



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 5425/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Cosmic Resources Pty Ltd

### 1.3. Property details

Property: Mining Lease 70/1217  
Local Government Area: Shire Donnybrook-Balingup  
Colloquial name: Irishtown Sandstone Quarry

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.162		Mechanical Removal	Sandstone Excavation and Mineral Production

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 1 August 2013

## 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 for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations have been mapped within the application area (GIS Database):  1017: Medium open woodland; Jarrah & Marri, with low woodland; Banksia; and  1182: Medium woodland; <i>Eucalyptus rudis</i> & <i>Melaleuca raphiophylla</i> .  Bioscience undertook a botanical survey of the eastern portion of Mining Lease 70/1217. The survey encompassed five separate visits to the site between 30 August and 16 September 2007 to record all species present. The majority of the vegetation on the tenement was identified as Jarrah and Marri woodland.	Cosmic Resources Pty Ltd is proposing to clear up to 4.162 hectares within an application area of approximately 5.79 hectares (GIS Database). The application area consists of two separate areas. In the southern area the proposed clearing will facilitate the expansion of the Government Quarry and clearing within the gravel quarry south of Irishtown Road. Clearing in the northern area will allow the expansion of the Central and Northern Quarries.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);  to  Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The vegetation condition rating is derived from personal observations made by the assessing officer during an inspection of the application area on 12 June 2013.

## 3. Assessment of application against clearing principles

### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

**Comments**      **Proposal is not likely to be at variance to this Principle**  
The proposed clearing area is located approximately 5 kilometres north of Donnybrook in the Southern Jarrah Forest subregion of the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Southern Jarrah Forest subregion is characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo-Marri woodlands on clayey soils (CALM, 2002). The subregion is rich in endemic species, and a majority of the floristic richness is associated with rapid changes in communities on the lower slopes and variable soil types.

The condition of the vegetation varies across the application area. The area of the gravel quarry has been previously cleared and is only now covered by sparse trees with minimal understorey. The areas of vegetation surrounding the Government Quarry appear to have been disturbed in the past and have a relatively sparse understorey. The assessing officer noted that there were a number of weeds species in this area that had spread from the neighbouring agricultural land. The vegetation immediately surrounding the Northern Quarry is primarily regrowth on top of old stockpiles with very little understorey. The assessing

officer noted during a site visit that the area of vegetation between the Northern and Central Quarries has been previously disturbed by historical logging activities. These areas have a relatively sparse understorey similar to the areas surrounding the Government Quarry. There is an ephemeral creek that runs through the northern part of the application area. Along most of the creek the vegetation is dominated by weed species and in some areas is wholly comprised of invasive species. There were some areas of vegetation between the Northern and Central Quarry that had much denser understorey and were of a better condition than surrounding areas. The area of vegetation east of the access road that runs from the Central to Northern Quarry has a well developed understorey and has the best condition within the application area. The applicant has advised that the only activities proposed in this area are drainage works associated with the road. A condition has been placed on the permit restricting the purpose of clearing in this area to ensure impacts to this better quality vegetation is minimised.

A flora survey of the eastern portion of Mining Lease 70/1217 (which includes the application area) recorded 151 native species (McCutcheon, 2007). The survey also recorded 39 weed species, five of which are listed as Declared Pests under section 22 of the *Biosecurity Management Act 2007*:

- Cape Tulip (*Moraea sp.*)
- Arum Lily (*Zantedeschia aethiopica*)
- Narrow-leaved Cottonbush (*Gomphocarpus fruticosus*)
- Bridal Creeper (*Asparagus asparagoides*)
- Milk Thistle (*Silybum marianum*)

Weeds were most prevalent along watercourses and valley floor areas (McCutcheon, 2007). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

An inspection of the Mining Lease by Bioscience (2007b) noted clear evidence of Dieback (*Phytophthora cinnamomi*) on an adjoining property. The successful implementation of a dieback management condition may minimise the spread and infestation of dieback into the clearing permit area.

A search of DEC's NatureMap reveals a large number of Priority Flora species in the local area. Based on known habitats of the species, many would be considered unlikely to be found within the application area, however, there are still many that have the potential to occur within the application area. The flora survey that covered the application area did not record any species of Priority Flora (McCutcheon, 2007). However, as this survey was conducted in 2007, there may be Priority Flora species that are now within the area. Potential impacts to Priority Flora may be minimised by a flora management condition.

Given the high number of weeds present and the existing disturbance over parts of the application area, it is not likely to support a high level of floral or faunal diversity.

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

**Methodology** Bioscience (2007b)  
CALM (2002)  
McCutcheon (2007)  
GIS Database:  
- IBRA WA (Regions - Subregions)

**(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 may be at variance to this Principle**

The application area is located within a remnant of vegetation that is contiguous with the Boyanup State Forest (GIS Database). Many parts of the application area have been disturbed by previous activities. Weed species are spread across the application area and in some areas completely dominate the understorey. The proposed clearing may have some impact on fauna species movement through the local area however, it is not likely to have a significant impact on this remnant's ability to function as an ecological linkage.

There is a minor creek that passes through the north of the application area (GIS Database). Riparian areas are important for the movement of fauna species across the landscape. The majority of this watercourse has been heavily infested by weed species however, it is still likely to be significant for local fauna species. Potential impacts to fauna may be minimised by restricting clearing of vegetation within this watercourse.

A search of DEC's NatureMap reveals that the application area has the potential to support a number of conservation significant fauna species. The following conservation significant species have been recorded within 20 kilometres of the application area (DEC, 2013):

- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso* – Schedule 1; Vulnerable)
- Baudin's Cockatoo (*Calyptorhynchus baudinii* – Schedule 1; Vulnerable)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris* – Schedule 1; Endangered)

- Chuditch (*Dasyurus geoffroi* – Schedule 1; Vulnerable)
- Tingle Trapdoor Spider (*Moggridgea tingle* – Schedule 1)
- Southern Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *tapoatafa* – Schedule 1)
- Western Ringtail Possum (*Pseudocheirus occidentalis* – Schedule 1; Vulnerable)
- Eastern Great Egret (*Ardea alba* subsp. *modesta* – Schedule 3; Migratory)
- Rainbow Bee-eater (*Merops ornatus* – Schedule 3; Migratory)
- Peregrine falcon (*Falco peregrinus* – Schedule 4)
- Vasse *Pachysaga* (*Pachysaga strobila* – Priority 1)
- Masked Owl (southern subsp.) (*Tyto novaehollandiae* subsp. *novaehollandiae* – Priority 3)
- Western Brush Wallaby (*Macropus irma* – Priority 4)
- Carter's Freshwater Mussel (*Westralunio carteri* – Priority 4)
- Quenda (*Isoodon obesulus* subsp. *fusciverter* – Priority 5)

Based on their habitat requirements, the Tingle Trapdoor Spider and Carter's Freshwater Mussel would not be found within the application area. The Eastern Great Egret, Rainbow Bee-eater, Peregrine Falcon, Vasse *Pachysaga*, Masked Owl, Western Brush Wallaby, and Quenda may all potentially be found within the application area. Whilst these species may utilise the application area, it is not likely to be significant habitat for these species given the large amount of habitat present in the adjoining Boyanup State Forest.

There are a number of records of the Chuditch within 20 kilometres of the application area (DEC, 2013). Chuditch have a large home range with males ranging over 15 square kilometres and females 3-4 square kilometres (Serena and Soderquist, 1989). Given the range of the Chuditch and the location of records, it is likely that this species would utilise the application area. There is a large amount of habitat present in the neighbouring Boyanup State Forest so the application area is likely to be utilised as a corridor between areas. Potential impacts to Chuditch may be minimised by the implementation of a fauna management condition.

The Southern Brush-tailed Phascogale is commonly found in dry sclerophyll forests and open woodlands. This species is threatened by habitat fragmentation and clearing which reduces the availability of trees with hollows for it to nest in. Typically this species prefers large tree cavities with small, secure cavities (Van Dyck and Strahan, 2008). During a site visit the assessing officer observed several larger Eucalypts within the application area, however, it was not possible to determine if these trees contains hollows that would support native fauna. Potential impacts to this species may be minimised by a fauna management condition.

The Western Ringtail Possum has been previously recorded approximately 650 metres north of the application area (GIS Database). The main determinate of suitable habitat for the species is the presence of Peppermint Tree as either the dominant tree or as an understorey component of Eucalypt forest (DSEWPaC, 2013b). Canopy continuity is also an important predictor of Western Ringtail Possum abundance as they occur in higher densities in areas of higher canopy cover (Department of the Environment, Water, Heritage and the Arts, 2009). The species is primarily restricted to coastal areas with inland populations known from the lower Collie River Valley, Perup forest blocks and Porongurup National Park (DSEWPaC, 2013b). Based on the known habitat of this species and the vegetation present in the application area, the proposed clearing is not likely to significantly impact this species.

All three species of Black Cockatoo found in Western Australia have the potential to utilise the application area. There have been reports that the Forest Red-tailed Black Cockatoo has been seen in the application area (Bioscience, 2007b). All three species are known to use hollows in marri and jarrah trees for breeding (DSEWPaC, 2012). It has been observed that useable hollows begin to occur in trees with a diameter of 45-50 centimetres (Whitford and Williams, 2001). For larger animals such as Black Cockatoos the diameter is greater. During a site visit the assessing officer did not observe many trees with a diameter greater than 50 centimetres. Along with larger trees, it has been observed that crown senescence is also an important indicator of the occurrence of useable hollows (Whitford and Williams, 2001). The assessing officer did not observe any trees within the application area that had a high level of crown senescence and were large enough to have a high likelihood of containing hollows for Black Cockatoo species, however, the whole application area was not methodically searched for habitat trees. Bioscience (2007b) also did not observe any trees likely to contain suitable hollows. The majority of the Forest Red-tailed Black Cockatoos diet is made up of seeds from Marri and Jarrah fruits (DSEWPaC, 2013a). Whilst the application area does not appear to be significant breeding habitat, it is highly likely to be used as feeding habitat for Forest Red-tailed Black Cockatoos. The application area is located adjacent to Boyanup State Forest which contains large areas of higher quality habitat for these species. Potential impacts to Black Cockatoos may be minimised by the implementation of a fauna management condition.

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

**Methodology** Bioscience (2007b)  
 DEC (2013)  
 Department of Environment, Water, Heritage and the Arts (2009)  
 DSEWPaC (2012)  
 DSEWPaC (2013a)  
 DSEWPaC (2013b)  
 Serena and Soderquist (1989)  
 Van Dyck and Strahan (2008)  
 Whitford and Williams (2001)

GIS Database:  
- DEC Tenure  
- Hydrography, linear

**(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 databases there are no records of any Threatened Flora species within the application area (DEC, 2013; GIS Database). A botanical survey of the application area did not record any species of Threatened Flora (McCutcheon, 2007). There are records of three species of Threatened Flora within 20 kilometres of the application area (DEC, 2013):

- *Banksia squarrosa* subsp. *argillacea*  
- *Drakaea elastic*  
- *Synaphea* sp. Pinjarra

Based on the known habitat preferences of these species it is unlikely that they would be found within the application area.

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

**Methodology** DEC (2013)  
McCutcheon (2007)  
GIS Database:  
- Threatened 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 (TECs) within the application area (GIS Database). The nearest TEC is located approximately 17 kilometres north-west of the application area (GIS Database). The TECs in closest proximity of the application area are all located within the Swan Coastal Plain bioregion and are not expected to be found within the Jarrah Forrest bioregion (GIS Database).

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

**Methodology** GIS Database:  
- IBRA WA (Regions - Subregions)  
- Threatened Ecological Sites Buffered

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

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

The application area falls within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 54.6% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2013).

The vegetation of the application area has been mapped as Beard vegetation associations:

1017: Medium open woodland; Jarrah & Marri, with low woodland; Banksia; and

1182: Medium woodland; *Eucalyptus rudis* & *Melaleuca raphiophylla*.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). Beard vegetation association 1017 is above the 30% threshold, however, Beard vegetation association 1182 is below this target at a State level. The flora survey of the application area did not record any *Melaleuca raphiophylla* (McCutcheon, 2007). Based on the species observed, the application area is most likely to be wholly comprised of Beard vegetation association 1017. There has been significant amounts of clearing for agriculture in the local Donnybrook and Jarrah Forest areas, however, there is still greater than 50% of vegetation remaining within the Shire and Bioregion (Government of Western Australia, 2013).

The application area forms part of a large remnant that is continuous with the Boyanup State Forest (GIS Database). The majority of the proposed disturbance is around areas that have been previously used for quarrying activities. The proposed clearing will increase the edge effects on this remnant however, it is not likely to reduce the remnant's ability to function as an ecological linkage.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Land
IBRA Bioregion – Jarrah Forest	4,506,660	2,459,298	~54.6	Least Concern	39.34
IBRA Subregion - Southern Jarrah Forest	2,607,879	1,335,801	~51.2	Least Concern	37.01
Local Government - Shire of Donnybrook-Balingup	156,003	88,337	~56.6	Least Concern	55.72
Beard veg assoc. – State					
1017	17,528	11,640	~66.4	Least Concern	47.8
1182	23,437	6,309	~26.92	Vulnerable	14.96
Beard veg assoc. – Bioregion					
1017	11,846	9,117	~76.9	Least Concern	68.88
1182	11,127	4,819	~43.29	Depleted	30.61
Beard veg assoc. – Subregion					
1017	11,545	9,025	~78.17	Least Concern	70.47
1182	10,866	4,796	~44.14	Depleted	31.35

\* Government of Western Australia (2013)

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

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

**Methodology** Commonwealth of Australia (2001)  
Department of Natural Resources and Environment (2002)  
Government of Western Australia (2013)  
McCutcheon (2007)  
GIS Database:  
- Donnybrook 50cm Orthomosaic  
- IBRA WA (Regions - Sub Regions)

**(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 is one minor creek that passes through the northern section of the application area (GIS Database). This watercourse flows into another minor creek that crosses the mining lease. The creek within the application area has been previously disturbed by mining activities in a couple of locations (GIS Database). During a site visit, the assessing officer observed that this watercourse was flowing, however the watercourse was only flowing for half the distance it travels through the application area. The lower parts of this watercourse within the application area were heavily infested with weeds. Despite being weed infested this watercourse is likely to be significant for local fauna species. Impacts to this watercourse may be minimised by restricting clearing of vegetation fringing this watercourse.

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

**Methodology** GIS Database:  
- Donnybrook 50cm Orthomosaic  
- Hydrography, linear

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

**Comments** **Proposal may be at variance to this Principle**  
The soils in the application area have been mapped as soil type Tf5 which Northcote (1960-68) describes as dissected lateritic plateau of a generally hilly relief: chief soils on the slopes are hard acidic, and also neutral, yellow mottled soils and containing moderate to large amounts of ironstone gravels. Associated are block laterite, gravelly and bouldery soils on ridge tops; leached sands, some on deposits containing water-worn stones; and small areas of soils of adjoining units. The soil profile on Mining Lease 70/1217 consists of a sandy soil layer (on average 300 millimetres) over a sandy clay layer (on average 1,500 millimetres) before there is an overburden layer and the sandstone resource is encountered (Cosmic Resources, 2012).

The application area is located on a slope that runs from northeast to southwest across the mining lease (GIS Database). Clearing of vegetation on the upper slopes will lead to an increase in water runoff and therefore, the potential for erosion down slope. The slopes over most of the application area are considered to be gentle and given the soil type present there is likely to be a low to moderate risk of water erosion (van Gool et al., 2005). Potential impacts from erosion may be minimised by the implementation of a staged clearing condition and restricting clearing within watercourses and areas along the slope.

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

**Methodology** Cosmic Resources (2012)  
Northcote (1960-68)  
van Gool et al. (2005)  
GIS Database:  
- Topographic Contours, Statewide

**(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 located within any conservation areas or DEC managed lands (GIS Database). The Boyanup State Forest is located 380 metres west of the application area at its closest point (GIS Database). The application area is located within a remnant that is contiguous with the Boyanup State Forest. The proposed clearing is not likely to impact on any ecological linkage to the Boyanup State Forest.

Care should be taken to ensure that the proposed clearing does not increase the spread of weeds and dieback in the local area. This may be minimised by the successful implementation of weed and dieback management conditions.

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 may be at variance to this Principle**  
The application area is not located within a Public Drinking Water Source Area (GIS Database). There is one creek that passes through the northern section of the application area (GIS Database). Clearing of areas within and surrounding the creek has the potential to increase sedimentation. During a site visit the assessing officer observed that the current runoff was already causing sedimentation within this watercourse. Impacts to water quality may be minimised by restricting clearing of vegetation fringing this watercourse.

The groundwater within the application area is between 500 to 1,000 milligrams per litre of total dissolved solids (GIS Database). This is considered to be potable water. It would not be expected that the proposed clearing would cause groundwater salinity levels within the application or surrounding area to alter.

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

**Methodology** GIS Database:  
- Groundwater Salinity, Statewide  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSAs)

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
The application area is located on a slope with the general fall from east to west (GIS Database). The removal of vegetation from the slope has the potential to increase water runoff and the amount of water that flows into the creeks on the mining lease. Bioscience (2007a) undertook a drainage study which included examination of the flooding potential on the mining lease. The study concluded that the existing culverts under Meotti Road are of a sufficient size to prevent general flooding in a 1:10 year flood event (Bioscience, 2007a). The study was based on a proposal to clear 12.24 hectares for expanding the quarry (that proposal was reduced to 0.55 hectares). Therefore, the proposed clearing of 4.162 hectares is not expected to increase the incidence or intensity of flooding.

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

**Methodology** Bioscience (2007a)  
GIS Database:

- Topographic Contours, Statewide

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

### Comments

The clearing permit application was advertised on 14 January 2013 and then readvertised on 28 January 2013 by the Department of Mines and Petroleum inviting submissions from the public. There were 13 submissions received regarding the application. The submissions raised numerous issues relating to:

- Quality of survey information
- Dust
- Dieback
- Noise
- Water quality
- Public road access
- Impacts on fauna
- Future land use
- Weeds
- Remnant vegetation
- Rehabilitation
- Impacts to watercourses
- Offsets
- Length of submission period
- Availability of information
- Buffer Distances
- Erosion
- Value of reserves

Issues relating to dieback, weeds, impacts on fauna, remnant vegetation, impacts to watercourses, erosion, conservation areas and water quality have been assessed under Clearing Principles (a), (b), (e), (f), (g), (h) and (i). Impacts relating to dust, noise, rehabilitation and future land use will be addressed in relevant approvals under the *Mining Act 1978*. Several submissions raised specific concerns about silica dust. The submissions highlighted that there has not been any targeted testing to confirm if the silica dust levels are below the required levels. This testing has not been carried out to date but is planned to be undertaken in the future. Several submissions raised concerns about natural buffers to neighbouring properties and public roads. A condition has been imposed on the clearing permit requiring a buffer to Irishtown Road and the private property to the east of the application area is maintained. Public road access is managed by the Shire of Donnybrook-Balingup.

It is noted that the proposed clearing may impact on a Black Cockatoos which area protected under the *Environment Protection and Biodiversity Conservation Act 1999* (the *EPBC Act*). The proponent may be required to refer the project to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) for environmental impact assessment under the *EPBC Act*. The proponent is advised to contact the DSEWPaC for further information regarding notification and referral responsibilities under the *EPBC Act*.

There are two native title claims over the area under application (GIS Database). However, the mining tenure 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 are no registered 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 Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation (formerly 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 – Filed at the Federal Court
  - Native Title Claims – Registered with the NNTT

## 4. References

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- Cosmic Resources (2012) Supporting Information for a Clearing Permit Application, dated December 2012.
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## 5. Glossary

### Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community



## 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.