



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2991/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: The Griffin Coal Mining Company Pty Ltd

1.3. Property details

Property: Coal Mining Lease 12/752
Local Government Area: Shire of Collie
Colloquial name: Ewington Mine Site

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association is located within the application area:</p> <p>3: Medium forest; jarrah-marri (GIS Database, Shepherd et al., 2001).</p> <p>A flora and vegetation survey of parts of the Ewington mine area, which included the majority of the current clearing permit application area, was conducted by Bennett Environmental Consulting Pty Ltd between 10 and 14 October 2007. The survey was conducted using transects and 10 metre x 10 metre quadrats, representing all the vegetation types of the survey area (Bennett, 2008).</p> <p>Seven vegetation associations were identified within the survey area, four of which were recorded within the current clearing permit application area. These were:</p> <p>1. AEC: Low Woodland A or Low Forest A of <i>Allocasuarina fraseriana</i>, <i>Eucalyptus marginata</i> subsp. <i>marginata</i> and <i>Corymbia calophylla</i> over Open Low Scrub A of <i>Xanthorrhoea preissii</i> over Low Sedges of <i>Phlebocarya ciliata</i> in grey sand with occasional gravel pebbles on the surface. This vegetation association made up the majority of the application area.</p> <p>2. Ha: Low Woodland A of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>, <i>Persoonia longifolia</i> and <i>Xylomelum occidentale</i> over Low Scrub A of <i>Xanthorrhoea preissii</i> over Dwarf Scrub D dominated by <i>Hypocalymma angustifolia</i> over Open Tall Sedges of mixed taxa in grey sand.</p> <p>3. Pe: Open Low Woodland A of <i>Melaleuca preissiana</i>, <i>Eucalyptus marginata</i> subsp. <i>marginata</i> and <i>Nuytsia floribunda</i> over Dense Low Heath D dominated by <i>Pericalymma ellipticum</i> over Tall Sedges dominated by <i>Mesomelaena tetragona</i> and <i>Phlebocarya ciliata</i> in grey sandy loam.</p> <p>4. Ba: Low Forest A of <i>Banksia attenuata</i>, <i>Allocasuarina fraseriana</i>, <i>Eucalyptus marginata</i> subsp. <i>marginata</i> and <i>Xylomelum occidentale</i> over Dwarf Scrub D dominated by <i>Hibbertia hypericoides</i> over Tall Sedges dominated by <i>Phlebocarya ciliate</i> in grey sand.</p>	<p>The Griffin Coal Mining Company Pty Ltd (Griffin Coal) has applied to clear up to 12.46 hectares of native vegetation. The proposed clearing is for the purposes of a coal conveyor, haul road, access roads and other infrastructure associated with the Bluewaters Power Station (Griffin Coal, 2008).</p> <p>The proposed clearing area is located approximately eight kilometres east of the Collie townsite, and adjacent to the Ewington 2 minesite (GIS Database; Griffin, 2008).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p> <p>To</p> <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p>	<p>The vegetation condition is derived from the vegetation description provided in Bennett (2008).</p> <p>A total of 43 weed species were recorded during the survey (Bennett, 2008). The vegetation condition of the application area varied from 'Very Good' to 'Degraded', with the overall vegetation condition considered to be 'Good' to 'Very Good' (Bennett, 2008).</p>

3. Assessment of application against Clearing Principles

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

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

The application area is located within the Southern Jarrah Forest sub-region of the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Jarrah Forest IBRA bioregion is dominated by a duricrusted plateau of the Yilgarn craton, and characterised by jarrah-marri forest on laterite gravels and, in the eastern part, by marri-wandoo woodlands on clayey soils (CALM, 2002).

Flora and fauna surveys conducted over the application area indicate that the biodiversity of the application area is typical of the bioregion (Bennett, 2008; Bancroft & Bamford, 2007). These surveys also indicated that the application area has been impacted by weeds, dieback, stock grazing and disturbance associated with the nearby mining activities. The vegetation and habitat types occurring within the application area are well represented in the region (Bennett, 2008; Bancroft & Bamford, 2007; GIS Database).

The application area has been surveyed by Glevan Consulting (2007) for Phytophthora dieback occurrence. The survey found that approximately 100% of the application area was dieback infested (Glevan Consulting, 2007). As dieback may impact on the biodiversity of the area, Griffin Coal (2004) outlines numerous commitments to prevent and minimise the spread of dieback, such as:

- all machinery and equipment will be clean prior to entering Department of Environment and Conservation (DEC) land and upon the commencement of work in the uninfested, uninterpretable and unprotectable areas;
- site works will be undertaken under 'no soil movement conditions' (dry soil) in the uninfested, uninterpretable and unprotectable areas;
- dieback boundaries will be reviewed where operations commence more than three years after demarcation in the field;
- all equipment will be clean when moving between relevant hygiene categories;
- the minimum clean down standard will be the removal of all soil and plant material. This will be carried out by either brushing, compressed air blow downs or high pressure water jet wash down;
- for wash down purposes a hardstand will be used. The hardstand will be free of soil and material before wash down commences and before machinery exits the hardstand. Strategic locations will be sited to enable cleaned objects (boots, vehicles, plant or equipment) to enter uninfested areas without becoming reinfested;
- runoff from the hardstand will be contained in a sump sloping away from the uninfested area or contained at the site in a plastic liner and allowed to evaporate. Remaining residue will be disposed of within an infested area;
- vegetation, topsoil and shallow overburden from each hygiene category will be stockpiled and reused only within the category from which it originated. The stockpile will be located such that run-off will not run into a higher hygiene category;
- uninfested material will be placed on the higher elevations during rehabilitation;
- each topsoil and shallow overburden stockpile will be signposted indicating infestation status and the words 'keep off';
- regular surveys will be undertaken to assess the effectiveness of the control measure; and
- to enforce hygiene management, Griffin will work in collaboration with DEC Wellington District Manager to ensure access to uninfested areas within the mining area is constrained by appropriate methods. The need for sign posting will be evaluated in consultation with the relevant authorities (Griffin Coal, 2004).

Weeds are also a problem in the area, with 43 weed species recorded during the vegetation survey of the Ewington mine area (Bennett, 2008). Griffin Coal (2004) currently implements weed control measures at all operating mine-sites. The commitments made include:

- management of weed hygiene will work in conjunction with dieback hygiene management procedures;
- all machinery and equipment will be cleaned by manual brushdown, compressed air or water when entering or leaving top soiled areas;
- regular site inspections will be conducted;
- eradication programmes will be implemented as required to ensure weed infestations are avoided (Griffin Coal, 2004).

It is likely that the impacts of weeds, dieback, stock grazing and nearby mining activities will have had a detrimental effect on the biodiversity within the application area. Therefore, the application area is not likely to represent an area of outstanding biodiversity in the Bioregion, in comparison to the remaining native vegetation in the local area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. Should a clearing permit be granted it is recommended conditions be placed on the permit for the purposes of dieback and weed management.

Methodology Bennett (2008)

Bancroft & Bamford (2007)
Glevan Consulting (2007)
Griffin Coal (2004)
CALM (2002)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Interim Biogeographic Regionalisation of Australia (subregions)
- Pre-European Vegetation

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

Comments Proposal may be at variance to this Principle

A desktop survey conducted by Bamford Consulting Ecologists identified 29 fauna species of conservation significance with the potential to occur within the application area, based on known distributions (Bancroft et al., 2007). Of these, the following five species were considered most likely to occur within the application area, based on habitat preferences:

- *Calyptorhynchus banksii naso* (Forest Red-tailed Black-Cockatoo);
- *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo);
- *Calyptorhynchus baudinii* (Baudin's Black-Cockatoo);
- *Isoodon obesulus fusciventer* (Quenda); and
- *Macropus irma* (Brush Wallaby) (Bancroft et al., 2007).

The Forest Red-tailed Black-Cockatoo (listed as Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is of concern because clearing has greatly reduced the available breeding and feeding habitat (Bancroft et al., 2007). Feral bees and galahs also compete with *C. banksii naso* for nesting hollows. The range of this subspecies is closely tied to the distribution of Marri (*Corymbia calophylla*) (Bancroft et al., 2007).

The Carnaby's Black-Cockatoo is listed as Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*. This type of Cockatoo occurs in the south-west of WA, approximately south-west of a line between the Murchison River (near Kalbarri) and Cape Arid National Park (east of Esperance) (Bancroft et al., 2007). Land clearing and degradation has reduced available breeding sites (tree hollows) and fragmented breeding and feeding sites. Feral bees, galahs and corellas out-compete *C. latirostris* for nesting hollows (Bancroft et al., 2007).

The Baudin's Black-Cockatoo is listed as Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*. This type of Cockatoo occurs in the lower south-west of WA, approximately south-west of a line between Morangup (near Bullsbrook) and Waychinicup National Park (east of Albany) (Bancroft et al., 2007). Birds generally breed in the Karri, Marri and Wandoo forests, in the southern parts of the species' range and move north to the Darling Range and Swan Coastal Plain during autumn and winter (non-breeding periods) (Bancroft et al., 2007). Clearing for agriculture and logging has removed nesting and feeding trees for this species (Bancroft et al., 2007).

In general, hollows of sufficient size to support Black-Cockatoos do not form until trees are at least 230 years old, and the majority of nests are found in 300-500 year old trees (Bancroft et al., 2007). In some cases artificial nest hollows (or nest boxes) have been used with great success (Bancroft et al., 2007). Loss of feeding grounds, nesting trees and competition from bees and corellas have increased the importance of available nesting hollows. Hollows present are of significance to the conservation of Black-Cockatoo species.

The Quenda is listed as a Priority 5 species by the Department of Environment and Conservation (DEC), and is of concern because habitat clearing and fragmentation, fire, and predation by foxes, cats, and domestic dogs threaten this species (Bancroft et al., 2007). This species occurs in the south-west of WA (Bancroft et al., 2007).

The Brush Wallaby is listed as Priority 5 by the DEC, and is of concern because it is threatened by habitat clearing and fragmentation, predation by foxes and illegal hunting (Bancroft et al., 2007). *M. irma* occurs in the south-west of WA, from approximately Geraldton to Esperance (Bancroft et al., 2007).

A survey was conducted over the current application area, specifically concentrating on potential impacts to Black-Cockatoos (Bamford & Cherriman, 2008). Fauna sightings were recorded, and habitat considered suitable for the five abovementioned fauna species of conservation significance was particularly targeted, looking for evidence of these species.

No conservation significant species were observed during the surveys. No evidence of Black-Cockatoo feeding or nesting was found during the survey, however, five potential nesting trees (i.e. those exceeding 600 mm diameter at breast height (DBH)) were recorded within the areas traversed (Bancroft & Bamford, 2007; Bamford & Cherriman, 2008).

Bamford Consulting Ecologists made the following fauna management recommendations as part of the the 2007 fauna survey:

- 1) Limit loss of habitat by restricting the clearing and keeping the area of infrastructure to a minimum. Also, prevent degradation of vegetation surrounding study areas by increasing the awareness of personnel and restricting access to areas of significant vegetation;
- 2) Where possible, conduct clearing operations outside the breeding season for Black-Cockatoos;
- 3) Consider the implementation and monitoring of nesting boxes for Black-Cockatoos;
- 4) Limiting speed limits for areas of high wildlife activity;
- 5) Road killed fauna should be reported to site environmental personnel. Any fauna suspected of being of conservation significance should be reported to the relevant conservation authority (e.g. DEC office at Collie);
- 6) Manage the spread of Dieback;
- 7) Consider the use of felled or cleared vegetation as habitat enhancement in rehabilitation sites;
- 8) Feral fauna, particularly cats and foxes, should not be encouraged. Feral animal control strategies should be implemented where necessary;
- 9) To adopt the precautionary principle, lighting should be directed away from natural habitats so that light-spill is minimised; and
- 10) Consider providing signage to indicate important fauna or habitats (Bancroft et al., 2007).

Bamford & Cherriman (2008) stated that these recommendations are still applicable to the current application.

Based on the above, the proposed clearing may be at variance to this Principle. Should a permit be granted the assessing officer recommends conditions be placed on the permit for the purpose of fauna management.

Methodology Bancroft & Bamford (2007)
Bancroft et al. (2007)
Bamford & Cherriman (2008)

(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

A search of the Department of Environment and Conservation's databases conducted by Bennett Environmental Consulting Pty Ltd, revealed a total of six Declared Rare Flora species and 29 Priority Flora species, with the potential to occur within the application area, based on known distributions (Bennett, 2008).

A flora survey of the Ewington mine area, which included the application area, recorded four Priority Flora species: *Synaphea petiolaris* subsp. *simplex* (P2); *Aotus cordifolia* (P3); *Pultenaea skinneri* (P4) and *Stylidium plantagineum* (P4). No Declared Rare Flora were recorded during the survey (Bennett, 2008). None of the identified Priority Flora species were recorded within the application area (Griffin Coal, 2008). Therefore, the vegetation of the application area is unlikely to be necessary for the continued existence of rare flora.

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

Methodology Bennett (2008)
Griffin Coal (2008)
GIS Database:
- Declared Rare and Priority Flora List

(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) in the vicinity of the proposed clearing area (GIS Database). The nearest known TEC is located approximately 43 kilometres west of the application area (GIS Database).

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

Methodology GIS Database:
- 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 area is located within the Southern Jarrah Forest sub-region of the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database).

Shepherd et al. (2001) report that approximately 53.8% of the pre-European vegetation still exists in the Jarrah Forest Bioregion. The vegetation of the application area is broadly mapped as Beard Vegetation Association 3: Medium forest; jarrah-marri (GIS Database, Shepherd et al., 2001). The table below outlines the pre-European and current extent of vegetation within these regions.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion - Jarrah Forest	4,506,675	2,426,080	~53.8	Least concern	14 (25.5)
IBRA Subregion - Southern Jarrah Forest	2,607,875	1,308,940	~50.2	Least concern	16.8 (32.8)
Local Government Authority - Collie	172,072	161,845	~94.1	Least concern	N/A
Beard vegetation association - State					
3	2,661,197	1,863,967	~70.0	Least concern	18.5 (26.2)
Beard vegetation association - Jarrah Forest Bioregion					
3	2,390,535	1,661,219	~69.5	Least concern	16.3 (23.3)
Beard vegetation association - Southern Jarrah Forest subregion					
3	1,482,495	913,332	~61.6	Least concern	18.7 (30.2)

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

Locally, the surrounding areas have been cleared for mining and associated infrastructure. However, on a regional level, the proposed clearing area is not considered to be a significant remnant of native vegetation within an extensively cleared area.

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 et al. (2001).
GIS Database:
- Interim Biogeographic Regionalisation of Australia.
- Interim Biogeographic Regionalisation of Australia (subregions)
- 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 not likely to be at variance to this Principle**

There are no watercourses or wetlands within the application area (GIS Database). The nearest watercourse is a minor, perennial watercourse, approximately 200 metres west of the application area (GIS Database).

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

Methodology GIS Database:
- Hydrography, Linear
- Lakes, 1M
- Rivers 250K
- Collie 50cm Orthomosaic

(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 Ewington area (where this proposal is located) is characterised by low relief laterite ridge and hill landscapes (Griffin Coal, 2004). The proposed clearing is located on marine and continental sedimentary rock (sand and sandstone), over extensive and deep aquifers (GIS Database). The geology of the area is

recognised as sandy, alluvium forming terraces to Nakina Formation locally laterized (GIS Database, Geological Survey Western Australia, 1982). This type of sub-soil is prone to erosion if vegetative cover is removed.

The groundwater within the application area is fresh, at less than 500 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the small size of the proposed clearing, salinisation is not likely to occur.

The majority of the application area is relatively flat, reducing the risk of the proposed clearing resulting in significant erosion. The proponent will implement erosion control measures as required to minimise erosion (Griffin Coal, 2004).

Other management measures utilised to prevent land degradation include:

- rationalisation of access through the closure of redundant tracks;
- restriction of access through fencing;
- rehabilitation of disturbed areas;
- employee education; and
- weed and feral animal control (Griffin Coal, 2004).

Once land is cleared, infrastructure such as roads will be constructed and maintained which will mitigate the potential for erosion.

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

Methodology Geological Survey Western Australia (1982)
Griffin Coal (2004)
GIS Database:
- Geology, 250K
- Geology, 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 may be at variance to this Principle

The application area is located within the Collie State Forest (GIS Database), which is managed for multiple purposes, including conservation. The *Collie Coal (Griffin) Agreement Act 1979* permits Griffin Coal entry into State Forest for the purposes of exploration, clearing of timber and undergrowth and mining. A condition of this Act is that Griffin Coal will give prior notice to the Conservator of Forests (now the Forest Products Commission (FPC)) that clearing is to take place. Griffin Coal (2007) has provided a letter from the FPC which indicates that FPC are currently and will continue to be involved in the salvage of saleable timber resources within areas of State Forest covered by the Ewington Mining lease and clearing permits.

The Ewington mining area (within which this application area is located) is also located within a 150 hectares Comprehensive, Adequate and Representative (CAR) Informal Reserve which was established following the signing of the Regional Forest Agreement (RFA) by the Commonwealth of Australia and the State of Western Australia on 4 May 1999 (EPA, 2003; GIS Database). Development of the Ewington minesite within the CAR Informal Reserve was approved by the EPA in March 2003 (EPA, 2003).

Based on the above, the proposed clearing may be at variance to this Principle. Should a clearing permit be granted it is recommended conditions be placed on the permit for the purposes of dieback and weed management.

Methodology EPA (2003)
Griffin Coal (2007).
GIS Database:
- CALM Managed Lands 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

There are no watercourses or wetlands within the application area (GIS Database). The nearest watercourse is a minor, perennial watercourse, approximately 500 metres (at its nearest point) south-west of the application area (GIS Database). The area between the application area and the watercourse is heavily vegetated, and hence the proposed clearing is unlikely to result in increased sedimentation of this or any other watercourse.

The groundwater within the application area is fresh, at less than 500 milligrams per litre of Total Dissolved Solids (GIS Database). Previous advice from the Department of Water (2007) regarding clearing permit CPS 2223/1 (adjacent to the application area) states that the relatively small area of the proposed clearing is unlikely to have any significant impact on groundwater levels or quality. As this application is proximate to, and of a

similar nature to clearing permit CPS 2223/1, the assessing officer considers the DoW (2007) advice to be applicable to this application.

The proposed clearing area is located within the Wellington Dam Catchment Area (Public Drinking Water Source Area) (GIS Database). The Department of Water (DoW, 2008) has advised that clearing permits are generally granted in Zone D, as long as more than 10% of the land in question remains uncleared. Due to the extent of the state forest, the DoW has no objection to the grant of the clearing permit (DoW, 2008).

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

Methodology DoW (2007)
DoW (2008)
GIS Database:
- Salinity Mapping
- 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 application area is within the Wellington Dam Collie River Catchment area, which covers an area of approximately 282,910 hectares (GIS Database). The relatively small area of the proposed clearing (12.46 hectares) compared to the size of the catchment area, is unlikely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

The clearing permit application was advertised on 9 March 2009 by the Department of Mines and Petroleum, inviting submissions from the public. One public submission was received from a direct interest party citing issues in relation to the submission process and heritage surveys.

There is one native title claim over the application area (GIS Database). This claim (WC98/058) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (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*.

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

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

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 may be at variance to Principles (b) and (h), and is not likely to be at variance to principles (a), (c), (d), (e), (f), (g), (i) and (j).

Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of record keeping, permit reporting, weed and dieback management, as well as fauna management.

5. References

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6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DMP	Department of Mines and Petroleum
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	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.