



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 9198/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Corona Minerals Pty Ltd

### 1.3. Property details

Property: Mining Lease 15/1828  
Local Government Area: Shire of Coolgardie  
Colloquial name: Spargos Reward Project

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 22 April 2021

## 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: 9: Medium Woodland; coral gum (*Eucalyptus torquata*) and goldfields blackbutt (*E. lesouefii*); and 1413: Shrublands; acacia, casuarina and melaleuca thicket (GIS Database).

A flora and vegetation survey was conducted over the application area and adjacent areas by Native Vegetation Solutions during October and December 2020. The following vegetation associations were recorded within the application area (Native Vegetation Solutions, 2020):

#### ***Eucalyptus ravid* woodland over sclerophyll shrubland**

Low Forrest of *Eucalyptus ravid*, over a mixed sclerophyll shrubland including *Eremophila interstans* subsp. *virgata*, *Santalum acuminatum*, *Alyxia buxifolia*, *Acacia hemiteles* and *Daviesia aphylla* over *Olearia muelleri*, *Eremophila caerulea* subsp. *caerulea* and *Scaevola spinescens*.

#### **Transitional *Eucalyptus* woodland**

Low Woodland dominated by *Eucalyptus salmonophloia*, *Eucalyptus stricklandii*, *Eucalyptus gracilis*, *Eucalyptus oleosa* subsp. *oleosa* and *Eucalyptus transcontinentalis* over Chenopod and sclerophyll shrublands including *Acacia hemiteles*, *Atriplex stipitata*, *Atriplex nummularia* subsp. *spathulata*, *Exocarpos aphyllus*, *Eremophila ionantha*, *Scaevola spinescens* and *Dodonaea microzyga* var. *acrolobata*.

#### ***Eucalyptus torquata* and *Eucalyptus lesouefii* woodland over sclerophyll shrubland on undulating hills**

Low Woodland of *Eucalyptus lesouefii* and *Eucalyptus torquata* over sclerophyll shrubs including *Senna artemisioides* subsp. *filifolia*, *Exocarpos aphyllus*, *Westringia rigida*, *Scaevola spinescens*, *Eremophila ionantha* and *Olearia muelleri*.

#### ***Eucalyptus stricklandii* and *Eucalyptus livida* over low breakaway rises**

Low Forrest dominated by *Eucalyptus stricklandii* and *Eucalyptus livida*, over *Styphelia rectiloba* (P3), *Lepidosperma* sp. Parker Range (P1), *Scaevola spinescens*, *Eremophila oldfieldii* subsp. *angustifolia*, *Melaleuca fulgens* subsp. *fulgens*, *Prostanthera grylloana*, *Olearia muelleri* and *Prostanthera campbellii*.

#### ***Eucalyptus griffithsii* and *Eucalyptus livida* over *Acacia acuminata* shrubland**

Shrub Mallee (Muir, 1977) dominated by *Eucalyptus griffithsii*, *Eucalyptus livida* and *Acacia acuminata* over *Eremophila interstans* subsp. *virgata*, *Senna artemisioides* subsp. *filifolia*, *Exocarpos aphyllus*, *Olearia muelleri*, *Dodonaea microzyga* var. *acrolobata*, *Scaevola spinescens* and *Dianella revoluta* subsp. *divaricata*.

#### ***Acacia quadrimarginea* and *Acacia acuminata* over granite outcropping**

Scrub dominated by *Acacia quadrimarginea* and *Acacia acuminata* over *Alyxia buxifolia*, *Senna artemisioides* subsp. *filifolia*, *Eremophila granitica*, *Prostanthera campbellii*, *Olearia minor*, *Solanum lasiophyllum* and *Ptilotus obovatus*.

#### ***Eucalyptus horistes* over *Allocasuarina campestris* and *Calothamnus gilesii* shrubland**

Open Tree Mallee (Muir, 1977) dominated by *Eucalyptus horistes* over *Allocasuarina campestris*, *Callitris preissii*,

*Calothamnus gilesii*, *Grevillea acacioides*, *Grevillea haplantha* subsp. *haplantha*, *Acacia longispinea*, *Persoonia coriacea*, *Grevillea teretifolia* and *Triodia irritans*.

***Eucalyptus lesouefii* over *Melaleuca sheathiana* on undulating hills**

Low Forrest A (Muir, 1977) dominated by *Eucalyptus lesouefii* over *Melaleuca sheathiana*, *Eremophila psilocalyx*, *Eremophila oppositifolia*, subsp. *angustifolia*, *Eremophila caerulea* subsp. *caerulea*, *Eremophila scoparia*, *Olearia muelleri* and *Trymalium myrtillus*, subsp. *myrtillus*.

There were also areas within the application area mapped as existing disturbance.

<b>Clearing Description</b>	Spargos Reward Project. Corona Minerals Pty Ltd proposes to clear up to 150 hectares of native vegetation within a boundary of approximately 198.44 hectares, for the purpose of mineral production. The project is located approximately 10 kilometres west of Kambalda, within the Shire of Coolgardie.
<b>Vegetation Condition</b>	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);  to  Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).
<b>Comment</b>	The vegetation condition was derived from a vegetation survey conducted by Native Vegetation Solutions (2020).  The proposed clearing is for mining at the Spargos Reward area. The proposed activities include a single open cut pit and waste rock dump. Processing will be conducted at the Higgensville Gold Operations site (Karora Resources, 2021).

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

The vegetation survey over the application and adjacent areas identified ten vegetation units, eight of which are within the application area (Karora Resources, 2021). All of these vegetation units are considered common and widespread in the Eastern Goldfields subregion (Karora Resources, 2021). None of the vegetation units within the application area have been identified as being a Threatened or Priority Ecological Community (Native Vegetation Solutions, 2020; GIS Database).

A total of 146 species from 71 genera and 35 families were recorded within the greater flora survey (Native Vegetation Solutions, 2020). There was one species of Threatened flora recorded during the flora survey however, it was not located within the application area (Karora Resources, 2021). There were six species of Priority flora recorded during the flora survey; *Lepidosperma lyonsii* (Priority 1), *Lepidosperma* sp. Parker Range (Priority 1), *Acacia crenulata* (Priority 3), *Diocirea microphylla* (Priority 3), *Cryptandra crispula* (Priority 3) and *Syphelia rectiloba* (Priority 3). The Priority 2 species *Acacia kerryana* has been previously recorded within the application area (GIS Database) however, despite suitable habitat being extensively searched it was not able to be located during the flora survey (Native Vegetation Solutions, 2020).

The recorded locations of *Diocirea microphylla* and *Cryptandra crispula* were not within the application area (Native Vegetation Solutions, 2020). The vegetation unit that *Diocirea microphylla* was recorded within was not located within the application area so the proposed clearing is not likely to have a significant impact on this species. *Cryptandra crispula* was recorded in the '*Eucalyptus horistes* over *Allocasuarina campestris* and *Calothamnus gilesii* shrubland' vegetation unit, within 10 metres of the application area (Native Vegetation Solutions, 2020). There is approximately 2 hectares of this vegetation unit within the application area, with approximately 9 hectares also mapped outside the application during the vegetation survey (Native Vegetation Solutions, 2020). The proposed clearing is not likely to have a significant impact on this species.

*Acacia crenulata*, *Lepidosperma lyonsii*, *Lepidosperma* sp. Parker Range and *Styphelia rectiloba* were all recorded within the application area as well as areas outside the boundary (Native Vegetation Solutions, 2020). Apart from *Styphelia rectiloba*, all of the species were recorded in greater numbers outside of the application area (see table below) (Native Vegetation Solutions, 2020).

Species	Locations within	Locations outside	Individuals within	Individuals outside
<i>Acacia crenulata</i>	12	60	549	5067
<i>Lepidosperma lyonsii</i>	1	3	30	480
<i>Lepidosperma</i> sp.	8	6	370	530

Parker Range				
<i>Styphelia rectiloba</i>	5	3	300	60

The '*Eucalyptus stricklandii* and *Eucalyptus livida* over low breakaway rises' vegetation unit was observed to support a high number of Priority flora as all of the records of *Styphelia rectiloba*, the majority of *Acacia crenulata* locations and half of the *Lepidosperma* sp. Parker Range locations found in this habitat (Native Vegetation Solutions, 2020). The remaining *Lepidosperma* sp. Parker Range locations are within the '*Eucalyptus griffithsii* and *Eucalyptus livida* over *Acacia acuminata* shrubland' vegetation unit along with the only *Lepidosperma lyonsii* record within the application area.

The current proposed clearing footprint has largely avoided clearing within the '*Eucalyptus stricklandii* and *Eucalyptus livida* over low breakaway rises' vegetation unit with less than 0.5 hectares proposed to be cleared for access roads (Karora Resources, 2021). The proposed disturbance footprint will only impact on one location of *Lepidosperma* sp. Parker Range, removing the 30 individuals at this location (Karora Resources, 2021). Given there were an additional 870 individuals recorded from 13 locations during the flora survey, the proposed clearing of 30 individuals is not expected to have a significant impact on this species in the local area. Potential impacts to Priority flora may be minimised by the implementation of a flora management condition requiring the avoidance of recorded locations other than the one location of *Lepidosperma* sp. Parker Range proposed to be cleared.

The fauna habitats within the application area are abundant and in similar condition to vegetation within the surrounding area therefore, the application area is likely to contain a similar faunal assemblage to neighbouring vegetation (Terrestrial Ecosystems, 2020). The application area is sparsely vegetated in many areas and the presence of feral species are likely to contribute to a lower diversity of fauna species (Terrestrial Ecosystems, 2020). The application area is not likely to support a high level of fauna diversity.

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

**Methodology** CALM (2002)  
Karora Resources (2021)  
Native Vegetation Solutions (2020)  
Terrestrial Ecosystems (2020)

GIS Database:  
- IBRA Australia  
- Threatened and Priority Ecological Communities Boundaries  
- Threatened and Priority Ecological Communities Buffers  
- Threatened and Priority Flora

**(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**

A fauna survey of the application area was undertaken in October 2020 (Terrestrial Ecosystems, 2020). The following four broad fauna habitats have been recorded within the application area (Terrestrial Ecosystems, 2020):

- Open Eucalypt woodland over shrubs
- Dense shrubs
- Mallee and shrubs
- Eucalypt woodland over shrubs

The quality of habitat ranged from very good habitat with minimal signs of disturbance to areas of highly degraded fauna habitat due to historical and recent exploration activities and water storage area (Terrestrial Ecosystems, 2020). The application area has been lightly grazed by cattle and there is also evidence of rabbits, cats and dogs utilising the application area as part of their home range (Terrestrial Ecosystems, 2020).

The Malleefowl (*Leipoa ocellata* – Vulnerable) is known from the Coolgardie bioregion however, there are no recent records of active breeding mounds within the vicinity of the application area (Terrestrial Ecosystems, 2020). There is one extinct mound which has been previously recorded within the application area and disused mounds have been recorded during other fauna surveys within the region and nearby areas (Terrestrial Ecosystems, 2020). There were no mounds recorded during the current fauna survey and searches of areas suitable for recording Malleefowl tracks did not yield any results (Terrestrial Ecosystems, 2020). Given the open fauna habitat within the application area and the presence of feral predators, there is not a high likelihood that the Malleefowl is present and the vegetation is not likely to represent significant habitat for this species.

A targeted search for the Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina* – Critically Endangered) was conducted over the application area in February 2021 (Terrestrial Ecosystems, 2021). The Arid Bronze Azure Butterfly is associated with colonies of *Camponotus terebrans*, a sugar ant that is associated with smooth bark

Eucalyptus species. Smooth bark Eucalypt trees are present within the application area and both the host ant and Arid Bronze Azure Butterfly were searched for during the targeted survey (Terrestrial Ecosystems, 2021). There were ants observed during the targeted search however, no individuals of *Camponotus terebrans* were recorded (Terrestrial Ecosystems, 2021). There were no Arid Bronze Azure Butterflies recorded within the application area (Terrestrial Ecosystems, 2021). The application area is not likely to be habitat for the Arid Bronze Azure Butterfly.

The fauna habitat present is well represented outside of the application area and is likely to form a smaller part of a larger home range for most species (Terrestrial Ecosystems, 2020). The proposed clearing is not likely to have a significant impact on fauna in the local area.

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

**Methodology** Terrestrial Ecosystems (2020)  
Terrestrial Ecosystems (2021)

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened 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 Threatened species *Seringia exastia* was recorded during the flora survey however, it was not located within the application area (Karora Resources, 2021, Native Vegetation Solutions, 2020). There were two individuals recorded less than 25 metres from the application area within the 'Eucalyptus horistes over *Allocasuarina campestris* and *Calothamnus gilesii* shrubland' vegetation unit (Native Vegetation Solutions, 2020). This species was previously only found in the Kimberley region however, a taxonomic study concluded that *Seringia exastia* is the same species as *Seringia elliptica* (Binks et al., 2020). *Seringia elliptica* is common species and has a range that extends throughout the Pilbara region, central Western Australia, the Northern Territory and into South Australia (Australasian Virtual Herbarium, 2021, Western Australian Herbarium, 1998-). The taxonomy of the genus has been revised to synonymise *Seringia elliptica* under *Seringia exastia* as it is the oldest effectively published name (Binks et al., 2020). This has resulted in *Seringia exastia* now being a common and widespread species with no significant threats. A nomination to delist the species has been prepared for consideration by the Western Australian Threatened Species Scientific Committee (Native Vegetation Solutions, 2020).

All records of this species are located north of Kalgoorlie and given it was recorded adjacent to areas cleared for a gravel pit, it is suspected that it may have been introduced by earthworks machinery working on nearby roadworks (Native Vegetation Solutions, 2020).

Given this species has a wide distribution and was potentially introduced into the local area by machinery, the vegetation is not likely to be necessary for the continued existence of Threatened flora.

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

**Methodology** Australasian Virtual Herbarium (2021)  
Binks et al. (2020)  
Karora Resources (2021)  
Native Vegetation Solutions (2020)  
Western Australian Herbarium (1998-)

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 application area (GIS Database). A flora and vegetation survey of the application area did not identify any TECs (Native Vegetation Solutions, 2020).

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

**Methodology** Native Vegetation Solutions (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 Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97.96% of the pre-European vegetation still exists in the Coolgardie Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation association 9 (GIS Database). Approximately 97.78% of the pre-European extent of this vegetation association 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
- 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 (GIS Database). The flora survey of the application area did not identify any riparian vegetation (Native Vegetation Solutions, 2020).

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

**Methodology** Native Vegetation Solutions (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 Bannar, Coolgardie, Johnston and Sedgeman land systems (DPIRD, 2021).

The vast majority of the application area (~90%) is comprised of the Coolgardie and Johnston land systems (DPIRD, 2021; GIS Database).

The Coolgardie Land System is described as uplands and undulating plains associated with ultramafic greenstones supporting eucalypt woodlands and halophytic shrublands (DPIRD, 2021). Where not protected by a stony mantle, footslopes and valley floors are susceptible to water erosion, particularly in areas where perennial shrub cover is substantially reduced and/or the soil surface is disturbed (DPIRD, 2021).

The Johnston Land System is described as gently undulating plains with occasional granitic rises supporting eucalypt woodlands and sclerophyllous shrublands (DPIRD, 2021). The drainage tracks on this system are mildly susceptible to erosion (DPIRD, 2021). Obstruction of the natural water flows can cause water starvation and consequent loss of vigour in vegetation downslope. Disturbance of the soil surface on this unit is also likely to initiate erosion (DPIRD, 2021).

In its vegetated state, the Bannar land system is not susceptible to soil erosion (DPIRD, 2021). Almost all of this land system has been previously cleared for a gravel pit (Native Vegetation Solutions, 2020; GIS Database). The Sedgeman land system is not susceptible to soil erosion (DPIRD, 2021).

Potential impacts from soil erosion may be minimised by the implementation of a staged clearing condition. The intent of the condition is to require any areas that are cleared are utilised within 3 months of the clearing, which will minimise the amount of areas cleared which do not have mining activities occurring.

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

**Methodology** DPIRD (2021)  
Native Vegetation Solutions (2020)

GIS Database:  
- Imagery

**(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 managed land is the Kambalda Timber Reserve which is located approximately 5 kilometres east 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 watercourses or wetlands within the area proposed to clear (GIS Database). The surface water in the application area is likely to occur as sheet flow and the proposed clearing is not likely cause any significant changes to surface water flows or the deterioration of surface water quality in the local area.

There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). The application area has saline (9,200 milligrams/Litre Total Dissolved Solids (TDS)) groundwater (Karora Resources, 2021). Despite being saline, this groundwater has lower TDS compared to regional water in the goldfields (Karora Resources, 2021). The proposed clearing is unlikely to have an impact on groundwater quality in the local area.

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

**Methodology** Karora Resources (2021)

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 semi-arid, with a low average rainfall of approximately 269.6 millimetres per year (BoM, 2021). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall.

There are no permanent water courses or waterbodies within the application area (GIS Database). The proposed clearing is not likely to increase the incidence or intensity of the flooding within the application area.

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

**Methodology** BoM (2021)

GIS Database:  
- Hydrography, linear

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

### Comments

The clearing permit application was advertised on 15 February 2021 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, 2021). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. 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)

## 4. References

- Australasian Virtual Herbarium (2019) The Australasian Virtual Herbarium, Council of Heads of Australasian Herbaria. <http://avh.chah.org.au/> (Accessed 22 March 2021).
- Binks, R.M., Wilkins, C.F., Markey, A.S., Lyons, M.N. and Byrne, M. (2020) Genomic data and morphological re-assessment reveals synonymy and hybridisation among *Seringia* taxa (Lasiopetaleae, Malvaceae) in remote north-western Australia, TAXON, 69: 307-320 <https://doi.org/10.1002/tax.12233>
- BoM (2021) Bureau of Meteorology Website – Climate Data Online, Coolgardie. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 31 March 2021).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DPLH (2021) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 16 April 2021).
- DPIRD (2021) Advice received in relation to Clearing Permit Application CPS 9198/1. Office of the Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, 26 February 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>
- Karora Resources (2021) Supporting Information for a Native Vegetation Clearing Permit Application at the Spargos Reward Gold Project on M15/1828. Karora Resources Inc, January 2021.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Native Vegetation Solutions (2020) Reconnaissance Flora and Vegetation Survey of the Spargos Project – October 2020. Report prepared for Karora Resources Inc, December 2020.
- Terrestrial Ecosystems (2020) Basic Vertebrate Fauna Survey and Risk Assessment, Spargos Project. Report prepared for Karora Resources, December 2020.
- Terrestrial Ecosystems (2021) Targeted Survey for the Arid Bronze Azure Butterfly – Spargos. Report prepared for Karora Resources, 15 March 2021.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> (Accessed 22 March 2021).

## 5. Glossary

### Acronyms:

<b>BC Act</b>	<i>Biodiversity Conservation Act 2016</i> , Western Australia
<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia (now DPLH)
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia (now DPIRD)
<b>DAWE</b>	Department of Agriculture, Water and the Environment, Australian Government
<b>DBCA</b>	Department of Biodiversity, Conservation and Attractions, Western Australia
<b>DER</b>	Department of Environment Regulation, Western Australia (now DWER)
<b>DMIRS</b>	Department of Mines, Industry Regulation and Safety, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia (now DMIRS)

<b>DoEE</b>	Department of the Environment and Energy (now DAWE)
<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<b>DPIRD</b>	Department of Primary Industries and Regional Development, Western Australia
<b>DPLH</b>	Department of Planning, Lands and Heritage, Western Australia
<b>DRF</b>	Declared Rare Flora (now known as Threatened Flora)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>TEC</b>	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.