



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 5764/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: **Jupiter Mines Limited**

### 1.3. Property details

Property: General Purpose Leases 29/22, 29/23  
Miscellaneous Licences 29/79, 29/100, 29/121  
Mining Leases 29/408, 29/414  
Local Government Area: Shire of Menzies  
Colloquial name: Mt Mason DSO Hematite project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
115		Mechanical Removal	Mineral Production and associated activities

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 17 October 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
<p>The clearing permit application area has been broadly mapped as the following Beard vegetation associations:</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>);</p> <p>202: Shrublands; mulga &amp; <i>Acacia quadrimarginea</i> scrub;</p> <p>483: Hummock grasslands, mixed sandplain - open mallee over sparse dwarf shrubs with spinifex; red mallee, mallee &amp; mixed sparse dwarf shrubs over <i>Triodia basedowii</i>; and</p> <p>484: Shrublands; jam thicket.</p> <p>Vegetation Association 18 is the dominant vegetation type within the application area (GIS Database). The northern end of the application area is mapped predominantly as vegetation association 202. Vegetation associations 483 and 484 represent only a very small part of the application area, occurring mainly at the southern end (GIS Database).</p> <p>Flora and vegetation surveys conducted over the application area by Native Vegetation Solutions (NVS, 2012; 2013) identified the following ten main vegetation communities at the proposed minesite:</p> <ul style="list-style-type: none"> <li>• <i>Thryptomene</i> Shrubland;</li> <li>• Open Mulga woodland over laterite;</li> <li>• <i>Acacia</i> shrubland;</li> <li>• <i>Allocasuarina</i> over <i>Calytrix</i> shrubland;</li> <li>• Mulga over <i>Eremophila forrestii</i> subsp. <i>forrestii</i> on hills and ridges;</li> <li>• Mulga over <i>Prostanthera althoferi</i> subsp. <i>althoferi</i> on hills and ridges;</li> <li>• Mulga over <i>Philothea brucei</i> subsp. <i>brucei</i> on hills and ridges;</li> <li>• Mulga over <i>Eremophila forrestii</i> subsp. <i>forrestii</i> on flats;</li> <li>• <i>Acacia burkittii</i> shrubland within drainage lines; and</li> <li>• <i>Acacia cockertoniana</i> over <i>Eremophila oldfieldii</i> and <i>Eremophila pantonii</i> on flats. (Jupiter Mines, 2013).</li> </ul>	<p>Mt Mason Direct Shipping Ore (DSO) Hematite Project. Jupiter Mines Limited (Jupiter Mines) proposes to clear up to 115 hectares of native vegetation within a total boundary of approximately 115 hectares, for the purpose of a mine pit, mining related infrastructure and a haul road. The project is located approximately 70 kilometres north-west of Menzies, at its nearest point, in the Shire of Menzies.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p> <p>To</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p>	<p>The vegetation condition was derived from vegetation surveys conducted by NVS (2012; 2013).</p> <p>The proposed mining related infrastructure will include a run of mine (ROM) pad, workshop and hardstand areas, roads, fuel storage, explosives magazine, administrative building, laboratory, wastewater treatment facility, reverse osmosis plant, landfill facility, bioremediation facility, and camp expansion (Jupiter Mines, 2013).</p>

A further twelve main vegetation communities were identified along the proposed haul road route:

- Mulga Shrubland with occasional Eucalypts (1a);
- Mulga woodland-floodplain (1b);
- Mulga shrubland with *Philotheca brucei* subsp. *brucei* (1g);
- Mulga open shrubland-drainage (1k);
- Mulga with *Acacia cockertoniana* and *Acacia ramulosa* var. *ramulosa* tall shrubland over *Olearia humilis* and/or *Hibbertia arcuata* and/or *Prostanthera althoferi* subsp. *althoferi* and/or *Eremophila forrestii* subsp. *forrestii* low shrubland (1n);
- Mulga over mixed shrubland (1o);
- *Acacia quadrimarginea* *A. cockertoniana* open shrubland (2g);
- *Acacia effusifolia* *Eucalyptus* mallee and other mixed shrublands burnt sandplain (3b);
- *Acacia effusifolia* Shrubland - transitional (3c);
- *Callitris* with scattered Eucalypt woodland- sandplain (4);
- *Eucalyptus lesouefii* open woodland (9a); and
- *Eucalyptus salubris* woodland (9b). (Jupiter Mines, 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 may be at variance to this Principle

The clearing permit application area is located within the East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The East Murchison subregion represents a total area of approximately 7.8 million hectares, and is characterised by an arid climate with an average annual rainfall of approximately 200-250 millimetres (CALM, 2002). The subregion is rich and diverse in both its flora and fauna, however, most species are wide ranging and usually occur in at least one, and often several adjoining subregions (CALM, 2002).

Vegetation in the subregion is dominated by mulga woodlands, often rich in ephemerals, hummock grasslands, saltbush shrublands and samphires (CALM, 2002).

The application area is located within the Walling Rock, Perrinvale and Riverina pastoral stations (GIS Database), and previous vegetation disturbance has occurred from grazing activities, particularly along the proposed haul road route (GIS Database; Jupiter Mines, 2013). Some parts of the application area have also suffered previous disturbance from historical mining and mineral exploration activities (GIS Database; Jupiter Mines, 2013).

A desktop review of relevant databases identified several species of flora and fauna of conservation significance with the potential to occur within the project area, based on known distributions (Jupiter Mines, 2013). However, most were considered unlikely to occur within the application area due to lack of suitable habitat distributions (Jupiter Mines, 2013).

NVS Environmental conducted on-site flora and vegetation surveys of the application area during 2011 and 2012 (NVS, 2012; 2013). The surveys consisted of a Level 1 survey of the proposed haul road route and a Level 2 survey of the proposed minesite (Jupiter Mines, 2013). NVS (2012; 2013) rated the vegetation condition of the proposed minesite as 'Excellent' according to the Keighery (1994) vegetation condition scale, while the vegetation condition of the proposed haul road route ranged from 'Good' to 'Excellent'. No weed species were recorded within the minesite area, however five weed species were recorded along the haul road route (Jupiter Mines, 2013). NVS (2012; 2013) concluded that the flora species and vegetation associations within the application area are well represented in the region, and the proposed clearing is unlikely to have any significant impact in a regional context.

No Threatened Flora species were recorded within the application area during the flora and vegetation surveys, and only one Priority Flora species was recorded (Jupiter Mines, 2013). One population of 15 plants of the Priority 3 species *Calotis* sp. Perrinvale Station was recorded within the proposed minesite area (NVS, 2012). This species has a relatively wide distribution with populations recorded in the Murchison and Yalgoo IBRA regions (Western Australian Herbarium, 2013). NVS (2012) considered that the clearing of one population of 15 plants is unlikely to affect the conservation status of this species.

An unknown ephemeral *Drosera* species was recorded within the minesite area, which may represent a new species (NVS, 2012). The conservation status of this species is uncertain at this stage, however, as it is an ephemeral species only visible for a short period each year it may be more widespread than currently known. Although not yet positively identified, this species has been recorded in previous surveys at several locations outside the project area (NVS, 2012), and hence the proposed clearing is unlikely to have any significant impact on the continued existence of this species. However, the proponent has advised that further searches

for this species will be undertaken, and impacts to this species will be avoided where possible until its conservation status has been clarified (Jupiter Mines, 2013).

Several fauna surveys have been conducted over the application area and surrounding areas, including a Level 2 survey of the proposed minesite and a targeted survey of the whole application area for conservation significant fauna (Jupiter Mines, 2013). The fauna surveys recorded a total of 58 vertebrate native fauna species, including 13 reptiles; 11 mammals including 6 bat species; and 34 bird species. Five fauna species of conservation significance were recorded (Jupiter Mines, 2013). The fauna recorded within the application area are considered to be representative of the broader region and none of these species are likely to be restricted to the area proposed to be cleared (KLA, 2012).

No Threatened Ecological Communities occur within or in close proximity to the application area (GIS Database; NVS, 2012). The proposed minesite and the northern end (approximately 4 kilometres) of the proposed haulroad fall within the buffer zone of a Priority Ecological Community (PEC) (GIS Database). This is the Mt Ida/ Mt Mason occurrence of the (Priority 1) - Bulga Downs/ Perinvale/ Walling vegetation complexes (banded ironstone formation) PEC (GIS Database). The banded ironstone formation PEC's occur over the hilltops of several ranges in the midwest and goldfields regions (GIS Database). The banded ironstone formation (BIF) ranges are of significant biodiversity value, supporting distinct and restricted plant communities which are often unique to a specific range (DEC and DoIR, 2007). In a strategic review of the BIF ranges (DEC and DoIR, 2007), the various ranges were classified according to their relative biodiversity values. Mount Mason was not included in the list of areas which were considered to have the highest biodiversity and conservation values (DEC and DoIR, 2007). The Mt Ida/ Mt Mason occurrence of the PEC is mapped over a total area of approximately 11,778 hectares (GIS Database). The proposed clearing at Mt Mason represents less than 1% of the buffer area of the Mt Ida/Mt Mason occurrence of the PEC (GIS Database). The proposed clearing is unlikely to have any significant impact on the continued existence of the PEC.

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

**Methodology** CALM (2002)  
DEC and DoIR (2007)  
Jupiter Mines (2013)  
KLA (2012)  
NVS (2012)  
NVS (2013)  
GIS Database:  
- IBRA WA (Regions - Sub Regions)  
- Mount Mason 1.4m Orthomosaic - Landgate 2003  
- Pastoral Leases  
- Pre-European Vegetation  
- Threatened Ecological Sites Buffered

**(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**

Fauna surveys conducted over the application area recorded five fauna species of conservation significance. These include four bird species: Rainbow Bee-eater (*Merops ornatus*) (Migratory); White-browed Babbler (*Pomatostomus spercilliosus*) (Priority 4); Crested Bellbird (*Oreoica gutturalis* subsp. *gutturalis* (Priority 4); Malleefowl (*Leipoa ocellata*) (Vulnerable), and one mammal species: Long-tailed Dunnart (*Sminthopsis longicaudata*) (Priority 4) (Jupiter Mines, 2013). Given the mobility of the majority of these species and the extensive availability of suitable habitat in surrounding areas, none of these species are likely to be solely reliant on the habitat within the application area (KLA, 2012).

Of the conservation significant fauna species recorded within the application area, only the malleefowl is likely to be directly impacted by the project, as they are ground dwelling birds with distinct home ranges (KLA, 2013). Fauna surveys of the application area and surrounding areas identified a total of 54 malleefowl mounds, the majority of which were inactive, and the project footprint has been designed to avoid as many malleefowl mounds as possible (Jupiter Mines, 2013; KLA, 2013).

The malleefowl is listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as Schedule 1 (rare and likely to become extinct) under the *Wildlife Conservation Act 1950*. The proponent referred the project to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in May 2013 for assessment under the EPBC Act (Jupiter Mines, 2013). SEWPaC assessed the project and determined that it was 'Not a Controlled Action if undertaken in a particular manner' (Jupiter Mines, 2013). The conditions imposed by SEWPaC included limiting the clearing of native vegetation to a maximum of 115 hectares, and the implementation of buffer zones around malleefowl mounds (Jupiter Mines, 2013). The proponent is committed to adhering to the conditions imposed by SEWPaC and has developed a Malleefowl Management Plan in consultation with the Department of Parks and Wildlife (DPaW), SEWPaC, and the Malleefowl Preservation Group, to ensure that impacts to the malleefowl are minimised (Jupiter Mines, 2013).

The proposed clearing will disturb some inactive malleefowl mounds, however, no active mounds will be

disturbed and buffer zones will be established to protect mounds which occur in close proximity to the project area (Jupiter Mines, 2103). There are extensive areas of habitat suitable for the malleefowl in surrounding areas and the proposed clearing is unlikely to have any significant impact on the conservation status of the malleefowl (KLA, 2013).

The fauna habitat types found within the application area are well represented in surrounding areas (GIS Database; KLA, 2012), and no unique, or restricted fauna habitats were recorded during the fauna surveys of the application area (KLA, 2012). The areas proposed to be cleared are not likely to represent significant habitat necessary for the continued existence of any native fauna species.

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

**Methodology** Jupiter Mines (2013)  
KLA (2013)  
KLA (2013)  
GIS Database:  
- Mount Mason 1.4m Orthomosaic - Landgate 2003  
- Pre-European Vegetation

**(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**

Flora surveys of the application area did not record any species of Threatened Flora, or flora species of restricted distribution (NVS, 2012; 2013).

The vegetation associations within the application area are well represented within the region (GIS Database; Jupiter Mines, 2013), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of rare flora.

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

**Methodology** Jupiter Mines (2013)  
NVS (2012)  
NVS (2013)  
GIS Database:  
- Declared Rare and Priority Flora List  
- Pre-European Vegetation

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

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

There are no known Threatened Ecological Communities (TEC's) located within a 50 kilometre radius of the application area (GIS Database).

Surveys of the application area did not identify any Threatened Ecological Communities (NVS, 2012; 2013). Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** NVS (2012)  
NVS (2013)  
GIS Database:  
- 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 area proposed to be cleared is located within the Murchison IBRA bioregion (GIS Database). There is approximately 100% of Pre-European vegetation remaining within the bioregion (Government of Western Australia, 2013).

The vegetation of the application area is broadly mapped as Beard vegetation associations: 18: Low woodland; mulga (*Acacia aneura*); 202: Shrublands; mulga & *Acacia quadrimarginea* scrub; 483: Hummock grasslands, mixed sandplain - open mallee over sparse dwarf shrubs with spinifex; red mallee, mallee and mixed sparse dwarf shrubs over *Triodia basedowii*; and 484: Shrublands; jam thicket (GIS Database). Approximately 100% of the pre-European extent of these vegetation associations remains uncleared at both the state and bioregion level (Government of Western Australia, 2013).

Hence, the area proposed to be cleared does not represent a significant remnant of native vegetation in an area that has been extensively cleared, at either the local or regional scale.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,587	28,044,823	~ 100	Least Concern	1.05
<b>Beard vegetation associations - State</b>					
18	19,892,305	19,843,727	~ 100	Least Concern	2.1
202	448,529	448,344	~ 100	Least Concern	0.4
483	439,579	439,547	~ 100	Least Concern	5.2
484	70,664	70,664	~ 100	Least Concern	0.5
<b>Beard vegetation associations - Bioregion</b>					
18	12,403,172	12,363,252	~ 100	Least Concern	0.37
202	339,743	339,641	~ 100	Least Concern	0
483	238,599	238,567	~ 100	Least Concern	0.11
484	69,401	69,401	~ 100	Least Concern	0.54

\* 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** Department of Natural Resources and Environment (2002)  
Government of Western Australia (2013)  
GIS Database:  
- IBRA WA (Regions - Sub Regions)  
- 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 is at variance to this Principle**

There are no permanent watercourses or wetlands within or in close proximity to the application area (GIS Database; Jupiter Mines, 2013).

Several minor, non-perennial watercourses occur in close proximity to the application area and some ephemeral drainage lines pass through the application area (GIS Database). These drainage lines are dry for most of the year, only flowing briefly following significant rainfall events (Jupiter Mines, 2013). Management measures will be implemented to maintain natural drainage patterns (Jupiter Mines, 2013).

Based on the above, the proposed clearing is at variance to this Principle. However, the proposed clearing is unlikely to result in any significant impact on the ephemeral watercourses or any other watercourses or wetlands.

**Methodology** Jupiter Mines (2013)  
GIS Database:  
- Geodata, Lakes  
- Hydrography, linear  
- Mount Mason 1.4m Orthomosaic - Landgate 2003

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

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

The minesite area is broadly mapped as falling mainly within the Brooking, Bevon and Rainbow Land systems (GIS Database).

The Brooking Land System is characterised by prominent ridges of banded iron formation, supporting mulga shrublands, and occasional minor halophytic communities in the south-east (Pringle et al., 1994). Stone mantles provide effective protection against soil erosion, however disturbance or removal of stone mantles may initiate soil erosion (Pringle et al., 1994).

The Bevon Land System is characterised by irregular low ironstone hills with stony lower slopes supporting mulga shrublands. This land system is generally not susceptible to erosion, however some areas on breakaway slopes or drainage tracts may be susceptible to erosion if the vegetation is removed (Pringle et al., 1994).

The Rainbow Land System is characterised by hardpan plains supporting mulga shrublands. This land system is generally not susceptible to soil erosion (Pringle et al., 1994).

The road corridor passes through the following six additional land systems: Waguin, Sherwood, Yowie, Monitor, Marmion and Bandy (GIS Database).

The Waguin Land System is characterised by stony and sandy plains with occasional low breakaways, supporting acacia shrublands and minor halophytic shrublands. Breakaway footslopes are susceptible to erosion if disturbed (Pringle et al., 1994).

The Sherwood Land System is characterised by granite breakaways and extensive stony granitic plains, with mulga shrublands and minor halophytic shrublands. The lower footslopes, alluvial plains, and drainage tracts generally have fragile soils which are highly susceptible to water erosion (Pringle et al., 1994). This land system occurs only in small sections of the road corridor (GIS Database) and the proposed clearing for the road corridor is unlikely to result in significant land degradation.

The Yowie Land System is characterised by sandy plains supporting shrublands of mulga and bowgada with patchy wanderrie grasses. This land system represents approximately half the length of the road corridor (GIS Database), and is generally not susceptible to soil erosion (Pringle et al., 1994).

The Monitor Land System is characterised by distributary alluvial fans and wash plains, supporting mulga-chenopod shrublands. The alluvial fans, drainage tracts and hardpan plains are highly susceptible to soil erosion (Pringle et al., 1994), however this land system occurs in only one small section of the road corridor (GIS Database).

The Marmion Land System is characterised by gently undulating sandplains with mixed shrublands and hummock grasslands. The sands may become susceptible to wind erosion if the vegetation is removed (Pringle et al., 1994).

The Bandy Land System is characterised by gritty-surfaced plains and low outcrops of granite with scattered acacia shrublands. This land system is generally not susceptible to soil erosion (Pringle et al., 1994).

Clearing will be kept to the minimum possible and erosion control measures will be utilised to minimise potential erosion (Jupiter Mines, 2013). The proposed clearing is unlikely to result in appreciable land degradation.

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

**Methodology** Jupiter Mines (2013)  
Pringle et al. (1994)  
GIS Database:  
- Rangeland Land System Mapping

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

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

The nearest conservation area to the application area is the former Bulga Downs station, which is now managed by the Department of Parks and Wildlife (DPaW) and is located approximately 45 kilometres north of the application area, at its nearest point (GIS Database). The proposed clearing is unlikely to have any impacts on the environmental values of this or any other conservation area.

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

**Methodology** GIS Database:  
- DEC proposed 2015 pastoral lease exclusions  
- 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**  
The application area is not within a Public Drinking Water Source Area (GIS Database). There are no permanent watercourses or wetlands within the application area (GIS Database). There are several seasonal watercourses passing through or in close proximity to the application area (GIS Database). However, due to the very low rainfall of the region, the proposed clearing is unlikely to result in increased sedimentation of any watercourse.  
  
The proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.  
  
Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** 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**  
The climate of the region is arid, with a low average rainfall of approximately 200-250 millimetres per year (Pringle et al., 1994). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (Jupiter Mines, 2013).  
  
There are no permanent water courses or waterbodies within the application area (GIS Database). Temporary localised flooding may occur during occasional heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.  
  
Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Jupiter Mines (2013)  
Pringle et al. (1994)  
GIS Database:  
- Hydrography, linear

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

**Comments**  
The clearing permit application was advertised on 9 September 2013 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this application. However, DMP received a copy of a letter addressed to the proponent, which raised concerns regarding potential impacts of the proposal on Aboriginal Heritage Sites and encouraged the proponent to commission a heritage survey over the project area.  
  
There are no registered Aboriginal Sites of Significance within or in close proximity to 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.  
  
There are no native title claims over the area under application (GIS Database).  
  
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 - Determined by the Federal Court  
- Native Title Claims - Filed at the Federal Court  
- Native Title Claims - Registered with the NNTT

#### 4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DEC and DoIR (2007) Strategic Review of the Banded Iron Formation Ranges of the Midwest and Goldfields. Department of Environment and Conservation, Department of Industry and Resources, 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.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Jupiter Mines (2013) Native Vegetation Clearing Permit Application - Mt Mason DSO Hematite Project. Prepared by KASA Consulting for Jupiter Mines Pty Ltd, July 2013.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- KLA (2012) Central Yilgarn Iron Project (CYIP) Mt Mason. Fauna Assessment. Prepared for Jupiter Mines Limited, by Keith Lindbeck and Associates, August 2012.
- KLA (2013) Central Yilgarn Iron Project. Mt Mason Project and Proposed Haul Road. Targeted EPBC Fauna Survey. Prepared for Jupiter Mines Limited, by Keith Lindbeck and Associates, March 2013.
- NVS (2012) Mt Mason Project. Level 2 Flora and Vegetation Survey. Prepared for Jupiter Mines Limited, by Native Vegetation Solutions, May 2012.
- NVS (2013) Level 1 Flora and Vegetation Survey of the Proposed Mount Mason Haul Road. Prepared for Jupiter Mines Limited, by Native Vegetation Solutions, January 2013.
- Pringle, H.J.R., Van Vreeswyk, A.M.E., and Gilligan, S.A. (1994) An Inventory and Condition Survey of the north-eastern Goldfields, Western Australia. Department of Agriculture, Western Australia.
- Western Australian Herbarium (2013) FloraBase - the Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/>



## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), 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 (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental 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>ha</b>	Hectare (10,000 square metres)
<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 Act</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>TEC</b>	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.