



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 9095/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: APT Parmelia Pty Ltd

### 1.3. Property details

Property: PL 1  
Lot 9 on Plan 16075 Volume 2042 Folio 647 (Easement A 372674)  
Lot 19 on Plan 13244 Volume 2063 Folio 340 (Easement A 329551)  
Lot 20 on Plan 13244 Volume 1612 Folio 196 (Easement A 329551)  
Lot 30 on Plan 10295 Volume 1607 Folio 94 (Easement D 273352)  
Lot 60 on Diagram 60697 Volume 1596 Folio 393 (Easement A 372674)  
Lot 149 on Deposited Plan 48843 Volume LR3138 Folio 169 (Easement A 372674)  
Lot 301 on Deposited Plan 30748 Volume 1521 Folio 521 (Easement A 372674)  
Lot 302 on Deposited Plan 30748 Volume 1521 Folio 518 (Easement A 372674)  
Lot 303 on Deposited Plan 30748 Volume 1704 Folio 235 (Easement A 372674)  
Lot 369 on Deposited Plan 59341 Volume LR3151 Folio 581 (Easement E 450641)  
Lot 788 on Deposited Plan 195513 Volume LR3120 Folio 621 (Easement E 450641)

Local Government Area: City of Cockburn and City of Canning  
Colloquial name: Parmelia Gas Pipeline

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.985		Mechanical Removal	Relocation of a gas pipeline

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 23 February 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 Beard vegetation association 1001: Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (GIS Database).

A flora and vegetation survey was conducted over the application area by CDM Smith on 4 June and 20 to 21 August 2020. The following vegetation associations were recorded within the application area (CDM Smith, 2020a; 2020b):

**VT01:** *Banksia menziesii* and *B. attenuata* woodland – *Eucalyptus todtiana*, *Nuytsia floribunda*, *Banksia illicifolia* isolated trees over *B. menziesii*, *B. attenuata* woodland over *Xanthorrhoea preissii*, *Hibbertia* spp. sparse shrubland over diverse heathland;

**VT02b:** *Melaleuca preissiana* open woodland – *Melaleuca preissiana* open woodland over *Regelia inops*, *Hypocalymma angustifolium*, *Astartea fascicularis* shrubland with *Lepidosperma longitudinale*, *Lyginia imberbis*, *Hypolaena exsulca* sparse sedgeland over *Phlebocarya ciliatum*, *Dasyopogon bromeliifolius* herbland;

**VT04:** *Adenanthos cygnorum* shrubland – *Corymbia calophylla*, *Eucalyptus todtiana* isolated clumps of trees over *Adenanthos cygnorum* sparse shrubland over \**Cenchrus setaceus* sparse grassland;

**VT06:** Scattered natives amongst weeds – *Corymbia calophylla*/*Eucalyptus rudis*/ *E. todtiana*/*E. gomphocephala*/\**Eucalyptus* spp. isolated trees over introduced herbland/grassland; and

**VT07:** Grassland/herbland – Weedy closed grassland/herbland with occasional natives.

\* Denotes weed species.

<b>Clearing Description</b>	Parmelia Gas Pipeline. APT Parmelia Pty Ltd proposes to clear up to 1.985 hectares of native vegetation within a boundary of approximately 1.985 hectares, for the purpose of relocating a gas pipeline. The project is located approximately 20 kilometres south-east of Perth, within the City of Cockburn and the City of Canning.
<b>Vegetation Condition</b>	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);  To:  Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).
<b>Comment</b>	The vegetation condition was derived from a vegetation survey conducted by CDM Smith (2020a; 2020b).  Clearing of native vegetation will be undertaken using standard earthmoving equipment, such as bulldozers, to provide a surface free of vegetative matter, though some roots may remain. Topsoil will be stripped separately to vegetation and stockpiled for reuse in reinstatement activities (APA, 2020).  The proposed clearing to relocate two short sections of the Parmelia Gas Pipeline to allow for the construction of the Public Transport Authority Metronet Project (APA, 2020). The application area is divided up into six linear segments within 5.5 kilometres of each other, adjacent to Ranford Road and Canning Vale railway reserve (GIS Database).

### 3. Assessment of application against Clearing Principles

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

<b>Comments</b>	<p><b>Proposal is at variance to this Principle</b></p> <p>The clearing permit application area is located within the Perth subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Swan Coastal Plain Bioregion (GIS Database). The Perth subregion is composed of colluvial and aeolian sands, alluvial river flats, coastal limestone. Heath and/or Tuart woodlands occur on limestone, <i>Banksia</i> and Jarrah- <i>Banksia</i> woodlands on Quaternary marine dunes of various ages, and Marri on colluvial and alluvials (CALM, 2002).</p> <p>CDM Smith (2020a; 2020b) identified five vegetation types within the application area. The vegetation condition ranged from very good to completely degraded (Keighery, 1994). Vegetation in the works area has been subject to a number of prior disturbances associated with its location in a highly-developed urban environment and proximity to major roads and rail infrastructure (APA, 2020).</p> <p>There were no Threatened or Priority flora species recorded within the application area (CDM Smith, 2020a; 2020b). However the targeted flora and vegetation surveys were undertaken outside of the EPA's recommended season for identifying perennial and annual species. CDM Smith (2020a; 2020b) advise that many of the flora species were in flower at the time of the surveys and the majority of these were able to be identified. The proposed clearing of 1.985 hectares of native vegetation over six segmented areas is not likely to significantly impact any critical habitat for Threatened or Priority flora species.</p> <p>The vegetation type VT01 (remnant <i>Banksia</i> woodland) was considered to correlate with a state-listed Priority Ecological Community (PEC), the "Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region" (Banksia WL SCP21c – Priority 3 under the BC Act) (APA, 2020; GIS Database). The Banksia WL SCP is listed as a Threatened Ecological Community (TEC) (Endangered) under the Commonwealth EPBC Act. Approximately 0.3 hectares of VT01 was mapped within the application area (GIS Database), which falls below the minimum patch size and condition thresholds to be considered as part of the EPBC Act listed TEC (TSSC, 2016). However, when the whole patch is considered (including VT01 which extends outside the application area into Caladenia Grove Wetland), the vegetation representative of the PEC/TEC meets the criteria set out for the TEC (APA, 2020).</p> <p>The proposed clearing will result in the loss of 0.3 hectares of vegetation representative of the Banksia WL SCP PEC and is likely to impact on adjacent vegetation representing this PEC on a local scale, however it is unlikely to be significant at a regional scale. Given this PEC occurs within a highly developed and disturbed local area and has been subject to significant disturbance from weed invasion, as well as adjacent road/rail and residential infrastructure, it is likely that this vegetation will be subject to ongoing degradation from edge effects. Given the small patch size of the occurrence, its isolation from other remnants of vegetation, the existing vegetation condition, and the highly disturbed surrounding land uses, it is unlikely that the 0.3 hectares of vegetation representative of the Banksia WL SCP PEC will be viable in the future. Given the above, it is unlikely that the application area is necessary for the maintenance of the Banksia WL SCP PEC.</p> <p>There were several weed species identified within the application area (CDM Smith, 2020a; 2020b). There was evidence to suggest the presence of <i>Phytophthora</i> dieback within part of the application area, which included diseased/dead <i>Banksia</i> species and other susceptible species, such as <i>Adenanthos</i> (CDM Smith, 2020a; 2020b). Dieback is a major threat to plant biodiversity in the south west of Western Australia because the plant pathogen <i>Phytophthora cinnamomi</i> kills susceptible plants by attacking their root systems. Dieback has the potential to reduce the understorey species in the area which can lead to an increase of weed species. It is important to limit the spread of dieback and this can be achieved through strict hygiene measures.</p>
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The application area supports limited fauna habitat types given the degraded nature and/or lack of mid and understorey vegetation within the majority of the vegetation types (CDM Smith, 2020a; 2020b).

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

**Methodology**

APA (2020)  
CALM (2002)  
CDM Smith (2020a)  
CDM Smith (2020b)  
Keighery (1994)  
TSSC (2016)

GIS Database:

- Aerial Imagery
- 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 indigenous to Western Australia.**

**Comments**

**Proposal is at variance to this Principle**

There were two targeted Black Cockatoo surveys undertaken by CDM Smith (2020a; 2020b) over the application area. Foraging habitat for the Carnaby's black cockatoo (*Calyptorhynchus latirostris* – Endangered) and Forest Red-tailed black cockatoo (*Calyptorhynchus banksii naso* – Vulnerable) was mapped within the application area, however no evidence of foraging was recorded (CDM Smith, 2020a; 2020b). DBCA (2021) advise that foraging evidence has previously been recorded within the application area.

Approximately 0.97 hectares of vegetation types VT01, VT04 and VT06 represent foraging habitat for black cockatoos, predominantly consisting of Marri, *Eucalypt* and *Banksia* species (CDM Smith, 2020a; 2020b). The foraging habitat was generally in good to very good condition (CDM Smith 2020a; 2020b; Keighery, 1994).

Critical habitat for the forest red-tailed black cockatoo is defined as all marri, karri and jarrah forests, woodlands and remnants in the south-west of Western Australia receiving more than 600 millimetres of annual average rainfall (DEC, 2008). Given that a portion of the application area includes remnant and scattered Eucalyptus and a small Banksia woodland area on the Swan Coastal Plain, the application area is not likely to meet the definition of critical habitat for this species. While the application area may have foraging value, it is unlikely to be significant for the ongoing maintenance of this species.

Critical habitat for Carnaby's cockatoo includes any habitat that provides for feeding, watering, regular night roosting and potential for breeding (DPAW, 2013). Given that the application area contains 0.97 hectares of foraging habitat, occurs within 12 kilometres of known roosting sites for Carnaby's cockatoo and foraging has known to occur within the area, it is likely that the proposed clearing area includes significant habitat for this species (GIS Database). Maintaining foraging habitat for Carnaby's cockatoo irrespective of size has been noted as particularly important within the Perth Metropolitan Region, due to the role of these feeding areas in the survival of young birds and the maintenance of the population between breeding seasons, coupled with the lack of habitat remaining in this region and its connectivity values for birds migrating between regions (Commonwealth of Australia, 2012). Potential foraging habitat for Carnaby's cockatoo in the local area is limited to a subset of these remaining remnants. The clearing of 0.97 hectares of foraging habitat is likely to represent a significant residual impact to Carnaby's cockatoo. After consideration of avoidance and mitigation measures by the proponent, it was determined that an offset to counterbalance the significant residual impacts to significant foraging habitat for Carnaby's cockatoo is necessary. In accordance with the WA State Government's Environmental Offsets Policy (September 2011) and Environmental Offsets Guidelines (August 2014), significant residual impacts to Carnaby's cockatoos may be minimised by the implementation of an offset condition.

Four Marri habitat trees (DBH >500mm) were recorded within the application area, however while the trees have nesting potential for black cockatoos, they were all considered too young to support hollows (CDM Smith, 2020b). Given the lack of hollows, the proposed clearing is not likely to impact on significant breeding habitat for black cockatoo species.

The application area supports limited fauna habitat types given the degraded nature and/or lack of mid and understorey vegetation within the majority of the vegetation types (CDM Smith, 2020a; 2020b). The proposed clearing of native vegetation is not likely to impact any potential conservation significant terrestrial species in the local area.

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

**Methodology** CDM Smith (2020a)  
CDM Smith (2020b)  
Commonwealth of Australia (2012)  
DBCA (2021)  
DEC (2008)  
DPaW (2013)

GIS Database:

- Carnabys Cockatoo Feeding SCP Unconfirmed
- Carnabys Cockatoo Roost Areas (buffered) Confirmed
- Carnabys Cockatoo Roost Areas Confirmed
- Imagery
- Pre-European Vegetation
- Threatened Fauna

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

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

A targeted flora and vegetation survey of the application area was undertaken on 4 June and 20 to 21 August 2020, and no Threatened Flora species were identified (CDM Smith, 2020a; 2020b). Suitable habitat (vegetation types VT01 and VT02b) for the Grand Spider Orchid (*Caladenia huegelii* – Critically Endangered) was identified within a small portion of the application area (CDM Smith, 2020a; 2020b; GIS Database).

The survey was completed outside of the EPA's recommended season of Spring for identifying perennial and annual species, and outside of the flowering period of *Caladenia huegelii* (WA Herbarium, 1998-). CDM Smith (2020b) states that *C. huegelii* can be difficult to identify without a flower, which may not be present every year. The species typically flowers from September to October, with basal leaves appearing from July and expected that basal leaves would be present at the time of the survey. DBCA (2021) advise that this species is difficult to identify when not in flower. Populations of *C. huegelii* were previously recorded outside the application area in the southern boundary of the Caladenia Grove Wetland (CDM Smith, 2020a; GIS Database).

The targeted flora survey was also undertaken outside the flowering times of the Threatened flora species *Drakaea elastica* and *D. micrantha*, with vegetation type VT01 containing suitable habitat for *D. elastica* (DBCA, 2021).

All known habitat for *C. huegelii* is considered important to the species survival (DBCA, 2021). Aerial imagery suggests that the suitable habitat for *C. huegelii* appears to be in a degraded condition (DBCA, 2021; Keighery, 1994; GIS Database), and CDM Smith (2020a; 2020b) indicates that this area is in good to completely degraded condition (Keighery, 1994). Highly degraded or small areas of habitat have lower potential for long-term species persistence, and are less likely to be considered a significant impact if cleared (DBCA, 2021). Given that the area of suitable habitat for *C. huegelii* and *D. elastica* is relatively small (0.32 hectares), with the majority of the suitable habitat in a degraded condition, the proposed clearing of native vegetation is not likely to significantly impact the conservation significance of these species.

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

**Methodology** CDM Smith (2020a)  
CDM Smith (2020b)  
DBCA (2021)  
Keighery (1994)  
WA Herbarium (1998-)

GIS Database:

- Aerial Imagery
- 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 did not identify any TECs (CDM Smith, 2020a; 2020b).

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

**Methodology** CDM Smith (2020a)  
CDM Smith (2020b)

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 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 38% of the pre-European vegetation exists in the IBRA Swan Coastal Plain Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation association 1001: Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (GIS Database).

Beard vegetation association 1001 retains approximately 22 per cent of its pre-European extent at a State and Bioregion level which is less than the 30 per cent threshold level recommended in the National Objectives and Targets for Biodiversity Conservation, below which species loss appears to accelerate exponentially at an ecosystem level (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	1,501,222	579,813	38.62%	Depleted	17.98 (38.45)
IBRA Subregion - Perth	1,117,757	466,143	41.70%	Depleted	20.51 (39.29)
Local Government – City of Cockburn	17,087	4,744	27.77%	Vulnerable	18.25 (44.74)
Local Government – City of Canning	6,432	408.36	6.35%	Endangered	1.87 (14.70)
Beard vegetation associations - State					
1001	57,410	12,661	22.05%	Vulnerable	6.34
Beard vegetation associations - Bioregion					
1001	57,410	12,661	22.05%	Vulnerable	6.34 (14.19)
Beard vegetation associations - subregion					
1001	57,410	12,661	22.05%	Vulnerable	6.34 (14.19)

\* Government of Western Australia (2019)

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

The application area is a remnant of native vegetation in an extensively cleared area (GIS Database). The proposed clearing of vegetation type VT01 within the application area will result in a loss of a portion of this vegetation that represents the last remaining vegetated linkage along the south side of the rail line that links two bushland areas (Ranford Road to Parkland Trail) (DBCA, 2021). This clearing is limited in area and is unlikely to be significant at a regional scale. The clearing is more significant at a local scale and is likely to impact on the remainder of the vegetation in this strip as a consequence of reduced width of the linkage.

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

**Methodology** Commonwealth of Australia (2001)  
DBCA (2021)  
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 not at variance to this Principle**

There are no watercourses or wetlands within the area proposed to clear (CDM Smith 2020a; 2020b; GIS Database).

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

**Methodology** CDM Smith (2020a)  
CDM Smith (2020b)  
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 proposed clearing of native vegetation has the potential to cause water and wind erosion, given the sandy nature of the soils within the application area (CDM Smith, 2020a). However, given these soils are porous and well-drained and the small area (1.985 hectares) proposed to be cleared, the risk of erosion is considered low.

The application area sits within an area with a 'moderate to low risk' of Acid Sulfate Soil occurring, with a small eastern section of the application area intersecting an area with a 'high to moderate risk' of Acid Sulfate Soils occurring within the application area (GIS Database).

APA (2020) advise that the proposed clearing of native vegetation within the application area is not expected to expose Acid Sulfate Soils. Any exposure of any Acid Sulfate Soil material will be managed in accordance with DWER guidelines, and an Acid Sulphate Soils and Dewatering Management Plan (APA, 2020).

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

**Methodology** APA (2020)  
CDM Smith (2020a)

GIS Database:  
- Acid Sulfate Soil Risk Map, Swan Coastal Plain

**(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 an un-named Nature Reserve which is located approximately 4 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**

The western portion of the application area sits within the Jandakot Underground Water Pollution Control Area Public Drinking Water Source Area, declared under the provisions of the *Metropolitan Water Supply, Sewage and Drainage Act 1909* (APA, 2020).

Groundwater salinity within the application area is mapped at less than 500 milligrams per litre (marginal) (GIS Database). Given the small amount of proposed clearing of native vegetation, it is not likely that the proposed clearing will lead to a measureable rise in the water table and therefore an increase groundwater salinity levels.

Given the localised nature of the disturbance to vegetation and the deep sandy soils present in the area, it is unlikely that clearing of native vegetation within the application area will disturb or interrupt any natural drainage and surface run-off patterns (APA, 2020).

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

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

**Methodology** APA (2020)

GIS Database:

- Hydrography, Linear
- Public Drinking Water Source Areas

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

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

There are no permanent water courses or waterbodies within the application area (GIS Database). The soils within the application area are generally sandy and porous, and the area is generally well-drained (APA, 2020).

Given the size of the area to be cleared, the proposed clearing of native vegetation within the application area is highly unlikely to cause or exacerbate the incidence or intensity of flooding in the local area.

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

**Methodology** APA (2020)

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 November 2020 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. Two submissions were received in relation to this application, one submission stating no objection to the proposed clearing and the other submission requested that appropriate management conditions be placed on the permit.

There is one native title claim over the area under application (DPLH, 2021). This claim has 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.

The relocation of the Parmelia Gas Pipeline is to accommodate the Public Transport Authority (PTA) Metronet Project in the greater Perth region. The Thornlie-Cockburn Link (TCL) project involves laying new passenger rail line adjacent to the existing Midland to Kwinana freight rail line on this route. Two new train stations, Nicholson Road Station and Ranford Road Station, will also be constructed. To allow the proposed works for the TCL to proceed, the PTA has asked APA Group (APA) to relocate two short sections of the Parmelia Gas Pipeline (APA, 2020).

**Methodology** APA (2020)  
DPLH (2021)

## 4. References

- APA (2020) Parmelia Gas Pipeline. Thornlie-Cockburn Link Relocations, Supporting Information, Purpose Permit to Clear Native Vegetation. APA Group, October 2020.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- CDM Smith (2020a) Thornlie-Cockburn Link Project – Ranford Road Flora and Fauna Survey. Memorandum prepared for APA Group by CDM Smith, September 2020.
- CDM Smith (2020b) Thornlie-Cockburn Link Project – Ranford Road and Glen Iris Flora and Fauna Survey. Memorandum prepared for APA Group, by CDM Smith, September 2020.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- DBCA (2021) Advice received in relation to Clearing Permit Application CPS 9095/1. Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, Western Australia, February 2021.
- DEC (2008) Forest black cockatoo (Baudin's cockatoo, *Calyptorhynchus baudinii*, and forest red-tailed black cockatoo, *Calyptorhynchus banksii naso*) Recovery Plan. Department of Environment and Conservation, Canberra.
- DPaW (2013) Carnaby's cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Department of Parks and Wildlife, Perth, 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 7 January 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.
- 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.  
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- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Threatened Species Scientific Committee (2016) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain Ecological Community. Canberra: Department of the Environment and Energy.  
<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> (Accessed 7 January 2021).

## 5. Glossary

### Acronyms:



<b>BC Act</b>	<i>Biodiversity Conservation Act 2016, Western Australia</i>
<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, Western Australia</i>
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)</i>
<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, Western Australia</i>
<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.