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.:	9002/1
Permit type:	Purpose Permit

1.2. Proponent details

Proponent's name:	**APA Operations Pty Ltd**

1.3. Property details

Property:	Pipeline Licence 125 Miscellaneous Licences 53/215, 53/216, 53/218
Local Government Area:	Shire of Wiluna
Colloquial name:	Lake Way Gas Pipeline Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
93.93		Mechanical Removal	Gas Pipeline

1.5. Decision on application

Decision on Permit Application:	Grant
Decision Date:	1 October 2020

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:
11: Medium woodland; coolabah (*Eucalyptus microtheca*);
18: Low woodland; mulga (*Acacia aneura*);
40: Shrublands; acacia scrub, various species;
107: Hummock grasslands, shrub steppe; mulga and *Eucalyptus kingsmillii* over hard spinifex;
188: Shrublands; mulga & *Acacia sclerosperma* scrub;
204: Succulent steppe with open scrub; scattered mulga & *Acacia sclerosperma* over saltbush & bluebush; and
561: Succulent steppe with low woodland; mulga over saltbush (GIS Database).

A flora and vegetation survey was conducted over the application area by Botanica Consulting (2020) during 30 September to 6 October 2019, with targeted searches for significant flora undertaken from 1 to 5 March 2020. The following vegetation associations were recorded within the application area (Botanica Consulting, 2020):

Playa

PLAYA: Lake Way bare playa.

Fringing Vegetation

N: Acacia Forests and Woodlands - *Acacia ayersiana/ A. caesaneura* low woodland (+/-*Acacia aneura/aptaneura* and *Eucalyptus eremicola* subsp. *peeneri*) low woodland over +/- *Melaleuca interioris* tall shrubland, over *Triodia basedowii* hummock grassland and *Eragrostis eriopoda* tussock grassland.

R: Melaleuca Forests and Woodlands - *Melaleuca xerophila* tall shrubland over *Muellerolimon salicorniaceum* low shrubland, over *Eragrostis eriopoda* tussock grassland.

Claypan

BA: Chenopod Shrublands, Samphire Shrublands and Forblands - *Acacia aneura/ A. aptaneura/ A. tetragonophylla* (+/- *Melaleuca hamata*) isolated trees over *Senna artemisioides, Scaevola spinescens* and *Rhagodia drummondii* mid shrubland, over *Ptilotus obovatus, Maireana villosa, Sclerolaena diacantha* and *Cratystylis subspinescens* low shrubland.

Drainage Line

AA: Acacia Shrublands - *Acacia tetragonophylla* tall shrubland, over *Senna artemisioides* and *Ptilotus obovatus* low shrubland.

AC: Eucalypt Woodlands - *Eucalyptus camaldulensis* subsp. *obtusa* low woodland over *Acacia aptaneura* and *Acacia tetragonophylla* tall shrubland, over *Eremophila longifolia, Senna artemisioides* and *Scaevola spinescens* mid shrubland.

Drainage Line/Plains
Z: Acacia Forests and Woodlands - *Acacia ayersiana/ A. incurvaneura* low woodland over *Acacia sibirica* tall shrubland and *Ptilotus obovatus* low shrubland/ *Eragrostis eriopoda* tussock grassland.

Sandplains

D: Acacia Forests and Woodlands - *Acacia aneura/ A. aptaneura* and *Acacia ayersiana/ A. caesaneura* low woodland (+/- *Acacia tetragonophylla* and *Acacia pruinocarpa),* over *Eremophila forrestii, Eremophila latrobei* and *Eremophila foliosissima* mid shrubland, over *Eragrostis eriopoda* tussock grassland and *Triodia melvillei* hummock grassland.

Plains

AB: Acacia Forests and Woodlands - *Acacia tetragonophylla, Acacia victoriae* and *Ptilotus obovatus* low shrubland.

Clearing Description

Lake Way Gas Pipeline Project.
APA Operations Pty Ltd proposes to clear up to 93.93 hectares of native vegetation within a boundary of approximately 313.1 hectares, for the purpose of a gas pipeline. The project is located approximately nine kilometres south-east of Wiluna, within the Shire of Wiluna.

Vegetation Condition

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

to:

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (2020).

The proposed clearing is for the construction of a gas pipeline. APA (2020a) advised that the proposed clearing will predominantly occur in the narrower Proposed Construction Right of Way which is nominally designated a width of up to 30 metres, but in some areas will be as narrow as 10 metres. Clear and grade will include the removal of vegetation and the grading of 100 millimetres of topsoil, depending on the soil profile, using bulldozers and graders (APA, 2020a). The vegetation will be pushed aside, and topsoil will be separately stockpiled (in windrows) along the edge of the Construction Right of Way (CROW) to permit safe and practical construction access, whilst preserving the topsoil for later reinstatement.

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 Murchison subregion of the Interim Biogeographic Regionalisation for Australia Murchison Bioregion (GIS Database). This subregion is characterised by vegetation dominated by Mulga Woodlands, which is often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (CALM, 2002).

A flora and vegetation survey was undertaken within the application area and surrounding region which covered a total area 3,602 hectares (Botanica Consulting, 2020). A targeted survey was also conducted within the application area and surrounding region which covered an area of 276 hectares in March 2020 (Botanica Consulting, 2020).

A total of 348 taxa from 125 genera and 48 families were recorded within the larger survey area (Botanica Consulting, 2020). No Threatened flora species were recorded within the application area (Botanica Consulting, 2020). There was one individual plant of the Priority flora species *Eremophila arachnoides* subsp. *arachnoides* (Priority 3) identified within the application area (Botanica Consulting, 2020). The Priority 1 flora species *Eremophila congesta* was located within the local area, however was not identified within the application area (Botanica Consulting, 2020). The proposed clearing is not likely to impact the conservation significance of these Priority flora species.

There were nine vegetation communities identified within the application area, two (AC and R) of which are potentially significant due to their restricted distribution, and potential as a terrestrial Groundwater Dependent Ecosystem (Botanica Consulting, 2020). The mapped extent of vegetation community AC is 106 hectares, with a total of 7.7 hectares potentially being impacted by the proposed clearing, whereas the mapped extent of vegetation community R is 139 hectares, with the potential impact by the proposed clearing being 17.8 hectares. This represents a potential impact of 7.3 and 12.8 percent of the mapped vegetation communities, respectively.

There are two Priority 1 Ecological Communities (PECs) which intersect the application area;

1. Lake Violet south and Lake Violet calcrete groundwater assemblage types on Carey palaeodrainage on Millbillillie Station; and
2. Uramurdah Lake calcrete groundwater assemblage type on Carey palaeodrainage on Millbillillie Station (GIS Database).

The Uramurdah Lake and Lake Violet South and Lake Violet PEC's are unique assemblages of invertebrates (stygofauna) in the groundwater calcretes (DBCA, 2020). Threats to these PEC's include hydrological changes associated with mining (DBCA, 2020). APA (2020a) advise that pipeline construction is typically to the depth of 1 metre and that excavations will not intersect the groundwater table (APA, 2020a; 2020b). The proposed clearing is not likely to impact the PEC's within the application area.

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

Five weed species were identified within the application area, including *Cylindropuntia imbricata* (Devils Rope) which is listed as a Declared Pest under Section 22 of the *Biosecurity and Agriculture Management Act 2007*. Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Care should be taken to ensure that weeds do not get introduced into the area as the result of clearing activities. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology

APA (2020a)
APA (2020b)
Bamford (2019)
Botanica Consulting (2020)
CALM (2002)
DBCA (2020)

GIS Database:
- IBRA Australia
- Imagery
- Pre-European Vegetation
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

(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 site inspection was undertaken during 31 January and 1 February 2019 and again in October 2019 which comprised of a vegetation and substrate associations assessment within the application area and surrounding region. The following four fauna habitats were recorded within the application area (Bamford, 2019):

1. Open playa of Lake Way - Bare ground that floods intermittently after major rainfall events. Lies mainly in the north of Lake Way;
2. Salt Marsh (chenopod shrublands) of Lake Way - Chenopod shrublands on margins of Lake Way that flood after major rainfall events;
3. Mulga over scattered shrubs and generally scattered spinifex on loam to loamy-sand flats. Forms a broad and variable band of vegetation east and north of the lake; and
4. Very open Acacia shrubland with occasional thickets over sparse grasses and herbs on gravelly rises. Generally west of Lake Way.

A targeted search for conservation significant fauna including the Greater Bilby (*Macrotis leucura* – VU), Malleefowl (*Leipoa ocellata* – VU), Brush-tailed Mulgara (*Dasycercus blythi* – P4) and Marsupial Mole (*Notoryctes* sp. – P4) occurred outside the application area, however the closest transect (Mulgara Transect 3) is 6 kilometres south-west of the application area (Bamford, 2019). Mulgara Transect 3 found evidence of Brush-tailed Mulgara burrows and scats (Bamford, 2019).

A field survey in October 2019, which included systematic fauna sampling, occurred over 20 kilometres south-west of the application area (Bamford, 2019; GIS Database). Bamford (2019) recorded three conservation significant species in a survey area nearby the application area, and two species of local significance due to their pattern of distribution and links to preserving genetic biodiversity:

- Inland Long-eared Bat (*Nyctophilus major tor*) – P3
- Australian Bustard (*Ardeotis australis*) – P4
- Brush-tailed Mulgara (*Dasycercus blythii*) – P4
- Barking Gecko (*Underwoodisaurus milii*) – Locally Significant

- *Lerista 'Lake Way'* – Locally Significant
- Mallee Ningaui (*Ningaui yvonnae*) – Locally Significant

Based on aerial imagery, similar habitats may occur within the application area, and there are several fauna species of conservation significance which have been recorded or have the potential to utilise habitat within the application area including the Brush-tailed Mulgara, the Greater Bilby, and the Long-tailed Dunnart (P4) (DBCA, 2007-).

A targeted search for Night Parrot (*Pezoporus occidentalis* – CR) was undertaken nearby the application area around Lake Play, as a known population exists in the Wiluna area (Pendragon, 2019). Results of the targeted survey identified only a few potential sites as suitable habitat in the surrounding area for roosting and nesting for the species, and where suitable habitat was available it was of low to moderate quality. No Night Parrot calls were recorded during the fauna survey (Pendragon 2019). The proposed linear clearing of native vegetation is not likely to significantly impact habitat for the Night Parrot.

While the application area is considered suitable habitat for a range of fauna species, it is not likely to represent significant habitat or regionally restricted habitat for any native fauna species or species of conservation significance. To minimise impacts to fauna that may fall into the pipeline trench, the proponent has included the following commitments in their Environment Plan (APA, 2020b):

- Leaving gaps in the trench every 1 kilometre or less with ramps at ~45 degrees providing fauna egress points; and
- The trench to be inspected in the morning, within three hours of sunrise, and immediately before pipe laying and backfilling. During extreme temperature (35ºC or above) fauna inspections will also occur at midday; any entrapped fauna retrieved and released.

Given the proposed clearing is a linear, narrow corridor over a distance of approximately 24 kilometres, it is not likely to have a significant impact faunal habitats for conservation significant species within the application area.

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

Methodology

APA (2020b)
Bamford (2019)
DBCA (2007-)
Pendragon (2020)

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). The flora survey of the application area did not record any species of Threatened flora (Botanica Consulting, 2020). Based on the habitat present within the permit area, it is not likely that the vegetation would support Threatened flora species known in the regional area (Botanica Consulting, 2020; GIS Database).

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

Methodology

Botanica Consulting (2020)

GIS Database:
- Threatened and Priority Flora

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the permit area (GIS Database). A flora and vegetation survey of the application area did not identify any vegetation communities as representing a TEC (Botanica Consulting, 2020).

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

Methodology

Botanica Consulting (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 Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (GIS Database). Approximately 99.73% of the pre-European vegetation still exists in the Murchison Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 11, 18, 40, 107, 188, 204 and 561 (GIS Database). These vegetation associations have not been extensively cleared as over 89% of the pre-European extent of each of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). The permit area does not contain any remnants nor does it form part of any remnants in the local area (GIS Database).

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

Methodology

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 permanent watercourses or wetlands within the application area (GIS Database). There are three ephemeral watercourses that intersect the application area with associated riparian vegetation; vegetation communities AC and R. These vegetation communities were also identified as being potential groundwater dependent vegetation and also have a restricted distribution (Botanica Consulting, 2020).

Areas of vegetation associated with major rivers and creeklines were identified as higher value fauna habitat as they tend to contain a diversity of microhabitats, can have ephemeral water pools and act as a corridor for dispersal. The proposed clearing of vegetation communities AC and R will potentially impact 7.3 and 12.8 percent of the vegetation communities, respectively (APA, 2020a; Botanica Consulting, 2020).

The clearing of riparian vegetation has the potential to cause localised erosion and degrade faunal habitats. However, given the proposed clearing is spread over a large area, it is not anticipated that it will have a significant impact on minor drainage lines within the application area. Provided disturbance to riparian habitats is avoided or minimised where possible, and weed hygiene procedures are followed, the proposed works are not expected to substantially impact these vegetation units. Potential impacts to riparian vegetation may be minimised through the implementation of a vegetation management and staged clearing condition.

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

Methodology

APA (2020a)
Botanica Consulting (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 Bullimore, Carnegie, Gabinantha, Trennaman, Cunyu and Yandii land systems (GIS Database).

The Bullimore, Carnegie, Gabinantha and Trennaman land systems are described as having depositional surfaces that range from non-saline alluvial plains; sand plain and dunes with little local drainage and lower tributary plains up to 8 kilometres wide (DPIRD, 2020). The Bullimore land system may be at risk or minor wind erosion when cleared of vegetation (DPIRD, 2020).

The Cunyu land system is described as calcrete platforms and intervening alluvial floors with minor areas of alluvial plains with acacia shrublands and minor halophytic shrublands. These alluvial plains are mildly susceptible to water erosion if the perennial shrub cover is removed or the soil disturbed (DPIRD, 2020).

The Yandii land system is described as flat hardpan wash plain, extensively uniform and carrying light to moderate mantles of small pebbles and graves. Unmantled areas are moderately susceptible to erosion when the vegetation is removed (DPIRD, 2020).

Potential impacts from 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 DPIRD (2020)

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 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 proposed Carnarvon Range Conservation Park which is located approximately 144 kilometres north of the application 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:
- 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 the application area (GIS Database).

There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Several minor ephemeral drainage lines intersect the application area, however the construction of the pipeline has been scheduled outside of peak wet season to avoid times of high surface flows and to reduce the risk of erosion and elevated turbidity to drainage lines from disturbed areas (APA, 2020a; GIS Database).

The application area intersects two vegetation communities which are potentially groundwater dependent ecosystems (Botanica Consulting, 2020). The construction of the pipeline will be to a depth of 1 metre, and excavations will not intersect the groundwater table (APA, 2020b).

The proposed clearing is unlikely to result in significant changes to surface water flows and 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 APA (2020a)
APA (2020b)
Botanica Consulting (2020)

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

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

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

The climate of the region is arid, with mainly winter (approximately 200 millimetres per year) (CALM, 2002).

The application area is mainly comprised of sandy plains which generally sheets surface water flows (APA, 2020a). Removal of vegetation alone would increase water flow, although the mechanical process of clearing and disruption of flat, hard surfaces of a watershed area are likely to increase infiltration of water into the soil profile, encouraging pooling in shallow excavations and reducing downgradient volumes (APA, 2020a). However, the proposed linear approached 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 APA (2020a)
CALM (2002)

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

Comments

The clearing permit application was advertised on 31 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 are two native title claims over the area under application (DPLH, 2020). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. However, the mining and petroleum 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 several 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

APA (2020a) Lake Way Gas Pipeline Native - Vegetation Clearing Permit, Native Vegetation Clearing Permit Supporting Document. APA Group, 2020.

APA (2020b) Lake Way Gas Pipeline – Construction Environment Plan, Pipeline Licence PL125. APA Group, 2020.

Bamford (2019) Salt Lake Potash Limited Lake Way Project, Level 2 Fauna Assessment of the Expansion Project Area. Report prepared for Salt Lake Potash Limited, by MJ & AR Bamford Consulting Ecologists, November 2019.

Botanica Consulting (2020) Detailed Flora & Vegetation Survey Pipeline Project. Report prepared for Salt Lake Potash Limited, by Botanica Consulting Pty Ltd, June 2020.

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

DBCA (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Biodiversity, Conservation and Attractions. https://naturemap.dbca.wa.gov.au/ (Accessed 23 September 2020).

DBCA (2020) Priority Ecological Communities for Western Australia Version 30. Species and Communities Program. Department of Biodiversity, Conservation and Attractions, Western Australia.

DPIRD (2020) Advice received in relation to Clearing Permit Application CPS 9002/1. Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, September 2020.

DPLH (2020) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. http://maps.daa.wa.gov.au/AHIS/ (Accessed 22 September 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.

Pendragon (2019) Memorandum: Targeted Night Parrot Survey: Lake Way. Report prepared for Botanica Consulting Pty Ltd, by Pendragon Environmental Solutions, May 2019.

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.