



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 3328/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: **Justin and Glenn Rule**

### 1.3. Property details

Property: Mining Lease 70/57  
Local Government Area: Shire of Gingin  
Colloquial name: Limesand Mining Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.84	0	Mechanical Removal	Mineral Production

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

##### Vegetation Description

Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application areas (Shepherd, 2007):

Beard Vegetation Association 1026: Mosaic: shrublands; *Acacia rostellifera*, *A. cyclops* and *Melaleuca cardiophylla* thicket / shrublands; *Acacia lasiocarpa* and *Melaleuca acerosa* heath.

A flora and vegetation assessment for an area that lies close to the application areas was conducted by Ecologia in June 2009. The survey identified the following three vegetation units within the survey area (Ecologia, 2009a):

1. *Acacia rostellifera* tall shrubland, over *Olearia axillaris* open tall shrubland, over *Spyridium globulosum* sparse mid shrubland over mid to low shrubland of *Myrtaceous* spp;
2. *Allocasuarina lehmanniana* subsp. *lehmanniana* tall shrubland, over *Olearia axillaris* open mid shrubland, over *Calothamnus quadrifidus*, *Conostephium pendulum* and *Melaleuca systena* sparse low to mid shrubland;
3. *Thomasia triphylla* open tall shrubland, over *Santalum acuminatum* open mid to tall shrubland, over *Lysinema ciliatum*, *Rhagodia baccata* subsp. *baccata* and *Myoporum insulare* sparse mid shrubland.

The flora and vegetation survey did not include the application areas, however, it was conducted in an area that lies adjacent to the application areas. The vegetation units identified during the flora and vegetation survey were present within one of the areas applied to clear, however, there were also other, undescribed vegetation units within the application areas, which was confirmed by a site visit that was conducted on 9 October 2009 by the assessing officer.

##### Clearing Description

J and G Rule (2009) propose to clear up to 4.84 hectares of native vegetation across three separate areas. The proposed clearing is located approximately 5 kilometres north-west of Ledge Point (GIS Database).

The purpose of the proposed clearing is for the extraction of agricultural limesand (J and G Rule, 2009). J and G Rule (2009) propose to clear the vegetation in stages over 5 years and state that only 1 hectare of land will be exposed at one time. Vegetation and topsoil will be stockpiled for rehabilitation purposes (J and G Rule, 2009).

##### Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)

##### Comment

The vegetation condition rating is derived from information provided by Ecologia (2009a) and by a site visit conducted by the assessing officer on 9 October 2009.

### 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 areas lie within the Swan Coastal Plain subregion of the Perth Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Swan Coastal Plain subregion is generally described by CALM (2002) as consisting of a low lying coastal plain, mainly covered in woodlands. It is dominated by Banksia or Tuart on sandy soils, *Casuarina obesa* on outwash plains, and paperbark in swampy areas (CALM, 2002). The Swan Coastal Plain is part of the south-west Botanical Province which has a very high degree of species diversity (CALM, 2002).

A vegetation and flora survey of an area that lies adjacent to the application areas was conducted by Ecologia in June 2009. Ecologia (2009a) recorded a total of 37 native flora species from 31 genera and 22 families. The dominant families were the Sedge family (*Cyperaceae*), Heath family (*Epacridaceae*), Wattle family (*Mimosaceae*) and the Myrtle family (*Myrtaceae*) (Ecologia, 2009a).

Ecologia (2009a) report that no weed species have been identified within the survey area, however, weed species were noticed within the unsurveyed application areas during the site visit. The presence of introduced weed species lowers the biodiversity value of the proposed clearing areas. Care must be taken to ensure the proposed clearing activities do not spread or introduce weed species to non-infested areas. The risk of spreading weed species can be mitigated by imposing a condition for the purpose of weed management.

Ecologia conducted a desktop fauna assessment of the application areas and surrounding areas in June 2009. This search identified 18 mammal species (including five introduced mammals), 132 bird species, 38 reptile species and four amphibians, that have previously been recorded within 45 kilometres of the application areas (Ecologia, 2009b). This would indicate that the area is high in avian diversity, however, some of the bird species that may frequent the area would be migratory and only present at certain times of the year within the Perth bioregion (Ecologia, 2009b). Furthermore, most bird species are wide ranging and mobile and therefore, the clearing of 5 hectares of native vegetation is unlikely to significantly impact avian diversity in the area.

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

##### Methodology

CALM (2002)  
Ecologia (2009a)  
Ecologia (2009b)  
GIS Database  
- Interim Biological Regionalisation for Australia

#### (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

##### Comments

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

Ecologia (2009b) conducted a desktop fauna survey of previous fauna surveys and fauna databases. Ecologia (2009b) searched databases maintained by the Western Australian Museum, Birddata and Department of Environment and Conservation (DEC), for fauna species that could potentially occur within the project area and within a 25 kilometre buffer area surrounding the project area.

Ecologia (2009b) identified the following fauna species of conservation significance that have a high likelihood of occurring within 45 kilometres of the project area;

- Black-striped Snake (*Neelaps calonotos*) – Priority 3 on the DEC Threatened and Priority fauna list;
- Rainbow Bee-eater (*Merops ornatus*) – Marine and Migratory (*Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and Japan-Australia Migratory Bird Agreement);
- Rufous Fieldwren (*Calamanthus campestris montanellus*) – Priority 4 on the DEC Threatened and Priority fauna list;
- Southern Brown Bandicoot (*Isodon obesulus fusciventer*) – Priority 5 on the DEC Threatened and Priority fauna list; and
- Western Brush Wallaby (*Macropus irma*) – Priority 4 on the DEC Threatened and Priority fauna list.

In addition to the abovementioned species, another three species were classified as having a moderate likelihood of occurring within the search area:

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) – Schedule 1 (Fauna that is rare or likely to become extinct), *Wildlife Conservation (Specially Protected Fauna) Notice 2008* and Vulnerable, *EPBC Act 1999*;
- Crested Bellbird (*Oreoica gutturalis gutturalis*) – Priority 4 on the DEC Threatened and Priority Fauna list; and
- Western Carpet Python (*Morelia spilota imbricata*) – Priority 4 on the DEC Threatened and Priority Fauna list.

The Carnaby's Black Cockatoo has a moderate chance of foraging over the search area, however, the

vegetation present is not suitable as breeding habitat for this species (Ecologia, 2009b).

The vegetation and habitat types are not restricted to the survey area and occur in the wider local area, including within the Nilgen Nature Reserve (Ecologia, 2009a). Therefore, the clearing of 5 hectares of native vegetation is unlikely to have a significant impact on any fauna species or associated habitats.

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

**Methodology** Ecologia (2009a)  
Ecologia (2009b)

**(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**

Ecologia conducted a flora and vegetation assessment of an area that lies adjacent to the application areas in June 2009. This assessment involved a desktop assessment of the application areas and surrounding region, for flora of conservation significance (Ecologia, 2009a). The desktop assessment identified the following four Priority flora species that could potentially occur within the survey area based on habitat preferences and distribution ranges:

- *Thryptomene* sp. Lancelin (Priority 2);
- *Platysace ramosissima* (Priority 3);
- *Baeckea* sp. Perth Region (Priority 3); and
- *Conostylis pauciflora* subsp. *euryhipis* (Priority 4).

Ecologia (2009a) report that none of these flora species were recorded during the flora and vegetation survey, however, there are unsurveyed vegetation units within the application areas. Ecologia (2009a) reports that the vegetation within the application areas could be expected to occur in the national parks and nature reserves of the area and the local impacts of 4.84 hectares of clearing to any vegetation unit within the application area is likely to be low. Therefore, the proposed clearing of native vegetation is unlikely to have a significant impact on the habitat of any conservation significant flora, or on the conservation status of any flora species.

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

**Methodology** Ecologia (2009a)

**(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) or Priority Ecological Communities (PECs) within the application areas (GIS Database). The closest known TEC is located approximately 35 kilometres east of the application areas (GIS Database). At such a distance from the application areas, these ecosystems are unlikely to be affected by the proposed clearing.

Ecologia (2009a) reported that no TECs or PECs were identified during the flora and vegetation survey.

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

**Methodology** Ecologia (2009a)  
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 likely to be at variance to this Principle**

The application areas fall within the Swan Coastal Plain IBRA bioregion (GIS Database). Shepherd (2007) report that approximately 39% of the pre-European vegetation still exists within this bioregion, of which approximately 24% is located within conservation reserves (see table below). In addition, there is approximately 42% of vegetation remaining within the Perth IBRA subregion of which 24% remains in conservation estate and approximately 53% of vegetation remaining within the Shire of Gingin (Shepherd, 2007).

The vegetation within the application areas is recorded as the following Beard Vegetation Association (Shepherd, 2007):

Beard Vegetation Association 1026: Mosaic: Shrublands; *Acacia rostellifera*, *A. Cyclops* and *Melaleuca cardiophylla* thicket/ shrublands; *Acacia lasiocarpa* and *Melaleuca acerosa* heath.

According to Shepherd (2007) approximately 91% of this vegetation association remains within the bioregion

and approximately 95% within the subregion (see table below). The Swan Coastal Plain IBRA bioregion and the Perth IBRA subregion are considered to have depleted vegetation as both have less than 50% of vegetation remaining, however, vegetation association 1026 is classed as being of 'least concern' as there is greater than 50% of pre-European vegetation remaining at the state, bioregional and subregional levels (see table below). In addition the vegetation association is well represented in conservation estate at all regional levels. Therefore, the removal of 5 hectares of native vegetation is not likely to significantly impact on the extent of these vegetation types on either a regional or sub regional level.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)
IBRA Bioregion - Swan Coastal Plain	1,501,209	583,141	~39	Depleted	~11 (24)
IBRA Subregion - Perth	1,117,744	469,645	~42	Depleted	~12 (24)
Local Government - Gingin	319,671.25	168,783	~53	Depleted	n/a
<b>Beard vegetation associations - State</b>					
1026	70,700	63,149	~89	Least Concern	~50 (53)
<b>Beard vegetation associations - Bioregion</b>					
1026	58,419	53,009	~91	Least Concern	~52 (53)
<b>Beard vegetation associations - subregion</b>					
1026	5,590	5,337	~95	Least Concern	~55

\* Shepherd (2007)

\*\* Department of Natural Resources and Environment (2002)

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd (2007)  
GIS Database  
- Interim Biogeographic Regionalisation for Australia

**(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 at variance to this Principle**  
According to available databases there are no watercourses or wetlands within the proposed clearing areas (GIS Database). The nearest watercourse is located approximately 10 kilometres east of the application areas (GIS Database).

**Methodology** GIS Database  
- Hydrography, linear

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments** **Proposal is at variance to this Principle**  
The application areas are located within the Quindalup soil-landscape system (Ecologia, 2009a). This system is described by Ecologia (2009a) as a coastal dune system of unconsolidated calcareous sand forming a narrow sequence of dune formations along the coast. The vegetation of the Quindalup dune system is described by Ecologia (2009a) as:

- *Acacia rostellifera* low woodland, with *Scaevola crassifolia*, *Stylobasium spathulatum*, *Olearia axillaris*-*Acacia rostellifera* tall shrubland.

Bolland (2009) report that the Quindalup dunes when cleared of vegetation are very easily eroded by winds. J and G Rule (2009) advise that the proposed clearing will be staged over 5 years with only 1 hectare being exposed at one time. In addition, J and G Rule (2009) advise that the following management measures will be implemented to reduce wind erosion over cleared areas:

- Leave a 100 metre wide vegetated 'high dune' between the ocean and pit floor to protect the pit floor from prevailing sea breezes;
- Keep the pit floor 10 centimetres above the underlying water table to keep the pit floor damp at all times and minimise wind erosion;
- Utilise fibrous root material in overburden to stabilise overburden stockpiles until they are used; and
- Have a water truck onsite at all times capable of carrying 5000 litres of water to wet down soil in the pit and on approach roads.

The risk of erosion can be mitigated by imposing a condition on the permit regarding staged clearing.

During a site visit conducted by the assessing officer in October 2009 it was noted that rehabilitation to date has resulted in pioneer colonising species growing over previously cleared areas. Furthermore, the implementation of wind erosion management measures such as leaving a 100 metre wide vegetated 'high dune', will enhance the likelihood of successful rehabilitation being achieved. The aim of achieving successful rehabilitation can be assisted by imposing a condition for the purpose of rehabilitation.

The application areas lie within a Dieback (*Phytophthora* spp.) management area (Ecologia, 2009a). It is unknown whether Dieback exists within the application areas, however, the risk of spreading Dieback can be mitigating by imposing a condition for the purpose of Dieback management.

Based on the above, the proposed clearing is at variance to this Principle.

**Methodology** Bolland (2009)  
Ecologia (2009a)  
J and G Rule (2009)

**(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 proposed clearing is not located within any conservation areas (GIS Database). The nearest land-based Department of Environment and Conservation managed land is the Nilgen Nature Reserve located approximately 6 kilometres north of the application areas (GIS Database). The vegetation units within the application areas are well represented outside of the project area and therefore, do not represent an important ecological linkage for the Nilgen Nature Reserve.

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

**Methodology** GIS Database  
- CALM Managed Land and Waters

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

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

The application areas are located within the Quindalup soil-landscape system (Ecologia, 2009a). This system is defined as a coastal dune system of unconsolidated calcareous sand forming a narrow sequence of dune formations along the coast (Ecologia, 2009a). Bolland (2009) reports that the Quindalup dunes hold very little water and are only wet when heavy rain is falling.

There are no watercourses within the application areas and the nearest watercourse is located approximately 10 kilometres east of Mining Lease 70/57 (GIS Database). Based on the distance to the nearest watercourse and the free-draining nature of the soils, the proposed clearing is unlikely to cause any deterioration in surface water quality.

It is considered unlikely that the clearing of 4.84 hectares of native vegetation will have an impact on groundwater quality or groundwater quantity, either locally or regionally.

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

**Methodology** Bolland (2009)  
Ecologia (2009a)

**(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**

According to available databases and landform and vegetation descriptions provided by Ecologia (2009a), there are no natural swampy areas, wetlands or watercourses within the application areas.

The application areas are located within the Quindalup soil-landscape system (Ecologia, 2009a). This system

is defined as a coastal dune system of unconsolidated calcareous sand forming a narrow sequence of dune formations along the coast (Ecologia, 2009a). Bolland (2009) reports that the Quindalup dunes hold very little water and are only wet when heavy rain is falling.

Based on the above, the proposed clearing is unlikely to cause flooding within Mining Lease 70/57, however, there may be some localised ponding of water in cleared areas that have been mined to the limestone basement layer.

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

**Methodology** Bolland (2009)  
Ecologia (2009a)  
GIS Database  
- Hydrography, linear  
- WA coastline

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

##### **Comments**

There is one Native Title claim (WC97/071) over the areas under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases there is one Aboriginal Site of Significance within the application areas (site ID: 3237) (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Five public submissions have been received in relation to the proposed clearing, raising the following concerns:

- The proposed clearing will exacerbate wind erosion within the application areas. This concern is addressed under Principle (g). A staged clearing condition has been placed on the clearing permit to mitigate the potential for wind erosion. In addition the proponent has a number of erosion management measures in place and these are outlined under Principle (g).
- The proposed clearing is in an area popular for recreation and fishing. Clearing and mining is not allowed within 100 metres of the high tide line under the tenement conditions for Mining Lease 70/57. In addition, the proponent is required to rehabilitate the project area under the tenement conditions for Mining Lease 70/57 which will help reduce erosion of the dune system and improve the area aesthetically.
- The proponent has not undertaken adequate consultation. This concern is not relevant in the assessment of the Clearing Principles listed in Schedule 5 of the *Environmental Protection Act 1986*. It is the proponent's responsibility to ensure adequate stakeholder consultation is undertaken.

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

#### **4. Assessor's comments**

##### **Comment**

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

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

Tenement condition 4 for Mining Lease 70/57 states that no mining of soil or vegetation is permitted within 100 metres of the high water mark. In support of this, should a permit be granted, clearing will not be permitted within the area shaded red on Plan 3328/1. This will effectively restrict clearing within 100 metres of the high water mark and will reduce the overall size of the application areas from approximately 5.2 hectares to approximately 4.84 hectares.

## 5. References

- Bolland, M. (2009) Soils of the Swan Coastal Plain. Bulletin 4359. Available online from: [http://www.agric.wa.gov.au/PC\\_92469.html](http://www.agric.wa.gov.au/PC_92469.html). Department of Agriculture and Food Western Australia. Accessed 1 October, 2009.
- 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.
- Ecologia (2009a) Rules Lime Sand Vegetation and Flora Assessment (L70/102). Ecologia Environment, Western Australia.
- Ecologia (2009b) Rules Lime Sand Lancelin Desktop Vertebrate Fauna Survey. Ecologia Environment, Western Australia.
- J and G Rule (2009) Clearing Permit Application Supporting Documentation, September 2009.
- 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. (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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

## 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.