



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 3863/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

### 1.3. Property details

Property: Iron Ore (Hamersley Range) Agreement Act 1963, Mineral Lease 4SA (AML 70/4)  
Local Government Area: Shire of Ashburton  
Colloquial name: Brockman 2

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
18.3		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
Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. Two Beard Vegetation Associations have been mapped within the application area (GIS Database).	Hamersley Iron Pty Ltd has applied to clear up to 18.3 hectares of native vegetation for the purpose of developing a landfill site/landfarm.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	Vegetation descriptions were derived from descriptions by Halpern Glick Maunsell (HGM, 1999).
82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> ;	Clearing will be done using a dozer, blade down. Vegetation will be stockpiled and used for rehabilitation.	To	
175: Short bunch grassland: savannah/grass plain (Pilbara) (Kendrick, 2001).		Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	
A flora and vegetation survey of the wider Brockman 2 area, which included the vegetation within the application areas, was undertaken by Halpern Glick Maunsell between 28 August and 7 September 1998 (HGM, 1999). A total of two vegetation communities have been identified within the application area (HGM, 1999; Rio Tinto, 2010). These are:			
<b>A5: Hill and Stony Plains</b>			
Open tall shrubs dominated by <i>Acacia exilis</i> over <i>T. Wiseana</i> ; and			
<b>B4: Drainage Lines</b>			
Open <i>Eucalyptus</i> over mixed tall shrubland.			

## 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 Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion is characterised by sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite), with Mulga low woodland over bunch

grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (Kendrick, 2001).

The vegetation within the application area consists of Beard Vegetation Associations 82 and 175 which are both common and widespread throughout the Pilbara bioregion, with approximately 100% and 99% remaining respectively (GIS Database; Shepherd, 2007).

Halpern Glick Maunsell (HGM, 1999) carried out a flora and vegetation survey of the Nammuldi and Silvergrass iron ore leases near the Brockman 2 mine site, which included the vegetation under application. A total of 20 vegetation communities were recorded within the survey area and these comprised a total of 358 native flora species, belonging to 161 genera from 56 families (HGM, 1999). The large number of species recorded is a reflection of both the variety of landforms and the survey timing, and compares well to similar sized surveys in the local area (HGM, 1999). The vegetation within the application area comprised only 2 of the 20 vegetation communities that were recorded during the vegetation survey by HGM (1999). As a result of the reduced number of vegetation communities and landforms within the application area compared to the wider survey area, the species richness is likely to be less than the Nammuldi and Silvergrass iron ore lease survey area. HGM (1999) state that the species diversity of the vegetation within the application area and surrounding area is considered typical of the local area and representative of the Pilbara region.

No Declared Rare Flora, Priority or Threatened Ecological Communities have been recorded within the application area (GIS Database; Rio Tinto, 2010). The vegetation communities within the application area are not likely to be considered as rare, geographically restricted or of significant conservation value.

The vegetation communities within the application area are considered common within the Pilbara region, and are unlikely to be of higher biodiversity than the surrounding areas (HGM 1999; Shepherd, 2007). The proposed clearing is unlikely to have a significant impact on the biological diversity of the local area or region.

Hamersley Iron (1999) have carried out a fauna survey across the Nammuldi and Silvergrass iron ore lease near the Brockman 2 mine site, and this survey included the vegetation within the application area. A total of 76 avian species, 21 mammalian species, 66 reptilian species were recorded over 14 nights of trapping and collecting (Hamersley Iron, 1999). These results indicate that the vegetation within the application area as well as the surrounding lease area may comprise suitable habitat for a high diversity of avian and reptile species.

Seven introduced flora species have been identified within the application area or surrounding vegetation. These being: *Cenchrus ciliaris* (Buffel Grass), *Cenchrus setigerus* (Birdwood Grass), *Setaria verticillata* (Whorled Pigeon Grass), *Malvastrum americanum* (Spiked Malvastrum), *Bidens bipinnata* (Bipinnate Beggartick); *Portulaca oleracea* (Purslane); and *Cynodon dactylon* (Couch Grass) (HGM, 1999). Care must be taken to ensure that the proposed clearing activities do not spread or introduce the above listed introduced species to non infested areas. The potential spread of introduced species as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

**Methodology** Hamersley Iron (1999)  
HGM (1999)  
Kendrick (2001)  
Rio Tinto (2010)  
Shepherd (2007)  
GIS Database:  
-Declared Rare and Priority Flora  
-IBRA WA (Regions - Sub Regions)  
-Pre-European Vegetation

**(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**

The assessing officer has conducted a search of the Western Australian Museum's online fauna database, centred on the coordinate 22°25'31"S, 117°21'54"E, with a radius of 40 kilometres. Two amphibian, 25 avian, 19 mammalian and 65 reptilian species have been identified as potentially occurring in the search area (Western Australian Museum, 2010).

Hamersley Iron Pty Ltd have carried out a fauna survey across the Nammuldi and Silvergrass iron ore lease near the Brockman 2 mine site, and this survey included the vegetation within the application area (Hamersley Iron, 1999). The vertebrate fauna survey was undertaken in November 1998 and May 1999. A total of 76 avian species, 21 mammalian species, and 66 reptilian species were recorded over 14 nights of trapping and collecting (Hamersley Iron, 1999). The number of faunal species recorded during this survey compares well with the results from the Western Australian Museum's online fauna database for the local area, however, indicates that the vegetation within the application and surrounding lease area may comprise of habitat for a high number of avian and reptile species.

Rio Tinto (2010) also conducted a desktop search of the Department of Environment and Conservation's

(DEC) Threatened Fauna Database.

After consideration of the results of the Western Australian Museum's online fauna database search, Hamersley Iron (1999) fauna survey of the application area and surrounding lease area and the Department of Environment and Conservation's (DEC) Threatened Fauna Database search, the following species of conservation significance could potentially utilise the application area:

- *Amytornis striatus* subsp. *striatus* (Striated Grasswren) listed DEC Priority Four;
- *Ardeotis australis* (Australian Bustard) listed DEC Priority Four;
- *Burhinus grallarius* (Bush Stone-curlew) listed DEC Priority Four;
- *Lagorchestes conspicillatus* subsp. *leichardti* (Spectacled Hare-wallaby) listed DEC Priority Three;
- *Leggadina lakedownensis* (Lakeland Downs Mouse) listed DEC Priority Four;
- *Macroderma gigas* (Ghost Bat) listed DEC Priority Four;
- *Pseudomys chapmani* (Western Pebble-mound Mouse) listed DEC Priority Four;
- *Sminthopsis longicaudata* (Long-tailed Dunnart) listed DEC Priority Four; and
- *Notoscincus butleri* listed DEC Priority Four.

Three broad terrestrial fauna habitat types have been identified within the application area and surrounding vegetation based on information provided by Hamersley Iron (1999), as well as the assessment of aerial imagery and topographic information. These are: Alluvial plains and outwash areas; Stony hilltops and slopes of ridges; and Plains dominated by spinifex and minor creeklines (Hamersley Iron, 1999). These habitat types are both common and widespread in the Pilbara bioregion and would not be considered to be under threat by the proposed clearing of 18.3 hectares. It is likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding area, and Pilbara bioregion which remains largely uncleared. The close proximity to existing mine infrastructure could also be considered to act as a deterrent to many native fauna species, minimising the probability that they would frequent the area.

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

**Methodology** Hamersley Iron (1999)  
Rio Tinto (2010)  
Western Australian Museum (2010)  
GIS Database:  
-Threatened Fauna

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments Proposal is not likely to be at variance to this Principle**

According to available datasets, there are no known records of Declared Rare Flora (DRF) or Priority Flora species within the application area (GIS Database). There are no records of any DRF within a 50 kilometre radius of the application area (GIS Database).

Halpern Glick Maunsell (HGM, 1999) carried out a flora and vegetation survey of the Nammuldi and Silvergrass iron ore leases near the Brockman 2 mine site, which included the vegetation under application. No DRF were identified during the search. Several Priority Flora species were recorded during the survey, however, these species have since been removed from the Department of Environment and Conservation's priority flora list.

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

**Methodology** HGM (1999)  
GIS Database:  
-Declared Rare and Priority Flora

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments Proposal is not likely to be at variance to this Principle**

According to available databases, there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database). The vegetation survey did not identify any vegetation communities described as a TEC (Biota Environmental Sciences, 2008a). The nearest known TEC is located approximately 16 kilometres east of the application area (Rio Tinto, 2010) with the buffer extending to within 1.8 kilometres of the application area (GIS Database).

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

**Methodology** Rio Tinto (2010)  
GIS Database:  
-Threatened Ecological Communities

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments Proposal is not at variance to this Principle**

The application area is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 99.95% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application area is broadly mapped as Beard Vegetation Associations 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and 175: Short bunch grassland - savannah/grass plain (Pilbara) (GIS Database; Kendrick, 2001). According to Shepherd (2007) there is approximately 100% of these vegetation types remaining in the Pilbara Bioregion and the State (see table below).

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Pilbara Bioregion and Beard Vegetation Associations 82 and 175, is of 'Least Concern' (Department of Natural Resources and Environment, 2002).

Although several large scale mining operations are located within a 50 kilometre radius of the application area, the Pilbara Bioregion remains largely uncleared (GIS Database). As a result, the conservation of the vegetation associations within the bioregion is not likely to be impacted upon by the proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,188	17,794,647	~99.95	Least Concern	6.32
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.2
175	562,206	524,861	~99.7	Least Concern	4.2
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.2
175	507,036	507,006	~100	Least Concern	4.4

\* Shepherd (2007)

\*\* 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)  
Kendrick (2001)  
Shepherd (2007)  
GIS Database:  
- Interim Biogeographic Regionalisation of Australia  
- 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 may be at variance to this Principle**

According to available GIS databases there are no permanent wetlands or watercourses within the application area (GIS Database). The proponent has advised that the vegetation to be cleared is not associated with any major watercourses, wetlands or wetland dependant vegetation (Rio Tinto, 2010). Several ephemeral creek systems and flow lines traverse the application area (GIS Database). These watercourses are minor natural drainage channels that are widespread across the Pilbara landscape and are responsible for quickly dispersing floodwaters after significant rainfall events

As there are watercourses within the application area, the proposed clearing may be at variance to this Principle. However, the vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (GIS Database; Shepherd, 2007). The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these minor ephemeral creek systems.

**Methodology** Rio Tinto (2010)  
Shepherd (2007)  
GIS Database:

**(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**

According to the Department of Agriculture's Technical Bulletin No. 92 'An inventory and condition survey of the rangelands of the Pilbara region, Western Australia', the application area is comprised of the Boolgeeda Land system (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 (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals it is most likely to occur within the 'Stony lower plains' land unit. This land system has a high resistance to soil erosion due to the stony surface materials and red loamy earths present within the soils (Van Vreeswyk et al., 2004). According to Van Vreeswyk et al. (2004), approximately 100% of the Boolgeeda Land System is not affected by soil erosion. This landscape is at the end point of millions of years of erosion and withstands massive rainfall events on an annual basis without any appreciable land degradation. Given that vegetation is removed on a regular basis through fire (Van Vreeswyk et al., 2004) without any apparent increase in erosion, it is unlikely that the removal of vegetation will by itself exacerbate degradation.

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

**Methodology** Van Vreeswyk et al. (2004)  
GIS Database:  
-Rangeland Land System Mapping  
Richard Smetana

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

**Comments Proposal is not likely to be at variance to this Principle**

The application area is not situated within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation estate is Karijini National Park, which is situated approximately 58 kilometres east, south-east of the application area (GIS Database). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of Karijini National Park.

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

**Methodology** GIS Database:  
-DEC Tenure

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

**Comments Proposal is not likely to be at variance to this Principle**

There are no permanent watercourses, drainage systems or wetlands within the application area (GIS Database). The land systems associated with the application area has high resistance to erosion (Van Vreeswyk et al., 2004), thereby reducing the risk of sediment export which may result in sedimentation and turbidity in any nearby watercourses. The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve which is located approximately 16 kilometres north of the application area (GIS Database). The proposed clearing activities will involve clearing 18.3 hectares of native vegetation for the purpose of developing a landfill site/landfarm (Rio Tinto, 2010). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the quality of the Millstream Water Reserve.

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

**Methodology** Rio Tinto (2010)  
Van Vreeswyk et al. (2004)  
GIS Database:  
-Hydrography, Linear  
-Public Drinking Water Source Areas

**(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**

Numerous ephemeral watercourses are distributed across the landscape, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database; ANRA, 2007). It is unlikely that the proposed clearing will impact on the drainage patterns in the local area. The proposed clearing of native vegetation is unlikely to cause or increase the incidence of flooding or result in an increase in peak flood height.

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

**Methodology** ANRA (2007)  
GIS Database:  
-Hydrography, Linear

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

**Comments**

There is one native title claim over the area under application: WC97/089. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenure 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*.

There are no known Aboriginal sites of significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 2 August 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received during the public comment period.

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

**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 may be 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**

- ANRA (2007) Australian Natural Resources Atlas: Rangelands Overview; Pilbara. Available online from: <http://www.anra.gov.au/topics/rangelands/overview/wa/ibra-pil.html> Accessed 24 September 2010.
- 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.
- Hamersley Iron (1999) Nammuldi/Silvergrass Exploration Project, Biological Survey Report November 1998 - May 1999, prepared by Hamersley Iron Pty Ltd, August 1999.
- HGM (1999) Nammuldi/Silvergrass Soils, Vegetation and Flora Survey, Prepared for Hamersley Iron Pty Ltd, Prepared by Halpern Glick Maunsell, Report ES995117A, February 1999.
- 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. (2001) Pilbara (PIL3 - Hamersley subregion). In a Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, pp 568-580.
- Rio Tinto (2010) Summary and Background to the Brockman 2 Landfarm Facility (Purpose Permit). Rio Tinto, Western Australia, April 2010.
- Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A., and Hennig, P. (2004) Technical Bulletin: An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No 92. Department of Agriculture, Western Australia.
- Western Australian Museum (2010) NatureMap - Mapping Western Australia's Biodiversity - Department of Environment and Conservation. Available online from: <http://naturemap.dec.wa.gov.au/default.aspx> Accessed 21 September 2010.

## 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>DMP</b>	Department of Mines and Petroleum, 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*} :-

- 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.