



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8125/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Waste Stream Management Pty Ltd

1.3. Property details

Property: Mining Lease 70/1337
Local Government Area: City of Kwinana
Colloquial name: Ratcliffe Road Quarry

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 6 September 2018

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description The vegetation of the application area is broadly mapped as the following Beard vegetation association:
998: Medium woodland; tuart (GIS Database).

A flora and vegetation survey was conducted over the application area by Mattiske Consulting Pty Ltd (Mattiske) during February, 2012. The following vegetation associations were recorded within the application area (Mattiske, 2012):

W3 - Woodland of *Eucalyptus gomphocephala* and *Banksia attenuata* over *Xanthorrhoea preissii* and *Macrozamia riedlei* over *Conostylis aculeata* and introduced grasses on sandy flats.

D - Completely degraded areas.

Clearing Description Ratcliffe Road Quarry.
Waste Stream Management Pty Ltd applied to clear up to 2.56 hectares of native vegetation within a boundary of approximately 2.59 hectares, for the purpose of sand mining and associated activities. However, only 2.26 hectares of clearing has been approved within a boundary of approximately 2.26 hectares. The project is located approximately 8.5 kilometres north-east of Rockingham, within the City of Kwinana.

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 Mattiske (2012).

The proposed clearing is for a sand extraction pit, hardstand areas, laydown areas and weighbridge.

The application area was visited by two Department of Mines, Industry Regulation and Safety (DMIRS) Environmental Officers (including the assessing officer of this clearing permit application) on 30 July 2018. The intent of the visit was to determine the significance of the proposed clearing with respect to habitat for native fauna species and ecological communities.

This map shows the application area broken into three sections: Application Area 1 (0.12 hectares), Application Area 2 (1.65 hectares) and Application Area 3 (0.8 hectares). Application Area 3 has not been granted in full; this area has been reduced from 0.8 hectares to 0.5 hectares. Plan 8125/1 shows the revised permit boundary.



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 application area occurs within the Perth subregion of the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Swan Coastal Plain is dominated by Banksia or Tuart on sandy soils, *Casuarina obesa* on outwash plains, and paperbark in swampy areas (CALM, 2002). The Perth subregion is composed of colluvial and Aeolian sands, alluvial river flats and coastal limestone (CALM, 2002). Heath and/or Tuart woodlands occur on limestone, Banksia and Jarrah-Banksia woodlands on Quaternary marine dunes of various ages and Marri on colluvial and alluvials (CALM, 2002).

A flora and vegetation survey has been undertaken over the application area (Mattiske, 2012). The vegetation within the application area has been mapped as woodland of *Eucalyptus gomphocephala* and *Banksia attenuata* over *Xanthorrhoea preissii* and *Macrozamia riedlei* over *Conostylis aculeata* and introduced grasses on sandy flats (W3). The application area has been highly impacted from clearing and weed invasion (Mattiske, 2012), as well as illegal dumping of waste materials.

A total of 45 native plant taxa were recorded within the survey area (Mattiske, 2012). The flora survey was undertaken in February, which is not considered a suitable time to survey flora on the Swan Coastal Plain (DBCA, 2018). The survey noted that species from the Asteraceae and Orchidaceae families may have been missed due to the time of year (Mattiske, 2012). Nonetheless, the application area is highly disturbed and not likely to represent an area of greater biodiversity than surrounding areas (Mattiske, 2012).

A total of 10 weed species were recorded in the survey area, including many grass species which dominate the understory level (Mattiske, 2012). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened or Priority flora species were recorded in the survey area (Mattiske, 2012). Four conservation significant flora species were identified in the local area that may occur in the survey area (Mattiske, 2012). These were *Diuris micrantha* (Vulnerable), *Caladenia huegelii* (Critically Endangered), *Stylidium ireneae* (Priority 4) and *Dodonaea hackittiana* (Priority 4). Although the survey timing was not optimal to identify these species, *Dodonaea hackittiana* is the only species that has any potential to occur in the application area based on habitat preference (DBCA, 2018). This species occurs on a variety of habitats including limestone in Tuart, Jarrah and Marri woodland, can often be associated with wetlands, and growing on sand in *Eucalyptus rudis* or Jarrah-Banksia woodland (DBCA, 2018). Potential impacts to this species from the proposed clearing are unlikely to be significant to the conservation of this species (DBCA, 2018).

Two Priority Ecological Communities (PEC) have the potential to occur in the application area: 'Tuart (*Eucalyptus gomphocephala*) woodlands of the Swan Coastal Plain (SCP)' (Priority 3) and 'Northern Spearwood shrublands and woodlands (SCP24)' (Priority 1) (DBCA, 2018). 'Northern Spearwood shrublands and woodlands (SCP24)' occurs as heaths with scattered Tuarts, and typically includes *Banksia sessilis*, *Calothamnus quadrifidus* and *Schoenus grandiflorus* (DBCA, 2017). 'Tuart (*Eucalyptus gomphocephala*) woodlands of the SCP' can comprise a variety of flora and fauna assemblages, but commonly occurs as Tuart as the dominant canopy species, and including *Agonis flexuosa*, *Banksia attenuata* and *B. grandis*, *Allocasuarina fraseriana*, *Xylomelum occidentale*, *Macrozamia riedlei*, *Xanthorrhoea preissii*, *Spyridium globulosum*, *Templetonia retusa* and *Diplolaena dampieri* (DBCA, 2017).

The W3 vegetation community mapped by Matiske (2012) has the potential to align with either of these PECs. The application area was inspected by the assessing officer to determine the extent and condition of native vegetation within the application area. Application Area 1 is mostly devoid of native vegetation and has little conservation value. Application Area 2 contains a sparse Tuart canopy but a highly disturbed understory from historical clearing and illegal dumping. A species of *Xanthorrhoea* (most likely *Xanthorrhoea preissii*) was the dominant understory species. Application Area 3 is considered to have the highest conservation value based on a greater level of native species density and diversity. Impacts to Tuart woodlands will be reduced by decreasing Application Area 3 from 0.8 hectares to 0.5 hectares, thereby reducing overall clearing from 2.56 hectares to 2.26 hectares, within a boundary of approximately 2.26 hectares.

A fauna survey of the application area has not been undertaken. A database search of the surrounding area (10 kilometres) has identified a total of 380 fauna species, comprising 75 invertebrate, 70 reptile, 25 mammal and 8 amphibian species (DPaW, 2018). Although the application area is located within an area of high fauna diversity, the degraded nature of the application area is unlikely to support a higher level of fauna diversity than surrounding areas of native vegetation.

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

Methodology CALM (2002)
DBCA (2017)
DBCA (2018)
DPaW (2018)
Matiske (2012)

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

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

Comments Proposal not likely to be at variance to this Principle

According to Matiske (2012), there is one intact vegetation community within the application area; woodland of *Eucalyptus gomphocephala* and *Banksia attenuata* over *Xanthorrhoea preissii* and *Macrozamia riedlei* over *Conostylis aculeata* and introduced grasses on sandy flats (W3). Given the high level of weed cover within the application area and low species diversity (Matiske, 2012), the lower strata of this community is not likely to provide significant habitat for fauna.

The dominant tree species is *Eucalyptus gomphocephala* (Tuart), which can provide habitat for hollow dependant fauna species, such as threatened black cockatoo species (Threatened Species Scientific Committee, 2017). The application area was inspected by the assessing officer to determine the presence of significant fauna habitat. Several large diameter Tuart trees (>50cm measured 1.5m from the base of the tree) were found to occur outside of the application in the adjacent Dampier to Bunbury Pipeline corridor (GIS Database), and along the tenement boundary. These trees will not be impacted by the proposed clearing. Some large Tuarts were located within the application area, however no hollows were observed.

The W3 vegetation community was the most prevalent community recorded by Matiske (2012), accounting for 68% of the survey area, or approximately 20 hectares, located on M70/1337 (which is subject to this clearing permit application) and the adjoining mining lease 70/656. The proposed clearing will result in approximately 2.1 hectares of this vegetation community being impacted. Considering the extent of the W3 vegetation community available on M70/656, the proposed clearing is not likely to significantly impact on fauna that utilise this vegetation community for habitat, as areas of similar habitat are available outside of the application area. A review of aerial imagery also indicates that areas of similar vegetation occurs south of the application area on non-mining tenure (GIS Database).

Analysis of aerial imagery indicates that the application area contributes to a vegetation corridor linking native

vegetation south-west of the application area to vegetation towards the north-east (GIS Database). The proposed clearing will not remove this linkage but the clearing may impact on its value to fauna moving between different areas of native vegetation. The boundary of Application Area 3 has been reduced from 0.8 to 0.5 hectares, thereby retaining additional native vegetation to support the native vegetation corridor.

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

Methodology Mattiske (2012)
Threatened Species Scientific Committee (2017)

GIS Database:

- Imagery
- Mining Tenements
- WA Petroleum Pipelines

(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 (Mattiske, 2012; GIS Database).

Mattiske (2012) did note that the Threatened flora species *Diuris micrantha* has the potential to occur in the local area, based on the presence of its preferred soil and habitat type. *Diuris micrantha* is associated with sandy clay soils in winter wet swamps (DBCA, 2018). This habitat type is not present within the application area, therefore *Diuris micrantha* is not considered likely to occur (DBCA, 2018).

Caladenia huegelii has also been recorded in the local area (DPaW, 2018). This species is usually found in deep grey-white sand associated with the Bassendean sand-dune system, however rare occurrences have been known to extend into the Spearwood system, on which the application area is located (DBCA, 2018). *Caladenia huegelii* is associated with Banksia and Jarrah or Marri woodland and therefore is unlikely to be recorded in Tuart woodlands (DBCA, 2018).

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

Methodology DBCA (2018)
DPaW (2018)

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 may be at variance to this Principle

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

A flora and vegetation survey of the application area did not identify any TECs (Mattiske, 2012).

Mattiske (2012) recorded the vegetation community *Eucalyptus gomphocephala* and *Banksia attenuata* over *Xanthorrhoea preissii* and *Macrozamia riedlei* over *Conostylis aculeata*. This vegetation community may represent the draft TEC 'Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community'. This community has been nominated for listing as a TEC under the *Environment Protection and Biodiversity Conservation Act 1999*, and is still under consideration (Threatened Species Scientific Committee, 2017).

The Tuart woodlands TEC occurs on the Swan Coastal Plain, primarily occurs on Spearwood and Quindalup dune systems and most often occurs as a woodland, although other structural forms can occur (Threatened Species Scientific Community, 2017). The community is dominated by a Tuart canopy and a diverse native understorey of grasses, herbs and shrubs (Threatened Species Scientific Community, 2017). Tuart woodlands have been heavily cleared and degraded, particularly in the greater Perth area, with some remnants small and isolated, while others are large and heavily modified (DBCA, 2018).

Based on information in the vegetation survey, observations made by the assessing officer, and taking into consideration the key diagnostic criteria for the draft TEC (Mattiske, 2012; Threatened Species Scientific Community, 2017), the area most likely to represent the draft TEC occurs towards the south-east corner of Mining Lease 70/1337, where native vegetation density and diversity is higher (partially covered by Application Area 3). However, representation of the draft TEC in the application area is only marginal given the small size of

the remnant patch (approximately 0.8 hectares), and sparse native understorey. The remaining areas of the application area are heavily degraded with few native understorey species.

Patches of Tuart woodland that retain mature trees and a native understorey retain important natural values, including habitat for flora and fauna and contributions to landscape function (DBCA, 2018). Impacts to Tuart woodlands will be reduced by decreasing Application Area 3 from 0.8 hectares to 0.5 hectares, thereby reducing overall clearing from 2.56 hectares to 2.26 hectares.

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

Methodology DBCA (2018)
Mattiske (2012)
Threatened Species Scientific Community (2017)

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 may be at variance to this Principle

The application area falls within the Swan Coastal Plain Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 39% of the pre-European vegetation still exists in the IBRA Swan Coastal Plain Bioregion (Government of Western Australia, 2018).

The application area is broadly mapped as Beard vegetation association 998 (GIS Database). Approximately 36% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2018). Although Beard vegetation association 998 is considered 'depleted' (Department of Natural Resources and Environment, 2002), the remaining extent is above the threshold level considered necessary to protect biological diversity (EPA, 2000).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA Managed Lands (and post clearing %)
IBRA Bioregion - Swan Coastal Plain	1,501,221	578,997	39	Depleted	18 (38)
IBRA Subregion - Perth	1,117,757	465,508.54	42	Depleted	20 (40)
Local Government - Kwinana	12,012	4,112	34	Depleted	4 (11)
Beard vegetation associations - State					
998	51,015	18,412	36	Depleted	21 (49)
Beard vegetation associations - Bioregion					
998	50,868	18,412	36	Depleted	21 (49)
Beard vegetation associations - subregion					
998	50,868	18,412	36	Depleted	21 (49)

* Government of Western Australia (2018)

** Department of Natural Resources and Environment (2002)

The application area is within an area that has been extensively cleared for industrial and residential land uses (GIS Database). Although the application area is highly disturbed from clearing and weed invasion, it may contribute to a vegetation corridor connecting native vegetation south of the application area with native vegetation towards the north-east (GIS Database). The proposed clearing will not remove this linkage but may diminish its value. The clearing permit boundary has been reduced to minimise impacts to this vegetation corridor from the proposed clearing.

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

Methodology Department of Natural Resources and Environment (2002)
EPA (2000)
Government of Western Australia (2018)

GIS Database:
- IBRA Australia
- Imagery
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

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

There are no watercourses or wetlands within the area proposed to clear (Mattiske, 2012; GIS Database).
Based on the above, the proposed clearing is not at variance to this Principle.

Methodology Mattiske (2012)

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 on the Quindalup Dune system, which is characterised by low-lying, often swampy sand hills, with Spearwood dunes to the east (Mattiske, 2012). The soil type has been broadly mapped as siliceous sands with smaller areas of brown sands and leached sands in wetter sites (Northcote *et al*, 1960-68).

The proposed clearing of up to 2.26 hectares of native vegetation may expose sandy soils to wind erosion. Potential impacts from land degradation as a result of the proposed clearing may be minimised by the implementation of staged clearing condition.

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

Methodology Mattiske (2012)
Northcote *et al* (1960-68)

GIS Database:
- 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 Department of Biodiversity Conservation and Attractions (DBCA) managed land is crown freehold land located approximately 2.5 kilometres east of the application area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation areas.

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

Methodology GIS Database:
- DPaW Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). The proposed clearing is unlikely to result in significant changes to surface water flows.

The proposed clearing may increase the amount of rainwater that infiltrates to the groundwater, however given

the small size of the area to be cleared, the proposed clearing is not likely to impact the quality of groundwater.

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

Methodology 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 application area is located within a region that experiences a warm Mediterranean climate (CALM, 2002), with an average rainfall of approximately 800 millimetres per year (BoM, 2018). There are no permanent water courses or waterbodies within the application area (GIS Database). The porous nature of the soils within the application area are not likely to be prone to flooding. The proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.

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

Methodology BOM (2018)
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 23 July 2018 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. No submissions were received in relation to this application.

The permit area is within the South West Native Title Settlement area (DPLH, 2018). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2018). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology DPLH (2018)

4. References

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- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
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- DBCA (2018) Advice received in relation to Clearing Permit Application CPS 8125/1. Species and Communities Branch, Department of Biodiversity Conservation and Attractions, Western Australia, August 2018.
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- DPaW (2018) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. <https://naturemap.dpaw.wa.gov.au/> (Accessed 21 August 2018).
- DPLH (2018) Aboriginal Heritage Enquiry System. Department of Planning, Lands and Heritage. <http://maps.daa.wa.gov.au/AHIS/> (Accessed 21 August 2018).

- EPA (2000) Environmental Protection of Native Vegetation in Western Australia. Clearing of Native Vegetation, with Particular Reference to the Agricultural Area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Government of Western Australia (2018) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
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- Mattiske (2012) Flora and Vegetation Survey of Waste Stream Management Tenements. Report prepared for Waste Stream Management Pty Ltd, by Mattiske Consulting Pty Ltd, April 2012.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Threatened Species Scientific Committee (2017) Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain Ecological Community Draft Conservation Advice Including Draft Listing Advice. Department of Environment and Energy, Canberra, October, 2017.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DBCA	Department of Biodiversity Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
DEE	Department of the Environment and Energy, Australian Government
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DoE	Department of the Environment, Australian Government (now DEE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
DWER	Department of Water and Environmental Regulation, Western Australia
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , 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:

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

T	<p>Threatened species: Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).</p> <p>Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the <i>Wildlife Conservation Act 1950</i>.</p> <p>Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the <i>Wildlife Conservation Act 1950</i>.</p> <p>The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.</p>
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- CR Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- EN Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- VU Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- EX Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.
- IA Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- CD Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- OS Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3 Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4

Priority Four - Rare, Near Threatened and other species in need of monitoring:

- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
- (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
- (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.