



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2172/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

### 1.3. Property details

Property: State Agreement Act, Mineral Lease ML244SA (AML70/244)  
Local Government Area: Shire of East Pilbara  
Colloquial name: Jimblebar Wye borrow pits

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
13		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	Clearing Description	Vegetation Condition	Comment
<p>The majority of the vegetation of the application area is broadly mapped as Beard Vegetation Association 18: low woodland; mulga (<i>Acacia aneura</i>). A thin strip along the north-western edge of the application area is broadly mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> (GIS Database).</p> <p>A flora survey of the application area, was conducted by ENV Australia Pty Ltd between 21st and 24th August 2007. The survey included twenty 50m x 50m quadrats, representing all the vegetation types of the survey area. In addition, eight proposed borrow pit sites were specifically surveyed (ENV, 2007b).</p> <p>The vegetation survey identified eleven vegetation communities within the application area, which were grouped into the following two broad vegetation types:</p> <ol style="list-style-type: none"> <li>1. shrub steppe of <i>Eucalyptus gamophylla</i> and spinifex, and <i>Acacia pachycarpa</i> and spinifex, found on the low hills and slopes, mainly in the western end of the application area; and</li> <li>2. low woodland containing mulga in groves and patches, located mainly in the eastern end of the application area (ENV, 2007b).</li> </ol> <p>ENV (2007b) described the vegetation condition within the application area as ranging from Poor to Excellent, with the majority of the vegetation considered to be in Good to Very Good condition.</p>	<p>BHP Billiton Iron Ore Pty Ltd have applied to clear up to 13 hectares (ha) of native vegetation within a total application area of approximately 130 ha. The proposed clearing is for the purposes of borrow pits, access tracks and laydown areas associated with the Jimblebar Wye railway junction construction works. The clearing required for the railway construction itself (14.4 ha) was previously approved under Clearing Permit CPS 392/1 granted by the Department of Environment in December 2005, and subsequently amended (CPS 392/2) in late 2006 to extend the duration of the permit to June 2009.</p> <p>Existing tracks and other previously disturbed areas will be utilised wherever possible (BHP Billiton, 2007b). All topsoil and vegetation will be stockpiled for later use in rehabilitation. All cleared areas will be rehabilitated at the completion of the Jimblebar Wye rail construction works (BHP Billiton, 2007b).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p> <p>To</p> <p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p>	<p>The application area is located approximately 16 km east/north-east of Newman in the Pilbara region (BHP Billiton, 2007b; GIS Database).</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 Fortescue sub-region of the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database).

A vegetation survey of the application area conducted by ENV Australia Pty Ltd in August 2007 recorded 123 taxa from 29 families (ENV, 2007b). ENV (2007b) considered this to represent a moderate level of diversity, comparable to other recent surveys in surrounding areas. No flora species or vegetation communities of conservation significance were recorded during the survey (ENV, 2007b). Most of the vegetation types found within the application area are well represented in the Pilbara Region, with the exception of the riparian vegetation associated with Shovelanna Creek (ENV, 2007b; GIS Database). This vegetation association was considered to be in Poor condition, due to a heavy infestation of the weed species *Cynodon dactylon*, which dominated the grassy understorey (ENV, 2007b). Only minimal clearing (if any) is expected to occur within this vegetation type (BHP Billiton, 2007b).

Approximately half the application area (the eastern end) falls within the Ethel Creek Pastoral Lease (GIS Database) and substantial disturbance from grazing was evident in a number of quadrats (ENV, 2007b). Other disturbance within the application area includes existing railway lines, roads, and power lines (ENV, 2007b).

Three weed species: *Cenchrus ciliaris* (Buffel Grass), *Cynodon dactylon* (Couch grass), and *Vachella Farnesiana* (Mimosa bush), were recorded during the survey (ENV, 2007b). Buffel Grass was the dominant species in a few of the survey quadrats (ENV, 2007b). The presence of introduced flora species is likely to reduce the biological diversity of the proposed clearing area. Buffel Grass and Mimosa Bush have been given a high weed rating by the WA Environmental Weed Strategy due to their invasiveness (ENV, 2007b). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

A fauna survey of the application area concluded that the majority of the habitat types occurring within the application area were well represented in the Pilbara Region, and were not of specific conservation significance (ENV, 2007a). Some fauna of conservation significance are known to occur within the application area, but none are restricted to the application area (ENV, 2007a).

The relatively small area and temporary nature of the proposed clearing is unlikely to have any significant impact on the biological diversity of the region.

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

**Methodology**      BHP Billiton (2007b).  
ENV (2007a).  
ENV (2007b).  
GIS Database:  
- Interim Biogeographic Regionalisation of Australia (subregions)  
- Pastoral Leases  
- Pre-European Vegetation - DA 01/01  
- Western Australia ETM 25m 543 - AGO 2004

#### (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 Level One fauna survey of the application area was conducted by ENV Australia Pty Ltd in August 2007 (ENV, 2007a). The survey identified four main fauna habitat types within the application area: hill slopes/scree slopes; sand plains; creek lines; and minor drainage lines (ENV, 2007a).

The creekline and minor drainage line habitats were considered to be of higher conservation value than the other habitat types, because they were likely to provide a greater range of fauna habitats, and were not widely represented in surrounding areas (ENV, 2007a). These two habitat types are located at the western end of the application area in association with a minor creekline. An existing access road runs through this area, linking the railway construction site with the proposed borrow pit areas (ENV, 2007a). Apart from some minor road upgrade or maintenance activities which may be required, no other clearing activity is proposed for this section of the application area (BHP Billiton, 2007b).

The other habitat types within the application area are considered to be of relatively low conservation value and are all well represented throughout the Pilbara region (ENV, 2007a).

Several fauna species of conservation significance were considered likely to occur within the project area, based on known ranges, habitat preferences, and previous sightings in surrounding areas (ENV, 2007a). The Ghost Bat (*Macroderma giga*) is listed as Vulnerable on the International Union for the Conservation of Nature and Natural Resources (IUCN) list of rare and endangered species. The Peregrine Falcon (*Falco peregrinus*) is listed under Schedule 4 (other specially protected fauna) on the *Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)* and is protected under the *Wildlife Conservation Act 1950*. The following species are listed on the Department of Environment and Conservation (DEC) Priority Fauna list of poorly known fauna: a species of blind snake, *Ramphotyphlops ganei* (P1); Unpatterned Robust Lerista, *Lerista macropisthopus remota* (P2); Western Pebble-mound Mouse, *Pseudomys chapmani* (P4); Grey Falcon, *Falco hypoleucos* (P4); Australian Bustard, *Ardeotis australis* (P4); and the Bush Stone-curlew, *Burhinus grallarius* (P4) (ENV, 2007a).

None of these species are likely to be specifically dependant on habitats found within the application area, although some taxa such as the Ghost Bat, the Peregrine Falcon and the Grey Falcon may utilize the project area as part of a foraging ground (ENV, 2007a). Consequently the impacts of the proposed clearing on fauna habitats are anticipated to be low (ENV, 2007a).

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

**Methodology** BHP Billiton (2007b).  
ENV (2007a).

**(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 nearest known Declared Rare Flora are six populations of *Lepidium catapycnon* which occur fairly close together approximately 15-20km west/north-west of the application area (GIS Database). Department of Environment and Conservation (DEC) databases have no records of any other populations of Declared Rare or Priority flora within a 50km radius of the areas applied to clear (GIS Database).

Based on known distributions ENV (2007b) considered that one species of Declared Rare Flora (*Lepidium catapycnon*) and twenty four species of Priority Flora had the potential to occur within the application area. Based on habitat preferences, the following four Priority Flora species: *Eremophila*. sp. *Ophthalmia* Range (P1), *E. magnifica subsp velutina* (P3), *Triumfetta leptacantha* (P3), and *E. magnifica subsp magnifica* (P4) were considered most likely to occur within the application area (ENV, 2007b).

However, no species of Declared Rare or Priority Flora were recorded during the vegetation survey (ENV, 2007b).

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

**Methodology** ENV (2007b).  
GIS Database:  
- Declared Rare and Priority Flora List - CALM 01/07/05.  
- Pre-European Vegetation - DA 01/01.

**(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 TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 1.2 km north-east of the eastern end of the application area (GIS Database). Groundwater drawdown is listed as a threatening process for the Ethel Gorge stygofauna (CALM, 2002), however the proposed clearing is not expected to have any effect on groundwater levels.

ENV (2007b) 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** CALM (2002).  
ENV (2007b).  
GIS Database:  
- Threatened Ecological Communities - CALM 12/04/05.

**(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 is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd et al. (2001) report that approximately 100% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the majority of the application area is broadly mapped as Beard Vegetation Association 18: low woodland; mulga (*Acacia aneura*); with a small area at the north-western edge of the application area mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database). According to Shepherd et al., (2001) there is approximately 100% of these vegetation types remaining.

Although several large scale mining operations are located within a 50km radius of the application area (BHP Billiton, 2007b; GIS Database), on a broader scale the Pilbara region has not been extensively cleared. Hence the area applied to clear is not considered to represent a significant remnant of native vegetation in 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
IBRA Bioregion – Pilbara	17,804,164	17,794,164	~99.9	Least Concern	6.3
Beard vegetation associations – WA					
18	19,892,437	19,890,348	~100	Least Concern	2.1
82	2,565,930	2,565,930	~100	Least Concern	10.2
Beard vegetation associations – Pilbara Bioregion					
18	676,561	676,561	~100	Least Concern	16.8
82	2,563,610	2,563,610	~100	Least Concern	10.2

\* 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:

- Interim Biogeographic Regionalisation of Australia (subregions)
- Pre-European Vegetation - DA 01/01
- Western Australia ETM 25m 543 - AGO 2004

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments Proposal is at variance to this Principle**

There are no permanent watercourses or waterbodies within the application area (GIS Database). The western end of the application area is approximately 120m from one of the secondary channels of the Fortescue River, downstream from the Ophthalmia Dam (GIS Database). The Shovelanna Creek, a minor ephemeral creek that drains into the Fortescue River downstream of Ophthalmia Dam, runs through the western end of the application area (GIS Database). The creekline is dry for most of the year, only flowing briefly immediately following significant rainfall (BHP Billiton, 2007b). An existing access road runs through the western end of the application area, linking the railway construction site (to the west of the current application area) with the proposed borrow pit areas (BHP Billiton, 2007b). Apart from occasional road maintenance activities, no other clearing activity is proposed for this section of the application area (BHP Billiton, 2007b).

Four other minor seasonal drainage lines cut through the application area (GIS Database). The proposed borrow pits and laydown areas will not be located within 50m of any creeklines, or associated riparian vegetation (BHP Billiton, 2007a). The proposed borrow pits are all located within close proximity to existing roads, however some new access roads may be required. Any new access roads will avoid minor drainage lines where practicable (BHP Billiton, 2007a). If any new creekline crossings are required, the proponent is

advised to consult with the Department of Water to determine whether a Bed and Banks Permit is required.

As there are watercourses within the application area, the proposal is at variance to this principle. However, as no clearing is planned within close proximity to any of the watercourses, the proposed clearing is unlikely to result in any significant impact on the Fortescue River or any other watercourse or wetland.

**Methodology** BHP Billiton (2007a).  
BHP Billiton (2007b).  
GIS Database:  
- Hydrography, Linear - DOE 01/02/04.  
- Lakes, 1M - GA 01/06/00.  
- Rivers 250K - GA.  
- Western Australia ETM 25m 543 - AGO 2004

**(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 falls predominantly within the Boolgeeda Land System, with small areas to the north and west respectively falling within the Newman and River Land Systems (GIS Database).

The Boolgeeda Land System consists of stony lower slopes and plains below hill systems, supporting hard and soft spinifex grasslands and mulga shrublands. This land system is generally not susceptible to erosion (Van Vreeswyk et al., 2004).

The Newman Land System consists of jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. This land system is not prone to erosion (Van Vreeswyk et al., 2004).

The River Land System consists of flood plains and major rivers supporting eucalypt woodlands, tussock grasslands and soft spinifex grasslands. This land system is susceptible to erosion if vegetation is removed (Van Vreeswyk et al., 2004). The western end of the application area which passes through the River Land System links the rail junction construction site with the proposed borrow pit areas, and includes an existing road. The only vegetation clearing (if any) which may be required within this Land System would be for occasional road maintenance activities of the existing road (BHP Billiton, 2007b).

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

**Methodology** BHP Billiton (2007b).  
Van Vreeswyk et al. (2004)  
GIS Database:  
- Rangeland Land System Mapping - DA.

**(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**

There are no conservation areas in the vicinity of the application area. The nearest DEC managed lands are the Collier National Park, approximately 125km south/south-west of the application area; and the Karijini National Park, approximately 130km west/north-west of the application area (GIS Database).

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

**Methodology** GIS Database:  
- CALM Managed Lands and Waters - CALM 1/07/05.

**(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 Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). All activities conducted within the PDWSA, should be in accordance with the Department of Water (DoW) Land Use Compatibility Tables (DoW, 2007). The proponent is advised to follow the Water Quality Protection Guidelines for the mining and mineral industry, produced by the DoW, to minimise any risk that the proposed clearing and associated activities may pose to the Water Reserve (DoW, 2007).

The application area is located within the Pilbara Groundwater Area, as proclaimed under the *Rights in Water and Irrigation Act 1914*. Any groundwater abstraction within this area will require a Water Licence from the Department of Water (DoW, 2007). Groundwater quality monitoring is conducted as part of the existing mine operations at the nearby Orebody 25 minesite (BHP Billiton, 2007b). The Department of Water has advised that the proposed clearing is unlikely to have any significant impact on groundwater levels or quality (DoW,

2007).

At the western end, the application area roughly follows the alignment of a minor seasonal creekline which feeds into the Fortescue River, downstream from Ophthalmia Dam (GIS Database; BHP Billiton, 2007b). Four other seasonal drainage lines occur within the application area. As there are no permanent watercourses or waterbodies within the application area, and no clearing is proposed within close proximity to any ephemeral watercourse, the proposed clearing is unlikely to result in increased sedimentation of any of the watercourses. Surface water quality is monitored at several sites along the Fortescue River (BHP Billiton, 2007b).

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

**Methodology** BHP Billiton (2007b).  
DoW (2007).  
GIS Database:  
- Hydrography, Linear - DOE 1/02/04.  
- Public Drinking Water Source Areas - DOE 09/08/05.

**(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**

Natural flooding occurs occasionally during the wet season (November to March) following significant rainfall (BHP Billiton, 2007b).

The proposed clearing areas will not be located within close proximity to any watercourses, and the relatively small areas of clearing scattered throughout the application area are unlikely 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** BHP Billiton (2007b).

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

**Comments**

One public submission was received for this clearing permit application. The submission suggested that the vegetation proposed to be cleared should be considered as a significant remnant of native vegetation in an area that has been extensively cleared. This issue has been addressed under Principle (e). The submission further suggested that because a previously granted clearing permit application (CPS 2073/1) located within the same Mining Lease had been found to be at variance to Principle (f) (associated with a watercourse), that this application should also be found to be at variance to Principle (f). The application area for CPS 2073/1 is located approximately 65km north-west of this application area, and there is no direct connection between the two application areas. While nearby sites may share some of the same environmental issues, there may also be substantial differences. Hence, each clearing permit application is individually assessed against the Clearing Principles.

The submission also raised concerns regarding potential impacts of the proposed clearing on Aboriginal Heritage sites and Native Title Rights within the application area. Aboriginal Sites of Significance are protected under the *Aboriginal Heritage Act 1972*. The proponent is committed to the management and protection of Aboriginal heritage sites (BHP Billiton, 2005). BHP Billiton has a heritage protocol agreement with the Nyiyaparli people (traditional owners of the Newman area), and regularly consult with the Nyiyaparli people to undertake Aboriginal heritage surveys in and around Newman (BHP Billiton, 2007b). BHP Billiton also has an internal process; the Project Environment and Aboriginal Heritage Review (PEAHR), which is designed to prevent inadvertent disturbance of Aboriginal heritage sites within BHP Billiton operations. Prior to the commencement of any land disturbance activity, a PEAHR must be completed and submitted to BHP Billiton's Aboriginal Affairs Department, for assessment. All land disturbance activities must be approved by BHP Billiton's Environment and Aboriginal Heritage staff (BHP Billiton, 2005).

There are two Aboriginal sites of significance partly overlapping the western end of the application area, and several other sites within close proximity (GIS Database). 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 is one native title claim over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. 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*.

The application area is located within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). The Department of Water (DoW) has advised that all activities conducted within the

PDWSA should be compatible with the DoW's Land Use Compatibility Tables (DoW, 2007). The proponent is advised to seek further advice from the DoW to ensure compliance in this regard.

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** BHP Billiton (2005).  
 BHP Billiton (2007b).  
 DoW (2007).  
 GIS Database:  
 - Aboriginal Sites of Significance - DIA 04/07/02.  
 - Native Title Claims - DLI 19/12/04.  
 - Public Drinking Water Source Areas - DOE 09/08/05.

#### 4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Production	Mechanical Removal	13	<p>The proposal has been assessed against the Clearing Principles, and is at variance to the following Principle: (f) associated with a watercourse or wetland.</p> <p>There are no wetlands within the application area, and the watercourses within the application area are minor seasonal drainage lines, only flowing briefly following significant rainfall. No clearing is planned in close proximity to any watercourses. Hence it is considered that any environmental impact on these watercourses is likely to be minimal.</p> <p>The proposal is not at variance to Principle (e), and is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j).</p> <p>Should the permit be granted, it is recommended that Conditions be imposed on the permit for the purposes of weed management, erosion control, record keeping and permit reporting.</p>

#### 5. References

BHP Billiton (2005) Aboriginal Heritage Induction Handbook. BHP Billiton Iron Ore Pty Ltd, Western Australia.

BHP Billiton (2007a) BHP Billiton Iron Ore Asset Development Projects Environmental Management Plan, Revision 4. BHP Billiton Iron Ore Pty Ltd, Western Australia.

BHP Billiton (2007b) Jumblebar Wye Borrow Areas Purpose Permit Vegetation Clearing Permit Application. Supporting Documentation, Revision 0. BHP Billiton Iron Ore Pty Ltd, Western Australia.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, 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.

DoW (2007) Public Drinking Water Source Area (PDWSA) Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Environment, Western Australia.

ENV (2007a) Jumblebar Wye Rail Junction (Borrow Areas) Fauna Assessment. ENV Australia Pty Ltd, Western Australia.

ENV (2007b) Jumblebar Wye Rail Junction (Borrow Areas) Flora and Vegetation Assessment. ENV Australia Pty Ltd, 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.

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., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia. Department of Agriculture, Western Australia.

## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEC</b>	Department of Environment and Conservation
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	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} :-

<b>P1</b>	<b>Priority One - Poorly Known taxa:</b> 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.
<b>P2</b>	<b>Priority Two - Poorly Known taxa:</b> 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.
<b>P3</b>	<b>Priority Three - Poorly Known taxa:</b> 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.
<b>P4</b>	<b>Priority Four – Rare taxa:</b> 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.
<b>R</b>	<b>Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):</b> 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.
<b>X</b>	<b>Declared Rare Flora - Presumed Extinct taxa:</b> 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] :-

<b>Schedule 1</b>	<b>Schedule 1 – Fauna that is rare or likely to become extinct:</b> being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
<b>Schedule 2</b>	<b>Schedule 2 – Fauna that is presumed to be extinct:</b> being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
<b>Schedule 3</b>	<b>Schedule 3 – Birds protected under an international agreement:</b> 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.
<b>Schedule 4</b>	<b>Schedule 4 – Other specially protected fauna:</b> 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.