



1. Application details

1.1. Permit application details

Permit application No.: 1654/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: Crown Lease 3116/368, Iron Ore (Mount Newman) Agreement Act 1964, General Lease I 154279 L (Special Lease for Mining Operations)
Local Government Area: Town Of Port Hedland
Colloquial name: Coonarie – Spring Railway Line Duplication

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10		Mechanical Removal	Railway line duplication

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
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. One Beard vegetation association is located within the area proposed to be cleared (GIS Database, Shepherd <i>et al.</i> , 2001):	The proposal is for clearing of up to 10 hectares of native vegetation within a defined area of approximately 46.9 hectares, for the purpose of railway track duplication along a section of the Newman to Port Hedland railway line, between Coonarie and Spring sidings. The clearing is also required for the construction of other associated infrastructure, haul and access roads, laydown areas, minor borrow pits and topsoil stockpiles.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994)	The vegetation condition is derived from the vegetation description provided by Ecologia (2002; 2003) and ENV Australia (2006).
93: Hummock grasslands, shrub steppe; kanji over soft spinifex.		To	BHP Billiton Iron Ore Pty Ltd (from here on referred to as BHPBIO), has an Environmental Management System (EMS) in place (BHPBIO, 2004), which includes a number of management measures to prevent environmental degradation.
ENV Australia (2007) identified the following vegetation associations within the proposed area to be cleared:	The area has previously been disturbed by the construction and maintenance of the mainline rail between Newman and Port Hedland.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)	
<ul style="list-style-type: none"> Tall shrubs over open shrubland, over scattered Spinifex and grasses; Tall shrubs over Spinifex / hummock grassland and scattered grasses; and <i>Eucalyptus</i> over grassland, with scattered Spinifex. 			

The vegetation located within the areas proposed to be cleared was surveyed for the presence of flora of conservation significance in March 2002 (Ecologia, 2002), May 2003 and August 2003 (Ecologia, 2003) and November 2006 (ENV Australia, 2006). No flora of conservation significance were located during these surveys. These surveys have also identified the widespread occurrence of introduced species, including *Cenchrus ciliaris* (Buffel grass) and *Aerva javanica* (Kapok bush) along the railway line (Ecologia, 2002; 2003, ENV, 2006).

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 proposed clearing is located within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, and the Chichester IBRA subregion (GIS Database). High reptile and mammal species diversity within the hummock grasslands are described by Kendrick and McKenzie (2001) for the Chichester subregion. However, the majority of the area proposed to be cleared is in a degraded condition, as it is immediately adjacent to an existing railway. It is unlikely that the biodiversity of the proposed area to be cleared is higher than the surrounding, undisturbed areas of vegetation.

The hummock grassland communities associated with this project are well represented in the Pilbara, and it is unlikely that the biodiversity of this area will differ greatly from the surrounding areas (Ecologia, 2002; 2003; ENV Australia, 2006). Ecologia (2002; 2003) and ENV Australia (2006) have stated as a result of targeted flora surveys, that no Declared Rare or Priority flora were located within the application area. Given the previous disturbance that has occurred in the area, it is unlikely that the native vegetation within the clearing permit will comprise of a high level of biological diversity.

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

Methodology Ecologia (2002).
Ecologia (2003).
ENV Australia (2006).
Kendrick and McKenzie (2001).
GIS Database:
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.

(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**

A number of fauna species listed on the Wildlife Conservation (Specially Protected Fauna) Notice 2006(2) or listed on the Department of Environment and Conservation (DEC) priority list are known to occur within 10 kilometres from the areas proposed to be cleared (GIS Database). These include the Pilbara Olive Python (*Morelia olivacea barroni*) and the Pilbara Leaf-nosed Bat or Orange Leaf-nosed Bat (*Rhinochiropterus aurantius*) (BHPBIO, 2006).

ENV Australia (2007) conducted a survey to identify significant fauna habitat within the areas proposed to be cleared. Three main habitat types were identified during this survey, and are:

- Hill crest/ granite boulder extrusion consisting of scattered tall shrubs over open shrubland, over scattered Spinifex and grasses on stony loams (habitat type 1);
- Floodplain consisting of scattered tall shrubs over Spinifex / hummock grassland and scattered grasses on loamy sands (habitat type 2); and
- Claypan consisting of scattered Eucalyptus over grassland, with scattered Spinifex on clayey loam (habitat type 3) (ENV Australia, 2007).

Habitat type 1 was considered to be the most valuable for fauna species, due to the abundance of microhabitats (ENV Australia, 2007). The habitat type 1 is likely to provide valuable habitat for reptile, mammal and bird species (ENV Australia, 2007). However, as the clearing will occur within long, narrow corridors, it is unlikely that the proposed clearing will impact significantly on available habitat.

Habitat types 2 and 3 are considered to be of lower value for fauna habitats, due to the limited number of microhabitats, and greater evidence of disturbance such as weed invasion and vehicular tracks (ENV Australia, 2007).

The areas proposed to clear are long narrow corridors, immediately adjacent to the existing railway line. The area has previously been disturbed by railway construction and maintenance activities. The vegetation types within the application areas are widespread in the region (GIS Database), and do not include vegetation types that are significant to fauna in general, such as riparian vegetation. All the species of conservation significance which potentially occur in the area are mobile, and given that the disturbance will be confined to a 40 metres wide band of mostly already disturbed vegetation, it is unlikely that significant habitat for those species will be cleared.

BHPBIO's Environmental Management System (EMS) Includes protection of native fauna by prohibiting:

- Firearms on site;
- Off-road use of vehicles (bush bashing);
- Capture of fauna;
- Pets on site;

- Unnecessary disturbance of fauna habitat; and
- The use of barb wire fencing (to prevent bat deaths) (BHPBIO, 2004).

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

Methodology BHPBIO (2004).
BHPBIO (2006).
ENV Australia (2007).
GIS Database:
- Threatened Fauna CALM 30/09/2005.

(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

The vegetation located within the areas proposed to be cleared was surveyed for the presence of flora species of conservation significance in March 2002 (Ecologia, 2002), May and August 2003 (Ecologia, 2003), and November 2006 (ENV Australia, 2006). No flora listed in the Western Australian Wildlife Conservation (Rare Flora) notice 2006 of the *Wildlife Conservation Act 1950* or on the Department of Environment and Conservation (DEC) Priority flora list have been recorded within the areas proposed to be cleared (Ecologia, 2002; 2003; ENV Australia, 2006).

The nearest known Declared Rare Flora is *Lepidium catapycnon*, recorded from approximately 80 kilometres south-west of the proposed clearing site (GIS Database).

Given the lack of recorded flora of conservation significance and the relatively small areas of clearing, the proposal is unlikely to have any significant impact on Rare or Priority Flora, or associated habitats.

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

Methodology Ecologia (2002).
Ecologia (2003).
ENV Australia (2006).
GIS Database:
- Declared Rare and Priority Flora List CALM 01/07/2005.

(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) in the vicinity of the proposed clearing area. The nearest Ministerially endorsed TECs are the Themeda Grassland Communities, located approximately 115 kilometres south-west from the clearing permit application area (GIS Database).

The surveys conducted over the area did not find any vegetation communities of conservation significance (Ecologia, 2002; 2003; ENV Australia, 2006).

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

Methodology Ecologia (2002).
Ecologia (2003).
ENV Australia (2006).
GIS Database:
- Threatened Ecological Communities CALM 12/04/2005.

(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

Approximately 100% of the Pre-European vegetation remains in the Interim Biogeographic Regionalisation for Australia (IBRA) Chichester Subregion, within which this proposal is located (GIS Database, Shepherd *et al.*, 2001). Available aerial photography (GIS Database) and information from various biological surveys conducted within the local area indicate that the areas surrounding this clearing permit application have not been cleared extensively (Ecologia, 2002; 2003; ENV Australia, 2006), as can be seen from the table below.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in IUCN Class I-IV Reserves*
IBRA bioregion - Pilbara	17,804,164	17,794,651	99.9%	Least concern	6.3%
IBRA subregion - Chichester	8,373,870	8,373,618	100%	Least concern	4.0%
Beard vegetation association - 93	2,940,893	2,940,893	100%	Least concern	0.4%

* Shepherd *et al.* (2001)

** Department of Natural Resources and Environment (2002)

The proposed clearing area is not considered to be a significant remnant of native vegetation within an extensively cleared area.

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

Methodology Department of Natural Resources and Environment (2002).

Ecologia (2002).

Ecologia (2003).

ENV Australia (2006).

Shepherd *et al.* (2001).

GIS Database:

- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.

- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.

- Western Australia ETM+ 25m 543 - AGO2000.

(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 areas applied to clear (GIS Database). A non-perennial creek (Coonarrie Creek) is located approximately 265 metres to the west of the proposed clearing area (GIS Database). No riparian vegetation communities were identified in the vegetation survey reports (Ecologia, 2002; 2003; ENV Australia, 2006).

The limit of all earthworks will be within the 40 metre lease boundary, either side of the existing railway centreline (BHPBIO, 2006), therefore not impacting the nearby watercourse.

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

Methodology BHPBIO (2006).

Ecologia (2002).

Ecologia (2003).

ENV Australia (2006).

GIS Database:

- Geodata, Lakes - GA 28/06/02.

- Hydrography, linear - DOE 1/2/04.

- Hydrography, linear (hierarchy) - DOW.

- Rivers, DoW.

(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 area applied to clear is within a long narrow corridor adjacent to an existing railway line. The majority of the area is relatively flat (GIS Database).

The clearing application area lies within the following land systems:

- Macroy land system;
- Granitic land system; and
- River land system (GIS Database).

The majority of the proposed clearing area lies within the Macroy land system, and only a small portion lies within the River land system (GIS Database). The Macroy and the Granitic land systems have low or very low erosion hazard (Van Vreeswyk *et al.*, 2004). The River land system, however, has a high or very high susceptibility to erosion if vegetation is removed (Van Vreeswyk *et al.*, 2004). However, based on the small area of the clearing proposed within the River land system, it is unlikely that the removal of vegetation will result in appreciable land degradation.

BHPBIO has made a number of commitments, which are in accordance with current legislation and the BHP Billiton Sustainable Development Policy and Health, Safety, Environment and Community (HSEC) Management Standards (BHPBIO, 2004). These include:

- Vegetation is to be removed and either directly placed on disturbed areas to reduce erosion or stockpiled for later use in rehabilitation;
- Topsoil is to be applied immediately to areas being rehabilitated. Where this is not possible, topsoil is to be stored in stockpiles for later use;
- No burning of vegetation spoil is to occur; and
- All disturbed areas no longer required for the ongoing rail works are to be blended with the surrounding area by adding topsoil and stabilising the surface by contour ripping (BHPBIO, 2004).

BHPBIO (2006) has also noted that the limit of all earthworks is to be within the 40 metres lease boundary, either side of the existing mainline centreline.

The majority of the area proposed to be cleared is located within an area of previous disturbance, with some mature rehabilitated vegetation (BHPBIO, 2006). The flora surveys conducted within the areas proposed to be cleared found that the area has been invaded by weeds, namely *Aerva javanica* and *Cenchrus ciliaris* (Ecologia, 2002; 2003; ENV Australia, 2006). A condition will be placed on this permit to ensure weed control, through spraying of topsoil and other means.

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

Methodology BHPBIO (2004).
BHPBIO (2006).
Ecologia (2002).
Ecologia (2003).
ENV Australia (2006).
Van Vreeswyk *et al.* (2004).
GIS Database:
- Rangeland Land System Mapping - DA.
- Topographic Contours, Statewide - DOLA 12/09/02.

(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 Department of Environment and Conservation (DEC) managed area is the Class "A" Mungaroona Range Nature Reserve, located approximately 32 kilometres west of the proposed clearing area (GIS Database). Based on the distance between the proposed clearing area and the Mungaroona Range Nature Reserve, adverse impacts on the environmental values of that reserve are unlikely.

The Marble Bar Red Book area (System 8.9) is located approximately 30 kilometres north-east of the proposed clearing (GIS Database). The recommendation from the Environmental Protection Authority (EPA) (1993) was that no action be taken with regards to the Marble Bar Red Book area. Also, based on the distance between the proposed clearing permit area and the Marble Bar Red Book area, any adverse impacts on the environmental values of that area are unlikely.

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

Methodology BHPBIO (2006).
EPA (1993).
GIS Database:
- CALM Managed Lands and Waters - CALM 1/07/05.
- CALM proposed 2015 pastoral lease exclusions.
- CALM Regional Parks - CALM 12/04/02.

- Register of National Estate - EA 28/01/03.
- System 1 to 5 and 7 to 12 Areas - DEP 06/95.

(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 proposed clearing is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

Groundwater within the area under application is fresh, at between 300-1000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the small size of the proposed clearing, the quality of the groundwater is unlikely to be impacted by the proposed clearing activity.

The proposed area to clear is reasonably flat, and is not associated with any permanent watercourse or waterbody (GIS Database). The nearest watercourse to the proposal is a minor, non-perennial creekline, approximately 265 metres west of the clearing area, known as Coonarrie Creek (GIS Database). As the proposal is located 265 metres uphill from the Coonarrie Creek, clearing of native vegetation has the potential to lead to sedimentation of the creekline, if the surface water is not managed appropriately when clearing is taking place, or while the area is left bare.

Management practices aimed at minimising degradation to ground and surface water quality are listed in BHPBIO (2004), and include:

- Culverts are to be designed and constructed to minimise the amount of upstream ponding and the need for outlet drains;
- Culverts size is to be capable of withstanding seasonal flows and a 1 in 20 year flood event;
- Where the potential for erosion is high, appropriate methods for erosion control are to be used (such as rip rap rock protection and reno mattresses);
- Cleared vegetation and topsoil is to be stockpiled away from watercourses;
- Erosion around infrastructure is to be minimised by reduced clearing and constructing adequate drainage and bunding;
- Named watercourses will not be disturbed unless a 'Bed and Banks Permit' has been obtained from the Waters and Rivers Commission;
- Creeks that are impacted by the works are to be reconstructed afterward, wherever practicable;
- Contaminated soil is to be collected, stored in suitable containers and sent to the licensed facilities at either Newman or Port Headland; and
- All hydrocarbon or chemical spills greater than 10 litres are to be documented through incident reports.

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

Methodology BHPBIO (2004).

GIS Database:

- Groundwater Salinity, Statewide - DOW.
- Hydrography, linear - DOE 1/2/04.
- Hydrography, linear (hierarchy) - DOW.
- Public Drinking Water Source Areas (PDWSAs) - DOW.
- Rivers, DoW
- Topographic Contours, Statewide - DOLA 12/09/02.

(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 within the Yule River catchment area. The limited amount of clearing proposed (10 hectares) in comparison with the extent of the catchment area of the Yule River (which is approximately 780,000 hectares) (GIS Database), is unlikely to result in incremental increases in peak flood height or flood peak duration.

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

Methodology GIS Database:

- Hydrographic Catchments - Catchments - DOW
- Hydrographic Catchments - Subcatchments - DOW

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

Comments

The proposed clearing area falls within the protected area for the preservation of indigenous heritage sites under the Register of National Estate (Abydos - Woodstock Art Site). A notable excision from this protected area is the BHPBIO Mt Newman to Port Hedland Rail Line corridor lease, as the rail line was constructed prior to the advent of the *Aboriginal Heritage Act 1972*. All the proposed clearing will be located within the rail corridor and therefore is not likely to impact on the protected area.

There are four Aboriginal Sites of Significance within the application area (Site No. 23093; 19181; 11194; 20647), and several others in close proximity (GIS Database). Department of Indigenous Affairs (DIA) (2007) advice is that it is BHPBIO's responsibility to ensure that all persons employed or engaged in the project are made aware of their obligations under the *Aboriginal Heritage Act 1972*. In addition, BHPBIO needs to be aware that should cultural material be discovered during its clearing program, work should cease and the site should be recorded and DIA notified (DIA, 2007).

If an unrecorded / recorded site cannot be avoided during the project, a section 18 notice must be submitted to obtain the Minister of Indigenous Affairs' prior consent to use the land on which this site is located (DIA, 2007).

It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

There are two Native Title Claims (WC99_003 and WC99_016) over the area under application (GIS Database). However, the lease 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*.

A submission was received from the Town of Port Hedland on the 6 March 2007. No objections were raised.

No relevant previous Environmental Impact Assessments have occurred surrounding this clearing proposal.

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.

Methodology DIA (2007).
GIS Database:
- Aboriginal Sites of Significance y DIA.
- Environmental Impact Assessments.
- Native Title Claims - DLI 7/11/05.

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
State Agreement	Mechanical Removal	10	Grant	<p>The proposal has been assessed against the ten Clearing Principles, and it was found that the proposal is not likely to be at variance to principles (a), (b), (c), (d), (f), (g), (h), (i) and (j). The proposal is not at variance with principle (e).</p> <p>The Assessing Officer concludes that the environmental impacts of this proposal are likely to be minimal.</p> <p>Consequently, the Assessing Officer recommends that the Clearing Permit be granted subject to the following conditions:</p> <ol style="list-style-type: none">1. The Permit Holder shall record the following for each instance of clearing:<ol style="list-style-type: none">a) the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system;b) the size of the area cleared in hectares;c) the dates on which the area was cleared;d) the area rehabilitated in hectares;e) the method of clearing; andf) the purpose of clearing.2. The Permit Holder shall implement erosion control measures to minimise potential erosion within the areas approved to clear, and adjacent areas.3. The Permit Holder shall implement weed control measures to prevent the establishment or spread of weeds within the areas approved to clear, and adjacent areas.

4. The Permit Holder shall ensure that the clearing is undertaken in accordance with the procedures listed in the following document: "BHP Billiton Iron Ore Rail Construction Environmental Management Plan" Revision 1 - June 2004 (or later revision of this document).

5. The Permit Holder shall provide a report to the Director, Environment Division, Department of Industry and Resources by 1 September each year, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 1 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year. This report can be included as part of the Annual Environmental Report submitted to DoIR.

5. References

- BHPBIO (2004) *Rail Construction Environmental Management Plan*, Western Australia
- BHPBIO (2006) *Coonarie - Spring Track Duplication - Vegetation Clearing Permit Supporting Documentation*, November 2006.
- Department of Indigenous Affairs (DIA) (2007) *DIA advice for referred proposals*, Western Australia.
- 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.
- Ecologia (2002) *BHP Billiton Iron Ore Pace Rail Sidings Rare & Priority Flora Survey*, West Perth, Western Australia.
- Ecologia (2003) *BHP Billiton Iron Ore - Railroad Interim Expansion Project Rare and Priority Flora Survey*, West Perth, Western Australia.
- ENV Australia (2006) *Coonarie To Spring Proposed Rail Siding - Declared Rare and Priority Flora Survey*, Perth, Western Australia.
- Environmental Protection Authority (EPA) (1993) *Red Book Status Report, Conservation Reserves for Western Australia*, 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) in 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'*. Report published by the Department of Conservation and Land Management, Perth, Western Australia
- 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 (updated 2005).
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A., and Henning, P. (2004) *An inventory and condition survey of the Pilbara region, Western Australia*, Technical Bulletin No.92, South Perth, Western Australia

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.