



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6946/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: The Griffin Coal Company Pty Ltd

1.3. Property details

Property: Collie Coal (Griffin) Agreement Act 1979, Coal Mining Lease 12/448
Local Government Area: Shire of Lake Grace
Colloquial name: Pit 3 North Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 April 2016

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. One Beard vegetation association is located within the application area (GIS Database):

Beard vegetation association 3: Medium forest; jarrah-marri.

The application area also falls within Collie Complex of the Matiske Vegetation Complex which is described as: Open forest of *Eucalyptus marginata* subsp. *marginata*, *Corymbia calophylla*-*Allocasuarina fraseriana* on gravelly-sandy upland soils in the subhumid zone (Matiske and Havel, 1998).

Wildy (2015) conducted a flora and vegetation survey over the application and verified that the mapped Matiske and Havel (1998) regional vegetation types were present. The two vegetation types are described as:

- A) Sparse to mid-dense Jarrah trees over sparse to very sparse Forest Sheoak and sparse Rushes and Sedges. Sparse to mid-dense *Eucalyptus marginata* trees over sparse to very sparse *Allocasuarina fraseriana* +/- *Persoonia longifolia* and *Banksia grandis* over very sparse rushes and sedges *Desmocladius fascicularis*, *Tetraria capillaris*, *Lepidosperma leptostachyum* and occasional *Bossiaea ornata* on grey sands. Vegetation representative of the minor rises of the Collie Vegetation Complex ; and
- B) Sparse to very sparse Jarrah trees over very sparse to sparse Forest Sheoak and Marri over very sparse shrubs and sedges. Sparse to very sparse *Eucalyptus marginata* trees over very sparse to sparse, *Allocasuarina fraseriana* and *Corymbia calophylla* +/- *Xanthorrhoea preissii* over very sparse *Hakea lissocarpha*, *Tetraria capillaris* and *Lepidosperma leptostachyum* on gravelly loamy sands. Vegetation representative of the minor rises of the Collie Vegetation Complex.

A targeted flora survey of the application area described the dominant vegetation as consisting of *Eucalyptus marginata*, *Corymbia calophylla*, *Allocasuarina fraseriana*, *Xylomelum occidentale*, *Hakea lissocarpha*, *Leucopogon capitellatus*, *Bossiaea ornata*, *Adenanthos barbiger*, *Astroloma pallidum*, *Daviesia incrassata* and *Hovea chorizemifolia* (Wildy, 2014).

Clearing Description The Griffin Coal Mining Company Pty Ltd (TGCMC) proposes to clear up to 3.6 hectares of native vegetation within a total boundary of approximately 3.6 hectares, for the purpose of mineral production. The project is located approximately 15 kilometres east of Collie in the Shire of Collie.

Vegetation Condition Good : Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

To:

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

Comment The condition of the vegetation under application was determined via a flora and vegetation survey conducted over the application area conducted by Wildy (2015).

Approximately 2.5 hectares of the vegetation to be cleared is required in order to access coal reserves using open cut methods. The remaining 1.1 hectares is required for safety reasons, including the development and maintenance of a 50 metre buffer and safety bund around the pit crest (TGCMC, 2016).

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 subregion of the Jarrah Forest Interim Biogeographic Regionalisation for Australia bioregion (GIS Database). The Southern Jarrah Forest subregion is comprised of Jarrah – Marri forest in the west grading to Marri and Wandoo woodlands in the east. Extensive areas of swamp vegetation occur in the south-east, dominated by Paperbarks and Swampy Yate (CALM, 2002).

A flora and vegetation survey was conducted over the application area on 5 November, 3 December and 7 December 2012. The survey recorded 111 plant taxa from 32 families and 72 genera (Wildy, 2015). No Priority flora species were identified within the application area during the flora survey. However, given that winter rains in the lead up to the survey were well below average, annual species and ephemeral taxa of conservation significance may not have been recorded but could persist within the application area (Wildy, 2015). Wildy (2014) conducted a follow up targeted flora survey on 12 November 2014 and did not record any flora species of conservation significance within the application area.

Two vegetation types were identified within the application area, both of which are typical of the region (Wildy, 2015). The application area is comprised predominately of *Eucalyptus marginata*, *Corymbia calophylla*, *Allocasuarina fraseriana*, *Xylomelum occidentale*, *Hakea lissocarpha*, *Leucopogon capitellatus*, *Bossiaea omata*, *Adenanthos barbiger*, *Astroloma pallidum*, *Daviesia incrassata* and *Hovea chorizemifolia*.

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) are known within the application area (GIS Database) and none were identified within the application area during the flora and vegetation survey.

The application area is composed of one main fauna habitat; Jarrah-Marri forest, which is widely represented in the surrounding area (Western Wildlife, 2012; Western Wildlife, 2015). The application area shows evidence of disturbance in the form of tracks, roads, firebreaks, historical timber cutting and feral animal invasion. Despite this disturbance, the application area remains likely to support a diverse range of fauna, including fauna of conservation significance (Western Wildlife, 2015).

The proponent will implement a range of fauna management measures in order to reduce potential impacts, including rehabilitation of cleared areas, staged clearing, retention of habitat logs, feral animal control and fauna relocation activities conducted in consultation with the Department of Parks and Wildlife (TGCMC, 2016). Potential impacts to local fauna species as a result of the proposed clearing may be further minimised by the implementation of a revegetation and rehabilitation condition.

As weed species have been identified within the application area (Wildy, 2014; Wildy, 2015) and the area may be susceptible to dieback (*Phytophthora cinnamomi*), there is potential for further invasion and/or spread. Weed and dieback invasion has the potential to alter the biodiversity of an area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed and dieback management condition.

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

Methodology CALM (2002)
DPaW (2016a)
Western Wildlife (2015)
Wildy (2014)
Wildy (2015)
TGCMC (2016)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Imagery
- Pre-European vegetation
- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Ecological Communities Boundaries

(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 at variance to this Principle

Western Wildlife (2012) conducted a Level 1 fauna survey over the application area and immediate surrounds. Ten bird, eight mammal, two reptile and one invertebrate species of conservation significance were identified as potentially occurring within the application area (Western Wildlife, 2012).

The application area has microhabitats that may support SRE invertebrate fauna, although these habitats, such as rotting fallen timber, deep leaf litter and rocks are common throughout the Jarrah forest. The application area lacks steep-sided valleys or gullies, watercourses, granite outcrops or ranges, all of which are restricted habitats that support SRE invertebrates (Western Wildlife, 2015).

The application area shows evidence of disturbance in the form of tracks, roads, firebreaks, historical timber cutting and feral animal invasion. Despite this disturbance, the application area remains likely to support a diverse range of vertebrate fauna, including fauna of conservation significance (Western Wildlife, 2015).

The Carnaby's Cockatoo (*Calyptorhynchus latirostris* - EN), Forest Red-tailed Cockatoo (*Calyptorhynchus banksii naso* - VU) and Baudins Cockatoo (*Calyptorhynchus baudinii* - EN) were all recorded within the application area, as was the Rainbow Bee-eater (*Merops ornatus* - IA Migratory), Quenda (*Isodon obesulus* - P4) and Western Brush Wallaby (*Macropus irma* - P4) (Western Wildlife, 2012).

The Chuditch (*Dasyurus geoffroyi* - VU), Brush-tailed Phascogale (*Phascogale tapoatafa* - VU), Western False Pipistrelle (*Falsistrellus mackenziei* - P4) and Dell's Skink (*Ctenotus delli* - P4) were not recorded or observed within the application area at the time of survey but have either been previously recorded within the application area, recorded within the vicinity of the application area or are considered highly likely to occur (Western Wildlife, 2012).

The Rainbow Bee-eater, Chuditch, Dell's Skink and Quenda are likely to utilise the vegetation within the application area as foraging habitat. The Western False Pipistrelle may forage and roost within the application area. Impacts to these species are not anticipated to be significant, as the fauna habitat identified within the application area (Jarrah - Marri forest) is widely represented in the surrounding area (Western Wildlife, 2012). DPaW (2016a) have advised that although the vegetation under application is suitable for the fauna species of conservation significance recorded in the application area, it is unlikely to be significant habitat for these species. Staged clearing should be undertaken in order to avoid the breeding season of arboreal mammals (DPaW, 2016a).

To minimise potential impacts to local fauna species, including species of conservation significance, the proponent has committed to a fauna relocation program, where target fauna will be trapped and relocated to areas of suitable habitat outside the application area and staged clearing occurs at the correct time of year to avoid or minimise potential impacts (TGCMC, 2016). DPaW (2016a) have advised that the application area once supported an abundant population of Brush-tail Phascogale and is likely to support a remnant population. A fauna trapping program will be conducted in collaboration with the Department of Parks and Wildlife (TGCMC, 2016). In addition to this, habitat structures, such as rocks and logs are to be collected and stockpiled for later reintroduction during rehabilitation of the application area to encourage re-colonisation of local fauna species (TGCMC, 2016).

The application area represents 3.6 hectares of foraging habitat suitable for all three black cockatoo species (Western Wildlife, 2015). Kirkby (2015) conducted a black cockatoo habitat survey over the application area and surrounding area. Twenty four habitat trees were recorded within the application area, two of which contained hollows which have suitable entrance types for black cockatoos, though no signs of use were detected (Kirkby, 2015). Evidence of feeding by Forest Red-tailed black cockatoos on Marri and Sheoak trees was observed. No evidence of roosting was noted during the habitat survey (Kirkby, 2015). The proposed clearing is unlikely to significantly impact cockatoo foraging habitat (DPaW, 2016a).

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

Methodology DPaW (2016a)
Kirkby (2015)
TGCMC (2016)
Western Wildlife (2012)
Western Wildlife (2015)

(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 information, no Threatened flora species have been recorded within the application area (DPaW, 2016b) and none were recorded during the flora and vegetation survey (Wildy, 2015). However, given that winter rains in the lead up to the 2012 survey were well below average, annual species and ephemeral taxa (particularly orchid species) of conservation significance may not have been recorded but could persist within the application area (Wildy, 2015).

Three Threatened orchid species are known to occur nearby; *Diuris micrantha*, *Drakaea elastica* and *Caladenia lodgeana* (Wildy, 2015) and *Commersonia erythrogyna* is known from similar habitat (Wildy, 2014). The soils of the application area consist of loamy sands with or without gravel and grey sands. All three orchid species listed above prefer inundated areas and there are no drainage lines or near to water-gaining flats present within the application area (Wildy, 2015). Wildy (2014) conducted a follow up targeted flora survey on 12 November 2014 and did not record any Threatened flora species within the application area. It is considered unlikely that *Diuris micrantha*, *Drakaea elastica*, *Caladenia lodgeana* and *Commersonia erythrogyna* persist (Wildy, 2014). *Jacksonia velveta* was also identified as potentially occurring within the application area (Wildy, 2014; Wildy, 2015); however after numerous surveys of the application area, this erect densely branching shrub species has not been recorded.

DPaW (2016a) have advised that the flora surveys conducted over the application area were not conducted at the appropriate time of year to identify/record *Caladenia leucochila* and were based on habitat suitability for *Caladenia lodgeana*. There is a high likelihood that *Caladenia leucochila* occurs within the application area (DPaW, 2016a). While it is acknowledged that the more recent surveys conducted over the application area were not conducted during the typical flowering period for *leucochila*, late flowering specimens and remnant flowers have been recorded at Collie during November (TGCMC, 2016). Onshore Environmental completed targeted surveys for *Caladenia leucochila* in the Collie region between 2009 and 2014 but did not survey the application area. Areas to the north, east and south were surveyed and the nearest specimen was recorded 5 kilometres south (TGCMC, 2016).

TGCMC (2016) provided further information on the likely occurrence of *Caladenia leucochila* and advised that a baseline flora and vegetation survey of the Muja South project was conducted by Bennett Environmental Consulting between 1-10 September 2005 and 26-29 October 2006, which included the application area. *Caladenia leucochila* was recorded further south, fringing the eastern banks of a watercourse, but was not recorded within, or surrounding the application area (TGCMC, 2016).

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

Methodology DPaW (2016a)
DPaW (2016b)
Wildy (2014)
Wildy (2015)

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 known Threatened Ecological Communities (TECs) within the application area (GIS Database) and no TECs were identified during a flora and vegetation survey of the application area (Wildy, 2015).

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

Methodology Wildy (2015)

GIS Database:
- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Ecological Communities Boundaries

(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 occurs within the Jarrah Forest Interim Biogeographic Regionalisation of Australia bioregion, in which approximately 53.8% of the pre-European vegetation remains (see table below) (Government of Western Australia, 2014; GIS Database). One Beard vegetation association has been mapped within the application area (GIS Database). As the below table indicates, Beard vegetation 3 is well represented within the state and bioregion, retaining levels above the recommended 30% threshold of pre-European settlement levels of native vegetation (Commonwealth of Australia, 2001).

Large amounts of intact native vegetation remains in the local area, including the Collie State Forest to the east and the Muja State Forest to the west, therefore the vegetation proposed to be cleared is not considered to represent a remnant within an extensively cleared area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion -	4,506,660	2,425,551	53.8	Least concern	~39.4

Jarrah Forest					
Beard veg assoc. - State					
3	2,661,405	1,813,100	~ 68.1	Least concern	~ 58.4
Beard veg assoc. - Bioregion					
3	2,390,591	1,613,658	~ 67.5	Least concern	~ 57.7

* Government of Western Australia (2014)

** 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 (2014)

GIS Database:

- DPaW Tenure
- IBRA WA (regions - subregions)
- Imagery
- 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 at variance to this Principle**

There are no watercourses or wetlands mapped within the application area (GIS Database). Wildy (2015) conducted a flora survey over the application area and confirmed that no drainage lines or near to water-gaining flats are present. None of the vegetation within the application area has been identified as growing in association with a watercourse or wetland (Wildy, 2015).

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

Methodology Wildy (2015)

GIS Database:

- Hydrography, linear
- Hydrography, linear (hierarchy)

(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 soils of the application area consist of loamy sands with or without gravel and grey sands. Sandy soils are confined to mid to upper slopes (Wildy, 2015). Loamy sands are known to be prone to water erosion, while sandy soils are susceptible to wind erosion. Given the purpose of the proposed clearing is to extend an existing coal mine, where drainage is to be diverted directly to mine voids (TGCMC, 2016), land degradation issues are unlikely. Potential erosion impacts as a result of the proposed clearing may be minimised by the implementation of a stage clearing condition.

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

Methodology TGCMC (2016)

(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 a conservation area; however the Collie State Forest abuts the south western boundary (GIS Database). The Collie State Forest has an extent of 17,185 hectares.

Given that the purpose of the proposed clearing is to extend an existing coal mine, where significant disturbance has already occurred and large amounts of intact vegetation remains in the local area (GIS Database), the proposed clearing is considered unlikely to result in significant impacts to the environmental values of the adjacent Collie State Forest.

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

Methodology GIS Database:
- DPaW Tenure

- Imagery

(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 is located within the Wellington Dam Catchment Area, which is a Public Drinking Water Source Area (PDWSA) with a priority status not assigned (GIS Database). The proponent has obtained a licence from the Department of Water, approving the clearing of 3.6 hectares of native vegetation within this area.

According to available databases, there are no watercourses or wetlands mapped within the application area and none were identified during flora surveys of the area (Wildy, 2014; Wildy, 2015), therefore impacts to surface water quality are unlikely to result.

The groundwater salinity of the application area is considered brackish (1000 to 3000 milligrams/Litre Total Dissolved solids) (GIS Database). The proposed clearing of 3.6 hectares of native vegetation is considered unlikely to result in a further deterioration in the quality of groundwater.

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

Methodology Wildy (2014)
Wildy (2015)

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

There are no watercourses or wetlands located in the application area and no drainage lines or near to water-gaining flats are present (Wildy, 2015; GIS Database). As drainage design will direct surface flows into the pit void, an increase in the intensity or incidence of flooding is unlikely to result from the proposed clearing.

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

Methodology Wildy (2015)

GIS Database:
- Hydrography, linear

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

Comments

There are two native title claims over the application area (WC2003/006 & WC1998/058) (DAA, 2016). 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*.

There are no Sites of Aboriginal Significance located in the area applied to clear (DAA, 2016). 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 Regulation, the Department of Parks and Wildlife and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 29 February 2016 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology DAA (2016)

4. References

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management.
Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra
DAA (2016) Aboriginal Heritage Inquiry System, Department of Aboriginal Affairs, Perth, Western Australia
< <http://maps.dia.wa.gov.au> > (Accessed 15 March 2016).

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.

DPaW (2016a) Advice received in relation to Clearing Permit Application CPS 6946/1. Species and Communities Branch, Department of Parks and Wildlife, Western Australia, March 2016.

DPaW (2015b) NatureMap, Department of Parks and Wildlife <<http://naturemap.dec.wa.gov.au>> (Accessed March 2016).

Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Environment and Conservation, Perth.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Kirkby (2015) Survey of Black Cockatoo Habitat, Pit 3 North, JMBA Area – Griffin Lease. Unpublished report prepared for Premier Coal Ltd, by Tony Kirkby, April 2015.

TGCMC (2016) Native Vegetation Clearing Permit Application, Supporting Information. The Griffin Coal Mining Company Pty Ltd. Unpublished report, February 2016.

Western Wildlife (2012) Chicken Creek 5 North Baseline Fauna and Habitat Survey, Premier Coal Limited, Collie: Level 1 Fauna Survey 2012. Unpublished report prepared for Premier Coal Ltd, by Western Wildlife, December 2012.

Western Wildlife (2015) Pit 3 North Cross-boundary Mining Area Level 1 Desktop Fauna Survey 2015. Unpublished report prepared for Premier Coal Ltd, by Western Wildlife, April 2015.

Wildy (2014) Targeted Spring Survey of Pit 3 North Survey Area and Traverse of Proposed Offset Site. Unpublished report prepared for Premier Coal Ltd, by Jodi Wildy, November 2014.

Wildy (2015) CML 12/448 Flora and Vegetation Baseline Survey. Unpublished report prepared for Premier Coal Ltd, by Jodi Wildy, Revised April 2015.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2015) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
Published as Specially Protected under the *Wildlife Conservation Act 1950*, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be ‘likely to become extinct or is rare, or otherwise in need of special protection’, pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

- CR Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- EN Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- VU Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- EX Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.
- IA Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- CD Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- OS Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3 Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need

of further survey.

P4

Priority Four - Rare, Near Threatened and other species in need of monitoring:

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.