



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 5743/1
File Number: DER2013/000382-1
Duration of Permit: From 1 August 2015 to 1 August 2017

PERMIT HOLDER

Eastern Metropolitan Regional Council

LAND ON WHICH CLEARING IS TO BE DONE

Lot 12 on Deposited Plan 26468, Gidgegannup

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 3.4 hectares of native vegetation within the area hatched yellow on attached Plan 5743/1.

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) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared;
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;

2. Offsets – conservation covenant

Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall:

- (a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the *covenant area* for the protection and management of vegetation in perpetuity; and
- (b) provide to the CEO a copy of the executed conservation covenant no later than 30 June 2016.

3. Offset - vegetation maintenance

The Permit Holder shall:

- (a) prior to 30 December 2015, prepare a Weed Management Plan to the satisfaction of the CEO, outlining the actions the Permit Holder will take at least once in each 12 month period for the term of this Permit to remove or kill weeds within the *covenant area*; and
- (b) implement and adhere to the Weed Management Plan.

Definitions

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

DEFINITIONS

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

Covenant area means the area of land cross-hatched red on attached Plan 5743/1

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

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 a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



M Warnock
SENIOR MANAGER
CLEARING REGULATION

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

2 July 2015

Plan 5743/1



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority
-  Clearing Regulations - Environmentally Sensitive Areas
-  Clearing Instruments Conditions



1:9,451
 (Approximate when reproduced at A4)
 GDA 94 (Lat/Long)
 Geocentric Datum of Australia 1994

M Warnock Date 2/7/15
 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



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 WESTERN AUSTRALIA
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1. Application details

1.1. Permit application details

Permit application No.: 5743/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Eastern Metropolitan Regional Council

1.3. Property details

Property: LOT 12 ON PLAN 26468, GIDGEGANNUP
Colloquial name:
Local Government Authority: City of Swan
DER Region: Swan

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.4		Mechanical Removal	Geotechnical investigations

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 2 July 2015

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
Mapped Beard vegetation association 3 is described as: Medium forest; jarrah-marri (Shepherd et al 2001).	Clearing of 3.4 hectares of native vegetation within Lot 12 on Plan 26468, Toodyay is for the purpose of geotechnical investigations.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation proposed to be cleared consists of Jarrah-Marri forest over sparse understorey and Jarrah – Marri forest over Banksia sessilis (Bamford Consulting Ecologists 2010).
Mattiske vegetation complex 'D2' is described as open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on lateritic uplands in subhumid and semiarid zones (Mattiske and Havel 1998).		To Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The area under application consists predominately of Jarrah (Eucalyptus marginata), Marri (Corymbia calophylla), Banksia sessilis and Sheoak. The area contains very little midstorey and no understorey (DER 2013). Helena Holdings WA (2010) identified that the condition of the remnant bushland within the application area varied from good to degraded (Keighery 1994). The impacts of past logging, animal grazing and middle storey shrub deaths due to senescence were evident within the application area. The vegetation condition and description was determined from a site inspection (DER 2013), fauna assessment undertaken by Bamford Consulting Ecologists (2010) and flora and vegetation assessment undertaken by Helena Holdings WA (2010).

3. Assessment of application against clearing principles

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

Comments **Proposal is not likely to be at variance to this Principle**
The amended application is to clear 3.4 hectares of native vegetation within Lot 12 on Plan 26468, Toodyay for the purpose of geotechnical investigations.

A Flora and Vegetation Assessment conducted within Lot 12 on 27 October 2010, including the area under application, recorded a total of 39 taxa from a diverse range of 18 Families (Helena Holdings WA 2010). Helena Holdings WA (2010) identified that the condition of the remnant bushland within the application area varied from good to degraded (Keighery 1994). The impacts of past logging, animal grazing and middle storey shrub deaths due to senescence were evident within the application area (Helena Holding WA 2010).

Numerous priority flora species have been recorded within the local area (five kilometre radius). A Flora and Vegetation Assessment conducted within Lot 12 identified two occurrences of a Priority 4 flora species (Helena Holdings WA 2010). Priority four flora species 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. This species has been well recorded locally from John Forrest National Park, Kalamunda, Glen Forest, Mundaring, Parkerville, Chidlow and Lesmurdie (Helena Holdings WA 2010). This species is widely distributed and recorded in a number of local government areas including: Armadale, Beverley, Boddington, Brookton, Canning, Chittering, Kalamunda, Kojonup, Mundaring, Swan, Toodyay, Wandering and Williams (Western Australian Herbarium 1998-). Given the wide distribution of this species, the clearing of two occurrences is not likely to have an impact on the conservation status of this species.

Numerous fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 have been recorded within the local area (five kilometre radius), including: *Calyptorhynchus banksii* subsp. *naso* (forest red-tailed black-cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Dasyurus geoffroi* (chuditch) and *Phascogale tapoatafa* subsp. *tapoatafa* (southern brush-tailed phascogale) (Parks and Wildlife 2007-). The vegetation proposed to be cleared is foraging habitat and possible breeding habitat for black cockatoo species. Given the lack of understorey present within the area under application the vegetation proposed to be cleared is not likely to provide significant habitat for ground dwelling fauna.

The area under application is located adjacent to remnant vegetation. The clearing as proposed may indirectly impact this vegetation through the spread of weeds and dieback. Weed and dieback management practices will help mitigate this risk.

Given that the vegetation proposed to be cleared is in a degraded to good (Keighery 1994) condition and has been impacted by past logging and grazing, it is not likely to contain a high biological diversity.

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

Methodology

References:

- Bamford Consulting Ecologists (2010)
- Helena Holdings WA (2010)
- Parks and Wildlife (2007-)
- Keighery (1994)
- Western Australian Herbarium (1998-)

GIS Database:

- SAC Bio Datasets June 2015

(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

Numerous fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 have been recorded within the local area (five kilometre radius), including: *Calyptorhynchus banksii* subsp. *naso* (forest red-tailed black-cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Dasyurus geoffroi* (chuditch) and *Phascogale tapoatafa* subsp. *tapoatafa* (southern brush-tailed phascogale) (Parks and Wildlife 2007-).

Bamford Consulting Ecologists (2010) undertook a fauna assessment of the vegetation located within Lot 12 including the area under application. Bamford Consulting Ecologists (2010) identified a number of conservation significant species that may occur within the application area including: carpet python (*Morelia spilota imbricata*), fork-tailed swift (*Apus pacificus*), forest red-tailed black-cockatoo, Baudin's cockatoo, and Carnaby's Cockatoo, peregrine falcon (*Falco peregrinus*), rainbow bee-eater (*Merops ornatus*), chuditch and southern brush-tailed phascogale.

Bamford Consulting Ecologists (2010) advised that the application area may be too degraded for ground dwelling fauna and given the lack of substantial understorey it is not likely to be significant habitat for these species. Bamford Consulting Ecologists (2010) advised the impact of the proposed clearing for avifauna, forest red-tailed black-cockatoo, Baudin's cockatoo and Carnaby's cockatoo is considered to be moderate to low. The peregrine falcon and rainbow bee-eater may utilise the area under application but their habitat is widespread and therefore the vegetation within the application area is not likely to be significant habitat for these species (Bamford Consulting Ecologists 2010).

A black cockatoo assessment was undertaken on 7 April 2014 by Bamford Consulting Ecologists (2014). This assessment identified that the application area contained several species of value as foraging habitat for black cockatoos including Marri, Jarrah, Parrot Bush and Sheoak with scattered Bull Banksia and Snottygobble. Very

old signs of forest red tailed black cockatoo feeding on marri was identified within Lot 12 outside of the application area. In addition Baudin's cockatoo was recorded during the fauna survey, with evidence of foraging observed throughout the native vegetation (Bamford Consulting Ecologists 2010).

Approximately six trees with DBH of greater than 50 centimetres were recorded within the area under application (Bamford Consulting 2014). During the black cockatoo assessment no active nests were found. One potential suitable hollow was identified within Lot 12, the remaining trees identified have the potential to develop suitable breeding hollows in the future (Bamford Consulting Ecologists 2014). Only a limited number of quadrats were undertaken within the application area and therefore the number of potential black cockatoo breeding trees is expected to be larger than the six trees identified (Bamford Consulting Ecologists 2014).

Carnaby's cockatoo is listed as endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Carnaby's cockatoo was once abundant in Western Australia. Since the late 1940s the species has suffered a 30 per cent contraction in range, a 50 per cent decline in population, and between 1968 and 1990 disappeared from more than a third of its breeding range (Saunders 1990; Johnstone and Storr 1998; Saunders and Ingram 1998; Garnett et al. 2011).

Basic ecological theory, expert opinion and recent evidence suggests that the foraging habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore any reduction in the amount of food source will result in a reduction in the carrying capacity of the region and therefore a decline in the population of Carnaby's cockatoo.

Given the above the clearing of 3.4 hectares of native vegetation is likely to have an impact on significant habitat for the forest red-tailed black-cockatoo, Baudin's cockatoo and Carnaby's Cockatoo.

Therefore the clearing as proposed is at variance to this principle.

To address the environmental impacts identified in this assessment the applicant has provided an offset package which consists of retaining in perpetuity 12.1 hectares of native vegetation in good (Keighery 1994) condition, which contains foraging and potential breeding habitat for the black cockatoo species.

Methodology

References:

- Bamford Consulting Ecologists (2010)
- Bamford Consulting Ecologists (2014)
- Garnett et al (2011)
- Johnstone and Storr (1998)
- Keighery (1994)
- Parks and Wildlife (2007-)
- Saunders (1990)
- Saunders and Ingram (1998)

GIS Database:

- Sac Biodata sets - accessed June 2015

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

Comments

Proposal is not likely to be at variance to this Principle

One species of rare flora has been recorded within the local area (five kilometre radius). This species is found on steep granite slopes along the Darling Scarp in shallow, humus rich, loamy soil. Suitable habitat for this species is not located within the area under application (Brown et al 1998).

A Flora and Vegetation Assessment conducted within Lot 12, including the area under application, on 27 October 2009 did not identify any rare flora species within the application area (Helena Holdings WA 2010).

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

Methodology

References:

- Brown et al (1998)
- Helena Holdings WA (2010)

GIS Database:

- Sac Biodata sets - accessed June 2015

(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 at variance to this Principle

No threatened ecological communities (TEC) have been recorded within the local area (five kilometre radius). A flora and vegetation survey undertaken by Helena Holdings WA Pty Ltd (2010) did not identify any TECs within the area under application.

The vegetation proposed to be cleared is in a degraded to good (Keighery 1994) condition. The impacts of past

logging, animal grazing and middle storey shrub deaths due to senescence are evident within the application area. The area contains very little midstorey and no understorey (DER 2013).

Given the above the clearing as proposed is not at variance to this principle.

Methodology

References:

- Helena Holdings WA (2010)

GIS Database:

- Sac Biodata sets - accessed June 2015

(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 Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 54 per cent of its Pre European vegetation extent remaining (Government of Western Australia 2013).

The vegetation under application is mapped as Beard Vegetation Association 3, Mattiske Vegetation Complex 'D2' and Heddle Vegetation Complex 'Dwellingup Complex In Medium to High Rainfall', which have approximately 68, 83 and 82 per cent of their Pre-European extent remaining in the Jarrah Forest bioregion respectively (Government of Western Australia 2013, Parks and Wildlife 2015).

The National Objectives and Targets for Biodiversity Conservation include a target that prevents the clearance of ecological communities with an extent below 30 per cent of that present pre-European settlement (Commonwealth of Australia, 2001).

Digital imagery indicates that the local area (five kilometre radius) surrounding the area under application retains approximately 45 per cent vegetation cover.

The application area contains foraging and possible breeding habitat for protected fauna therefore the vegetation proposed to be cleared is considered to be a significant remnant. However, given that the local area (five kilometre radius) retains approximately 45 per cent vegetation cover, the area under application is not considered to be located within an extensively cleared area.

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

Pre-European	Current Extent (ha)	Remaining Extent in Parks and Wildlife Managed Lands (ha)	(%)	(%)
IBRA Bioregion*				
Jarrah Forest	4,506,660	2,459,298	54	68
Shire*				
City of Swan	104,252	45,543	43	29
Beard Vegetation Association in Bioregion*				
3	2,390,591	1,631,110	68	80
Heddle Vegetation Complex **				
Dwellingup Complex In Medium\ To High Rainfall	83,659	68,868	82	68
Mattiske Vegetation Complex **				
D2	86,128	71,243	83	6

* Government of Western Australia (2013)

** Parks and Wildlife (2015)

Methodology

References:

- Government of Western Australia (2013)
- Commonwealth of Australia (2001)
- Parks and Wildlife (2015)

GIS Databases:

- Heddle Vegetation
- IBRA Australia
- Local Government Authority
- Mattiske (1998)
- 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**
No watercourses or wetlands are located within the application area. The closest minor watercourse is located approximately 400 metres north of the application area.

The closest major watercourse is 'Susannah Brook' located approximately 1.4 kilometres north of the application area.

A Flora and Vegetation Assessment undertaken by Helena Holdings WA (2010) did not identify any riparian vegetation on site and given the distance to the closest watercourse the vegetation proposed to be cleared is not growing in association with a watercourse or wetland.

Therefore the clearing as proposed is not at variance to this principle.

Methodology References:
-Helena Holdings WA (2010)
- DER (2013)

GIS Databases:
- Geomorphic Wetlands, Swan Coastal Plain
- Hydrology, linear- Hydrology, 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 at variance to this Principle**
The chief soils mapped within application area are ironstone gravels with sandy and earthy matrices; the soils blanket the slopes and ridges extending down into the upper ends of the minor valleys (Northcote et al 1960-1968).

Given the soil type located within the application area the clearing as proposed is not likely to cause wind or water erosion. Therefore the clearing as proposed is not likely to cause appreciable land degradation.

Given the above the clearing as proposed is not at variance to this principle.
Methodology References:
- Northcote et al (1960-1968)

GIS Databases:
- 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 may be at variance to this Principle**
John Forrest National Park is located approximately 800 metres south west of the area under application.

The vegetation located within the area under application contains habitat for the forest red-tailed black-cockatoo, Baudin's cockatoo and Carnaby's cockatoo which are specially protected under the Environment Protection and Biodiversity Conservation Act 1999 and Wildlife Conservation Act 1950. The vegetation may act as a stepping stone for avifauna moving between conservation areas and remnant vegetation within the local area (five kilometre radius). The clearing of 3.4 hectares of native vegetation may decrease the capacity for fauna dispersal between these areas.

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

To address the environmental impacts identified in this assessment the applicant has provided an offset package which consists of retaining in perpetuity 12.1 hectares of native vegetation in good (Keighery 1994) condition which contains foraging and potential breeding habitat for the black cockatoo species
Methodology GIS Databases:
- Parks and Wildlife 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 at variance to this Principle**
No watercourses or wetlands are located within the application area. The closest minor watercourse is located approximately 400 metres north of the application area.

The closest major watercourse is 'Susannah Brook' located approximately 1.4 kilometres north of the application area.

Given the distance to the closest watercourse the clearing as proposed is not likely to cause deterioration in the
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quality of surface water.

Groundwater salinity is mapped between 500 – 1000 milligrams/Litre total dissolved solids which is considered to be 'marginal'. The clearing of 3.4 hectares of vegetation within the application is not likely to cause deterioration in the quality of underground water.

Methodology Given the above the clearing as proposed is not at variance to this principle.
GIS Databases:
- Groundwater salinity
- Hydrology, linear

(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 at variance to this Principle**
Given the soils present within the application area, distance to watercourses and position in the landscape, the proposed clearing is not expected to cause or exacerbate the incidence or intensity of flooding.

Methodology Therefore, the clearing as proposed is not at variance to this principle.
GIS Databases:
- Rainfall, Mean Annual

Planning instruments and other relevant matters.

Comments The initial application was for the clearing of 6.4 hectares of native vegetation for the purpose of waste cells, landfill and geotechnical investigations. To reduce environmental impacts the application has been amended to 3.4 hectares for the purpose of geotechnical investigations.

The Western Australia Planning Commission (2013) has granted the applicant Approval to Commence Development within Lot 12 on Deposited Plan 26468 for excavation and expansion of landfill.

The application area is mapped within an Aboriginal Site of Significance 'Darling Range'. 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.

The application area is zoned as 'Special Use' under the local Town Planning Scheme

To address the environmental impacts identified in this assessment the applicant has provided an offset package which consists of retaining in perpetuity 12.1 hectares of native vegetation in good (Keighery 1994) condition which contains foraging and potential breeding habitat for the black cockatoo species.

Methodology References:
- Western Australia Planning Commission (2013)

GIS Databases:
- Aboriginal Sites of Significance

4. References

- Bamford Consulting Ecologists (2010) Red Hill Waste Management Facility Lot 12 (Site 2) Toodyay Rd, Fauna Assessment. Western Australia. (DER Ref: A687583)
- Bamford Consulting Ecologists (2014) EMRC Red Hill Waste Facility Black Cockatoo Assessment. Western Australia. DER Ref:A766525
- Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DER (2013) Site Inspection Report for Clearing Permit Application CPS 5743/1, Lot 12 Toodyay Road, Toodyay. Site inspection undertaken 15 October 2013. Department of Environment Regulation, Western Australia (DER Ref: A687582).
- Garnett, S., Szabo, J. and Dutson, G. (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing, Melbourne, Victoria.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Helena Holdings WA (2010) Flora and Vegetation Assessment Site 2, Lot 12 within Red Hill Waste Management Facility. Western Australia. (DER Ref:A687583)
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds, Volume I, Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed June 2015
- Parks and Wildlife (2015) 2015 South West Forest and Swan Coastal Plain Vegetation Complex Statistics: a report prepared for the Department of Environment Regulation. Current as of March 2015. Department of Parks and Wildlife, Perth, Western Australia.
- Saunders, D.A. (1990). Problems of survival in an extensively cultivated landscape: the case of Carnaby's cockatoo *Calyptorhynchus funereus latirostris*. *Biological Conservation*. 54: 277-290.
- Saunders, D.A. and Ingram, J.A. (1998). Twenty-eight years of monitoring a breeding population of Carnaby's cockatoo. *Pacific Conservation Biology*. 4: 261-270.
- 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.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> (Accessed September 2013).
- Western Australia Planning Commission (2013) Approval to Commence Development for Lot 12 on Deposited Plan 26468. Western Australia (DER Ref: A687582)