Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7794/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Beacon Mining Pty Ltd**

1.3. Property details

Property: Mining Lease 16/34
Mining Lease 16/115
Mining Lease 16/529
Miscellaneous Licence 16/120
Local Government Area: Shire of Coolgardie
Colloquial name: Jaurdi Hills Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 December 2017

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 and are useful to look at vegetation in a regional context.

The majority of the application area (~90%) is mapped as Beard vegetation association 8: Medium woodland; salmon gum and gimlet. The remainder of the application area is mapped as vegetation association 468: Medium woodland; salmon gum and goldfields blackbutt (GIS Database).

A flora and vegetation survey was conducted over the application area by Native Vegetation Solutions during September 2017. The following vegetation associations were recorded within the application area (Native Vegetation Solutions, 2017):

***A. Eucalyptus griffithsii* and *E. campaspe* over *Acacia acuminata* over mixed sclerophyll shrubland**
Open Shrub Mallee of *Eucalyptus griffithsii* and *E. campaspe* over *Acacia acuminata* and *Eremophila oldfieldii* subsp. *angustifolia* over *Dodonaea lobulata, Scaevola spinescens, Beyeria sulcata* var. *sulcata* and *Ptilotus obovatus*.

B. *Eucalyptus campaspe* and *Eucalyptus clelandii* woodland
Low Woodland of *Eucalyptus campaspe* and *E. clelandii* over *Eremophila oldfieldii* subsp. *angustifolia, Eremophila interstans* subsp. *virgata and Senna artemisioides* subsp. *filifolia* over *Atriplex nummularia* subsp. *spathulata, Eremophila scoparia, Acacia erinacea, Eremophila pustulata, Olearia muelleri* and *Ptilotus obovatus.*

C. *Eucalyptus griffithsii* woodland over Chenopod shrublands
Open Tree Mallee of *Eucalyptus griffithsii* over *Eremophila alternifolia* and *Atriplex nummularia* subsp. *spathulata* over *Senna artemisioides* subsp. *filifolia, Atriplex stipitata* and *Ptilotus obovatus.*

D. Open Chenopod shrubland
Tall Open Shrubland of *Eremophila interstans* subsp. *virgata* and *Atriplex nummularia* subsp. *spathulata* over *Eremophila scoparia* and *Senna cardiosperma* over *Atriplex stipitata*.

E. *Eucalyptus salmonophloia* woodland
Woodland of *Eucalyptus salmonophloia* with occasional *E. transcontinentalis* over occasional *E. oleosa* subsp. *oleosa* over *Eremophila scoparia, Exocarpos aphyllus, Eremophila caperata, Eremophila interstans* subsp. *virgata* and *Eremophila ionantha* over *Olearia muelleri, Senna artemisioides* subsp. filifolia, *Atriplex vesicaria, Atriplex stipitata, Senna cardiosperma, Acacia hemiteles, Ptilotus obovatus* and *Scaevola spinescens*.

F. Mixed *Eucalyptus* woodland over sclerophyll shrubland
Low Woodland of *Eucalyptus clelandii, Eucalyptus salubris, Eucalyptus oleosa* subsp. *oleosa, Eucalyptus griffithsii* and occasional *Casuarina pauper* over *Eremophila interstans* subsp. *virgata, Santalum acuminatum, Eremophila caperata,* and *Eremophila oldfieldii* subsp. *angustifolia,* over *Senna artemisioides* subsp. *filifolia, Eremophila glabra* subsp. *glabra, Olearia muelleri, Acacia hemiteles, Eremophila pustulata* and *Eremophila parvifolia* subsp. *auricampa.*

G. Eucalyptus thicket in open depressions
Low Open Forrest of *Eucalyptus clelandii, E. salubris* and *E. oleosa* subsp. *oleosa* over *Senna artemisioides* subsp. *filifolia, Acacia merrallii, Exocarpos aphyllus* and *Eremophila scoparia* over *Acacia colletioides, Eremophila ionantha* and *Eremophila decipiens* subsp. *decipiens.*

H. *Eucalyptus oleosa* subsp. *oleosa* over Chenopod shrublands
Open Shrub Mallee of *Eucalyptus oleosa subsp. oleosa* with occasional *E. yilgarnensis* over *Eremophila interstans* subsp. *virgata* and *Eremophila scoparia* over *Cratystylis subspinescens, Cratystylis conocephala, Eremophila decipiens* subsp. *decipiens* and *Eremophila parvifolia* subsp. *auricampa*.

I. *Eucalyptus* over *Melaleuca sheathiana* over *Cratystylis conocephala* on calcrete rises
Low Woodland of *Eucalyptus clelandii* over *Melaleuca sheathiana, Acacia hemiteles* and *Exocarpos aphyllus* over *Cratystylis conocephala, Westringia rigida, Grevillea acuaria, Acacia colletioides* and *Eremophila scoparia*.

Clearing Description

Jaurdi Hills Project.
Beacon Mining Pty Ltd proposes to clear up to 389.9 hectares of native vegetation within a boundary of approximately 399.6 hectares, for the purpose of mineral production. The project is located approximately 50 kilometres west of Kalgoorlie, within the Shire of Coolgardie.

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 Native Vegetation Solutions (2017).

The proposed clearing is for an open pit, waste landforms, infrastructure corridor, in-pit tailing storage facility (TSF) and processing facility.

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 clearing permit application area is located within the Eastern Goldfields subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Coolgardie Bioregion (GIS Database). This subregion is characterised by gently undulating plains interrupted in the west with low hills and a series of large playa lakes in the western half (CALM, 2002). The vegetation is dominated by Mallees, Acacia thickets and shrub-heaths on sandplains, diverse Eucalyptus woodlands occur around salt lakes, on ranges, and in valleys, and dwarf shrublands of samphire around salt lakes (CALM, 2002).

A level 2 flora and vegetation survey was conducted over the area by Native Vegetation Solutions in September 2017. A total of 85 species, from 39 genera and 24 families were recorded within the survey area (Native Vegetation Solutions, 2017). The vegetation present within the application area was considered to range in condition from 'Good' to 'Very Good', with areas of disturbance mostly attributed to historic mining activities, access tracks, exploration related activities and grazing (Native Vegetation Solutions, 2017).

No Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area (GIS Database), and none were found during the flora survey (Native Vegetation Solutions, 2017). The closest Priority Ecological Community is 50km to the west of the application area (GIS Database).

Desktop surveys of available databases identified 39 Priority and two Threatened flora species with the potential to occur within a 30 kilometre radius of the survey area, based on known distributions (Native Vegetation Solutions, 2017). With the exception of *Eremophila praecox* (P1), none of these species were found during the on-site survey (Native Vegetation Solutions, 2017).

Eremophila praecox is a broom-like shrub, 1.5-3 metres in height and flowers from October or December. It occurs within undulating plains on red and brown sandy loams (Western Australian Herbarium, 2017). Over the course of the survey, plants were recorded at two locations, within a 200 metre radius of each other. Available records indicate that this species is localised within the Kalgoorlie area, with limited records of species occurrence at a regional scale (Western Australian Herbarium, 2017). Given the lack of information regarding distribution of *Eremophila praecox* at a regional scale, potential impacts to this species may be minimised by the implementation of a flora management condition.

Two weed species were recorded during the flora survey: *Carrichtera annua* (Ward's Weed) and *Cucumis myriocarpus* (Prickly Paddy Melon) (Native Vegetation Solutions, 2017). Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Fauna habitats recorded within the application area are typical of the bioregion and are well represented (Terrestrial Ecosystems, 2017). With the exception of prospective Malleefowl habitat (*Leipoa ocellata*), there are no habitat types present within the application area that could be considered necessary for the continued survival of local fauna species, including species of conservation significance (Terrestrial Ecosystems, 2017).

The vegetation associations, fauna habitats and landform types present within the application area are well represented in surrounding areas (Native Vegetation Solutions, 2017; Terrestrial Ecosystem, 2017; GIS Dastabase). 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)
Native Vegetation Solutions (2017)
Terrestrial Ecosystems (2017)
Western Australian Herbarium (2017)

GIS Database:
- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered
- 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

A Level 1 reconnaissance fauna survey was undertaken within the application area during July 2017 by Terrestrial Ecosystems.

The following fauna habitats have been recorded within the application area (Terrestrial Ecosystems, 2017):

- mostly sparse eucalypt woodland (*E. campaspe, E. clelandii, E. salmonophloia*) over chenopod shrubland on red sandy clay substrate;
- eucalypt thickets with a ground cover of leaf litter mostly in open depressions on red sandy clay substrate;
- eucalypt woodland (*E. griffithsii, E. campaspe*) over Acacia sp. over mixed sclerophyll shrubland on stony clay; and
- highly disturbed and degraded areas.

According to available databases, twelve conservation species have the potential to occur within the application area due to suitable habitat being present (Terrestrial Ecosystems, 2017). The majority of these conservation fauna species are migratory bird species and include the Curlew Sandpiper (*Calidris ferruginea*), Rainbow Bee-eater (*Merops ornatus),* Fork-tailed Swift (*Apus pacificus),* Common Sandpiper *(Actitis hypoleucos),* Sharp-tailed Sandpiper (*Calidris acuminata),* Pectoral Sandpiper (*Calidris melanotos),* Grey Wagtail *(Motacilla cinerea)* and the Common Greenshank *(Tringa nebularia).* Of these species, Terrestrial Ecosystems (2017) reported potential breeding and foraging habitat for the Rainbow Bee-eater and Fork-tailed Swift within the application area. Given that both species are highly mobile and widely distributed across Australia (Terrestrial Ecosystems, 2017), the application area is not considered to represent significant habitat for these species. The remainder of these species are either migratory wetland or marine species, and given the lack of any permanent wetlands or watercourse throughout the clearing area (GIS Database), the application area is not considered to represent a significant habitat for these species (Terrestrial Ecosystems, 2017).

The Arid Bronze Azure (*Ogyris subterrestris petrina*) was also recorded as having the potential to occur with the application area due to suitable habitat being present. This species is known from only two localities in Western Australia; Lake Douglas, 12 kilometres south-west of Kalgoorlie, and in the road and rail reserve adjacent to Barbalin Nature Reserve which is approximately 11 kilometres west of Mukinbudin (Terrestrial Ecosystems, 2017). Given that the application area is outside of this species known geographic range, potential impacts as a result of native vegetation clearing are considered to be low.

Terrestrial Ecosystems (2017) identified Malleefowl (*Leipoa ocellata*) as the species most likely to be impacted by proposed clearing given the presence of some suitable habitat throughout the application area. Database searches recorded Malleefowl as potentially occurring in the area, and Malleefowl have been recorded within 1 kilometre of the application area (Department of Parks and Wildlife, 2017). The fauna survey did not identify

any evidence (mounds or tracks) that Malleefowl are currently utilising the area proposed to be cleared, and the species is mobile enough to move away from noise and disturbance. Potential impacts to Malleefowl is therefore considered to be low (Terrestrial Ecosystems, 2017). Potential impacts to Malleefowl as a result of the proposed clearing may be further minimised by the implementation of a fauna management condition. The fauna management condition will require inspections take place prior to clearing to ensure that Malleefowl cannot colonise the application area before clearing can be undertaken.

The fauna habitats recorded within the application area are considered to be well represented throughout the region, (Terrestrial Ecosystems, 2017) and the local area retains large amounts of native vegetation (GIS Database). Based on this, 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 Department of Parks and Wildlife (2017)
Terrestrial Ecosystems (2017)

GIS Database:
- Hydrography, Lakes
- 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). No Threatened flora species were recorded within the application area during the Level 1 flora survey (Native Vegetation Solutions, 2017).

The vegetation associations within the application area are common and widespread within the region (Native Vegetation Solutions, 2017; 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 Native Vegetation Solutions (2017)

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**
According to available databases, there are no records of any Threatened Ecological Communities (TECs) within the application areas or within 50 kilometres of the application areas (GIS Database). The vegetation survey of the application areas did not identify any TECs (Native Vegetation Solutions, 2017).

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

Methodology Native Vegetation Solutions (2017)

GIS Database:
- Threatened and Priority Ecological Communities boundaries
- Threatened and Priority Ecological Communities 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 application area falls within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 98% of the pre-European vegetation still exists in the IBRA Coolgardie Bioregion (Government of Western Australia, 2016).

The application area is broadly mapped as Beard vegetation associations 8: Medium woodland; salmon gum

and gimlet and 468: Medium woodland; salmon gum and goldfields blackbutt (GIS Database).

Approximately 50% of the pre-European extent of Beard vegetation association 8 remains uncleared at a state level, and approximately 98% remains at a bioregional level. At a state level this vegetation association has a conservation status of 'depleted', however, within the Coolgardie Bioregion it has a status of 'Least Concern'.

At a state and bioregional level, approximately 98% of Beard vegetation association 468 remains (Government of Western Australia, 2016) and has a conservation status of least concern.

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 DPaW managed lands
IBRA Bioregion – Coolgardie	12,912,204	12,648,491	~97.9	Least Concern	16
Beard vegetation associations – WA					
8	694,638	346,570	~49.9	Depleted	7
468	592,022	583,902	~98.6	Least Concern	23
Beard vegetation associations – Coolgardie Bioregion					
8	280,248	275,589	~98.3	Least Concern	10
468	583,357	575,360	~98.6	Least Concern	22

* Government of Western Australia (2016)
** 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 (2016)

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 at variance to this Principle**

There are no permanent watercourses or wetlands within the area proposed to be cleared (Native Vegetation Solutions, 2017; GIS Database).

Some ephemeral drainage lines 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). Vegetation mapping indicates that vegetation growing around drainage lines are not confined to these areas and are not growing exclusively in association with drainage lines (Native Vegetation Solutions, 2017). Most of the drainage lines in the application area have previously been disturbed due to existing mining activity in the application area (GIS Database).

Based on the above, the proposed clearing is at variance to this Principle**.** Potential impacts to vegetation growing in association with the watercourse may be minimised by the implementation of a watercourse management condition.

Methodology CALM (2002)
Native Vegetation Solutions (2017)

GIS Database:
- Hydrography, Lakes
- Hydrography, linear
- Imagery

(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

There is one mapped soil type within the application area MX43: Gently undulating valley plains and pediments with some outcrop of basic rock. Chief soils are alkaline red earths (Northcote et al., 1960-68).

The application area experiences an arid to semi-arid Mediterranean climate with mainly winter rainfall as well as summer thunderstorms. The area receives approximately 250-300 millimetres of rainfall per year (Native Vegetation Solutions, 2017). The application area is flat with no significant changes in topography (GIS Datebase). Given this, there is unlikely to be any significant surface water movements and the application area has a low risk flooding.

There may be a potential for erosion to occur especially given the size of the proposed clearing (389 hectares) and presence of drainage areas. Potential impacts from erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology

Northcote et al. (1960-68)

GIS Database:
- Soils, Statewide
- Topographic 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 in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the former Credo Pastoral Lease which is located approximately 20 kilometres north west of the application area (GIS Database). At this distance, 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:
- 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 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 (CALM, 2002). Temporary localised flooding may occur briefly following heavy rainfall event, however, given the previous mining disturbance across the application area, the proposed clearing is unlikely to result in significant changes to surface water flows.

Groundwater salinity levels are already high (between 14,000-35,000 milligrams per litre Total Dissolved Solids) within the application area (GIS Database) so the proposed clearing is unlikely to cause any appreciable 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

GIS Database:
- Hydrography, Lakes
- Hydrography, Linear
- Groundwater Salinity
- 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 250-300 millimetres per year

(BOM, 2017; Native Vegetation Solutions, 2017). There are no permanent water courses or waterbodies within the application area (GIS Database) and drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002; GIS Database). 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 (2017)
CALM (2002)
Native Vegetation Solutions (2017)

GIS Database
- Hydrography, Lakes
- Hydrography, Linear

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

Comments

The clearing permit application was advertised on 30 October 2017 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC2017/001) over the area under application (DPLH, 2017). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. 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, 2017). 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 (2017)

4. References

BoM (2017) Climate Statistics for Australian Locations. A Search for Climate Statistics, Australian Government Bureau of Meteorology. <http://www.bom.gov.au>.

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

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Department of Parks and Wildlife (2017) NatureMap, Department of Parks and Wildlife (now Department of Biodiversity Conservation and Attractions) <http://naturemap.dpaw.wa.gov.au> Accessed 17 November 2017.

DPLH (2017) Aboriginal Heritage Enquiry System. Department of Planning, Lands and Heritage. http://maps.daa.wa.gov.au/AHIS/ (Accessed 21 November 2017).

Government of Western Australia (2016) 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2016. WA Department of Parks and Wildlife, 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.

Native Vegetation Solutions (2017) Jaurdi hills Level 2 Flora and Vegetation Survey . Report prepared for Beacon Minerals Ltd, by Native Vegetation Solutions, September 2017.

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.

Terrestrial Ecosystems (2017) Level 1 Vertebrate Fauna Risk Assessment for the Jaurdi Hills Mining Area. Report prepared for Beacon Minerals Ltd, by Terrestrial Ecosystems, August 2017.

Western Australian Herbarium (2017). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ (Accessed 17 November 2017).

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DBCA	Department of Biodiversity Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
DEE	Department of the Environment and Energy, Australian Government
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DoE	Department of the Environment, Australian Government (now DEE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
DWER	Department of Water and Environmental Regulation, Western Australia
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 (2017) 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 1950*.

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 1950*.

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.