Government of **Western Australia**
Department of **Mines and Petroleum**

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 7271/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

**Proponent's name:** **Bullseye Mining Limited**

### 1.3. Property details

**Property:** Miscellaneous Licence 36/205
Miscellaneous Licence 37/218
**Local Government Area:** Shire of Leonora
**Colloquial name:** North Laverton Gold Project

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 96.2 | | Mechanical Removal | Haul road and associated activities |

### 1.5. Decision on application

**Decision on Permit Application:** Grant
**Decision Date:** 10 November 2016

## 2. Site Information

### 2.1. Existing environment and information

*2.1.1. Description of the native vegetation under application*

**Vegetation Description**

The clearing permit application area has been broadly mapped as the following Beard vegetation associations (GIS Database):
18: Low woodland; mulga (*Acacia aneura*); and
39: Shrublands; mulga scrub.

A flora and vegetation survey was conducted by Botanica Consulting (Botanica) in May 2015 over the proposed haul road route (Botanica, 2015).

The following vegetation communities were recorded within the survey area, grouped according to landform types (Botanica, 2015):

**Clay-Loam Plain**
**CLP-AFW1:** Low woodland of *Acacia caesaneura / A. incurvaneura / A. mulganeura* over low scrub of *Eremophila* spp. and low grass of *Eragrostis eriopoda* on clay-loam plain.
**CLP-AFW2:** Dense low forest of *Acacia caesaneura / A. incurvaneura* over open low scrub of *Eremophila spp. / Psydrax* spp. and low grass of *Eragrostis eriopoda* on clay-loam plain.
**CLP-AFW3:** Open low woodland of *Acacia caesaneura / A. incurvaneura* over open low scrub of *Eremophila paisleyi* and open low grass of *Eragrostis eriopoda* on rocky plain.
**CLP-OS1:** Open scrub of *Hakea preissii* over low scrub of *Maireana pyramidata / Senna* sp. Meekatharra (E. Bailey 1-26) and dwarf scrub of *Maireana glomerifolia* on clayloam plain.

**Closed Depression**
**CD-AFW1:** Low woodland of *Acacia caesaneura* over mixed low scrub of *Eremophila/Senna* spp. and dwarf scrub of *Frankenia setosa* on salt playa edge.
**CD-AOW1:** Open low woodland of *Acacia caesaneura* over dwarf scrub of *Atriplex vesicaria / Cratystylis subspinescens / Frankenia setosa* and dense hummock grass of *Triodia desertorum* in salt playa.
**CD-CSSSF1:** Low heath of *Tecticornia pruinosa / Tecticornia undulata* in salt playa.

**Open Depression**
**OD-AFW1:** Low woodland/ forest of *Acacia caesaneura / A. incurvaneura* over open mixed low scrub of *Acacia/ Eremophila / Sida* spp. and low grass of *Eragrostis eriopoda / Eriachne* spp. in drainage depression.

**Rocky Hillslope**
**RH-AFW1:** Low woodland of *Acacia ayersiana / A. incurvaneura / A. mulganeura* over open mixed low scrub of *Thryptomene* spp./ *Eremophila* spp. and dwarf scrub of *Ptilotus obovatus / Sida* sp. Golden calyces glabrous (H.N. Foote 32) on rocky ridge.

**Rocky Plain**
**RP-AFW1:** Open low woodland of *Acacia pruinocarpa* over scrub of *Eremophila linearis* and dwarf scrub of *Sclerolaena cuneate* on rocky plain.
**RP-AFW2:** Low woodland of *Acacia incurvaneura / A. pruinocarpa* over low scrub of *Eremophila* spp. and dwarf scrub of *Ptilotus obovatus / Sida calyxhymenia* on quartz plain.

**RP-AFW3:** Low woodland of *Acacia caesaneura/ A. incurvaneura/ A. mulganeura* over low scrub of *Eremophila* spp. and low grass of *Eragrostis eriopoda* on rocky plain

**Sand-Loam Plain**
**SLP-AFW1**: Low forest of *Acacia caesaneura / A. incurvaneura* over scrub of *Acacia ramulosa* var. *ramulosa* and dwarf scrub of *Ptilotus obovatus* over mid-dense hummock grass of *Triodia desertorum* on sand-loam plain.
**SLP-AOW1:** Open Low woodland of *Acacia caesaneura* over scrub of *A. burkittii/ Senna artemisioides* subsp. *filifolia* and mid-dense hummock grass of *Triodia desertorum* on sand-loam plain.
**SLP-MWS1:** Very open shrub mallee of *Eucalyptus youngiana* over low scrub of *Acacia effusifolia / A. ligulata* and mid-dense hummock grass of *Triodia basedowii* on sand-loam plain.
**SLP-MWS2:** Open shrub mallee of *Eucalyptus lucasii / E. youngiana* over low scrub of *Eremophila forrestii* subsp. *forrestii/ Senna artemisioides* subsp. *filifolia* and mid dense hummock grass of *Triodia desertorum* on sand-loam plain.
**SLP-OFW1:** Open low woodland of *Hakea lorea* over open low scrub of regrowth *Melaleuca* spp. and dense hummock grass of *Triodia desertorum* on sand-loam plain.

**Clearing Description**

North Laverton Gold Project.
Bullseye Mining Limited proposes to clear up to 96.2 hectares of native vegetation within a boundary of approximately 96.2 hectares, for the purposes of a haul road and associated activities. The project is located approximately 66 kilometres northeast of Leinster, within the Shire of Leonora.

**Vegetation Condition**

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

To

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

**Comment**

The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (Botanica) in May 2015 (Botanica, 2015).

The proposed clearing is for the development of a haul road, approximately 18 kilometres long, connecting the Bronzewing Gold Mine and the North Laverton Gold Project (Botanica, 2015).

## 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 Eastern Murchison subregion of the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). The Eastern Murchison subregion is characterised by broad plains of red-brown soils and breakaway complexes as well as red sandplains. The vegetation of this subregion is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (CALM, 2002). The Eastern Murchison subregion supports a rich and diverse flora and fauna, however most species are wide ranging and not restricted to the subregion (CALM, 2002).

A Level One flora and vegetation survey was conducted by Botanica Consulting (Botanica) over the proposed haul road corridor, on 29 May 2015 (Botanica, 2015). A total of 157 flora taxa were recorded during the survey, representing 30 families and 67 Genera (Botanica, 2015). The survey also included targeted searches for flora species of conservation significance, within suitable habitat types within the survey area (Botanica, 2015).

No Threatened flora, Priority flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area, and none were found during the survey (GIS Database; Botanica, 2015).

A desktop survey identified eighteen Priority flora species with the potential to occur within the survey area, based on known distributions and habitat preferences (Botanica, 2015). However, no Priority flora were recorded during the flora survey (Botanica, 2015).

Botanica (2015) identified seventeen broad vegetation communities within the application area, associated with six landform types. The vegetation condition within the application area ranged from Good to Very Good with parts of the survey area previously disturbed by grazing, access tracks, mineral exploration and historical mining activities (Botanica, 2015).

The application area falls within the Barwidgee pastoral lease (GIS Database), and previous vegetation disturbance has occurred from pastoral activities, including weed invasion in some areas (Botanica, 2015). Eight weed species were recorded during the flora survey, including *Emex australis* (Doublegee) which is a declared plant under the *Biosecurity and Agriculture Management Act 2007*. Weeds have the potential to out-compete native flora and reduce 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 management condition.

A fauna survey has not been conducted over the haul road corridor which is the subject of this application. However, a Level 1 fauna survey was conducted over a 23 kilometre long east-west haul road corridor which adjoins the eastern end of the current application area and is covered by a previously granted clearing permit (CPS 6635/1). The two haul road routes contain similar landforms and vegetation associations, and the fauna species and fauna habitats found in the two haul road corridors are likely to be similar. The fauna survey of the adjacent section of haul road was conducted by consulting zoologist Greg Harewood in October 2014, comprising of a desktop review and a five day reconnaissance field survey (Harewood, 2015). The desktop survey identified 218 native fauna species with the potential to occur within the survey area, including seven frogs, 86 reptiles, 110 birds and 15 mammal species. The field survey recorded a total of 80 native fauna species and six introduced fauna species (Harewood, 2015). Harewood (2015) reported that the fauna assemblage within the survey area was typical of the region. Hence these survey results are considered applicable to the current application area.

The desktop survey of the adjacent haul road area identified 14 fauna species (mostly birds) of conservation significance, with the potential to occur within the survey area based on known distributions (Harewood, 2015). However no fauna species of conservation significance were recorded during the survey (Harewood, 2015).

The Murchison Bioregion remains largely uncleared (Government of Western Australia, 2015), and the landforms, vegetation associations and fauna habitat types found within the application area are well represented within the region (Botanica, 2015; Harewood, 2015; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.

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

**Methodology**

CALM (2002)
Botanica (2015)
Government of Western Australia (2015)
Harewood (2015)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Threatened and Priority Flora
- 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**

A Level 1 fauna and habitat survey was conducted over an adjacent haul road area, extending to the east of the current application area in October 2014 (Harewood, 2015). The survey comprised a desktop search of relevant fauna databases and a field reconnaissance survey.

Harewood (2015) identified the following seven main fauna habitat types within the adjacent survey area, (listed in order from most commonly occurring to least common):
1. Clay-Loam Plains: Low forests to open low woodlands of *Acacia* or *Hakea* over low scrub / dwarf scrub over low grass;
2. Rocky Hillslopes: Low woodlands of Acacia or Hakea over low scrub / open low scrub / dwarf scrub of mixed species;
3. Rocky Plains: Low woodlands of Acacia over low scrub / open low scrub over dwarf scrub or mixed chenopods;
4. Open Depressions: Low woodland / Forest of Acacia over open low scrub and low grass;
5. Sand-Loam Plains: Very open / open shrub mallee, low forest and open low woodland of Eucalyptus, Acacia or Hakea over dense hummock grassland or dwarf scrub;
6. Breakaways: Open low woodland of Acacia over low scrub and dwarf scrub of various species over low grass; and
7. Closed Depressions: Low woodland / open low woodland of Acacia over mixed low scrub or low dwarf scrub and low heath in salt playa.

The flora and vegetation survey of the current application area recorded the same landform types that were identified in the adjacent fauna survey (Botanica, 2015), with the notable exception of breakaways, which may contain more specialised fauna habitats and were not recorded within the current application area. The fauna species and fauna habitats occurring within the two haul road corridors are likely to be similar. Harewood (2015) reported that none of the habitat types found within the fauna survey area were restricted in distribution.

Opportunistic fauna observations, and a series of transects were conducted throughout the surveyed area, representing the seven main habitat types. Targeted searches for conservation significant fauna were also conducted, by traversing areas of suitable habitat.

Although no fauna species listed as either threatened species under the federal *Environment Protection and*

*Biodiversity Conservation Act 1999* (EPBC Act) or protected under the Western Australian *Wildlife Conservation Act 1950* (WC Act) were recorded during the survey, it was considered that some may occur within the surveyed area (Harewood, 2015). However, the majority of these species are highly mobile and all have wide distributions, and they are unlikely to be specifically dependant on the habitats within the surveyed area (Harewood, 2015).

The majority of fauna habitats found within the adjacent surveyed area are relatively common and widespread in the region (Harewood, 2015; GIS Database). Harewood (2015) concluded that potential impacts to fauna from the clearing associated with the adjacent haul road were likely to be minor, and the vegetation proposed to be cleared was unlikely to represent significant habitat for fauna in a regional context. Similarly, the narrow corridor of vegetation clearing required for the currently proposed haul road is unlikely to have any significant impacts to fauna habitat availability in the region.

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

**Methodology** Harewood (2015)

GIS Database:
- Wanggannoo Orthomosaic - Landgate 2011
- 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**

A flora survey of the application area did not record any species of Threatened flora (Botanica, 2015). The vegetation associations recorded within the application area are well represented in surrounding areas (GIS Database; Botanica, 2015), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of threatened (rare) flora.

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

**Methodology** Botanica (2015)

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 (TECs) located within or in close proximity to the application area (GIS Database).

Surveys of the application area did not identify any TECs (Botanica, 2015).

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

**Methodology** Botanica (2015)

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 applied to be cleared is located within the Murchison IBRA bioregion (GIS Database). There is approximately 99% of pre-European vegetation remaining within the bioregion (Government of Western Australia, 2015).

The application area is broadly mapped as Beard vegetation associations: 18: Low woodland; mulga (*Acacia aneura*); and 39: Shrublands; mulga scrub (GIS Database). Approximately 99% of the pre-European extent of each of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2015). Hence, the vegetation proposed to be cleared does not represent a significant remnant of vegetation in an area that has been extensively cleared.

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DPaW managed lands |
|---|---|---|---|---|---|
| IBRA Bioregion - Murchison | 28,120,586 | 28,044,823 | ~ 99 | Least Concern | 7.7 |
| Beard vegetation association - State | | | | | |
| 18 | 19,892,304 | 19,843,727 | ~ 99 | Least Concern | 6.29 |
| 39 | 6,613,569 | 6,602,580 | ~ 99 | Least Concern | 12.10 |
| Beard vegetation association - Bioregion | | | | | |
| 18 | 12,403,172 | 12,363,252 | ~ 99 | Least Concern | 4.96 |
| 39 | 1,148,400 | 1,138,064 | ~ 99 | Least Concern | 3.56 |

* Government of Western Australia (2015)
** 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 (2015)

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).

Several minor seasonal watercourses cross the proposed haul road route (GIS Database). Seasonal watercourses in the region are dry for most of the year, only flowing briefly following significant rainfall events (Botanica, 2015).

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to vegetation associated with these watercourses, and vegetation downstream from the application area, may be minimised by the implementation of a watercourse management condition.

**Methodology** Botanica (2015)

GIS Database:
- Geodata, Lakes
- Hydrography, linear

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

**Comments**

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

The application area falls within the Ararak, Bullimore, Felix, Jundee, Monk, Nubev, Tiger, Violet, and Windarra land systems (GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Agriculture and Food).

The Ararak land system consists of broad plains with mantles of ironstone gravel, supporting mulga shrublands with wanderrie grasses (Pringle et. al., 1994). The Felix land system consists of level to gently undulating plains with quartz mantles, supporting mulga shrublands with wanderrie grasses (Pringle et. al., 1994). The Tiger land system consists of hardpan plains and sandy banks, supporting mulga shrublands and wanderrie grasses (Pringle et. al., 1994). These three land systems are not generally susceptible to erosion (Pringle et. al., 1994).

The Bullimore land system is described as extensive sandplains supporting spinifex hummock grasslands (Pringle et. al., 1994). This land system may be prone to wind erosion if vegetation cover is removed (Pringle et. al., 1994).

The Nubev land system is described as undulating stony plains, minor low rises and drainage floors, supporting mulga and halophytic shrublands (Pringle et. al., 1994). Drainage zones within this land system are moderately susceptible to soil erosion, if vegetation cover is removed. The saline plains may also be susceptible to water erosion if protective stony mantles are disturbed (Pringle et. al., 1994).

The Violet land system is described as undulating stony and gravelly plains and low rises, supporting mulga shrublands (Pringle et. al., 1994). While generally resistant to erosion, this land system may be moderately susceptible to water erosion if stony mantles are removed (Pringle et. al., 1994).

The Monk land system consists of hardpan plains with occasional sand banks, supporting mulga tall shrublands and wanderrie grasses (Pringle et. al., 1994). Drainage tracts within this land system are mildly susceptible to water erosion, and the associated vegetation is susceptible to water starvation if natural surface flows are altered (Pringle et. al., 1994).

The Windarra land system consists of gently undulating plains with quartz pebble mantles, supporting acacia-eremophila shrublands (Pringle et. al., 1994). The hardpan plains and drainage floors of this land system are mildly susceptible to soil erosion, while the other land units are protected by stony mantles (Pringle et. al., 1994).

Based on the above, the proposed clearing may be at variance to this Principle. Potential land degradation as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

**Methodology** 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 is the Wanjarri Nature Reserve (Class A), which is located approximately 18 kilometres west of the western end of the proposed haul road corridor (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:
- DPaW 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**

There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the application area (GIS Database). Several minor seasonal watercourses pass through the application area (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002).

The proposed clearing for a haul road is unlikely to result in increased sedimentation of any watercourse, or 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** CALM (2002)

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 semi-arid, with a low average rainfall of approximately 200 millimetres per year (CALM, 2002). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002).

There are no permanent water courses or waterbodies within the application area (GIS Database). Several

minor seasonal water courses pass through the application area (GIS Database). Temporary localised flooding may occur during 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** CALM (2002)

GIS Database:
- Hydrography, linear

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

**Comments**

The clearing permit application was advertised on 3 October 2016 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this application.

There are no native title claims over the area under application (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 registered Aboriginal Sites of Significance located within or in close proximity to the application area (DAA, 2016). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Water, and the Department of Parks and Wildlife, 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** DAA (2016)

## 4. References


Botanica (2015) Level 1 Flora and Vegetation Survey of the Proposed Haul Road survey areas for the North Laverton Gold Project. Report prepared for Bullseye Mining Limited, by Botanica Consulting, July 2015.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

DAA (2016) Aboriginal Heritage Enquiry System. Department of Aboriginal Affairs. http://maps.dia.wa.gov.au/AHIS2/ (Accessed 7 November 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.

Government of Western Australia (2015) 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, Perth.

Harewood, G. (2015) Fauna Assessment: Laverton Gold Project. Report prepared for Bullseye Mining Limited, by Greg Harewood, May 2015.

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

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.


## 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) |
| **DEE** | Department of the Environment and Energy, Australian Government |
| **DER** | Department of Environment Regulation, Western Australia |
| **DMP** | Department of Mines and Petroleum, Western Australia |
| **DRF** | Declared Rare Flora |
| **DoE** | Department of the Environment, Australian Government (now DEE) |
| **DoW** | Department of Water, Western Australia |
| **DPaW** | Department of Parks and Wildlife, Western Australia |
| **DSEWPaC** | Department of Sustainability, Environment, Water, Population and Communities (now DEE) |

| | |
|---|---|
| **EPA** | Environmental Protection Authority, Western Australia |
| **EP Act** | *Environmental Protection Act 1986*, Western Australia |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* (Federal Act) |
| **GIS** | Geographical Information System |
| **ha** | Hectare (10,000 square metres) |
| **IBRA** | Interim Biogeographic Regionalisation for Australia |
| **IUCN** | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| **PEC** | Priority Ecological Community, Western Australia |
| **RIWI Act** | *Rights in Water and Irrigation Act 1914*, 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.