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.:	8991/1
Permit type:	Purpose Permit

1.2. Proponent details

Proponent's name:	**Element 25 Limited**

1.3. Property details

Property:	Mining Lease 52/1074
Local Government Area:	Shire of Meekatharra
Colloquial name:	Butcherbird Manganese Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
250		Mechanical removal	Mineral production and associated activities

1.5. Decision on application

Decision on Permit Application:	Grant
Decision Date:	10 September 2020

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia. One Beard vegetation association has been mapped within the application area:

29: Sparse low woodland; mulga, discontinuous in scattered groups (GIS Database).

Four flora and vegetation assessments have been completed over the permit application area since 2010, with the most recent surveys being undertaken by Ecoscape during 8-19 April 2019 (Ecoscape, 2019b).

The survey report describes a number of vegetation associations located within the clearing permit application area, most of which are dominated by Acacia species in the Mulga complex.

Clay Flat

- EiPsPoLSS: *Eremophila incisa, Ptilotus schwartzii* and *Ptilotus obovatus* low sparse to scattered shrubs/forbs.
- ErEfrSaMSS: *Eremophila rigida, Eremophila fraseri* subsp. *fraseri* and *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Eremophila incisa* low scattered shrubs.
- ScLSCS: *Sclerolaena cuneata* low sparse chenopod shrubland with *Hakea preissii* and *Eremophila lachnocalyx* mid scattered shrubs.

Flat

- AapAptApaLOW: *Acacia aptaneura*, *Acacia pteraneura* and *Acacia paraneura* low open woodland over *Eremophila tietkensii* and *Acacia sclerosperma* subsp. *sclerosperma* mid sparse shrubland over *Senna* sp. Meekatharra (E. Bailey 1-26) and *Ptilotus obovatus* sparse shrubland.
- ApaLOW: *Acacia paraneura* low open woodland over *Eremophila galeata* and *Senna glutinosa* subsp. x *luerssenii* mid scattered shrubs over *Senna artemisioides* subsp. *helmsii*, *Solanum lasiophyllum* and *Sida platycalyx* low scattered shrubs.
- EcuHpSgMOS: *Eremophila cuneifolia*, *Hakea preissii* and *Senna glutinosa* subsp. *x luerssenii* mid open to sparse shrubland over *Senna* sp. Meekatharra (E. Bailey 1-26), *Sclerolaena cuneata* and *Frankenia setosa* low sparse shrubland/chenopod shrubland.

Flat / gentle slopes

- AapAcaAanLOF (Grove): *Acacia aptaneura, A. ?catenulata* and *A. aneura* low open forest over *Eremophila forrestii* subsp. *forrestii, E. glutinosa* and *Sida ectogama* mid sparse shrubland over *Cheilanthes sieberi* subsp. *sieberi* and *Triodia basedowii* low sparse ferns/hummock Grasses.

  or

  AapAayGbLOW (Intergrove): *Acacia aptaneura, A. ayersiana* and *Grevillea berryana* low open woodland/scattered trees over *Eremophila forrestii* subsp. *forrestii, E. glutinosa* and *Senna glaucifolia* low scattered shrubs over *Eragrostis eriopoda* and *Ptilotus schwartzii* low scattered tussock grasses/shrubs.

- AapAiAprLOW: *Acacia aptaneura*, *A. incurvaneura* and *A. pruinocarpa* low open woodland over *Senna glutinosa* subsp. x *luerssenii*, *Eremophila citrina* and *E. glutinosa* mid sparse shrubland over *Triodia basedowii*, *Ptilotus schwartzii* and *P. obovatus* low scattered hummock grassland/forbland/shrubland.

Flats / Low rises

- AprAsuGbLOW: *Acacia pruinocarpa, Acacia ?subcontorta* and *Grevillea berryana* low scattered to open woodland over *Eremophila citrina, E. latrobei* and *Acacia kempeana* mid sparse shrubland over *Triodia basedowii* low hummock grassland.

Crests and gentle slopes

- AiAapGbLOW: *Acacia incurvaneura*, *A. aptaneura* and *Grevillea berryana* low open woodland over *Eremophila citrina*, *E. appressa* and *E. glutinosa* mid sparse shrubland over *Triodia basedowii* low open hummock grassland.

Minor creek

- AptLW: *Acacia pteraneura* low woodland over *Acacia tetragonophylla*, *Eremophila galeata* and *Sida ectogama* mid sparse shrubland over *Solanum lasiophyllum* and *Ptilotus obovatus* low isolated shrubs.

Clearing Description

Butcherbird Manganese Project.
Element 25 Limited proposes to clear up to 250 hectares of native vegetation within a boundary of approximately 994.6 hectares, for the purpose of mineral production and associated activities. The project is located approximately 115 kilometres south of Newman, within the Shire of Meekatharra.

Vegetation Condition

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

to

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

Comment

The proposed clearing is for the development of an open pit manganese mine and its associated infrastructure, including ore processing equipment, stockpile storage areas, workshops, offices, ablutions, internal roads and tailings storage. The application area includes approximately 1.2 hectares within the Great Northern Highway road reserve, to provide access to the mine. This first stage of the minesite development is expected to have a life of approximately 7 years (MBS Environmental, 2020).

The vegetation condition was derived from biological surveys conducted over the mining lease area by Ecoscape (2019b), building upon other surveys of the area previously conducted in 2012 and 2010.

Vegetation condition within the application area was most recently assessed as being in mainly 'good' to 'excellent' condition, with approximately 1.5% assessed to be in degraded or completely degraded condition (MBS Environmental, 2020).

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 application area is located in the Augustus subregion of the Gascoyne Interim Biogeographical Regionalisation of Australia (IBRA) bioregion (GIS Database).

The region is characterised by rugged low Proterozoic sedimentary and granite ranges divided by broad flat valleys. Mulga woodland with *Triodia* occurs on shallow stony loams on rises, while the shallow earthy loams over hardpan on the plains are covered by open Mulga woodland. The area is characterised by a desert climate with bimodal rainfall (CALM, 2002).

The vegetation within the application area consists of a largely intact landscape of Beard vegetation association 29, which is common within the bioregion, with over approximately 99% of the pre-European vegetation extent remaining (Government of Western Australia, 2019; GIS Database).

No Threatened or Priority Ecological Communities occur within or in close proximity to the application area (CALM 2002; MBS Environmental, 2020).

The most recent flora and vegetation survey (desktop review and detailed field survey) of the application area was completed during 8-19 April 2019 (Ecoscape, 2019b). A total of 179 vascular flora taxa from 30 families and 74 genera were identified. No Commonwealth EPBC Act or Western Australian BC Act-listed Threatened Flora were recorded during the field survey, nor were they anticipated to occur, as none have been previously recorded from within 50 kilometres of the survey area (DBCA, 2020; Ecoscape, 2019b).

Three Priority flora species were recorded within the application area: *Eremophila appressa* (P1), *Eremophila rigida* (P3) and *Goodenia nuda* (P4) (Ecoscape, 2019b).

Eremophila appressa (P1) is considered to be locally endemic with a range of approximately 50 km north-south, largely associated with a central ridge running through the application area. The species is also

represented in the nearby Collier Range National Park and in several other locations north of the project area (Ecoscape, 2019b; MBS Environmental, 2020). Given the large number of individual plants identified during site specific surveys, both within and outside of the application area, the proposed clearing is not considered likely to impact the conservation status of the species nor significantly reduce the local population (Ecoscape, 2019b; MBS Environmental, 2020).

Eremophila rigida (P3) was found to be widespread and abundant in this and adjacent surveyed areas and the proposed clearing is not likely to significantly reduce the local population of this species (Ecoscape, 2019b; MBS Environmental, 2020).

Goodenia nuda (P4) plants were recorded within a population contained in the application area. The species is sparsely widespread throughout the Pilbara bioregion and also occurs within the Gascoyne, Little Sandy Desert and Murchison bioregions (Ecoscape, 2019b; MBS Environmental, 2020).

All of the vegetation associations identified over the application area are considered to be locally and regionally common and widespread, apart from one type: *Acacia paraneura* Low Open Woodland. This vegetation association may be of higher significance given the small area (approximately three hectares) identified (Ecoscape, 2019b), however species characterising this association are not locally restricted.

The most recent fauna assessment and survey (Level 2) of the application area was completed during 8-18 April 2019 (Ecoscape, 2019b). The survey recorded 80 vertebrate fauna species, including 13 species of native mammals (including seven bats), six introduced mammals, 32 bird species and 29 reptile species. Additionally, a total of 50 invertebrate specimens were collected and identified to lowest possible taxon. Only one fauna species of conservation significance, the Brush-tailed Mulgara (*Dasycerus blythi*, Priority 4), was recorded within the application area (Ecoscape, 2019a).

There were four fauna habitat types identified within the application area. These habitats are common in the local area and are not likely to support a higher level of faunal diversity than surrounding areas (Ecoscape, 2019a).

Four introduced plant species (weeds) were recorded in the area during the vegetation assessment (Ecoscape 2019b): *Bidens subalternans* (Beggartick), *Cenchrus ciliaris* (Buffel Grass), *Citrullus amarus* (Melon) and *Malvastrum americanum* (Spiked Malvastrum). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower 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.

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas at a local and regional scale (Ecoscape, 2019a; Ecoscape, 2019b; GIS Database). Impacts to biological diversity from the proposed clearing are limited to localised flora/habitat loss from clearing in the application area (MBS Environmental, 2020).

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)
DBCA (2020)
Ecoscape (2019a)
Ecoscape (2019b)
MBS Environmental (2020)

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 is not likely to be at variance to this Principle

A number of fauna assessments have been completed over the application area, with the most recent survey (Level 2 fauna Survey) undertaken by Ecoscape during 8-18 April 2019. This survey identified four fauna habitats within the application area (Ecoscape, 2019a):

- Low Stony Hills / Hillslopes
- Mulga/Mixed Acacia Woodland
- Stony Clay Plain
- Stony Hummock Grassland

The survey recorded 80 vertebrate fauna species, including 13 species of native mammals (including seven bats), six introduced mammals, 32 bird species and 29 reptile species (Ecoscape, 2019a).

Additionally, a total of 50 invertebrate specimens were collected and identified to lowest possible taxon. Five species of Mygalomorph spider were identified as potential short-range endemic (SRE) status. These species, however, were located in habitat not typically known to host SRE taxa (Ecoscape, 2019a).

The Brush-tailed Mulgara (*Dasycercus blythi*, Priority 4) was identified within the application area, associated with stony hummock grasslands habitats. The habitat types most likely to host the Mulgara are considered regionally widespread and common (Ecoscape 2019a; MBS Environmental 2020).

Three bird species of conservation significance have the potential to occur within the application area (DBCA, 2020; Ecoscape, 2019a):

- Garganey (*Anas querquedula*, Migratory)
- Fork-tailed Swift (*Apus pacificus*, Migratory)
- Peregrine Falcon (*Falco peregrinus*, Other Specially Protected Fauna)

None of these bird species are likely to be impacted by the proposed clearing however, as their habitat types and distribution are widespread outside of the application area (MBS Environmental, 2020).

The vegetation proposed to be cleared is unlikely to represent significant habitat for native fauna, in a regional context.

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

Methodology

DBCA (2020)
Ecoscape (2019a)
MBS Environmental (2020)

GIS Database:
- 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 (DBCA, 2020; GIS Database) and flora surveys covering the application area did not record any species of Threatened flora (Ecoscape, 2019b, MBS Environmental, 2020).

The vegetation associations within the application area are common and widespread within the region (MBS Environmental, 2020; GIS Database).

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

DBCA (2020)
Ecoscape (2019b)
MBS Environmental (2020)

GIS Database:
- Threatened and Priority Flora
- 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).

Various biological surveys and desktop reviews of the application area conducted between 2010 and 2019 did not identify any TECs (Ecoscape, 2019a; Ecoscape, 2019b; MBS Environmental, 2020).

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

Methodology

Ecoscape (2019a)
Ecoscape (2019b)

MBS Environmental (2020)

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 Gascoyne Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Gascoyne bioregion and Augustus sub-region (Government of Western Australia, 2019).

The application area is broadly mapped as Beard vegetation association 29: Sparse low woodland; mulga, discontinuous in scattered groups (GIS Database). Approximately 99% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2019).

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 – Gascoyne	18,075,219	18,067,441	~99	Least Concern	10.27
Beard vegetation associations – WA					
29	7,903,991	7,898,973	~99	Least Concern	6.28
Beard vegetation associations – Gascoyne Bioregion					
29	3,802,459	3,799,635	~99	Least Concern	7.81

* Government of Western Australia (2019)
** 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 (2019)

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 wetlands within the application area (GIS Database). No local vegetation is considered likely to be groundwater dependent due to the lack of landscapes with significant reserves of groundwater and the lack of surface expression of groundwater (MBS Environmental, 2020).

Some minor drainage lines occur within the application area (GIS Database). These creek lines flow from Yanneri Ridge, which runs through the application area. They are dry for most of the year, only flowing briefly immediately following significant rainfall (MBS Environmental, 2020).

Based on the above, the proposed clearing is at variance to this Principle, however impacts to vegetation growing in association with these drainage lines are likely to be minimal.

Methodology

MBS Environmental (2020)

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 may be at variance to this Principle

The application area lies within the Jamindie and Nooningnin Land Systems (GIS Database). These are part of the Ashburton River Catchment rangelands, which have been mapped and described by Payne et al. (1988).

The Jamindie land system is described as stony hardpan plains and stony rises with grooved mulga shrubland. This land system is inherently resistant to erosion (Payne et al., 1988). A majority of the application area is represented by the Jamindie land system.

The Nooningnin land system is described as hardpan plains with large groves supporting mulga shrubland. This land system is subject to sheet flow and may be susceptible to erosion if vegetation is removed (Payne et al., 1988).

Potential land degradation 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

Ecoscape (2019b)
Payne et al. (1988)

GIS Database:
- Landsystem Rangelands

(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 at variance to this Principle

The application area is not located within any conservation areas. The nearest DBCA (formerly DPaW) managed land is the Collier Range National Park, which is located approximately six kilometres to the south of the application area (GIS Database).

The clearing is unlikely to impact on the environmental values of any conservation areas.

Based on the above, the proposed clearing is not 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. There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database).

Some minor drainage lines flow from Yanneri Ridge, which runs through the application area. They are dry for most of the year, only flowing briefly immediately following significant rainfall (MBS Environmental, 2020; GIS Database). The proposed clearing is unlikely to result in significant changes to surface water flows.

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

MBS Environmental (2020)

GIS Database:
- Hydrography, Linear
- Public Drinking Water Source Area

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

The application area is classified as having a hot arid desert climate, with the region losing more water via evapotranspiration than it receives as rain, generally a result of hot, sunny weather without significant cloud cover (MBS Environmental, 2020). The mean annual rainfall is 329.5 mm, approximately 75% of which falls in summer (December to April) from thunderstorms or cyclonic events (BoM, 2020).

The proposal is situated within the Lake Disappointment catchment and Sandy Desert Basin Sub catchment. There are no permanent water courses or waterbodies within the application area (GIS Database).

Some minor drainage lines flow from Yanneri Ridge, which runs through the application area. They are dry for most of the year, only flowing briefly immediately following significant rainfall (MBS Environmental, 2020; GIS Database).

Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. The proposed clearing, however, is unlikely to significantly 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 (2020)
MBS Environmental (2020)

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 10 August 2020 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC2005/006) over the area under application (DPLH, 2020). This claim has been determined by the Federal Court 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, 2020). 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 (2020)

4. References

BoM (2020) Bureau of Meteorology Website – Climate Data Online, Newman Aero. Bureau of Meteorology. http://www.bom.gov.au/climate/data/ (Accessed 25 August 2020).

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.

DBCA (2020) NatureMap: Mapping Western Australia's Biodiversity, Department of Biodiversity, Conservation and Attractions. https://naturemap.dbca.wa.gov.au/ (Accessed 25 August 2020).

DPLH (2020) Aboriginal Heritage Inquiry System - Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/AHIS/ (Accessed 25 August 2020).

Ecoscape (2019a) Butcherbird Manganese Project Fauna Assessment. Report prepared for MBS Environmental by Ecoscape Australia Pty Ltd, August 2020.

Ecoscape (2019b) Butcherbird Manganese Project Flora Assessment. Report prepared for MBS Environmental by Ecoscape Australia Pty Ltd, August 2020.

Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. 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.

MBS Environmental (2020) Native Vegetation Clearing Permit Butcherbird Manganese Project Stage 1. Report prepared for Element 25 Limited, by Martinik Bosch Sell Pty Ltd. West Perth, July 2020.

Payne, A L, Mitchell, A A and Holman, W F. (1988), An inventory and condition survey of rangelands in the Ashburton River catchment, Western Australia. Technical Bulletin 62. Department of Agriculture and Food, Perth, Western Australia.

5. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
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)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
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)
DoE	Department of the Environment, Australian Government (now DAWE)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DAWE)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, 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:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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 in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes 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 fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near

threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species 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.