



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 8165/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Northern Star Resources Limited

### 1.3. Property details

Property: Mining Lease 16/548  
Local Government Area: Shire of Coolgardie  
Colloquial name: Paradigm Gold Mine Project

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 27 September 2018

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** The vegetation of the application area is broadly mapped as the following Beard vegetation associations:

**468:** Medium woodland; salmon gum & goldfields blackbutt; and  
**555:** Hummock grasslands, mallee steppe; red mallee over spinifex, *Triodia scariosa* (GIS Database).

A flora and vegetation survey was conducted over the application area by Botanica Consulting (Botanica) during October 2015 and May 2018. The following twelve vegetation associations were recorded within the application area (Botanica, 2018):

#### Clay-Loam Plain

- CLP-CFW1: Low open forest of *Casuarina pauper* over mid open shrubland of *Acacia hemiteles* and low open shrubland of *Olearia muelleri* / *Scaevola spinescens* on clay-loam plain;
- CLP-CFW2: Low open woodland of *Casuarina pauper* over mid chenopod shrubland of *Maireana sedifolia* / *Maireana pyramidata* and low open forbland of *Sclerolaena diacantha* on clay-loam plain;
- CLP-EW1: Mid woodland of *Eucalyptus salubris* over mid shrubland of *Eremophila scoparia* and low open shrubland of *Olearia muelleri* / low open forbland of *Sclerolaena diacantha* on clay-loam plain;
- CLP-EW2: Mid woodland of *Eucalyptus clelandiorum* / *Eucalyptus transcontinentalis* over mid open shrubland of *Acacia hemiteles* / *Eremophila caperata* and low open shrubland of *Eremophila parvifolia* / *Olearia muelleri* on clay-loam plain;
- CLP-EW3: Mid woodland of *Eucalyptus salmonophloia* over mid open shrubland of *Acacia hemiteles* / *Eremophila scoparia* and low open shrubland of *Ptilotus obovatus* on clay-loam plain;
- CLP-EW4: Low open forest of *Eucalyptus ravidia* over mid sparse shrubland of *Eremophila scoparia* and low chenopod shrubland of *Maireana oppositifolia* / low shrubland of *Ptilotus obovatus* on clay-loam plain;
- CLP-EW5: Mid open woodland of *Eucalyptus salmonophloia* over mid sparse shrubland of *Eremophila interstans* subsp. *virgata* and low chenopod shrubland of *Maireana sedifolia* / *Atriplex nummularia* subsp. *spathulata* on clay-loam plain;
- CPL-EW/MWS1: Low woodland of *Eucalyptus clelandiorum* / Open mallee woodland of *Eucalyptus griffithsii* / *Eucalyptus oleosa* over mid open shrubland of *Eremophila caperata* and low open shrubland of *Scaevola spinescens* / *Senna artemisioides* subsp. *filifolia* on clay-loam plain;

#### Closed Depression

- CD-CSSSF1: Isolated *Eucalyptus clelandiorum* / *Eucalyptus celastroides* over mid sparse shrubland of *Melaleuca lateriflora* and samphire shrubland of *Tecticornia disarticulate* / *Tecticornia halocnemoides* in closed depression;

#### Hillslope

- HS-EW1: Mid woodland *Eucalyptus clelandiorum* / *Eucalyptus oleosa* over mid open shrubland of *Eremophila caperata* and low sparse shrubland of *Cratystylis conocephala* / *Eremophila pustulata* on hillslope;
- HS-EW2: Mid open woodland of *Eucalyptus salubris* / *Eucalyptus clelandiorum* over mid sparse shrubland of *Eremophila* sp. Mt Jackson (G.J. Keighery 4372) and low sparse shrubland of *Cratystylis subspinescens* on hillslope; and

#### Open Depression

- OD-EW1: Mid woodland of *Eucalyptus salmonophloia* over mid open shrubland of *Acacia hemiteles* / *Eremophila scoparia* and low open shrubland of *Ptilotus obovatus* in open depression.

<b>Clearing Description</b>	Paradigm Gold Mine Project. Northern Star Resources Limited proposes to clear up to 300 hectares of native vegetation within a boundary of approximately 1,897 hectares, for the purpose of mineral production. The project is located approximately 60 kilometres northwest of Kalgoorlie, within the Shire of Coolgardie.
<b>Vegetation Condition</b>	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).  To  Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).
<b>Comment</b>	The vegetation condition was derived from a vegetation survey conducted by Botanica (2018). Ten of the twelve vegetation associations were considered to be in Good condition, with the remaining two vegetation associations considered to be Very Good. The Completely Degraded vegetation condition is attributed to a small portion of the application area (9.9%) that has been disturbed by previous mining activities (Botanica, 2018).  The proposed clearing is for the development of a new open cut pit and associated underground workings, a new waste rock landform, and associated infrastructure to support the development and ongoing operation of the Paradigm Gold Mine Project.

### 3. Assessment of application against Clearing Principles

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

<b>Comments</b>	<b>Proposal is not likely to be at variance to this Principle</b> The clearing permit application area is located within the Eastern Goldfields subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Coolgardie Bioregion (GIS Database). The Eastern Goldfields subregion is characterised by gently undulating plains, with low hills and ridges and a series of salt lakes in the west, and a raised fault-block to the east. Calcareous soils are dominant on the plains. The vegetation of the subregion is dominated by Mallees, Acacia thickets and shrub-heaths on sandplains, and diverse Eucalyptus woodlands around salt lakes, on ranges, and in valleys (CALM, 2002).  The application area falls within 40 kilometres of the northern boundary of an area known as the Great Western Woodlands, which represents the largest and most intact eucalypt woodland remaining in southern Australia and is one of the best examples of its type in the world (Botanica, 2018; DEC, 2010). The Great Western Woodlands covers a total area of approximately 16 million hectares, and is recognised for its flora and fauna species richness and high number of endemic flora species (DEC, 2010). However, at approximately 1,897 hectares in size, the clearing permit application area represents less than 0.011 percent of the area covered by the Great Western Woodlands, and the proposed clearing of 300 hectares is unlikely to have any significant impact on the conservation values of the Great Western Woodlands.  A reconnaissance flora and vegetation was conducted by Botanica over the application area during October 2015 and May 2018 (Botanica, 2018). A total of 94 species, from 23 families and 43 genera were recorded within twelve vegetation associations from the application area (Botanica, 2018).  No Threatened flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area (GIS Database), and none were found during the flora and vegetation survey (Botanica, 2018).  Six Priority flora taxa were identified as occurring within a 20 kilometre radius of the application area, of which three are Priority 3 species, and three are Priority 1 species. Of these six Priority Flora, four were considered to possibly occur within the application area; <i>Atriplex lindleyi</i> subsp. <i>conduplicata</i> (Priority 3), <i>Eremophila praecox</i> (Priority 1), <i>Ptilotus chortophytus</i> (Priority 1), <i>Rhagodia</i> sp. Yeelirrie Station (K.A. Shepherd et al. KS 1396) (Priority 1). However, none were found during the flora survey (Botanica, 2018). The Priority flora species that were identified to likely occur within the application area are known from multiple records from multiple bioregions, excluding <i>Eremophila praecox</i> that has been recorded multiple times but only from within the Coolgardie bioregion (Western Australian Herbarium, 2018).  The vegetation condition within the survey area was described as Good to Very Good on the Keighery scale with a portion of the application area described as Completely Degraded by previous mining activities (Botanica, 2018).
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Four weed species were recorded during the flora survey. These species were *Carthamus lanatus* (Saffron Thistle), *Dittrichia graveolens* (Stinkwort), *Salvia verbenaca* (Wild Sage) and *Cucumis myriocarpus* (Prickly Paddy Melon). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Six fauna habitat types were identified within the application area. These fauna habitat types are considered to be common within the local region and not restricted to the application area (Botanica, 2018; GIS Database). The application area is not known 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.

<b>Methodology</b>	Botanica (2018) CALM (2002) DEC (2010) Western Australian Herbarium (2018)
	GIS Database: - IBRA Australia - Pre-European Vegetation - Threatened and Priority Flora - Threatened and Priority Ecological Communities Boundaries - Threatened and Priority Ecological Communities Buffers - Threatened Fauna

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

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

The field survey recorded the following six fauna habitats within the application area (Botanica, 2018):

- Clay-Loam Plains: *Casuarina* Forests and Woodlands (approximately 131 hectares, ~7%);
- Clay-Loam Plains: Eucalypt Woodlands (approximately 1,311 hectares, ~69%);
- Clay-Loam Plains: Eucalypt Woodlands / Mallee Woodlands and Shrublands (approximately 102 hectares, ~5%);
- Closed Depression: Chenopod Shrublands, Samphire Shrublands and Forblands (approximately 3 hectares, ~0.2%);
- Hillslope: Eucalypt Woodlands (approximately 147 hectares, ~8%); and
- Open Depression: Eucalypt Woodlands (approximately 20 hectares, ~1%).

In addition to the above fauna habitats, approximately 189 hectares (~10%) is considered to be entirely devoid of suitable native fauna habitat due to historical mining disturbances (Botanica, 2018).

A desktop study found four amphibian species, 73 reptilian species, 109 avian species, twelve non-volant mammalian species and eleven volant mammalian species (bats) as potentially occurring within the application area (Botanica, 2018). Of the 209 native fauna potentially occurring within the application area, Botanica (2018) identified the following two species of conservation significant fauna as possibly occurring within the application area;

- Peregrine Falcon (*Falco peregrinus*; Schedule 7)
- Central Long-eared Bat (*Nyctophilus major tor*; Priority 4)

The Peregrine Falcon may utilise the application area as part of a much larger home range for foraging; and the Central Long-eared Bat has previously been recorded during bat surveys at the Kanowna Bell mine site that is approximately 60 kilometres southeast from the Paradigm Gold Project (Barrick, 2011 as reference by Botanica, 2018). The Central Long-eared Bat may utilise tree hollows within the application area for breeding (Botanica, 2018).

In addition to conservation significant species identified in the desktop survey by Botanica (2018), the Malleefowl (*Leipoa ocellata*; Vulnerable) may also potentially occur within the application area. The Malleefowl previously inhabited much of the Goldfields region, however their range and abundance is now greatly reduced. Database searches recorded the Malleefowl as likely to occur within the area, and has been previously recorded within approximately 10 kilometres of the application area (DBCA, 2018). A targeted Malleefowl survey is recommended prior to clearing, and any Malleefowl mounds should be avoided. A fauna management condition may minimise potential impacts to Malleefowl from the proposed clearing.

The fauna survey which involved secondary and opportunistic sightings, recorded 45 species from within the application area. None of the above conservation significant fauna were recorded during the field survey (Botanica, 2018). The landforms and habitat types found within the application area are relatively common and

widespread in the region (Botanica, 2018; CALM, 2002; GIS Database). The vegetation proposed to be cleared is unlikely to represent significant habitat for fauna in a regional context.

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

**Methodology** Botanica (2018)  
CALM (2002)  
DBCA (2018)

GIS Database:  
- Imagery  
- Pre-European Vegetation  
- Threatened Fauna

**(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**

There are no known records of Threatened flora within the application area (GIS Database). Flora surveys of the application area did not record any species of Threatened flora (Botanica, 2018).

The vegetation associations within the application area widespread and well represented within the region (Botanica, 2018; GIS Database), 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 (2018)

GIS Database:  
- Pre-European Vegetation  
- 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**

There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database).

A flora and vegetation survey of the application area did not identify any TECs (Botanica, 2018).

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

**Methodology** Botanica (2018)

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

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

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

The application area falls within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97% of the pre-European vegetation still exists in the Coolgardie Bioregion (Government of Western Australia, 2018). The application area is broadly mapped as Beard vegetation associations 468: Medium woodland; salmon gum & goldfields blackbutt; and 555: Hummock grasslands, mallee steppe; red mallee over spinifex, *Triodia scariosa* (GIS Database). Approximately 98% of the pre-European extent of each of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2018).

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands
IBRA Bioregion – Coolgardie	12,912,204	12,648,491	~97	Least Concern	16.39
Beard vegetation associations – WA					
468	592,022	583,902	~98	Least Concern	22.86
555	57,420	57,252	~99	Least Concern	44.23
Beard vegetation associations – Coolgardie Bioregion					
468	583,357	573,360	~98	Least Concern	22.43
555	34,944	34,783	~99	Least Concern	61.00

\* Government of Western Australia (2018)

\*\* 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 (2018)

GIS Database:  
- IBRA Australia  
- 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 area proposed to clear (GIS Database). None of the vegetation associations are described as being growing in, or in association with, an environment associated with a watercourse or wetland (Botanica, 2018). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (Kern, 1995).

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

**Methodology** Botanica (2018)  
Kern (1995)

GIS Database:  
- Hydrography, 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 is not likely to be at variance to this Principle**

The soils of the application area are broadly mapped as soil types BB5, Mx40 and Mx43 (Northcote et al., 1960-68; GIS Database). The majority of the application areas are mapped as Mx43 (GIS Database). The soil types are described as:

- BB5: Rocky ranges and hills of greenstones - basic igneous rocks: chief soils seem to be shallow calcareous loamy soils, with shallow brown and grey-brown calcareous earths and below which weathered rock occurs at shallow depths;
- Mx43: Gently undulating valley plains and pediments; some outcrop of basic rock: chief soils are alkaline red earths with limestone or limestone nodules at shallow depth on gently sloping slightly concave plains with low gentle rises; and
- Mx40: Flat to undulating valley plains and pediments; some rock outcrop: chief soils are alkaline and neutral red earths, often with a surface scatter of gravel.

The majority of the application area is relatively flat, there are no watercourses or waterbodies within the application area and the region receives relatively low annual rainfall (BOM, 2018; GIS Database). Although the removal of vegetation cover may result in localised erosion, the proposed clearing of up to 300 hectares of native vegetation within a boundary of approximately 1,897 hectares, is unlikely to cause appreciable land degradation.

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

**Methodology** BOM (2018)  
Northcote et al. (1960-68)

GIS Database:  
- IBRA Sub Regions  
- SoilAtlas2M  
- Soils, Statewide  
- Topographical Contours, Statewide

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

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

There are no conservation areas within the application area. The nearest DBCA (formerly DPaW) managed land is the former Credo Pastoral Lease which is located approximately one kilometre north of the application area (GIS Database). The application area is not part of an ecological linkage to this conservation area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation area.

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

**Methodology** GIS Database:  
- DBCA Interested 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 Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no watercourses or wetlands within the area proposed to clear (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (Kern, 1995). The proposed clearing is unlikely to result in significant changes to surface water quality.

The groundwater within the application area is between 14,000 – 35,000 milligrams per litre of Total Dissolved Solids. This is considered to be saline water. It would not be expected that the proposed clearing would cause salinity levels within the application or surrounding area to alter.

The proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

**Methodology** Kern (1995)  
  
GIS Database:  
- Hydrography, Lakes  
- Hydrography, Linear  
- Public Drinking Water Source Areas  
- Groundwater Salinity, Statewide

**(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 270 millimetres per year, and average annual pan evaporation rates of 2,400 millimetres (BOM, 2018). There are no permanent watercourses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following 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** BOM (2018)  
  
GIS Database:  
- Hydrographic Catchments - Catchments

- Hydrography, linear

## Planning Instrument, Native Title, previous EPA decision or other matter.

### Comments

The clearing permit application was advertised on 3 September 2018 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. One submission was received in relation to this application, raising concerns over potential impacts to Aboriginal Sites of Significance.

There are two native title claims (WC2017/007 and WC2017/001) over the area under application (DPLH, 2018). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 within the application area (DPLH, 2018). 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 Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, 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** DPLH (2018)

## 4. References

- BOM (2018) Climate Statistics for Australian Locations Summary Statistics for Coolgardie. Bureau of Meteorology. [http://www.bom.gov.au/climate/averages/tables/cw\\_012018.shtml](http://www.bom.gov.au/climate/averages/tables/cw_012018.shtml) (Accessed 3 September 2018).
- Botanica (2018) Reconnaissance Flora & Fauna Survey Carbine - Paradigm. Report for Northern Star Resources Limited, prepared by Botanica Consulting, June 2018.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DBCA (2018) NatureMap. Department of Biodiversity, Conservation and Attractions. <https://naturemap.dpaw.wa.gov.au/> (Accessed 11 September 2018).
- DPLH (2018) Aboriginal Heritage Enquiry System. Department of Planning, Lands and Heritage. <http://maps.daa.wa.gov.au/AHIS/> (Accessed 10 September 2018).
- 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 (2018) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kern, A.M. (1995) Hydrogeology of the Kalgoorlie 1:250 000 Sheet. Geological Survey of Western Australia, 1:250 000 Hydrogeological Series Explanatory Notes, 16p, Western Australia.
- Northcote, K. H. with Beckmann G. G., Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R.F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): Atlas of Australian Soils, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press, Melbourne.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia (now DPLH)
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia (now DPIRD)
<b>DBCA</b>	Department of Biodiversity Conservation and Attractions, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
<b>DEE</b>	Department of the Environment and Energy, Australian Government
<b>DER</b>	Department of Environment Regulation, Western Australia (now DWER)
<b>DMIRS</b>	Department of Mines, Industry Regulation and Safety, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia (now DMIRS)
<b>DPIRD</b>	Department of Primary Industries and Regional Development, Western Australia
<b>DPLH</b>	Department of Planning, Lands and Heritage, Western Australia
<b>DRF</b>	Declared Rare Flora
<b>DoE</b>	Department of the Environment, Australian Government (now DEE)

<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<b>DSEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>TEC</b>	Threatened Ecological Community

### **Definitions:**

**{DPaW (2017) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-**

<b>T</b>	<p><b>Threatened species:</b> Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, 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).</p> <p><b>Threatened fauna</b> is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the <i>Wildlife Conservation Act 1950</i>.</p> <p><b>Threatened flora</b> 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 <i>Wildlife Conservation Act 1950</i>.</p> <p>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.</p>
<b>CR</b>	<p><b>Critically endangered species</b> Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>EN</b>	<p><b>Endangered species</b> Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>VU</b>	<p><b>Vulnerable species</b> Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>EX</b>	<p><b>Presumed extinct species</b> 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 <i>Wildlife Conservation Act 1950</i>, 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.</p>
<b>IA</b>	<p><b>Migratory birds protected under an international agreement</b> 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 <i>Wildlife Conservation Act 1950</i>, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>
<b>CD</b>	<p><b>Conservation dependent fauna</b> 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 <i>Wildlife Conservation Act 1950</i>, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>



- 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.