Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2614/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Dampier Salt Limited**

1.3. Property details

Property: *Leslie Solar Salt Industry Agreement Act 1966*
Mineral Lease 242SA
Mineral Lease 250SA
Local Government Area: Town of Port Hedland
Colloquial name: Port Hedland Salt Operation

1.4. Application

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

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 at a 1:250,000 scale for the whole of Western Australia, and are a useful tool to examine the vegetation extent in a regional context. Two Beard vegetation associations are located within the application area (GIS Database);

127; Bare areas; mud flats; and

647; Hummock grasslands, dwarf-shrub steppe; *Acacia translucens* over soft Spinifex.

Biota Environmental Science Pty Ltd (2006a) (hereafter referred to as Biota) conducted a flora survey over the application area between the 17th and 24th of September 2005. The flora survey identified four main vegetation types within the application area. These are described as follows;

1) Samphire shrublands on saline loam drainage areas with *Halosarcia halocnemoides subsp. tenuis, Halosarcia indica subsp. leiostachya* and *Halosarcia pergrannulata subsp. elongata*;

2) *Triodia epactia* mid-dense to closed hummock grassland with a high amount of *Cenchrus ciliaris* and scattered individuals of *Euphorbia alsiniflora*, *Sesbania cannabina* and *Corchorus incanus subsp. Incanus*.

3) Interzone area – *Triodia secunda* hummock grassland with other halophytic species. Dominants include *Neobassia astrocarpa, Trianthema turgidifolia*, *Eragrostis falcate*, *Frankenia ambita*, *Sporobulus virginicus* and *Calandrinia sp. pinga*.

4) Disturbed

Clearing Description

Dampier Salt Ltd is a subsidiary of Rio Tinto Pty Ltd and will be hereafter referred to as Damper Salt in this document.

Dampier Salt have applied to clear up to 40 hectares of native vegetation within a 148 hectare purpose permit boundary. The proposed clearing is for the purpose of expanding bittern crystalliser ponds associated with salt production on Mineral Leases 250SA and 242SA (Rio Tinto, 2008).

Clearing is proposed to be undertaken with a lowered blade using mechanised clearing equipment (Rio Tinto, 2008).

Vegetation Condition

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

To

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

Comment

The vegetation condition of the application area has been derived from the vegetation description provided by Biota (2006a) and aerial photography viewed by the assessing officer.

Clearing permit CPS 2614/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum) on 25 September 2008 and was valid from 25 October 2008 to 28 February 2011. The clearing permit authorised the clearing of 40 hectares of native vegetation. An application for an amendment to clearing permit CPS 2614/1 was submitted by Dampier Salt Ltd on 24 February 2011. The proponent has requested an extension to the duration of the permit to 28 February 2014. The size of the area and clearing permit boundary that was approved to clear under CPS 2614/1 will remain unchanged.

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 approximately 4.5 kilometres east-north-east of the Port Hedland airport, within the Roebourne subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database).

Kendrick and Stanley (2001) assessed the biodiversity of the Roebourne IBRA subregion in relation to landscape, ecosystem, species and genetic values. High species and ecosystem diversity as well as a centre of endemism are cited for the Burrup Peninsula (Kendrick and Stanley, 2001), which is located approximately 200 kilometres west of the application area. The basalt rock piles in the region are listed as fire refuges in Kendrick and Stanley (2001), however, no such habitats were found within the application area during the Biota (2006a) flora survey.

The application area is bordered by existing bittern crystallizer ponds on the northern and western sides, and is bound by an unnamed road along its southern edge (GIS Database). Aerial photographs reveal the application area has been highly degraded with approximately 60 percent of the application area in poor condition. Small areas of vegetation in good condition occur in the south-east corner of the application area (GIS Database).

One species of flora of conservation significance (*Abutilon trudgenii* – Priority 3) was recorded during the Biota (2006a) flora survey. However, since the flora survey was conducted this species has been removed from the Priority flora list (Western Australian Herbarium, 2008).

Eight introduced species (weeds) were recorded during the Biota (2006a) flora survey. None of these species are Declared Plants for the Pilbara under the *Agriculture and Related Resources Protection Act 1976*, however, *Cenchrus spp.* is considered to be a serious environmental weed by the Department of Environment and Conservation.

The introduced species recorded during the field survey were:

- *Aerva javanica* (Kapok Bush);
- *Cenchrus ciliaris* (Buffel Grass);
- *Cenchrus setigerus* (Birdwood Grass);
- *Chloris barbata* (Purpletop Chloris);
- *Clitoria ternatea* (Butterfly Pea);
- *Indigofera oblongifolia;*
- *Indigofera sessiliflora; and*
- *Malvastrum americanum* (Spiked Malvastrum)

A number of conservation significant fauna species were recorded during the Biota (2006b) fauna survey. However, the vegetation and habitat types occurring within the application area are well represented in the region (GIS Database; Biota, 2006a).

The findings of the field survey was a total of 83 vertebrate species, including 31 birds, 8 native mammals, 3 introduced mammals, 38 reptiles and 3 frogs (Biota, 2006b). This is a relatively high number of fauna, however, the Biota fauna survey was conducted over a very large area surrounding the application area.

Two Priority listed fauna under the Department of Environment and Conservations Priority fauna database (Mangrove Freetail Bat - Priority 1; and the Australian Bustard - Priority 4), were confirmed as occurring in the vicinity of the application area (Biota, 2006b). Both species occur more widely within similar habitats within the bioregion (Biota, 2006b).

The data from the current fauna survey indicates that the study area supports a low diversity of mammals (Biota, 2006b). This may be due to the low habitat diversity within the study area (Biota, 2006b). Furthermore, *Triodia epactia* comprises the dominant understorey species at the majority of sites. *Triodia epactia* does not form large hummocks and as a result offers less shelter and suitable habitat than many other *Triodia* species (Biota, 2006b).

The study area supported a low to average diversity of birds compared to past Pilbara surveys (Biota, 2006b). For example when examining results at sites from the East Turner River to Smith-West Creek (approximately 25 kilometres from application area) 36 bird species were recorded compared to 31 species during this survey (Biota, 2006b).

A high number of reptile species were recorded during the Biota (2006b) survey. The majority of species were found within Acacia shrubland habitat, which does not occur within the application area (Biota, 2006b). Low numbers of reptile species were recorded on the Samphire Saline Flats which is abundant within the application area (Biota, 2006a).

The application area is unlikely to represent an area of higher biodiversity value when compared to representative vegetation in a local and regional context (Biota, 2006a).

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

Methodology

Biota (2006a)
Biota (2006b)
Kendrick and Stanley (2001)
Western Australian Herbarium (2008)
GIS Database
- Hydrography, linear
- Hydrography, linear (hierarchy)
- IBRA WA (Regions – Sub Regions)
- Pre-European Vegetation
- Roads, 1M

(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

Biota (2006b) conducted a ten-day field fauna survey between the 17th and 26th of September 2005. The survey was conducted within Mineral Leases 250SA and a small portion of 242SA, including the application area (Biota, 2006b). In addition to ground surveys Biota (2006b) conducted searches of the Department of Environment and Conservations (DEC) Threatened Fauna Database and the Western Australian Museums "Faunabase" database.

The findings of the field survey was a total of 83 vertebrate species, including 31 birds, 8 native mammals, 3 introduced mammals, 38 reptiles and 3 frogs (Biota, 2006b).

A search of the DEC's Priority fauna Databases revealed seven species of conservation significant fauna previously recorded within a 50 kilometre radius surrounding the application area (Biota, 2006b). these species are:

- *Lagostrophus fasciatus fasciatus* (Banded Hare-wallaby) - Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*;
- *Aspidites ramsayi* (Woma - southwest population) - Schedule 4 - other specially protected fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*;
- *Mormopterus loriae cobourgiana* (Little North-western Mastiff Bat or Mangrove Freetail Bat) - Priority 1, Department of Environment and Conservations Priority fauna database;
- *Macroderma gigas* (Ghost Bat) - Priority 4, Department of Environment and Conservations Priority fauna database;
- *Pseudomys chapmani* (Western Pebble-mound Mouse (Ngadji)) - Priority 4, Department of Environment and Conservations Priority fauna database;
- *Ardeotis australis* (Australian Bustard) - Priority 4, Department of Environment and Conservations Priority fauna database; and
- *Numenius madagascariensis* (Eastern Curlew) - Priority 4, Department of Environment and Conservations Priority fauna database (Biota, 2006b).

Fauna surveys and existing data indicate that two species of priority fauna may utilise the vegetation within the application area periodically when foraging for food (Biota, 2006b). These species are the Mangrove Freetail Bat and the Australian Bustard (Biota, 2006b). It is unlikely the vegetation within the application area is significant habitat for either of these species as higher quality and less isolated vegetation occurs to the south - east and east of the application area (Biota, 2006b).

The application area is bordered by existing crystallizer ponds on the northern and western sides, and is bound by an unnamed road along its southern edge (GIS Database). Aerial photographs reveal the western two thirds of the application area have been highly degraded (GIS Database), and are therefore unlikely to represent significant habitat for fauna species. Small areas of vegetation in good condition occur in the south-east corner of the application area (GIS Database), however, these areas are isolated, reducing their habitat significance.

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

Methodology

Biota (2006b)
GIS Database

- Port Hedland Townsite 20cm Orthomosaic
- Roads, 1M

(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

Biota (2006a) conducted an eight-day vegetation and flora survey between the 17th and 24th of September 2005. The survey was conducted within Mineral Leases 250SA and a small portion of 242SA, including the application area (Biota, 2006a). In addition to ground surveys Biota conducted searches of the Department of Environment and Conservation's Rare Flora Database and the Western Australian Herbarium "Florabase" database (Biota, 2006a).

Moderate rainfall was recorded in the Port Hedland area between May and July 2005, however, there was negligible rainfall over the month preceding the September survey (Biota, 2006a). It is possible that ephemeral flora species potentially present in the vegetation communities were not recorded during the Biota survey (Biota, 2006a).

Most ephemeral species would not have been recorded during the flora survey conducted by Biota (2006a), due to the lack of preceding rain. A search of relevant databases by Biota revealed 18 records of Priority species occurring in the Port Hedland region. Of these species only *Gomphrena pusilla* is an annual, indicating that it may not have been recorded during the flora survey. However, the preferred habitat for this species is on fine beach sand generally behind foredunes on limestone (Western Australian Herbarium, 2008). This abiotic habitat type does not occur in the application area and therefore, this species is not expected to occur in the application area.

No Declared Rare Flora species were recorded within the application area by Biota (2006a) during the September 2005 survey. One Priority 3 flora species (*Abutilon trudgenii*) was recorded 2.5 kilometres south of the application area (Biota, 2006a). However, since the flora survey was conducted this species has been removed from the Priority flora list (Western Australian Herbarium, 2008).

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

Methodology

Biota (2006a)
Western Australian Herbarium (2008)

(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 (TECs) within the application area (GIS Database), with the nearest known TEC located approximately 235 kilometres south-west (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 Roebourne subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion. Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion.

The vegetation in the application area is recorded as Beard Vegetation Associations 127; Bare areas; mud flats; and 647; Hummock grasslands, dwarf-shrub steppe; *Acacia taranslucens* over soft spinifex (GIS Database; Shepherd, 2009). According to Shepherd (2009) there is approximately 98.5% of Beard Vegetation association 127 and approximately 100% of Beard vegetation association 647respectively remaining within the bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,187	17,794,646	~99.9	Least concern	6.3
Beard veg assoc. – State					
127	742,644	719,966	~96.9	Least concern	8.0
647	196,372	196,372	~100	Least concern	0.0
Beard veg assoc. – Bioregion					
127	180,401	177,739	~98.5	Least concern	0.0
647	196,371	196,371	~100	Least concern	0.0

* Shepherd (2009)
** Department of Natural Resources and Environment (2002)

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

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
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**
The Beebingarra Creek, located approximately 900 metres east of the application area is a freshwater non-perennial watercourse (Rio Tinto, 2008). As this watercourse is outside the application area, it is unlikely that native vegetation associated with the watercourse will be impacted by this proposal.

The application area occurs within a saline mudflat zone and is subject to inundation periodically from ocean tidal activities (Biota, 2006a; Rio Tinto, 2008). A watercourse as defined by Schedule 5 of the *Environmental Protection Act 1986* is defined as; an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidalflat or estuary.

Based on the above, the proposed clearing is at variance to this Principle. However, the application area has previously been affected by the construction of crystalliser ponds and levees associated with existing operations (Biota, 2006a). The construction of crystallizer ponds to the seaward side of the application area would have affected natural tidal flows into the application area (GIS Database). Further to this, the proposed clearing is a very small portion of the tidal mud flats within the Port Hedland locality (GIS Database), therefore, the impact of this clearing is not considered to be significant.

Methodology Biota (2006a)
Rio Tinto (2008)
GIS Database
- Hydrography, linear (medium scale, 250k GA).
- Hydrography, linear
- Hydrography, linear (hierarchy)
- Port Hedland Townsite 20cm Orthomosaic

(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 proposed clearing is for the purpose of expanding bittern crystalliser ponds associated with salt production. Land is proposed to be cleared of all vegetation and inundated with saline water in order to expand the bittern storage facility. As land will be inundated with saline water, land degradation will occur, however, this is for the prescribed purpose of salt production (Rio Tinto, 2008).

The application area falls within a tidal inundation zone where sea water historically floods the area during high tides. Therefore, high levels of salinity and salt crusting are common in the landscape (Rio Tinto, 2008).

Levees will be built in order to contain water pumped into the crystalliser ponds. These levees will prevent the

unwanted movement of water and therefore, reduce land degradation risks such as soil erosion.

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

Methodology Rio Tinto (2008)

(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 nearest Directory of Important Wetlands (formerly Australian Nature Conservation Agency (ANCA)) is the Leslie (Port Hedland) Saltfields System, located approximately seven kilometres north-east of the application area (GIS Database). The Saltfields System plays an important ecological role, as a major migration stop-over area for shorebirds in the East-Asia-Australasia Flyway (Department of Environment Heritage Water and the Arts, 2008). However, based on the distance between the application area and the wetlands, adverse impacts on the environmental values of the wetlands is unlikely.

The nearest Department of Environment and Conservation (DEC) managed area is the Class "A" North Turtle Island Nature Reserve, located off-shore, approximately 56 kilometres north-east of the application area (GIS Database). The nearest on-shore DEC managed area is the Class "A" Mungaroona Range Nature Reserve, located approximately 115 kilometres south-west of the application area (GIS Database). Based on the distance between the application area and the nature reserves, adverse impacts on the environmental values of those reserves are unlikely.

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

Methodology

Department of Environment, Heritage, Water and the Arts (2008)
GIS Database
- ANCA, Wetlands
- DEC Tenure
- DEC proposed 2015 pastoral lease exclusions.
- CALM Regional Parks
- Proposed National Parks
- Register of National Estate

(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 (PDWSA) (GIS Database).

Groundwater within the application area is brackish, at between 1,000 - 3,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the small size of the application area (40 hectares), and the large size of the Port Hedland Coastal Catchment area (approximately 744,301 hectares) (GIS Database), the quality of the groundwater is unlikely to be impacted by the proposed clearing activity.

The application area is located within a tidal inundation zone (Rio Tinto, 2008). The construction of levees and crystallizer ponds will ensure that surface water quality associated with tidal flows is not affected by the proposed clearing (Rio Tinto, 2008).

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

Methodology

Rio Tinto (2008)
GIS Database
- Ground Water Salinity Statewide
- Hydrographic Catchments
- Public Drinking Water Source Area
- Rainfall, Mean Annual

(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

Geoscience Australia (2008) attributes four major factors which influence inland flooding. These include:

- Intensity and duration of rainfall over a catchment area;
- The capacity of the watercourses to network and convey runoff;
- The percentage of vegetation cover; and

- The topography.

Based on the four factors listed above, clearing within the application area is unlikely to exacerbate or increase the incidence or intensity of flooding for the following reasons:

- The application area has a relatively dry climate with a summer predominant rainfall pattern averaging approximately 400 millimetres per annum (GIS Database; Bureau of Meteorology, 2008), and a high average annual evaporation rate exceeding the average annual rainfall by more that eight times (approximately 3,400 millimetres) (GIS Database);
- The application area occurs within a tidal flood zone, which is regularly inundated. Due to this, the area contains and intricate array of channels and gullies which effectively disperse water and prevent pooling;
- The Port Hedland Coastal Catchment area totals 744,301 hectares in size (GIS Database). Given the relatively small size (40 hectares) of the proposed clearing in relation to the large size of the catchment area, it is unlikely to result in an appreciable increase in runoff;
- The topography of the application area is slight with a slow descent from south to north. Water movements across land during significant rainfall events are expected to be slow allowing infiltration and reducing mass transition of water to lower areas; and
- Pre-European vegetation cover within the Roebourne IBRA subregion is very high at over 99 percent (Shepherd, 2009), slowing water movements and increasing water infiltration and absorption.

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

Methodology

Bureau of Meteorology (2008)
Geoscience Australia (2008)
Shepherd (2009)
GIS Database
- Evaporation Isopleths
- Hydrographic Catchments
- Rainfall, Mean Annual

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

Comments

There are two native title claims over the application area (GIS Database). These claims (WC99_003 and WC99_008) have been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). 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 one Aboriginal sites of significance (ID:23287) within the application area (GIS Database; Rio Tinto, 2008). 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.

Dampier Salt applied for and was granted a section 18 consent under the *Aboriginal Heritage Act 1972* for this site (Rio Tinto, 2008). It was granted subject to conditions to ensure that during any ground disturbance there is representation from the Kariyarra Aboriginal group present , as to ensure that it is conducted in an acceptable manner and any material is not destroyed that can be salvaged (Rio Tinto, 2008).

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.

Clearing permit CPS 2614/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum) on 25 September 2008 and was valid from 25 October 2008 to 28 February 2011. The clearing permit authorised the clearing of 40 hectares of native vegetation. An application for an amendment to clearing permit CPS 2614/1 was submitted by Dampier Salt Ltd on 24 February 2011. The proponent has requested an extension to the duration of the permit to 28 February 2014. The size of the area and clearing permit boundary that was approved to clear under CPS 2614/1 will remain unchanged.

Methodology

Rio Tinto (2008)
GIS Database
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, and the proposed clearing is at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

5. References

Biota Environmental Science Pty Ltd (2006a), Port Hedland Solar Saltfield Expansion Flora and vegetation Report, Perth Western Australia.

Biota Environmental Science Pty Ltd (2006b), Port Hedland Solar Saltfield Expansion Fauna Assemblages Report, Perth Western Australia.

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Department of Environment Heritage Water and the Arts (2008) A Directory of Important Wetlands in Australia, Leslie (Port Hedland) Saltfields System, http://www.environment.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.

Geoscience Australia (2008), 'What Causes Floods' Electronic source of information, viewed 15 September 2008, http://www.ga.gov.au/hazards/flood/causes.jsp

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Western Australian Herbarium (1998-2008). FloraBase - The Western Australian Flora. Department of Environment and Conservation. http://florabase.calm.wa.gov.au/ (Accessed 3/06/2008).

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.