



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 9178/1

Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

### 1.3. Property details

Property: Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972, Mining Lease 266SA (AM 70/266)

Local Government Area: Shire of East Pilbara

Colloquial name: Jimblebar West Solar Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
70		Mechanical Removal	Solar array, geotechnical investigations, and associated activities

### 1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 11 March 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:  
29: Sparse low woodland; mulga, discontinuous in scattered groups;  
82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and  
216: Low woodland; mulga (with spinifex) on rises (GIS Database).

A flora and vegetation survey was conducted over the application area and surrounding areas by Onshore Environmental Consultants Pty Ltd (Onshore Environmental) between 23 February and 1 March 2015 (Onshore Environmental, 2015).

A total of 26 vegetation associations were recorded within the 3,385 hectare survey area, and the following 15 vegetation associations were recorded within the current clearing permit application area, grouped into seven broad floristic communities (Onshore Environmental, 2015):

#### Acacia High Shrubland

**4a:** High Shrubland of *Acacia rhodophloia*, *Acacia tetragonophylla* and *Acacia synchronicia* with Low Open Woodland of *Acacia aptaneura* and *Acacia pruinocarpa* with Open Shrubland of *Eremophila forrestii* subsp. *forrestii*, *Senna artemisioides* subsp. *helmsii* and *Eremophila cuneifolia* on orange loam on rises and stony plains.

**4b:** High Shrubland of *Acacia ancistrocarpa* over Open Hummock Grassland of *Triodia pungens* over Open Tussock Grassland of *Eragrostis eriopoda* on red sand on plains.

#### Acacia Low Woodland

**2b:** Low Woodland of *Acacia aptaneura* and *Acacia ayersiana* over Open Shrubland of *Senna artemisioides* subsp. *helmsii* and Very Open Tussock Grassland of *Aristida inaequiglumis*, *Cymbopogon oblectus* and *Aristida contorta* on orange brown silty clay loam on plains.

**2c:** Low Woodland of *Acacia catenulata* subsp. *occidentalis*, *Acacia aptaneura* and *Acacia paraneura* over Open Tussock Grassland of *Aristida inaequiglumis* and *Digitaria ammophila* with Low Open Shrubland of *Eremophila forrestii* subsp. *forrestii*, *Isotropis forrestii* and *Senna glaucifolia* on brown clay loam on plains.

#### Acacia Open Shrubland

**7:** Open Shrubland of *Acacia aptaneura*, *Acacia tetragonophylla* and *Senna artemisioides* subsp. *helmsii* over Very Open Tussock Grassland of *Aristida inaequiglumis*, *Tripogonella loliiformis* and *Eragrostis eriopoda* with Scattered Low Trees of *Acacia aptaneura* on brown loamy sand on plains.

#### Eremophila High Open Shrubland

**5:** High Open Shrubland of *Eremophila fraseri* and *Acacia synchronicia* over Low Open Shrubland of *Senna artemisioides* subsp. *helmsii* and *Eremophila fraseri* with Scattered Low Trees of *Acacia pruinocarpa*, *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* on orange loamy sand on sand plain.

#### **Eremophila Low Shrubland**

**8b:** Low Shrubland of *Eremophila cuneifolia*, *Senna artemisioides* subsp. *helmsii* and *Senna* sp. Meekatharra (E. Bailey 1-26) with High Open Shrubland of *Hakea preissii*, *Acacia tetragonophylla* and *Acacia synchronicia* and Very Open Tussock Grassland of *Eragrostis eriopoda*, *Enteropogon ramosus* and *Eragrostis xerophila* on brown loam on stony plains.

#### **Mosaic of Gilgai and stony plains**

**M:** Mosaic of Vegetation associations 8b and 11.

Veg Association 11: Tussock Grassland of *Eriachne benthamii*, *Eragrostis xerophila* and *Eragrostis setifolia* with High Open Shrubland of *Acacia tetragonophylla* and Scattered Low Trees of *Acacia aptaneura* on light brown heavy clay on gilgai drainage zones.

#### **Triodia Hummock Grassland**

**10b:** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens* with High Open Shrubland of *Senna glutinosa* subsp. *x luerssenii*, *Acacia tetragonophylla* and *Acacia trudgeniana* and Scattered Low Trees of *Acacia aptaneura* and *Acacia pruinocarpa* on orange sandy loam on hillslopes.

**10d:** Hummock Grassland of *Triodia basedowii* and/or *Triodia schinzii* with High Open Shrubland of *Acacia pachyacra* and *Acacia ancistrocarpa* and Scattered Low Trees of *Hakea lorea* subsp. *lorea*, *Acacia aptaneura* and *Corymbia hamersleyana* on red brown sandy loam on plains.

**10f:** Hummock Grassland of *Triodia pungens* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Acacia rhodophloia* and *Acacia bivenosa* (wispy form) and High Open Shrubland of *Acacia maitlandii*, *Acacia rhodophloia* and *Senna glutinosa* subsp. *x luerssenii* on brown sandy loam on hillcrests and slopes.

**10g:** Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Grevillea wickhamii* subsp. *hispidula* and *Acacia maitlandii* and Low Open Shrubland of *Eremophila exilifolia*, *Acacia hilliana* and *Senna artemisioides* subsp. *helmsii* on red brown loamy sand on dolerite hillslopes.

**10h:** Hummock Grassland of *Triodia pungens* and *Triodia basedowii* with Open Mallee of *Eucalyptus gamophylla* and High Shrubland of *Acacia kempeana* and *Acacia sclerosperma* subsp. *sclerosperma* on red loamy sand on drainage zones.

**10j:** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia brizoides* with High Open Shrubland of *Acacia pruinocarpa*, *Hakea chordophylla* and *Grevillea berryana* and Open Shrubland of *Senna glutinosa* subsp. *pruinosa* and *Ptilotus rotundifolius* on brown sandy loam on hillcrests.

**10k:** Hummock Grassland of *Triodia pungens* with Low Open Shrubland of *Eremophila fraseri* and *Acacia synchronicia* and Scattered Low Trees of *Hakea lorea* subsp. *lorea* and *Grevillea striata* on skeletal brown loam on dolerite hillcrests and slopes.

#### **Clearing Description**

Jimblebar West Solar Project.

BHP Billiton Iron Ore Pty Ltd proposes to clear up to 70 hectares of native vegetation within a boundary of approximately 429.6 hectares, for the purpose of a solar array, geotechnical investigations, and associated activities. The project is located approximately 28 kilometres east of Newman, within the Shire of East Pilbara.

#### **Vegetation Condition**

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

To

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

#### **Comment**

The vegetation condition was derived from a vegetation survey conducted by Onshore Environmental (2015).

The proposed clearing is for the construction of a 25 to 50 MW solar array to the west of the existing Jimblebar iron ore mining operations (BHP Billiton, 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 clearing permit application area is located within the Augustus subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Gascoyne Bioregion and the Hamersley subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara Bioregion (GIS Database).

The Augustus subregion is characterised by rugged low Proterozoic sedimentary and granite ranges divided by broad flat valleys. Vegetation is Mulga woodland with *Triodia* on shallow stony loams on rises, while the shallow earthy loams over hardpan on the plains support an open Mulga woodland (CALM, 2002).

The Hamersley subregion is characterised by Proterozoic sedimentary ranges and plateaux, dissected by gorges. Vegetation is Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

A flora and vegetation survey conducted over the application area and surrounding areas by Onshore Environmental (2015), recorded a total of 263 flora taxa within the broader survey area, representing 36 families and 106 genera (Onshore Environmental, 2015).

The vegetation condition within the application area ranged from Excellent to Very Good. Four weed species were recorded within the broader survey area: *Aerva javanica* (Kapok Bush), *Bidens bipinnata* (Bipinnate Beggartick), *Cenchrus ciliaris* (Buffel Grass) and *Malvastrum americanum* (Spiked Malvastrum), however, no weed species were recorded within the current clearing permit application area (Onshore Environmental, 2015). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area, and care should be taken to avoid the introduction of weeds into the application area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened Ecological Communities or Priority Ecological Communities have been recorded within or in close proximity to the application area, and none were found during the vegetation survey (Onshore Environmental, 2015; GIS Database;).

A desktop assessment identified one Threatened flora taxa and 34 Priority flora taxa with the potential to occur within the broader survey area, based on known distributions and habitat preferences (Onshore Environmental, 2015). No Threatened flora were recorded during the field survey (Onshore Environmental, 2015). Three Priority flora taxa were recorded from the broader survey area, only one of which, *Goodenia nuda* (Priority 4) was recorded within the application area (BHP Billiton, 2021). *Goodenia nuda* has been recorded from three IBRA Bioregions including a wide distribution within the Pilbara Bioregion (Western Australian Herbarium, 1998-), and the proposed clearing is unlikely to impact the conservation status of this species.

A fauna survey conducted over the application area and surrounding areas recorded a total of 76 fauna species, comprising 14 mammal species (11 native and three introduced), 57 bird species and five reptile species (Biologic, 2020). Several fauna species of conservation significance have the potential to occur within the application area, however most are wide ranging and none were recorded during the fauna survey (Biologic, 2020).

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas (Biologic, 2020; Onshore Environmental, 2015; 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** BHP Billiton (2021)  
Biologic (2020)  
CALM (2002)  
Onshore Environmental (2015)  
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**

A fauna survey was conducted over the application area and surrounding areas by Biologic Environmental Survey Pty Ltd (Biologic) from 7 - 12 May 2020 (Biologic, 2020). The following four fauna habitats were recorded within the current clearing permit application area (BHP Billiton, 2021; Biologic, 2020):

**Mulga Woodland:** Variable in density, often associated with low lying drainage areas subject to occasional sheet flow following rainfall. Vegetation dominated by open mulga (*Acacia aneura*) with sparse to no understory of mixed small shrubs, tussock and hummock grasses.

**Hardpan Plain:** Characterised as lower lying plain often sparsely vegetated with open or sparsely scattered Mulga over a sparse mixed herb and small to medium shrub (predominantly *Acacia* and *Eremophila* species) understory on heavy clay substrates, often with a stony or gravelly surface. Large open areas often devoid of vegetation. Often subject to sheet flow following rainfall, occasionally pooling in lower lying areas; however, presence of water often temporary and persisting for only short periods following rainfall.

**Sand Plain:** Characterised by sandy soils, often supporting *Triodia* hummock grassland and open *Acacia*

shrubland vegetation. Vegetation is often dominated by *Triodia* hummocks of varying density and life stages, with scattered *Acacia* shrubs on sandy to sandy loam substrates.

**Stony Plain:** Habitat comprises flat to low undulating areas and low hills. Vegetation structure and density is variable, often occurring within scattered patches among larger sparsely vegetated areas. Vegetation is often dominated by *Triodia* hummock grasses and/or scattered mixed small to medium shrub species on gravelly clay loam substrates.

Several fauna species of conservation significance have the potential to occur within the application area, based on known distributions and available habitats (BHP Billiton, 2021; Biologic, 2020; GIS Database), however, none are likely to be specifically dependant on the habitat within the application area. No fauna species of conservation significance were recorded during the survey (Biologic, 2020).

The fauna habitats found within the application area are well represented in the region, and the vegetation proposed to be cleared is unlikely to represent a significant habitat for fauna at a local or regional scale.

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

**Methodology** BHP Billiton (2021)  
Biologic (2020)

GIS Database:  
- Imagery  
- Pre-European Vegetation  
- Threatened Fauna

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, 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). A flora survey of the application area and surrounding areas did not record any species of Threatened flora (Onshore Environmental, 2015).

The vegetation associations within the application area are common and widespread within the region (BHP Billiton, 2021; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora.

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

**Methodology** BHP Billiton (2021)  
Onshore Environmental (2015)

GIS Database:  
- Pre-European Vegetation  
- 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 and surrounding areas did not identify any TECs (Onshore Environmental, 2015).

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

**Methodology** Onshore Environmental (2015)

GIS Database:  
- Threatened and Priority Ecological Communities Boundaries  
- Threatened and Priority Ecological Communities Buffers

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

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

The application area falls within the Gascoyne and Pilbara Bioregions of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in these two Bioregions (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations: 29: Sparse low woodland; mulga, discontinuous in scattered groups; 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and 216: Low woodland; mulga (with spinifex) on rises (GIS Database). More than 98% 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).

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands
IBRA Bioregion – Gascoyne	18,075,219	18,067,441	~99	Least Concern	10.27
IBRA Bioregion – Pilbara	17,808,657	17,731,764	~99	Least Concern	10.12
<b>Beard vegetation associations – WA</b>					
29	7,903,991	7,898,973	~99	Least Concern	6.28
82	2,565,901	2,553,206	~99	Least Concern	11.51
216	280,759	279,237	~99	Least Concern	No data
<b>Beard vegetation associations – Gascoyne Bioregion</b>					
29	3,802,459	3,799,635	~99	Least Concern	7.81
82	2,318	2,318	100	Least Concern	No data
216	254,089	252,864	~99	Least Concern	No data
<b>Beard vegetation associations – Pilbara Bioregion</b>					
29	1,133,219	1,131,712	~99	Least Concern	9.38
82	2,563,583	2,550,888	~99	Least Concern	11.52
216	26,669	26,372	~98	Least Concern	No data

\* Government of Western Australia (2019)

\*\* Department of Natural Resources and Environment (2002)

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

**Methodology** Department of Natural Resources and Environment (2002)  
Government of Western Australia (2019)

GIS Database:  
- IBRA Australia  
- Pre-European Vegetation

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

**Comments Proposal is at variance to this Principle**

There are no permanent watercourses or wetlands within the area proposed to clear (BHP Billiton, 2021; GIS Database). Several minor drainage lines pass through the application area (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall.

Based on the above, the proposed clearing is at variance to this Principle. However, impacts from the proposed clearing to vegetation growing in association with watercourses is likely to be minimal.

**Methodology** BHP Billiton (2021)

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

The application area lies within the Divide, Jamindie, McKay, and Newman 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 Divide land system is described as sandplains and occasional dunes supporting shrubby hard spinifex grasslands. This land system is generally not susceptible to erosion (Van Vreeswyk et al., 2004).

The Jamindie land system consists of stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey. This land system is generally not susceptible to erosion, however areas associated with drainage lines may be moderately susceptible to erosion if vegetation cover is removed (Van Vreeswyk et al., 2004).

The McKay land system is described as hills, ridges, plateaux remnants and breakaways, supporting hard spinifex grasslands. This land system is not prone to erosion (Van Vreeswyk et al., 2004).

The Newman land system consists of rugged jaspilite plateaux, ridges and mountains, supporting hard spinifex grasslands. This land system is generally not susceptible to erosion (Van Vreeswyk et al., 2004).

The proposed clearing of up to 70 hectares of native vegetation within a boundary of approximately 429.6 hectares, is unlikely to cause appreciable land degradation.

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

**Methodology** Van Vreeswyk et al. (2004)

GIS Database:

- Landsystem Rangelands

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

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

There are no conservation areas in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the former Roy Hill Pastoral Lease which is located approximately 75 kilometres northwest of the application area at its nearest point (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**

The western edge of the application area falls within the Newman Water Reserve, a Priority 1 Public Drinking Water Source Area (PDWSA (GIS Database).

Advice was sought from the Department of Water and Environmental Regulation (DWER), in relation to this clearing application. DWER (2021) advised that solar energy production is a compatible activity within a Priority 1 PDWSA, provided activities are conducted in accordance with DWER's water quality protection notes and guidelines. The Newman Water Reserve covers a total area of approximately 78,000 hectares, and the proposed clearing is unlikely to have any significant impact on the Newman Water Reserve.

There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.

The proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

**Methodology** DWER (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 325 millimetres per year recorded at the Newman Aero weather station (BOM, 2021). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002).

There are no permanent water courses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, 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 (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 25 January 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 is one native title claim (WC2005/006) 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)

#### **4. References**

- BHP Billiton (2021) Application for the Jimblebar West Solar Project NVCP. Native Vegetation Clearing Permit Application Supporting Document. BHP Billiton Iron Ore Pty Ltd, Western Australia, January 2021.
- Biologic (2020) Jimblebar Greenhouse Gas Abatement Study. Basic Vertebrate Fauna Survey. Report prepared for BHP Western Australian Iron Ore, by Biologic Environmental Survey Pty Ltd, December 2020.
- BoM (2021) Bureau of Meteorology Website – Climate Data Online, Newman Aero. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 09 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 08 March 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.

- DWER (2021) Advice received in relation to Clearing Permit Application CPS 9178/1. North West Region, Department of Water and Environmental Regulation, Western Australia, 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>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Onshore Environmental (2015) Dynasty and West Jimblebar Level 2 Flora and Vegetation Survey. Report prepared for BHP Billiton Iron Ore Pty Ltd, by Onshore Environmental Consultants Pty Ltd, June 2015.
- 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.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> (Accessed 09 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.