



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 5681/1

File Number: 2011/006791-1

Duration of Permit: From 21 September 2013 to 21 September 2015

PERMIT HOLDER

The City of Gosnells

LAND ON WHICH CLEARING IS TO BE DONE

Lot 11 on Plan 15600, Canning Vale

Nicholson Road reserve (PIN 1302061, 11696508, 11696509, 11876327, 11871427), Canning Vale

Fairlie Road reserve (PIN 11917331), Canning Vale

Govan Road reserve (PIN 1136316, 11566880), Canning Vale

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.75 hectares of native vegetation within the area hatched yellow on attached Plan 5681/1.

CONDITIONS

1. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) shall only move soils in *dry conditions*;
- (c) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

DEFINITIONS

The following meanings are given to terms used in this Permit:

dieback means the effect of *Phytophthora* species on native vegetation;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in the former Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
- (c) not indigenous to the area concerned.



M Warnock
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

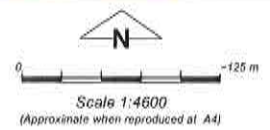
22 August 2013

Plan 5681/1



LEGEND

- | | |
|------------------------------|--|
| Clearing Instruments | Cadastre for labelling |
| Areas Approved to Clear | Perth Metropolitan Area |
| Local Government Authorities | Central 15cm Orthomosaic - Landgate 2012 |
| Road Centrelines | |



Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

M Warnock Date 22/8/13
M Warnock

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Government of Western Australia
Department of Environment Regulation

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* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



1. Application details

1.1. Permit application details

Permit application No.: 5681/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: City of Gosnells

1.3. Property details

Property: LOT 11 ON PLAN 15600 (Lot No. 11 GOVAN CANNING VALE 6155)
ROAD RESERVE (CANNING VALE 6155)

Local Government Area: City of Gosnells
Colloquial name: Nicholson Road Dual Carriageway

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.75		Mechanical Removal	Road construction or maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 22 August 2013

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The vegetation under application is mapped as Beard vegetation association 1001 (Bassendean) which is described as: Medium very sparse woodland; Jarrah, with low woodland; Banksia & Casuarinas (Shepherd et al. 2001).	Nicholson Road Dual Carriageway. The application is to clear 0.75 hectares of native vegetation within Lot 11 on Plan 15600, Nicholson Road reserve, Fairlie Road reserve and Govan Road reserve, Canning Vale, City of Gosnells, for the purpose of constructing a dual carriageway.	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).	In the northern section of the application area the vegetation under application includes open grasses with emergent trees and closed sedgeland. In the southern section vegetation includes tall open scrub and low Melaleuca woodland. Native vegetation identified at the site includes emergent Acacia sp., Banksia sp., Xanthorrhoea sp., Eucalyptus sp., Casuarina sp. and Melaleuca sp. with a shrub and sedge understorey. Invasive grasses and herbaceous weed species are present within disturbed sections of the application area. The vegetation description and condition were determined from a site inspection (DER 2013).

3. Assessment of application against clearing principles

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

Comments

Proposal may be at variance to this Principle

The application is to clear 0.75 hectares of native vegetation for the purpose of constructing a dual carriageway. The vegetation under application is within a vegetated road reserve that is approximately 10 – 15 metres wide and approximately 710 metres long. Vegetation description and condition vary along the length of the application area. The vegetation is considered to be in a completely degraded (Keighery 1994) condition in the north, and in a very good (Keighery 1994) condition in the south (DER 2013).

A site inspection confirms that intact vegetation within the application area ranges from a closed sedgeland in the north to a tall open scrub and low Melaleuca woodland in the south. Emergent Acacia sp., Banksia sp., Xanthorrhoea sp., Eucalyptus sp., Casuarina sp. and Melaleuca sp. are present throughout the application area, with a dense shrub and sedge understorey in intact sections, and open grasses in more disturbed areas. Weed species are present within more disturbed sections of the application area (DER 2013).

There are fifty-eight species of priority flora recorded within the local area (10 kilometre radius). There are two species of priority flora within 500 metres of the application area. The first species (Priority 4) occurs within grey, black or peaty sand, and within winter-wet flats (WA Herbarium 2013). The second species (Priority 3) occurs within sandy-peat swamps and seasonally wet areas (WA Herbarium 2013). Surface soils within the

application area were observed to contain grey sand and sandy loam over black loam (DER 2013). The application area may therefore contain suitable habitat for the two priority species recorded within close proximity to the local area.

There are four Priority Ecological Communities (PECs) within the local area (10 kilometre radius). The closest PEC to the application area is SCP21c (Priority 3), named 'Low lying Banksia attenuata woodlands or shrublands' located approximately 1.8 kilometres south-west of the application area. The application area contains few Banksia individuals (DER 2013) and is therefore unlikely to be representative of this PEC.

The application area is within an area identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a Multiple Use category dampland (seasonally inundated dampland) and is directly adjacent to areas identified as Conservation category dampland. The application area was once part of an extensive dampland system, of which the Conservation category areas are vegetated remnants. The application area is within the Bennett Brook natural consanguineous wetland suite (DPaW 2013). The Conservation category dampland areas adjacent to the application area are considered to be very important, particularly in terms of representativeness (DPaW 2013). Intact areas of the application area may be representative of this dampland system. The vegetation within adjacent Conservation wetland areas appears to be in very good (Keighery 1994) to excellent (Keighery 1994) condition (DER 2013). The removal of the vegetation under application is therefore unlikely to reduce the level of biological diversity within the local area.

Given that the application area may contain suitable habitat for two species of priority flora and contains important wetland values, the proposed clearing may be at variance to this principle.

A site inspection showed that there is altered drainage and weed invasion within the application area (DER 2013). The adjacent Conservation category wetland areas are therefore likely to provide more suitable habitat for these priority flora species, and better represent wetland values. Dieback and weed control management strategies would reduce the likelihood of impact to adjacent Conservation category wetland areas.

Methodology

References:

DER (2013)
DPaW (2013)
Keighery (1994)
WA Herbarium (2013)

GIS Databases:

- Geomorphic Wetlands, Swan Coastal Plain
- SAC Biodatasets (accessed on 16/07/13)

(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 not likely to be at variance to this Principle

Nine fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 are recorded within the local area (10 kilometre radius). This includes the Forest Red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's Cockatoo (*Calyptorhynchus baudinii*), Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Southern Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*), Chuditch (*Dasyurus geoffroii*), Numbat (*Myrmecobius faasciatus*), Curlew Sandpiper (*Calidris ferruginea*), and two species of bee (*Leioproctus douglasiellus* and *Neopasiphae simplicior*) (DEC 2007-).

The vegetation under application is approximately 10-15 metres wide. The proximity of the application area to a busy road indicates that it is unlikely to provide suitable habitat for a number of fauna species. Vegetation contained within Conservation category wetlands adjacent to the application area is likely to provide more suitable habitat for fauna species within the local area. Removal of a buffer between the road and these adjacent areas may however reduce the size and suitability of habitat within these areas.

The Forest Red-tailed Black Cockatoo, Baudin's Cockatoo and Carnaby's Cockatoo nest in large hollows of Eucalyptus and Corymbia trees and forage on the seeds, nuts and flowers of a large variety of plants including Proteaceae (*Banksia*, *Hakea*, *Grevillea*), Casuarina, Eucalyptus and Corymbia species (Shah 2006; Chapman 2008; Valentine and Stock 2008). Few individuals of these plant genera are present within the application area. One tree within the application area was a nesting species; however this tree was damaged and contained no hollows (DER 2013). The proposed clearing is therefore unlikely to contain suitable habitat for these black cockatoo species.

In the southwest of Western Australia the Brush-tailed Phascogale has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees. Records are less common in high rainfall areas (DEC 2012a). The wetland vegetation within the application area is unlikely to contain suitable habitat for this species, and no trees containing hollows were observed.

The Chuditch (*Dasyurus geoffroii*), Numbat (*Myrmecobius faasciatus*) and Curlew Sandpiper are unlikely to be found within the application area. The Chuditch require habitats that are of a suitable size and not excessively fragmented (DEC 2012b). Numbats are found in eucalypt forests and woodlands dominated by *Eucalyptus marginata*, *Eucalyptus calophylla* and *Eucalyptus wandoo* (DSEWPac 2013a). In non-tidal wetlands, the

Curlew Sandpiper usually wade in water 15-30 millimetres deep. They forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores (DSEWPaC 2013b). No inundated areas were observed within the application area.

Specimens of *Leioproctus douglasiellus* (native bee) have been collected on two plant species, both of which are on the DEC Priority Flora list: *Goodenia filiformis* (Priority 3) and *Anthotium junciforme* (Priority 4) (TSSC 2013). Neither of these flora species is recorded within the local area (10 kilometre radius). *Neopasiphae simplicior* (native bee) is known at a single location, which is within Forrestdale Lake Nature Reserve. The extent of occurrence and area of occupancy of this species is estimated at one square kilometre (TSSC 2008a). The Forrestdale Lake Nature Reserve is located approximately 6.2 kilometres south of the application area.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

References:

Chapman (2008)
DEC (2007-)
DER (2013)
DSEWPaC (2013a)
DSEWPaC (2013b)
DEC (2012a)
DEC (2012b)
Shah (2006)
TSSC (2008a)
TSSC (2013)
Valentine and Stock (2008)

GIS Databases:

- Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012

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

Comments

Proposal may be at variance to this Principle

Seventeen species of rare flora are recorded within the local area (10 kilometre radius). Of these, two species are recorded within 150 metres of the application area.

There are several populations of the first rare flora species recorded within 500 metres of the application area, all of which are listed in the databases as extinct. The closest extinct population of this species is recorded on private property approximately one metre from the application area. Aerial imagery indicates that this population is extinct due to residential and industrial development. This species occurs within sand to sandy clay soil in areas subject to winter inundation, amongst native sedges and dense heath with scattered emergent *Melaleuca preissiana*, *Corymbia calophylla*, *E. marginata* (Jarrah) and *Nuytsia floribunda* (TSSC 2008b). This species flowers from late September to mid-October, but only after a summer or early autumn fire (Brown et al. 1998). Suitable habitat for this species may be present within the application area.

There is a population of the second rare flora species recorded approximately 120 metres from the application area. This population is listed as probably extinct. This species flowers occurs within deep sandy soils in Jarrah and Banksia woodlands and prefers lush undergrowth (WA Herbarium 2013). Jarrah and Banksia woodland are not present within the application area, and the application area is therefore unlikely to contain suitable habitat for this species.

Given that the application area may contain suitable habitat for the first species of rare flora, the proposed clearing may be at variance to this principle.

There is historical disturbance from residential and industrial development within the local area. A site inspection showed that there is altered drainage and weed invasion within the application area, and the area had not been burnt for a number of years (DER 2013). The likelihood of either of the rare flora species recorded within the local area occurring within the application area is therefore considered to be low.

Methodology

References:

Brown et al. (1998)
DER (2013)
TSSC (2008b)
WA Herbarium (2013)

GIS Databases:

- Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012
- SAC Biodatasets (accessed on 16/07/13)

(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 eight threatened ecological communities (TECs) within the local area (10 kilometre radius). The closest TEC to the application area is named 'Shrublands and woodlands on Muchea Limestone', which is located approximately five kilometres south-east of the application area. The vegetation, soil and landform of the application area are not suitable for the presence of this TEC.

The proposed clearing is therefore not likely to be at variance to this principle.

Methodology GIS databases:
- SAC Biodatasets (accessed on 16/07/13)

(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 likely to be at variance to this Principle

The area under application is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 39 per cent of its Pre European vegetation extent remaining (Shepherd 2009).

The vegetation under application is mapped as Beard Vegetation Association 1001, and Heddle Vegetation Complex Southern River, which have approximately 25 per cent and 20 per cent of Pre European extent remaining in the Swan Coastal Plain bioregion (Government of Western Australia 2013).

Digital imagery (Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012) indicates that the local area (10 kilometre radius) retains approximately 20 per cent vegetation cover.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Within constrained areas (i.e. areas of urban development in cities and major towns) on the Swan Coastal Plain and within the Greater Bunbury Region Scheme and Peel Region Scheme the target for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA 2006).

Given that the application area is within a constrained area, and the remaining percentage of native vegetation is above 10 per cent within all vegetation community and area units measured (see table below), the proposed clearing is not likely to be at variance to this principle.

	Pre-European (hectares)	Current Extent (hectares)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion				
Swan Coastal Plain	1 501 222	587 708	39	35
Shire				
City of Gosnells	12 716	3 673	29	16
Beard Vegetation Association in Bioregion				
Bassendean (1001)	57 410	14 152	25	6
Heddle Vegetation Complex				
Southern River Complex	57 979	11 501	20	2

Methodology References:
Commonwealth of Australia (2001)
DPaW (2013)
EPA (2006)
Government of Western Australia (2013)

GIS Databases:
- Heddle Vegetation Complexes
- IBRA Australia
- Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012
- Veg Stats

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

Comments **Proposal is at variance to this Principle**
The application area is within an area identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a Multiple Use category dampland (seasonally inundated dampland) and is directly adjacent to areas identified as Conservation category dampland. This dataset currently displays various separate polygons within and adjacent to the application area; however, it should be noted that these polygons were originally all part of the same extensive dampland system. The areas of Conservation category are the vegetated remnants of the extensive dampland. These dampland areas are identified within the Bennett Brook consanguineous suite (natural wetland group) (DPaW 2013).

The application area contains Melaleuca and sedges associated with wetland areas (DER 2013).

The application is therefore at variance to this principle.

The Department of Parks and Wildlife (DPaW) has previously provided advice on this proposal regarding the use of appropriate stormwater management to reduce impacts on wetland hydrology (DPaW 2013). The applicant has advised that this advice has been taken into consideration during road design.

DPaW (2013) recommended that construction activities be appropriately managed to reduce their impact on vegetation within adjacent Conservation category wetland areas. Weed and dieback control management could help to reduce these impacts.

Methodology References:
DER 2013
DPaW (2013)

GIS Databases:
- Geomorphic Wetlands Swan Coastal Plain dataset

(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**
Mapped soil type within the application area is Cb38, which Northcote et al. (1960-1968) describe as: sandy dunes with intervening sandy and clayey swamp flats: chief soils are leached sands, sometimes with a clay D horizon below 5 feet, on the dunes and sandy swamps. Associated are various soils in the clayey swamps. Surface soils within the application area were observed to contain grey sand and sandy loam over black loam (DER 2013). Substratum soils were not investigated during the site inspection.

The application area is within a dampland system and alteration to the hydrology and waterflow patterns may result from the proposed clearing. Erosion and sedimentation within Conservation category wetland areas may also be caused during and after road construction (DPaW 2013). These impacts are unlikely to cause appreciable land degradation.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
DER 2013
DPaW (2013)
Northcote et al. (1960-1968)

GIS Databases:
- Geomorphic Wetlands Swan Coastal Plain dataset
- Soils statewide

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

Comments **Proposal is not likely to be at variance to this Principle**
There are seventeen DEC managed lands within the local area (10 kilometre radius). The closest is Balannup Lake Nature Reserve, located approximately 3.1 kilometres south-east of the application area. There are thirteen sites identified in the Register of National Estate within the local area (10 kilometre radius). The closest is Jandakot Airport Area, located approximately 2.4 km west of the application area. Given the distance from the application area to these sites, the proposed clearing is unlikely to impact the environmental values of these conservation areas.

There are forty-four Bush Forever sites within the local area (10 kilometre radius). The closest is Site 472, located approximately 340 metres south-east of the application area, and Site 389 is located approximately 360 metres south-west of the application area. The application area is not connected by a vegetated linkage to these Bush Forever sites.

The southern half of the application area is adjacent to a regional ecological linkage (DPaW 2013). There is remnant vegetation adjacent to the southern portion of the application area. Clearing native vegetation within the application area is likely to reduce the width of this ecological linkage, but not fragment or remove it.

Dieback and weed management will ensure any potential impacts to this ecological linkage are mitigated.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
- Bushforever
- DEC Tenure
- Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012
- Register of National Estate

(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 may be at variance to this Principle

The application area is within an area identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a Multiple Use category dampland (seasonally inundated dampland) and is directly adjacent to areas identified as Conservation category dampland. The proposed extension to Nicholson Road will effectively remove any buffer to the Conservation category wetland areas. By removing this vegetated buffer, hydrology and waterflow patterns may be altered, which may result in erosion and sedimentation within the Conservation category wetland areas (DPaW 2013).

Given the above, the proposed clearing may be at variance to this principle.

Methodology References:
DPaW (2013)

GIS Databases:
- Geomorphic Wetlands Swan Coastal Plain dataset
- Perth Metropolitan Area Central 15cm Orthomosaic – Landgate 2012

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

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

The application area is within a dampland system and hydrology and waterflow patterns may be altered by the proposed clearing (DPaW 2013). Waterlogging may result within adjacent areas, however this is unlikely to increase the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
DPaW (2013)

GIS Databases:
- Geomorphic Wetlands Swan Coastal Plain dataset

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There are three Environmentally Sensitive Areas which intersect the application area which are associated with the wetlands and rare flora described above.

The application area is within the Perth and Jandakot Groundwater areas, as defined by the Rights in Water and Irrigation Act 1914.

The application area is within the Campbell Road estate-superlot subdivision environmental impact assessment area which was assessed by the Environmental Protection Authority in January 2005 (EPA 2005).

No sites of Aboriginal significance occur within the application area.

No public submissions have been received in relation to this application.

Methodology References:
EPA (2005)

GIS databases:
- Aboriginal Sites of Significance

- Clearing Regulations – Environmentally Sensitive Areas
- Environmental Impact Assessments
- RIWI Act, Groundwater Areas

4. References

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- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DEC (2007-) NatureMap Species Report, created by guest user on 16/07/2013 (A651113).
- DEC (2012a) Fauna profiles, Brush-tailed Phascogale *Phascogale tapoatafa* (Meyer, 1793). Department of Environment and Conservation, Western Australia.
- DEC (2012b) Western Australian Wildlife Management Program No. 54, Chuditch *Dasyurus geoffroii* Recovery Plan. Department of Environment and Conservation, Western Australia.
- DER (2013) Site Inspection Report for Clearing Permit Application CPS 5681/1. Site inspection undertaken 1 August 2013. Department of Environment Regulation, Western Australia (A664311).
- DPaW (2013) Species and Communities Advice Request Proforma, received by Native Vegetation Conservation Branch on 01/08/2013 (A656422).
- DSEWPaC (2013a) *Myrmecobius fasciatus* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: <http://www.environment.gov.au/sprat> [Accessed on 14/08/2013].
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- Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- TSSC (2008a) Approved Conservation Advice for *Neopasiphae simplicior* (a short-tongued bee). Conservation advice approved by the Minister on 16/12/2008. Threatened Species Scientific Committee, Canberra.
- TSSC (2008b) Approved Conservation Advice. Threatened Species Scientific Committee, Australia.
- TSSC (2013) Approved Conservation Advice for *Leioproctus douglasiellus* (a short-tongued bee). Conservation advice approved by the Minister on 26/04/2008. Threatened Species Scientific Committee, Canberra.
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Gnarup Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation, Western Australia.
- WA Herbarium (2013) Florabase the Western Australian Flora, Species information. Department of Parks and Wildlife, Western Australia.

5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)