



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 9283/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Norwest Sand & Gravel Pty Ltd

1.3. Property details

Property: Mining Lease 45/1195
Local Government Area: Town of Port Hedland
Colloquial name: Turner River Pindan Sand

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
25		Mechanical Removal	Sand Mining and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 15 July 2021

2. Site Informationa

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>589: Mosaic: Short bunch grassland - savannah / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex; and</p> <p>619: Medium woodland; river gum (<i>Eucalyptus camaldulensis</i>) (GIS Database):</p> <p>A flora and vegetation survey was conducted over Mining Lease 45/1195 (including the application area) by West Ecology in September 2011 (West Ecology, 2011). The following vegetation types were represented:</p> <p>19: Low shrubland of <i>Triumfetta chaetocarpa</i> and <i>Corchorus ?incanus</i> subsp. <i>incanus</i> over open tussock grasslands on natural levee banks of the Turner River;</p> <p>20: Low scattered shrubs of <i>Triumfetta chaetocarpa</i> over open tussock grasslands on plains;</p> <p>21: Open shrubland of <i>Acacia colei</i> var <i>colei</i> and <i>Acacia inaequilatera</i> over hummock grassland on plains;</p> <p>22: Scattered low trees of <i>Eucalyptus camaldulensis</i> var <i>obtusa</i> over high open shrubland of <i>Acacia</i> species and open hummock grassland in riverbanks of the Turner River;</p> <p>23: Woodland of <i>Eucalyptus camaldulensis</i> var <i>obtusa</i> and <i>Melaleuca argentea</i> over open tussock grassland on riverbanks of the Turner River;</p> <p>24: Low open woodland of <i>Eucalyptus camaldulensis</i> var <i>obtusa</i> and <i>Melaleuca argentea</i> over high shrubland of <i>Acacia ampliceps</i> in riverbeds of the Turner River; and</p> <p>25: Low open woodland of <i>Melaleuca argentea</i> in riverbeds of the Turner River.</p>
Clearing Description	<p>Turner River Sand Project</p> <p>Norwest Sand & Gravel Pty Ltd (Norwest) proposes to clear up to 25 hectares of native vegetation within a boundary of approximately 51.477 hectares, for the purpose of sand mining and associated activities. The project is located approximately 25 kilometres south-west of Port Hedland, within the Town of Port Hedland.</p>
Vegetation Condition	<p>Very Good: Vegetation structure altered; obvious signs of disturbance</p> <p>To</p> <p>Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994)</p>
Comment	<p>A flora and vegetation survey was conducted over the whole of Mining Lease 45/1195, including the less densely vegetated river bed (West Ecology, 2011). The application area covers a significant portion of this tenement (GIS Database).</p> <p>Vegetation condition has been converted to the Keighery scale (1994) by the assessing officer based on the flora and vegetation survey conducted by West Ecology (2011) and a review of more recent aerial imagery (GIS Database).</p> <p>Vegetation is degraded in some areas outside the application boundary, where some tracks have been partially cleared for recreational use and a power line corridor (West Ecology, 2011).</p>

The clearing permit is within the scope of CPS 6284/3, which was issued to the same applicant and has since expired. Norwest have applied for a new clearing permit over the same tenure to maintain laydown and camp activities supporting the Turner River sand mining (covered under CPS 9199/1) and allow additional mining of pindan sand outside of the river bed (Norwest, 2020).

3. Assessment of application against Clearing Principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application is located in the Turner River, within the Roebourne subregion of the Interim Biogeographic Regionalisation of Australia (IBRA) Pilbara region (GIS Database). The Roebourne subregion is comprised of Quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera* (CALM, 2002).

A flora and vegetation survey was previously conducted over the application area and surrounds by West Ecology (2011), and a desktop review of current records for species of conservation significance for the area was also completed (DBCA, 2007-; Western Australian Herbarium, 1998-).

Vegetation type 21 accounts for the near entirety of the application area (West Ecology, 2011; GIS Database). The application area also encompasses previously disturbed areas occupied by laydown, camp and track infrastructure (Norwest 2020; West Ecology, 2011; GIS Database). None of the identified vegetation types represent a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC), nor locally restricted assemblages, which is consistent with available databases (GIS Database).

A total of 103 flora taxa from 32 families and 73 genera were recorded within Mining Lease 45/1195 (West Ecology, 2011). No Threatened or Priority flora were recorded in the application area or surrounds (West Ecology, 2011). A database search returned records for 11 Priority flora within 20 kilometres of the application area (DBCA, 2007-).

Tephrosia rosea var. *Port Hedland* (Priority 1), *Abutilon* sp. *Pritzelianum* (Priority 1) and *Gomphrena pusilla* (Priority 2) are unlikely to be present within the application area, based on habitat preferences reported for these species (APM, 2014; West Ecology, 2011; Western Australian Herbarium, 1998-). The timing of the flora and vegetation site survey conducted by West Ecology (2011) was optimal, and at the time of the survey none of these P1 or P2 species were detected within the application area. Furthermore, none of the priority species identified through the desktop review are locally or regionally restricted (DBCA, 2007-; Western Australian Herbarium, 1998-).

The application area is sparsely vegetated and contains significant portions of previously disturbed areas (GIS Database). The application area lies just outside of the Turner River's riparian zone, and avoids more vegetated areas (West Ecology, 2011; GIS Database). It is therefore unlikely that the proposed clearing comprises an area of high floristic diversity or abundance in comparison to continuous adjacent areas flanking that section of the river.

No fauna survey were conducted over the application area, however a desktop review of available databases returned records for 135 birds, 31 mammals, 8 amphibians, two fish and 69 reptile species with a 20 kilometre radius of the application area (DBCA, 2007-). The fauna habitat types and fauna diversity noted within the application area are consistent with regional records and are well represented locally, along the Turner River (DAWE, 2021; DBCA; 2007-, West Ecology, 2011). The riparian vegetation and islands occurring within the Turner River are likely to host the highest fauna diversity (Austwide, 2014), although vegetated riparian areas are not included within the boundaries of the application area (GIS Database).

Given the relatively small size, nature and location of the proposed clearing in mostly un-vegetated or previously disturbed areas for the purpose maintaining an existing laydown and camp area, and pindan sand extraction, the proposed clearing is unlikely to significantly impact on the local fauna diversity.

The flora and vegetation survey recorded seven weed species within Mining Lease M45/1195, including *Aerva javanica* (Kapok Bush), *Cenchrus ciliaris* (Buffel Grass), *Citrullus lanatus* (Pie Melon), *Eragrostic minor* (Smaller Stinkgrass), *Passiflora foetida* var *hispida* (Mossy Passion Flower), *Physalis angulata* and *Portulaca oleracea* (Pursland) (West Ecology, 2011). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. 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 (Western Ecology, 2011; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.

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

Methodology

Austwide (2014)
APM (2014)
CALM (2002)

DAWE (2021)
DBCA (2007-)
Norwest (2020)
West Ecology (2011)
Western Australian Herbarium (1998-)

GIS Database:

- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Flora
- 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.

Comments

Proposal is not likely to be at variance to this Principle

The majority of the application area comprises a single habitat (West Ecology, 2011):

- Open shrubland of *Acacia colei* var *colei* and *Acacia inaequilatera* over hummock grassland on plains.

This habitat is locally common, extending along both banks of the river several kilometres towards the north and south, and the sparse vegetation present is not likely to represent significant fauna habitat (CALM, 2002; West Ecology, 2011; GIS Database).

Available records identify 26 conservation significant fauna species within a 20 kilometre radius of the proposed clearing (DAWE, 2021; DBCA, 2007-). A majority of the records were migratory birds protected under international agreements (DAWE, 2021; DBCA, 2007-). Although individuals from these taxa may visit the local area, suitable habitats for these species are not present within the application area, which mostly comprises sparsely vegetated sandy areas prone to natural seasonal flooding (West Ecology, 2011; GIS Database).

The remainder of locally recorded fauna species of conservation significance include reptile and mammal species that may occur within the application area during foraging or dispersal activity, but are unlikely to be specifically reliant on habitat within the application area, due to the scarcity of vegetative cover and absence of refuge habitats.

The riparian vegetation occurring along the edges of the river is likely to represent the more valuable fauna habitats within a local context (Austwide, 2014). Very little of such habitat is represented within the application area, with the exception of a small previously disturbed area required to access the river bed (GIS Database). The remainder of the application area is located outside of the riparian zone of the river, within sparsely vegetated or previously disturbed areas used for laydown, screening and camp operations (GIS Database). To minimise potential impacts of the proposed clearing on riparian habitat, implementation of restricted clearing conditions is recommended, to prevent the clearing of large trees from within the river, vegetation within the drip-line of these trees, and the small island contained within the application area.

While a number of fauna species may occur in the area surrounding the proposed clearing, the availability of this habitat elsewhere is not limited. Therefore the vegetation under application is unlikely to provide significant habitat for local fauna species.

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

Methodology

Austwide (2014)
CALM (2002)
DAWE (2021)
DBCA (2007-)
West Ecology (2011)

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, threatened flora.

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>There are no known records of Threatened flora within the application area (GIS Database). This is consistent with prior flora surveys over the application area, which did not record any species of Threatened flora (DBCA, 2007-; West Ecology, 2011).</p> <p>The vegetation associations within the application area are common and widespread within the region (West Ecology, 2011; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>DBCA (2007-) West Ecology (2011)</p> <p>GIS Database: - Pre-European Vegetation - Threatened and Priority Flora</p>

(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	<p>Proposal is not likely to be at variance to this Principle</p> <p>There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (Western Ecology, 2011; GIS Database).</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>West Ecology (2011)</p> <p>GIS Database: - Threatened and Priority Ecological Communities Boundaries - Threatened and Priority Ecological Communities Buffers</p>

(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	<p>Proposal is not at variance to this Principle</p> <p>The application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99 % of the pre-European vegetation still exists in the IBRA Pilbara Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 589: Mosaic: Short bunch grassland - savannah / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex; and 619: Medium woodland; river gum (<i>Eucalyptus camaldulensis</i>) (GIS Database).</p> <p>Over 90% 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).</p> <p>Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.</p>
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	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands
IBRA Bioregion – Pilbara	17,808,657	17,731,764	~99	Least Concern	10.12
Beard vegetation associations – WA					
589	807,698	802,713	~99	Least Concern	1.90
619	119,373	118,205	~99	Least Concern	0.20
Beard vegetation associations – Bioregion					
589	728,768	724,695	~99	Least Concern	2.10
619	118,920	118,116	~99	Least Concern	0.20

* 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**

The application area is comprised of sparsely vegetated and previously disturbed areas, just outside of the riparian zone of the Turner River, and avoids more vegetated sections (West Ecology, 2011; GIS Database). A very small amount of vegetation within the riparian zone was previously cleared to allow access into the sand mining area (under CPS 6284/3), and this portion has been retained within this new application area. However, this is not likely to impact on the conservation of this riparian vegetation type.

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 and a restricted clearing condition to protect larger trees.

Methodology West Ecology (2011)

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 River and Mallina land systems (GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development).

The River land system is highly susceptible to erosion if vegetation cover is removed and alluvial plains within the Mallina land system are moderately to highly susceptible to erosion if vegetative cover is seriously depleted (Van Vreeswyk et al., 2004).

The application area is comprised of sparsely vegetated and previously disturbed areas (West Ecology, 2011; GIS Database), and it unlikely that removal of vegetation will significantly increase land degradation, however potential impacts to the application area 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 Van Vreeswyk et al. (2004)
West Ecology (2011)

GIS Database:
- Landsystem Rangelands
- Soils, 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 Mungaroona Range Nature Reserve, which is located approximately 92 kilometres south, southwest 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 or in close proximity to the application area (GIS Database). The proposed clearing is situated over a section of the Turner River, which is a major seasonal watercourse (GIS Database; CALM, 2002).

The application area has excluded a majority of established river bed vegetation, which reduces the potential for increased soil instability within the watercourse. Hence, it is unlikely that the proposed clearing will result in any significant impacts to water quality or changes to surface water flows.

Groundwater salinity in the local area is 1,000 - 3,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered brackish (GIS Database). The proposed clearing activity is not likely to cause deterioration of groundwater within the project area.

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

Methodology CALM (2002)

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

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

Comments **Proposal is not likely to be at variance to this Principle**
The area under application is located adjacent to the Turner River, which is a large watercourse that flows during periods of heavy rainfall into the Indian Ocean (CALM, 2002; GIS Database).

Local flooding occurs seasonally in the Pilbara region, and the region surrounding the application area experiences a mean total annual rainfall of 319.2 millimetres (BoM, 2021). While it is likely and natural for the Turner River to experience high levels of inundation and adjacent areas may be subject to occasional flooding, it is not likely that proposed clearing of portions of the sparsely vegetated river bed will increase the incidence or intensity of flooding events.

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

Methodology BoM (2021)
CALM (2002)

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 15 February 2021 and subsequently on 5 July 2021 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. Two submissions were received for the application, providing DMIRS with comments surrounding the location of the activity, public road setback requirements, avoidance of riparian vegetation, land degradation, and requirements for adequate rehabilitation. These comments are being suitably addressed through the positioning of the application area, rehabilitation requirements of the small mining operations approval, and the tenement conditions for Mining Lease 45/1195 (Norwest, 2020).

There is one native title claim (WC1999/003) over the area under application (DPLH, 2021). 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, 2021). 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 (2021)
Norwest (2020)

4. References

- Austwide (2014) Additional information received in relation to Clearing Permit Application CPS 6284/1. Austwide Mining Title Management Pty Ltd., 22 September 2014
- APM (2014) Level One Biological Survey – Turner River Mining Leases M45/1193 and M45/1173, Pilbara Western Australia. Prepared by Animal Plant Mineral, for Dumpna Pty Ltd, January 2014.
- BoM (2021) Bureau of Meteorology Website – Climate Data Online, Newman Aero Station. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (20 May 2021).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DAWE (2021) EPBC Act Protect Matters Search Tool. Department of Agriculture, Water and the Environment. <https://www.environment.gov.au/epbc/protected-matters-search-tool> (Accessed 12 July 2021).
- DBCA (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Biodiversity, Conservation and Attractions. <https://naturemap.dbca.wa.gov.au/> (Accessed 12 July 2021).
- 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.
- DPLH (2021) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 12 July 2021).
- 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.
- Norwest (2020) Mining Proposal M45-1195-Pindan-88894 MP-MCP for Small Mining Operations V2 (Reg ID: 88894). Norwest Sand and Gravel Pty Ltd, November 2020, Western Australia
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) An inventory and condition survey of the Pilbara Region, Western Australia. Technical Bulletin No. 92. Department of Agriculture, South Perth, Western Australia.
- West Ecology (2011) Flora and Vegetation Survey of Welcome Exploration Tenements M47/411, M47/524, M47/556, M47/442 and M45/1195. Prepared for Welcome Exploration Pty Ltd by West Ecology, September 2011.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Biodiversity Conservation and Attractions. <http://florabase.dpaw.wa.gov.au/> (Accessed 8 April 2021).

5. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , 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

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)
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 (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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	<i>Rights in Water and Irrigation Act 1914</i> , 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.