



1. Application details

1.1. Permit application details

Permit application No.: 6871/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mr Stavros Trandos
Mr Nicolas Trandos

1.3. Property details

Property: Lot 202 on Deposited Plan 61865, Granville
Local Government: Shire of Gingin
Authority:
DER Region: Greater Swan
DPaW District: Swan Coastal
LCDC: N/A
Localities: Granville

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.62		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 to clear 2.62 hectares for horticultural purposes was received on 15 December 2015.

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*.

The Delegated Officer determined that the proposed clearing is at variance to Principles (e), (f), (g) and (i), may be at variance to Principles (a), (b), and (j), and is not likely to be at variance to Principles (c), (d) and (h). The Delegated Officer determined that the proposed clearing will impact a resource enhancement wetland, may cause off-site salinity, eutrophication and waterlogging, and will impact a significant remnant of native vegetation in an extensively cleared area and may impact two priority 2 flora species.

In deciding to refuse the clearing permit application, the Delegated Officer also had regard to the advice from the Shire of Gingin that an amended Planning Approval to reflect changes to pivot location, had not been issued by the Shire.

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
Three Beard vegetation associations and one Heddle vegetation complex have been mapped within the application area.	The applicant proposes to clear up to 2.62 hectares of native vegetation within Lot 202 on Deposited Plan 61865, Granville, for the purpose of horticulture.	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).	Vegetation condition was determined via a site inspection conducted by officers from the Department of Environment Regulation (DER) in January 2016 (DER, 2016). The edges of the application area have a high ground cover of weed species (DER, 2016). Vegetation within the middle of the application
Beard vegetation association 949 is described as low woodland; banksia;			
Beard vegetation association 999 is described as medium woodland; marri;			
Beard vegetation association 1014 is described as low woodland; banksia / shrublands; teatree thicket (Shepherd et al., 2001); and			

Hedde vegetation complex 'Yanga complex' is described as a predominantly closed scrub of *Melaleuca* species and low open forest of *Casuarina obesa* (swamp sheoak) on flats subject to inundation (Hedde et al., 1980).

area is protected from edge effects and is in very good (Keighery, 1994) condition (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 area contains fringing wetland vegetation dominated by *Melaleuca* sp. over humic dark grey swamp soils (CSLC, 2016; DER, 2016), that is surrounded by existing horticultural activities to the north, east and west, and remnant vegetation to the south. Native vegetation within the application area is part of a remnant of native vegetation approximately 55 hectares in size associated with the larger sumpland wetland system stretching south, south-west and south-east of the application area. However, aerial imagery indicates that remnant vegetation outside the application area is of varying condition, with approximately half showing a degraded or absent understorey.

The application area occurs within an extensively cleared landscape used primarily for agricultural land uses. Approximately 23 per cent of pre-European native vegetation remains within the local area (10 kilometre radius). Existing biodiversity values of the area are therefore distributed amongst small, fragmented patches of native vegetation, however a large remnant of native vegetation has been preserved within the Boonanarring Nature Reserve (approximately 9,250 hectares in size), located approximately 4 kilometres north-east of the application area.

A total of 32 priority and four rare flora species have been recorded within the local area (10 kilometre radius). Of these, 10 priority flora may occur within the application area, including:

- *Isotropis cuneifolia* subsp. *glabra* (priority 2)
- *Schoenus loliaceus* (priority 2)
- *Blennospora dolliformis* (priority 3)
- *Dillwynia dillwynioides* (priority 3)
- *Caladenia speciosa* (priority 4)
- *Drosera occidentalis* subsp. *occidentalis* (priority 4)
- *Rumex drummondii* (priority 4)
- *Schoenus natans* (priority 4)
- *Verticordia lindleyi* subsp. *lindleyi* (priority 4)
- *Verticordia paludosa* (priority 4)

Isotropis cuneifolia subsp. *glabra* has been recorded approximately 7.5 kilometres from the application area and is known to occur under *Casuarina obesa* or *Eucalyptus rudis* with *Melaleuca* species over winter wet flats with sand, clay and/or loam soils. Parks and Wildlife (2016b) advise that given the presence of the species in the local area and the occurrence of suitable habitat, there is a high likelihood that this species occurs within the application area. This species is known from seven populations, all restricted to the eastern side of the Swan Coastal Plain from Nilgen to Breera with four populations occurring outside conservation estate (Parks and Wildlife, 2016b). Given the small number of known populations over a small distribution, the proposed clearing may have a significant impact to the conservation status of *Isotropis cuneifolia* subsp. *glabra* if it is present within the application area (Parks and Wildlife, 2016b).

Schoenus loliaceus has been recorded approximately 9.6 kilometres from the application area. This species is known from a variety of habitats including sand, loam, clay soils in winter wet depressions, cleared firebreaks, shallow drainage lines and flats (Parks and Wildlife, 2016b). Given the presence of records within similar habitat to that within the application area, Parks and Wildlife (2016b) advises that *Schoenus loliaceus* may occur within the application area. This species is known from four locations across Beermullah, Kenwick, North Boyanup and Scott River National Park. Given that this species is known from only four locations, the proposed clearing may have a significant impact to the conservation status of this species if it is present within the application area (Parks and Wildlife, 2016b).

Priority 3 flora species are poorly known, but do not appear to be under imminent threat. The proposed clearing is not likely to impact the conservation of any priority 3 species if present within the application area. Priority 4 flora species are either rare, near threatened or in need of further monitoring. The priority 4 flora species that may occur within the application area are not likely to be impacted on a local or regional scale by the proposed clearing if present.

One priority ecological community (PEC) and two threatened ecological communities (TECs) have been recorded within 10 kilometres of the application area. The vegetation proposed to be cleared does not represent these or any other PEC or TEC.

Four threatened and six priority fauna species have been recorded within 10 kilometres of the application area (Parks and Wildlife, 2007-). Of these, two conservation significant fauna species may utilise habitat within the application area, being the blue billed duck (*Oxyura australis*) and the southern brown bandicoot (*Isoodon obesulus* subsp. *fusciventer*). These species are both ranked as priority 4 by the Department of Parks and Wildlife (Parks and Wildlife).

In the context of the surrounding landscape, the application area may contain a high significant level of biological diversity. Based on the limited amount of remnant vegetation in the local area and the potential for a number of priority flora to occur within the application area, the proposed clearing may be at variance to this Principle. A flora survey targeting 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.

Methodology

References:
CSLC (2016)
DER (2016)
Parks and Wildlife (2007-)
Parks and Wildlife (2016b)

GIS Database:
- SAC bio datasets (Accessed March 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 may be at variance to this Principle

The application area is part of a larger, continuous remnant approximately 55 hectares in size associated with a sumpland wetland system. This habitat type is consistent with the mapped Heddle vegetation complex over the area, which is described as a predominantly closed scrub of *Melaleuca* species and low open forest of *Casuarina obesa* (swamp sheoak) on flats subject to inundation (Heddle et al., 1980).

A total of four threatened and six priority fauna species have been recorded within 10 kilometres of the application area (Parks and Wildlife, 2007-). Of these, two priority four fauna species (blue billed duck and southern brown bandicoot) may utilise vegetation within the application area. Priority four fauna are species that are either rare, near threatened or in need of further monitoring. The removal of vegetation within the application area will impact the amount of habitat available for these species on a local scale.

Approximately 10.7 per cent of the mapped Heddle vegetation complex remains within the local area (10 kilometre radius). The proposed clearing will result in the removal of approximately 1.7 hectares of vegetation in very good (Keighery, 1994) condition, which may impact the already inhibited carrying capacity of the remnant in the area, particularly for specialist wetland fauna. Given the limited amount of similar habitat remaining within the local area, the application area may be significant fauna habitat on a local scale.

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

Methodology

References:
Heddle et al. (1980)
Keighery (1994)
Parks and Wildlife (2007-)

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

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

Comments

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

A total of four rare flora species have been recorded within 10 kilometres of the application area. Based on the known habitat preferences of these species (Department of the Environment, 2016) and the habitat type recorded within the application area (DER, 2016), none of these species are likely to occur within the vegetation proposed to be cleared.

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

Methodology

References:
Department of the Environment (2016)
DER (2016)

GIS Databases:
- SAC bio datasets (Accessed March 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
 Two threatened ecological communities (TEC) have been recorded within 10 kilometres of the application area, being 'shrublands and woodlands on Muchea limestone' and 'herb rich saline shrublands in clay pans'. Neither of these communities occur within the application area, and the vegetation proposed to be cleared does not represent any other TEC.

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

Methodology GIS Databases:
 - SAC bio datasets (Accessed March 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 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 (Government of Western Australia, 2014).

The vegetation within the application area has been mapped as Beard vegetation associations 949, 999 and 1014 and Heddle vegetation complex Yanga complex, of which 57, nine, 55 and 16 per cent remains within the Swan Coastal Plain IBRA bioregion, respectively (Government of Western Australia, 2014; Parks and Wildlife, 2015). Although four vegetation associations have been mapped within the application area, the vegetation proposed to be cleared most represents Heddle vegetation complex Yanga complex, which comprises closed scrub of *Melaleuca* species and low open forest of *Casuarina obesa* (swamp sheoak) on flats subject to inundation (Heddle et al., 1980; DER, 2016). The Shire of Gingin retains approximately 55 per cent of its pre-European vegetation extent, with 23 per cent pre-European vegetation remaining within the local area (10 kilometre radius). Approximately 11 per cent of Heddle vegetation complex Yanga complex remains within 10 kilometres of the application area.

The application area also provides suitable habitat for 10 priority flora species known to occur in the local area (10 kilometre radius), and represents a fauna habitat type that is poorly represented in the area.

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). Given the percentage of pre-European vegetation remaining within 10 kilometres of the application area, the presence of a poorly represented vegetation type (Yanga complex) and fauna habitat type, and the presence of suitable habitat for priority flora, the application area is a significant remnant of vegetation within a highly cleared area.

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

	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*				
949	209,983	120,390	57	56
999	102,940	9,612	9	13
1014	41,064	22,759	55	54
Heddle Vegetation Complex **				
Yanga Complex	26,176	4,316	16	2

Methodology References:
 Commonwealth of Australia (2001)
 DER (2016)
 *Government of Western Australia (2014)
 Heddle et al. (1980)
 **Parks and Wildlife (2015)

GIS Databases:
 - Remnant 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 **Proposed clearing is at variance to this Principle**
The application area is within a mapped flood limit area and a resource enhancement category sumpland wetland, which is a seasonally inundated basin. Resource enhancement wetlands are considered to be priority wetlands that may have been partially modified but still retain substantial ecological attributes and functions (Water and Rivers Commission, 2001).

Vegetation within the application area is representative of the mapped Hedde vegetation complex 'Yanga complex', which is described as a closed scrub of *Melaleuca* species and low open forest of *Casuarina obesa* (swamp sheoak) on flats subject to inundation (Hedde et al., 1980).

Vegetation within the application area is located within the centre of the mapped resource enhancement wetland, the majority of which has been subjected to historic clearing for agricultural activities. Given the extent of previous clearing that has occurred within the wetland and surrounds, the remaining remnant vegetation associated with the resource enhancement wetland is likely to be important in maintaining ecosystem function within the wetland. Currently there is no buffer from the existing agricultural activities and the wetland vegetation within the application area.

Boonanarring Brook is mapped within the application area. During a site inspection, officers found no evidence of this Brook on the ground as evidenced by vegetation or topographic characteristics (DER, 2016). Parks and Wildlife (2016a) advised that the existing horticultural activities may have impacted surface flow patterns.

Based on the above, the vegetation proposed to be cleared is growing in a wetland, and the proposed clearing is at variance to this Principle.

Methodology **References:**
DER (2016a)
Hedde et al. (1980)
Parks and Wildlife (2016)
Water and Rivers Commission (2001)

GIS Databases:
- Geomorphic wetlands (classification), Swan Coastal Plain
- Hydrography, linear
- Remnant vegetation

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

Comments **Proposed clearing is at variance to this Principle**
One soil type ('Bassendean Phase 9') is mapped within the application area (DAFWA, 2016). Bassendean Phase 9 soils are described as humic dark grey swamp soils (CSLC, 2016). The boundary of this soil type is congruent with a resource enhancement category sumpland wetland, which also occurs within the application area.

Given the presence of swampy soils, the proposed clearing of 2.62 hectares of native vegetation within this soil type is not likely to cause land degradation via wind erosion. Soil mapping produced by the Department of Agriculture and Food Western Australia (DAFWA) indicates that approximately 70 per cent of the Bassendean Phase 9 soil type has a nil or partial risk of salinity, and 30 per cent has a moderate risk of salinity (DAFWA, 2016). The mapped soil type also has a high risk of waterlogging, which is compounded by the presence of a sumpland wetland, and an extreme risk of nutrient export (DAFWA, 2016).

A land degradation assessment undertaken by DAFWA observed evidence of salinity in areas surrounding the application area, and the Commissioner of Soil and Land Conservation (CSLC, 2016) therefore advised that the proposed clearing has a moderate risk of causing off-site salinity.

The Commissioner of Soil and Land Conservation (2016) also advised that the proposed clearing has a high risk of waterlogging. All land within the mapped extent of the Bassendean Phase 9 soil type is considered to have an extreme risk of nutrient export, and the proposed clearing may therefore cause an increase in nutrient export and eutrophication (CSLC, 2016).

While it was noted by DAFWA during a site inspection that water, soils and tissue analysis on the property will be monitored independently, the Commissioner of Soil and Land Conservation did not consider it likely that the risk of eutrophication will be lowered to a suitable level if the area becomes waterlogged (CSLC, 2016).

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

Methodology **References:**
CSLC (2016)
DAFWA (2016)

GIS Databases:

- Geomorphic wetlands (classification), Swan Coastal Plain

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

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

The nearest conservation area is the Boonanarring Nature Reserve, which is located approximately four kilometres north-east of the application area. The vegetation under application does not form part of an ecological linkage between the Boonanarring Nature Reserve and other areas of remnant vegetation. From this distance, the proposed clearing is not likely to impact the environmental values of the Boonanarring Nature Reserve.

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

Methodology GIS Databases:

- Imagery
- 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 at variance to this Principle

One resource enhancement category sumpland wetland occurs within the application area. The mapped sumpland extends north, east, west and south of the application area, including areas that are covered by existing horticultural activities. Sumpland wetlands are seasonally inundated, and surface water may therefore occur within the application area following periods of heavy rainfall. Further, the clearing of 2.62 hectares of native vegetation may cause an increase in the amount of surface water present during these periods by decreasing plant water uptake.

Given the location of the application area within a larger, hydrologically connected wetland system, Parks and Wildlife (2016a) advises that the proposed clearing may have downstream impacts to both hydrology and water quality within the sumpland wetland. The proposed clearing also carries a high risk of exacerbating subsurface nutrient export, which has the potential to impact surface water and groundwater quality within the larger wetland system (CSLC, 2016).

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

Methodology References:

- CSLC (2016)
- Parks and Wildlife (2016a)

GIS Databases:

- Geomorphic wetlands (classification), Swan Coastal Plain

(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 may be at variance to this Principle

The application area is located within a mapped resource enhancement category sumpland wetland, which corresponds with the 'Bassendean Phase 9' soil type mapped within the area (DAFWA, 2016). This soil type has a high risk of waterlogging (CSLC, 2016; DAFWA, 2016). The application area contains large, deep-rooted vegetation (DER, 2016), the removal of which is likely to raise groundwater levels and increase the probability of localised flooding events following heavy rainfall or irrigation.

The application area occurs on a very slight slope that is unlikely to facilitate the flow of surface water. The proposed clearing may cause flooding within the application area, however this is likely to be highly localised and unlikely to impact surrounding areas.

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

Methodology References:

- CSLC (2016)
- DAFWA (2016)
- DER (2016)

GIS Databases:

- Topography, linear

Planning instruments and other relevant matters.

Comments The application to clear 2.62 hectares of native vegetation within Lot 202 on Deposited Plan 61865, Granville, for the purpose of horticulture.

The application area was assessed as part of clearing permit application CPS 3726/1. The assessment noted that the application area and surrounding pivot was located within a resource enhancement wetland, however the pivot (identified as pivot 7) was subsequently removed from the application area as it was not included within the granted planning approval obtained from the Shire of Gingin. Pivot 7 was not granted planning approval due to the presence of a mapped watercourse (Boonanarring Brook) across the pivot. Boonanarring Brook was not detected during site inspections by the former Department of Environment Conservation (DEC) in 2010 (DEC, 2010), or DER in 2016 (DER, 2016). Advice received from Parks and Wildlife regarding the current clearing permit application states that existing horticultural activities may have impacted surface flow patterns of watercourses within the property (Parks and Wildlife, 2016a).

Following a review of aerial imagery and site inspection (DER, 2016), it was observed that the applicant had implemented pivot 7 while avoiding vegetation within the current application area. An investigation was conducted into the potential for unauthorised clearing to have occurred during the implementation of pivot 7 (ICMS 39034). This investigation has been closed.

Parks and Wildlife (2016a) advised that an appropriate buffer was not implemented between the remnant wetland within the property and existing horticultural activities, with some horticultural activities occurring within the mapped extent of the resource enhancement sumpland wetland. Parks and Wildlife (2016a) also advised that the hydrology of the wetland may have been altered due to the intensive irrigation activities that occur within the properties.

The Shire of Gingin (2016) advised that the placement of the pivot associated with the application area is inconsistent with the plans approved by the Shire on 20 May 2010. The Shire has advised that the applicant is required to apply to amend their planning approval to reflect changes in pivot location.

The Commissioner of Soil and Land Conservation advises that the area proposed to be cleared has a low capability for all forms of agriculture (CSLC, 2016). A land degradation assessment undertaken by DAFWA determined that the proposed land use may increase the risk of waterlogging and eutrophication, and may also increase off-site salinity (CSLC, 2016). The assessment of CPS 3726/1 also determined that the proposed horticultural activities had the potential to cause appreciable land degradation via eutrophication. A nutrient irrigation management plan (NIMP) was provided by the applicant, but was determined to inadequately address issues relating to eutrophication.

A site inspection recorded the recruitment of *Melaleuca* sp. along the boundary of the application area, which is indicative of changes to the hydrology of the wetland. Parks and Wildlife (2016a) advises that an increase in soil saturation from pre-existing horticultural activities may influence the composition of wetland flora species, as species unable to tolerate increased soil moisture are lost. However, in the absence of sufficient baseline information, potential changes to floristic composition as a result of existing horticultural activities cannot be determined. Parks and Wildlife (2016a) also advise that the proposed land use may increase off-site impacts to the quality of surface and ground water within the larger wetland system via increasing inputs of fertilisers and herbicides.

On 19 May 2016, DER wrote to the applicant advising that a preliminary assessment of the application identified impacts to a resource enhancement wetland, appreciable land degradation via off-site salinity, eutrophication and waterlogging, impacts to surface water and groundwater quality, and impacts to a significant remnant. The preliminary assessment also identified two priority 2 flora species that may occur within the application area.

On 16 June 2016, the applicant requested an extension until 31 October 2016 to provide additional information which may include a spring flora survey (REF: A1118912).

Noting the period of time that elapsed since the application was submitted in December 2015 and the period of time requested to provide information to address the assessment findings, the Delegated Officer decided to determine the application on the information available at the time of the decision. However the applicant is informed that a new clearing permit application can be submitted which addresses the assessment of this application.

The clearing permit application was advertised on 18 January 2016 for a 21 day submission period. No public submissions were received.

Methodology References:
CSLC (2016)
DEC (2010)
DER (2016)
Parks and Wildlife (2016a)

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- CSLC (2016) Advice received from the Commissioner of Soil and Land Conservation on 9 March 2016. DER REF: A1062428.
- 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) rare flora species in Species Profile and Threats Database, Department of the Environment, Canberra. URL: <http://www.environment.gov.au/sprat>. Accessed March 2016.
- DEC (2010) CPS 3726/1 site inspection report. Department of Environment Conservation. DER REF: A308406.
- DER (2016) CPS 6871/1 site inspection report. Department of Environment Regulation. DER REF: A1065068.
- 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 (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.
- Parks and Wildlife (2016a) Wetland advice received from the Department of Parks and Wildlife on 11 February 2016. DER REF: A1056178.
- Parks and Wildlife (2016b) Flora advice received from the Department of Parks and Wildlife on 11 March 2016. DER REF: A1063956.
- 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 9 March 2016. DER REF: A1065224.
- Water and Rivers Commission (2001) Position Statement: Wetlands, Water and Rivers Commission, Perth.