



1. Application details

1.1. Permit application details

Permit application No.: 6815/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mr Edward Rzemek
Ms Gloria Rzemek

1.3. Property details

Property: Lot 3444 on Deposited Plan 205127, Muckenburra
Local Government: Shire of Gingin
Authority:
DER Region: Greater Swan
DPaW District: Swan Coastal
LCDC:
Localities: Muckenburra

1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|--------------------|-----------|--------------------|---------------------|
| 12 | | Mechanical Removal | Horticulture |

1.5. Decision on application

Decision on Permit Application: Refuse
Decision Date: 30 June 2016

Reasons for Decision: The clearing permit application received on 26 October 2016 has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing is at variance to Principle (b), may be at variance to Principles (a), (c) and (g), is not likely to be at variance to Principles (d), (h), (i) and (j), and is not at variance to Principle (f).

The applicant was advised of the preliminary assessment findings on 19 April 2016 and advised of the intent to refuse the application. The applicant was invited to submit information demonstrating the ability to avoid or minimise the impacts identified or address the variances identified with the principles for clearing native vegetation.

On 14 June, the applicant's representative advised of an intent to undertake fauna and flora surveys in October and November 2016 to clarify the levels of variance in relation to principles (a) (high biological diversity); (b) (significant habitat for indigenous fauna); and (c) (rare flora habitat) and to provide a detailed response to the assessment by December 2016.

Noting the period of time that elapsed since the application was submitted and the period of time before information can be provided to inform the assessment, the Delegated Officer decided to determine the application based on the information available at the time of the decision.

The assessment found that the proposed clearing will lead to the loss of 12 hectares of native vegetation that provides foraging habitat for Carnaby's cockatoo, which is listed as 'rare or likely to become extinct' under the *Wildlife Conservation Act 1950*. The proposed clearing may also impact two rare flora and three priority flora species.

State policies and other relevant policies have been taken into consideration in the decision to refuse to grant a clearing permit.

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 |
|---|---|--|---|
| Beard vegetation association 1014 is described as a mosaic of low woodland; banksia / shrublands; teatree thicket (Shepherd et al., | The applicant proposes to clear up to 12 hectares of native vegetation within Lot 3444 on | Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, | Vegetation condition was determined via aerial imagery and a site inspection conducted by officers from the |

Hedde vegetation complex
Bassendean complex - north is
described as low open forest, low
woodland and sedgeland, whereby
vegetation ranges from a low open
forest and low open woodland of
Banksia species, *Eucalyptus tottiana*
(pricklybark) to low woodland of
Melaleuca species and sedgeland
within moister sites (Hedde et al.,
1980).

Muckenburra.

To:

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

Regulation (DER) in January
2016 (DER, 2016).

Three tracks intersect the
application area, however no
other disturbances to
vegetation are evident (DER,
2016).

3. Assessment of application against clearing principles

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

Comments

Proposed clearing may be at variance to this Principle

The application proposes to clear up to 12 hectares of native vegetation within Lot 3444 on Deposited Plan 205127, Muckenburra, for the purpose of horticulture. The vegetation proposed to be cleared is in very good to excellent (Keighery, 1994) condition, with disturbance limited to three cleared access tracks.

A total of two rare and 12 priority flora species have been recorded within 10 kilometres of the application area. Of these, one rare flora species and three priority flora species (*Lechenaultia magnifica*, priority 1; *Anigozanthos humilis* subsp. *Badgingarra* (S.D. Hopper 7114), priority 2; *Leucopogon squarrosus* subsp. *trigynus*, priority 2) have the potential to occur within the application area based on the vegetation and soil type present (Western Australian Herbarium, 1998-). Further, advice received from the Department of Parks and Wildlife (Parks and Wildlife, 2015d) in relation to a nearby clearing permit application of the same soil and vegetation type indicates that an additional rare flora species may occur within the application area.

Lechenaultia magnifica has a highly restricted distribution, and is known from seven locations across the Shire of Gingin, the Shire of Victoria Plains and the Shire of Toodyay. Only one record occurs within the Shire of Gingin, which is also the western-most record for this species. Should this species occur within the application area, it would represent an increase in the known distribution of this species and would be considered locally significant given the high level of isolation between known records.

Anigozanthos humilis subsp. *Badgingarra* (S.D. Hopper 7114) also has a highly restricted distribution, being recorded at eight locations across the Shire of Dandaragan, the Shire of Moora and the Shire of Gingin. Only one record occurs within the Shire of Gingin. If this species occurs within the application area, it is likely to be locally significant in contributing to the persistence of this species within the Shire of Gingin.

Leucopogon squarrosus subsp. *trigynus* is known from 12 locations, 11 of which occur within the Shire of Gingin and eight of which are located within 15 kilometres of the application area. Given the number of records in relatively close proximity to the application area, the proposed clearing may not have a significant impact on this species if it is present within the application area. However, given that the species is known from a limited number of records, all populations of this species may be significant in maintaining genetic diversity across the species' range.

Should rare or priority flora occur within the application area, the proposed clearing may impact the level of floristic diversity on a local and regional scale. A flora survey targeting rare and priority flora taxa undertaken at the appropriate time of year by a suitably qualified botanist would be required to assess the potential impacts to conservation significant flora.

One priority ecological community (PEC) and three threatened ecological communities (TECs) have been recorded within 10 kilometres of the application area. Officer level advice from Parks and Wildlife (2015a) indicates that vegetation within the application area may represent the priority 3 PEC 'Swan Coastal Plain *Banksia attenuata* - *Banksia menziesii* woodlands'. Parks and Wildlife (2015b) advised that this PEC is known from approximately 50 occurrences north of Perth from Red Gully to The Vines, over a distance of about 90 kilometres. Further, Parks and Wildlife (2015b) advised that there is ongoing loss of relatively large areas of this community. Given the rate of continuing loss, any additional records may be significant. *Banksia* woodlands of the Swan Coastal Plain are currently a candidate for protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as a TEC. A level two survey, including establishing and rescoring quadrats in the appropriate seasons and statistical analysis, would be required to determine whether the vegetation proposed to be cleared is representative of the 'Swan Coastal Plain *Banksia attenuata* - *Banksia menziesii* woodlands' priority 3 PEC (Parks and Wildlife 2015a; 2015b). If this PEC does occur within the application area, the proposed clearing will add to the incremental loss of this community and may increase the fragmentation of this community within the local area. However, given the number of known occurrences, if this community is present the proposed clearing is unlikely to impact the conservation status of this PEC.

A total of three threatened and three priority 4 fauna species have been recorded within 10 kilometres of the application area (Parks and Wildlife, 2007-). Of these, the application area provides significant foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*; rare or likely to become extinct under the *Wildlife*

Conservation Act 1950 [WC Act]), and may be used by the western brush wallaby (*Macropus irma*; priority 4) for foraging and movement.

Soil disturbance and removal of native vegetation increases the risk of weeds and pathogens, such as dieback (*Phytophthora* sp.), being introduced or spread. Weed and dieback management practices would assist in mitigating the risk of introduction or spread of pathogens and invasive species into adjacent remnant vegetation.

Given the potential for a priority 3 PEC and conservation significant flora to occur, and the presence of foraging habitat for Carnaby's cockatoo in very good to excellent (Keighery, 1994) condition, the proposed clearing may be at variance to this Principle.

Methodology **References:**
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2015a)
Parks and Wildlife (2015b)
Parks and Wildlife (2015d)
Western Australian Herbarium (1998-)

GIS Databases:
- SAC bio datasets (accessed June 2016)

(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 **Proposed clearing is at variance to this Principle**

The application area contains banksia woodland fauna habitat in very good to excellent (Keighery, 1994) condition (DER, 2016). Of the three threatened and three priority 4 fauna species that have been recorded in the local area (10 kilometre radius) (Parks and Wildlife, 2007-), one species is known to utilise the application area for foraging (Carnaby's cockatoo) and one species is likely to utilise the application area for foraging and movement between remnant vegetation east and west of the application area (western brush wallaby).

Carnaby's cockatoo is experiencing dramatic decline due to land clearing for agriculture in regional areas and for urban development around Perth (Shah, 2006). As a result, the species is listed as endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Carnaby's cockatoo forages on the seeds and nectar from the flowers of the proteaceae family including *Banksia* sp., *Hakea* sp., and *Grevillea* sp., in addition to *Allocasuarina* sp. and *Eucalyptus* sp. (Valentine and Stock, 2008). Surveys of Carnaby's cockatoo populations and their feeding and roosting habits showed that this species uses the entire landscape of the Swan Coastal Plain, and that the Northern Region (in which the application area occurs) appears to be an important area throughout the season (Shah, 2006). The application area contains suitable foraging habitat for Carnaby's cockatoo, and evidence of foraging by Carnaby's cockatoo on banksia cones was observed within the property during a site inspection (DER, 2016).

The loss of foraging habitat, particularly within the Swan Coastal Plain, is a significant threat to Carnaby's cockatoo (Parks and Wildlife, 2013). Further, foraging habitat in proximity to waterbodies and nesting sites are considered to be particularly significant (Parks and Wildlife, 2013). The application area is surrounded by numerous waterbodies within a five kilometre radius, and is located approximately 10 to 15 kilometres from known nesting sites used by the species. Therefore, the application area comprises significant foraging habitat for Carnaby's cockatoo.

The western brush wallaby is likely to utilise habitat within the application area for foraging and movement between other areas of native vegetation. This species is ranked by Parks and Wildlife as priority 4, which are species that are either rare, near threatened or in need of further monitoring. The proposed clearing will remove 12 hectares of suitable habitat for the western brush wallaby. However, based on the availability of suitable habitat within surrounding areas, the proposed clearing is not likely to have a significant impact on the conservation of this species on a local or regional scale.

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

Methodology **References:**
DER (2016)
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2013)
Shah (2006)
Valentine and Stock (2008)

GIS Database:
- Carnaby's cockatoo nesting areas confirmed
- Geomorphic wetlands (classification), Swan Coastal Plain
- Imagery

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

Comments Proposed clearing may be at variance to this Principle

Two rare flora species have been recorded within the local area (10 kilometre radius). Of these, one species may occur within the application area based on the vegetation types present and known habitat preferences of the species. Advice received from Parks and Wildlife in relation to a nearby clearing permit application of the same habitat type (Parks and Wildlife, 2015d) indicates that an additional rare flora species may occur within the application area.

The first of the two rare flora species is known from 50 populations across a distribution spanning from the Shire of Dandaragan to the City of Busselton, and is found over white sand over a dark sandy loam on low-lying areas near ephemeral lakes, or on the slopes adjacent to winter wet depressions, swamps and water courses (Department of the Environment, 2016). However, this species has also been recorded up to 2.3 kilometres from the nearest waterbody. Vegetation associated with occurrences of this rare flora consists of Banksia woodland (*Banksia attenuata*, *B. ilicifolia*, *B. menziesii*) with scattered marri (*Corymbia calophylla*) and *Allocasuarina fraseriana*. Given the presence of similar vegetation and a wetland approximately 200 metres from the vegetation proposed to be cleared, this rare flora species may be present within the application area.

Of the 50 known populations, only four records of the second rare flora species are located within the Shire of Gingin, with the next closest populations located approximately 32 kilometres and 36 kilometres away. Should this species occur within the application area, the population may be important in maintaining connectivity between populations within the Shire of Gingin.

This rare flora species has a distribution that spans from the Shire of Toodyay to the City of Busselton, and is known from 79 populations. This species occurs in well-drained, deep sandy soils in low mixed woodlands of *Banksia attenuata*, *B. menziesii*, *Banksia ilicifolia*, *Allocasuarina fraseriana* and *Eucalyptus marginata*. Given the presence of some or all of these species and deep sandy soils, this species may occur within the application area. There are currently no records of this species within the Shire of Gingin. If this species is present within the application area, the record may be significant on both a local and regional scale.

Based on the above, the proposed clearing may be at variance to this Principle. A flora survey targeting rare flora taxa undertaken at the appropriate time of year by a suitably qualified botanist would determine the potential impacts to rare flora.

Methodology References:
Department of the Environment (2016)
Parks and Wildlife (2015d)

GIS Database:
- Geomorphic wetlands (classification), Swan Coastal Plain
- SAC bio datasets (accessed June 2016)

(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 Proposed clearing is not likely to be at variance to this Principle

Three threatened ecological communities (TECs) have been recorded within 10 kilometres of the application area:

- Herb rich saline shrublands in clay pans;
- Shrublands and woodlands on Muchea limestone; and
- *Melaleuca huegelii* - *Melaleuca acerosa* (currently *M. systema*) shrublands on limestone ridges.

These TECs occur on either clay pans, limestone ridges, or shallow black or sandy clay soils on limestone (English and Blyth, 2000). Soils within the application area comprise deep white to grey sandy soils (DER, 2016). Therefore, the vegetation proposed to be cleared is not likely to represent any of the above TECs.

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

Methodology References:
DER (2016)
English and Blyth (2000)

GIS Databases:
- SAC bio datasets (Accessed June 2016)

(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 Proposed clearing is not likely to be at variance to this Principle

The application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 39 per cent of the pre-European vegetation remains (see table below) (Government of Western Australia, 2014).

The vegetation within the application area has been mapped as Beard vegetation association 1014 and Heddle vegetation complex Bassendean complex - north, of which 55 and 72 per cent remains within the Swan Coastal Plain bioregion, respectively (Government of Western Australia, 2014; Parks and Wildlife, 2015c). The Shire of Gingin retains approximately 55 per cent of its pre-European vegetation extent, with approximately 60 per cent pre-European vegetation remaining within the local area (10 kilometre radius).

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). No mapped vegetation association within the application area occurs at below the 30 per cent threshold.

| | Pre-European (ha) | Current Extent (ha) | Remaining (%) | Extent in Parks and Wildlife Managed Lands (%) |
|---|-------------------|---------------------|---------------|--|
| IBRA Bioregion*: Swan Coastal Plain | 1,501,222 | 580,697 | 39 | 37 |
| Shire*: Gingin, Shire Of | 319,676 | 176,709 | 55 | 47 |
| Beard Vegetation Association in Bioregion* | | | | |
| 1014 | 41,064 | 22,759 | 55 | 54 |
| Heddle Vegetation Complex ** | | | | |
| Bassendean Complex-North | 79,057 | 56,600 | 72 | 39 |

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

Methodology References:

Commonwealth of Australia (2001)
 *Government of Western Australia (2014)
 **Parks and Wildlife (2015c)

(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 Proposed clearing is not at variance to this Principle

There are no watercourses or wetlands within or adjacent to the application area (DER, 2016). The nearest waterbodies are a dampland and sumpland wetland located approximately 200 metres east and north-west of the application area, respectively, and a minor, non-perennial watercourse located 340 metres south-west of the application area. The vegetation proposed to be cleared is not growing in association with a watercourse or waterbody, and the proposed clearing is not at variance to this Principle.

Methodology References:

DER (2016)

GIS Databases:

- Geomorphic wetlands (classification) Swan Coastal Plain
- Hydrography, linear

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments Proposed clearing may be at variance to this Principle

The application area contains white to grey deep sandy soils (DER, 2016). The Commissioner of Soil and Land Conservation advises that the proposed clearing has a low risk of causing land degradation via salinity due to low salt stores in the soil profile (CSLC, 2016). The risk of eutrophication is also low as the soils within the application area are well drained, there is no surface water connection with nearby watercourses, the hydraulic gradient is less than one per cent, and the groundwater table is mapped to lie 40 to 45 metres below ground level (CSLC, 2016; DoW, 2016). Due to the presence of well drained, sandy soils, and the depth to ground water, the proposed clearing is not likely to cause land degradation via waterlogging (CSLC, 2016).

Due to the presence of sandy soils, wind erosion may occur following the removal of vegetation. However, the Commissioner of Soil and Land Conservation advises that wind erosion is unlikely to occur once the proposed horticultural activities are implemented if a full ground cover is maintained (CSLC, 2016). Wind erosion following clearing may be minimised by ensuring clearing occurs immediately prior to implementing the proposed land use.

Given the potential for wind erosion to occur, the proposed clearing may be at variance to this Principle.

Methodology References:
CSLC (2016)
DER (2016)
DoW (2016)

(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 **Proposed clearing is not likely to be at variance to this Principle**

The nearest conservation area is located approximately 1.4 kilometres south-west of the application area, and is the Gngangara-Moore River State Forest managed by the Department of Parks and Wildlife. According to aerial imagery, up to half of the Gngangara-Moore River State Forest appears to be used for forestry activities, which is likely to have decreased the environmental values of this area.

Gngangara-Moore River State Forest is located adjacent to the Yeal Nature Reserve, which lies approximately 3.5 kilometres south of the application area. According to aerial imagery, much of the nature reserve appears to be in good to excellent (Keighery, 1994) condition.

The proposed clearing is not likely to have any direct impacts to any conservation area through the spread of weeds or dieback. The application area shares mostly continuous vegetation with both the Gngangara-Moore River State Forest and the Yeal Nature Reserve, however the proposed clearing is not likely to impact fauna movement between the Yeal Nature Reserve and surrounding areas.

Given the extent of remnant vegetation remaining in the local area, the proposed clearing is not likely to impact the environmental values of any conservation area, and is not likely to be at variance to this Principle.

Methodology References:
Keighery (1994)

GIS Database:
- 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 **Proposed clearing is not likely to be at variance to this Principle**

There are no wetlands or watercourses mapped within the application area. The closest mapped waterbodies are a conservation category dampland and a resource enhancement sumpland, which are both located approximately 200 metres from the application area. Topographic contours show a minor slope of 55 to 50 metres above sea level in a north-east to south-west direction. Water is likely to flow from the application area in a south-westerly direction towards a minor, non-perennial watercourse located 335 metres from the application area.

The grey deep sandy soils within the application area are highly permeable to rainfall, and vegetation between the application area and this watercourse has been cleared for a road and agricultural and residential land uses. The proposed clearing is not likely to cause deterioration in the quality of the non-perennial watercourse via an increase in surface water runoff.

From this distance, the proposed clearing is not likely to impact the quality of surface water.

Groundwater salinity is mapped as 500-1000 milligrams per litre total dissolved solids, and groundwater depth is mapped as between 40 and 45 metres (DoW, 2016).

The Commissioner of Soil and Land Conservation advises that the proposed clearing has a low risk of causing salinity or eutrophication (CSLC, 2016).

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

Methodology References:
CSLC (2016)
DoW (2016)

GIS Databases:
- Hydrography, linear
- Geomorphic wetlands (classification) Swan Coastal Plain
- Topographic contours, statewide
- Groundwater salinity, statewide

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

Comments Proposed clearing is not likely to be at variance to this Principle

The application area is located over the mapped soil type 'Bassendean Yeal swamp complex phase' (DAFWA, 2016). This soil type is described as comprising low sandy rises and many small seasonal swamps. A site inspection found that white to grey deep sandy soils occur within and surrounding the application area (DER, 2016). These soils are highly permeable to rainfall.

Groundwater contours are mapped at a depth of between 40 and 45 metres within the application area (DoW, 2016). Given the soils present within the application area and the mapped groundwater depth, the proposed clearing of 12 hectares is not likely to cause or exacerbate the incidence or intensity of flooding in the area, and the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
DAFWA (2016)
DER (2016)
DoW (2016)

Planning instruments and other relevant matters.

Comments The application to clear 12 hectares of native vegetation within Lot 3444 on Deposited Plan 205127, Muckenburra is for the purpose of horticulture.

The Commissioner of Soil and Land Conservation advises that the application area has a moderate capability for horticultural activities (CSLC, 2016).

The Shire of Gingin has no objection to the proposed horticultural activities (Shire of Gingin, 2016).

If declared rare flora species are recorded within the application area, the proponent will need to apply to Parks and Wildlife's Species and Communities Branch for a permit to take rare flora.

The Department of Water (DoW) has advised that they have no comment in regards to the proposed clearing or end land use (DoW, 2015). The applicant may require a licence to take groundwater under the *Rights in Water and Irrigation Act 1914* for the horticultural activities.

No Aboriginal Sites of Significance have been mapped within the application area.

The clearing permit application was advertised on 7 December 2015 for a 21 day submission period. One public submission has been received in relation to this application (Submission, 2016). The submission noted that the application area is located adjacent to highly cleared areas north-east of the application area. Environmental impacts to remnant vegetation have been addressed in Principle (e) of the assessment.

On 19 April 2016, the Delegated Officer advised the applicant of environmental impacts identified during the assessment and advised of the intent to refuse the application within 30 days. The applicant was invited to submit information demonstrating the ability to avoid or minimise the impacts identified or address the variances identified with the principles for clearing native vegetation

The applicant's representative advised on 14 June 2016 that a fauna survey would be conducted to confirm the presence of significant foraging habitat for Carnaby's cockatoo and flora surveys would be conducted in October and November 2016 to determine impact to rare and priority flora species. The applicant also noted that wind erosion is unlikely to occur once the proposed horticultural activities are implemented if a full ground cover is maintained. The applicant proposed that the risk of land degradation could be mitigated through an immediate implementation of the proposed horticultural land use following clearing (REF: A1114254). The applicant proposed to submit a detailed response to the assessment findings in December 2016.

Methodology References:
CSLC (2016)
DoW (2015)
Shire of Gingin (2016)
Submission (2016)

GIS Database:
- Aboriginal Sites of Significance

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
CSLC (2016) Land Degradation Advice and Assessment Report for clearing permit application CPS 6815/1. Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DER REF: A1045435.
DAFWA (2016) NRMInfo (Natural Resource Management) Portal. Department of Agriculture and Food Western Australia. URL: <http://maps.agric.wa.gov.au/nrminfo/>. Accessed February 2016.
Department of the Environment (2016) Species Profile and Threats Database, Department of the Environment, Canberra.

- URL: <http://www.environment.gov.au/sprat>. Accessed January 2016.
- DoW (2015) Response received from the Department of Water on 18 December 2015. DER REF: A1023967.
- DER (2016) CPS 6815/1 site inspection report. Department of Environment Regulation. DER REF: A1047146.
- DoW (2016) Perth Groundwater Atlas. Department of Water. url: <http://atlases.water.wa.gov.au/idelve/gwa/>. Accessed January 2016.
- English, V. and Blyth, J. (2000) Shrubland and woodlands on Muchea limestone; interim recovery plan. Department of Conservation and Land Management, Western Australian Threatened Species and Communities Unit. Wanneroo, Western Australia.
- Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed December 2015.
- Parks and Wildlife (2013) Carnaby's cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Department of Parks and Wildlife, Perth, Western Australia.
- Parks and Wildlife (2015a) Regional advice received from the Department of Parks and Wildlife on 29 December 2015. DER REF: A1036566.
- Parks and Wildlife (2015b) Ecological Communities advice for Clearing Permit Application CPS 6531/1. Department of Parks and Wildlife. DER REF: A908183.
- Parks and Wildlife (2015c) 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.
- Parks and Wildlife (2015d) Flora advice for Clearing Permit Application CPS 6531/1. Department of Parks and Wildlife. DER REF: A914192.
- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Shire of Gingin (2016) Advice received from the Shire of Gingin on 22 January 2016. DER REF: A1038997.
- Submission (2016) Submission received in relation to CPS 6815/1. DER REF: A1027372.
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Gnarara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/>. Accessed January 2016.