iron (2008)
GIS Database
- Threatened Ecological Communities

(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 IBRA Pilbara Bioregion. Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion (see table). The vegetation in the application area is recorded as Beard Vegetation Association 587: Mosaic: Hummock grasslands, open low tree-steppe; snappy gum over *Triodia wiseana*/Hummock grasslands, shrub-steppe; Kanji over *Triodia pungens* (GIS Database; Shepherd et al, 2001). According to Shepherd et al., (2001) approximately 100% of this vegetation association remains within the Bioregion (see table below). Furthermore, the vegetation association is very well represented in conservation estate.

Therefore the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
587	585,724	585,724	~100	Least Concern	21.0
Beard veg assoc. – Bioregion					
587	585,724	585,724	~100	Least Concern	21.0

* Shepherd et al. (2001) updated 2005

** 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)
Shepherd et al. (2001)
GIS Database
- 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

There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). The application area is located approximately 400m east of the Harding River and approximately 5km north-west of Western Creek (GIS Database).

The watercourses described above are well defined, having a channel bed armoured by rock deposits and vegetated with scattered mature eucalypts (Main Roads, 2003). The watercourses are formed in alluvial red loams with gravel and are stable (Main Roads, 2003).

Due to the small amount of native vegetation to be cleared, and the distance of the application area from any watercourses, it is unlikely that there will be a significant impact from the clearing of 0.042 ha of vegetation on any watercourse or wetland.

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

Methodology Main Roads (2003)
GIS Database
- 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 broadly mapped as falling within the Rocklea Land System (GIS Database).

The Rocklea Land System consists of basalt hills, plateaux, lower slopes and minor stony plains supporting

hard spinifex grasslands (Van Vreeswyk et al., 2004; Pilbara Iron, 2008). This land type is widely spread across the Pilbara Bioregion (Van Vreeswyk et al., 2004; Pilbara Iron, 2008).

The application area is located on the Chichester Plateau (Pilbara Iron, 2008). The plateau consists mainly of basalts, with included siltstone, mudstone, shale, dolomite and jaspilite, forming a watershed between numerous rivers flowing north through the Abydos Plain to the coast, and the Fortescue drainage on the southern side of the range (Fortescue Metal Group, 2005). In addition Van Vreeswyk et al., 2004, describes the soils of stony plains of the Rocklea land system, as being calcareous shallow loams, red sandy earths and shallow red/brown non-cracking clays.

Photos of the application area indicate that the landscape is fairly stony, evident by the fact the vegetation type within the area is described as Stony Slope (Pilbara Iron, 2008). This would suggest that the area is not likely to be susceptible to erosion, therefore, the small amount of clearing required (0.042ha) is not likely to contribute to appreciable land degradation.

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

Methodology Fortescue Metal Group (2005)
Pilbara Iron (2008)
Van Vreeswyk et al. (2004)
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 is located within the northern section of the Millstream Chichester National Park (GIS Database). The National Park covers approximately 200,000ha and crosses a number of different major land forms such as the Fortescue River and Valley, and the Hammersley and Chichester Ranges (Main Roads, 2003). The Millstream Chichester National Park is an important area of natural heritage and biodiversity with up to 108 bird species, nine fish species and 29 species of dragon and damselflies occurring within the park (Department of Environment, Water, Heritage and the Arts, 2008).

The vegetation types and habitats within the application area are well represented within the Millstream Chichester National Park and within the Pilbara region generally (Shepherd et al., 2001; Pilbara Iron, 2008). The application area lies between a railway line and road (GIS Database). Aerial photographs of the region show that sites directly surrounding the application area have previously suffered from disturbance, most likely from the construction and maintenance of the road and railway. Given previous disturbance, and the small size of the application area (0.042ha) in contrast to the size of the Millstream Chichester National Park (200,000ha), it is not expected that the proposed clearing of native vegetation will have a significant impact on the environmental values of this conservation area.

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

Methodology Department of Environment, Water, Heritage and the Arts (2008)
Main Roads (2003)
Pilbara Iron (2008)
Shepherd et al. (2001)
GIS Database
- CALM Managed Land and Waters

(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 located within the Harding Dam Catchment area with the Harding River lying approximately 400m east of the application area. This area is classified as a Priority 1 source protection area, as it flows into the Harding Dam, located 30km north-east of the application area (GIS Database).

Aerial photographs indicate that the application area has suffered from previous disturbance, most likely from the construction and maintenance of the adjacent road and railway. Therefore the additional 0.042ha of clearing is unlikely to have any further impact on surface or ground water quality, or groundwater levels.

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

Methodology Pilbara Iron (2008)
GIS Database
- Public Drinking Water Source Area [PDWSA's]

(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 Harding River Catchment area; a Priority 1 groundwater protection area (GIS Database). Natural flooding can occur occasionally within this catchment area during the wet season (November to March), or following significant rainfall, particular that rainfall associated with tropical cyclones (Bureau of Meteorology, 2008).

The small area to be cleared (0.042ha) in relation to the size of the catchment area (approximately 155,807ha), is not likely to 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 Bureau of Meteorology (2008)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim (WC99-014) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement 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 an Aboriginal Site of Significance (Site ID: 18790) within the vicinity of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no 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.

There were no public submissions received during the public comments period

Methodology GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles and is not at variance to Principle (e), is not likely to be at variance to Principles (a), (b), (c), (d), (f), (g), (h), (i) and (j).

Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, record keeping and permit reporting.

5. References

- Armstrong, K. (2001) The distribution and roost habitat of the Orange Leaf-nosed bat, *Rhinionictis aurantius*, in the Pilbara region of Western Australia. *Wildlife Research* 28 (1). CSIRO, Western Australia. 95-104.
- Australian Museum Online (2007) Night Parrot *Pezoporus occidentalis* [online]. Available from: http://www.amonline.net.au/birds/research/night_parrot.htm. Accessed 26 June, 2008.
- Bureau of Meteorology (2008) Tropical Cyclones Affecting the Karratha/Dampier/Roebourne region [online]. Available from: <http://www.bom.gov.au/weather/wa/cyclone/about/roebourne/index.shtml>. Accessed 26 June, 2008.
- Cooper, J. (2002) *Macroderma gigas* [online]. Available from: http://animaldiversity.ummz.umich.edu/site/accounts/information.Macroderma_gigas.html. Accessed 24 June, 2008.
- DEC (2006). Lakeland Downs Short-tailed Mouse, *Leggadina lakedownensis* (Watts, 1976). http://www.naturebase.net/component/option,com_docman/task,doc_download/gid,145/Itemid,1288/mode,view/. Accessed 24 June 2008. Department of Environment and Conservation, Perth, Western Australia.
- DEC (2008) Threatened and Priority Fauna Database. Department of Environment and Conservation. Western Australia.
- Department of Environment and Climate Change (2005a) Bush Stone Curlew - Profile [online]. Available from: <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10113>. Accessed 23 June, 2008.
- Department of Environment and Climate Change (2005b) Australian Bustard - profile [online]. Available from: <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10063>. Accessed 26 June, 2008.
- Department of Environment, Water, Heritage and the Arts (2005) Northern Quoll (*Dasyurus hallucatus*) [Online]. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/dasyurus-hallucatus.html>. Accessed 23 June,

- 2008.
- Department of Environment, Water, Heritage and the Arts (2008) Chichester Range National Park (1977 boundary), Roebourne - Wittenoom Rd, Millstream, WA, Australia [online]. Available from: <http://www.environment.gov.au/cgi-bin/ahdb/search.pl>. Accessed 27 June, 2008.
- 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.
- Fortescue Metal Group (2005) Pilbara Iron Ore Project: Night Parrot (*Pezoporos occidentalis*): Management Plan. Fortescue Metal Group, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P. and McKenzie, N. (2001) Pilbara 1 (PIL1-Chichester subregion); A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. Department of Conservation and Land Management.
- Main Roads Western Australia (2003) Karratha - Tom Price Road, Karratha to Nanutarra-Munjina Rd Section. Consultative Environmental Review (Assessment No. 1244). Vol 1. Main Roads Western Australia, Western Australia.
- Pilbara Iron (2008) EP Act - Robe River Pty Ltd Clearing Permit. Supporting Documentation. Rio Tinto Group, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).
- Van Dyck, S. and Strahan, R. (eds.) (2008) The Mammals of Australia. Third Edition. New Holland Publisher (Australia) Pty Ltd, Australia.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia. Department of Agriculture, Western Australia.
- Western Australian Museum (2008) Faunabase - Western Australian Museum, Queensland Museum and Museum and Art Gallery of NT Collections Databases. Available from <http://www.museum.wa.gov.au/faunabase/prod.index.htm>. Accessed 24 June, 2008.

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

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.