



# Preliminary Assessment Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 5872/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Michael and Marilyn Kaye Guthrie

### 1.3. Property details

Property: LOT 1 ON PLAN 15482 (House No. 462 COONABIDGEE, COONABIDGEE 6503)  
Local Government Area: Shire of Gingin  
Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20		Mechanical Removal	Grazing & Pasture

## 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 37: Shrublands; teatree thicket (Shepherd et al, 2001)	Clearing 20 hectares of native vegetation within Lot 1 on Plan 15482, Coonabidgee, Shire of Gingin, for the purpose of pasture.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	The application consists of three areas referred to as the top, middle and bottom.
Mapped Beard Vegetation Association 1014: Mosaic: Low woodland; banksia / Shrublands; teatree thicket (Shepherd et al, 2001)		To	The vegetation within the top and bottom proposed clearing areas consists of <i>Xanthorrhoea preissii</i> over a ground cover of weeds. The soils present within this area consisted of yellow sands (DER, 2013).
Hedde Vegetation Complex Yanga Complex: Predominantly a closed scrub of <i>Melaleuca</i> species and low open forest of <i>Casuarina obesa</i> (Swamp Sheoak) on the flats subject to inundation. On drier sites the vegetation reflects the adjacent vegetation complexes of Bassendean and Coonabidgee (Hedde et al, 1980).		Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The vegetation within the middle section of the proposed clearing area consists of <i>Melaleuca</i> species over a ground cover of weeds. The soils present within this area were black/grey sands (DER, 2013).  All of the proposed clearing areas have been subject to past disturbances such as clearing and grazing with a large proportion of vegetation in the applied areas consisting of regrowth.
Hedde Vegetation Complex Bassendean Complex- North: Predominantly low open forest and low woodland of <i>Banksia</i> species <i>Eucalyptus tottiana</i> (Pricklybark), less consistently open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus tottiana</i> (Pricklybark) - <i>Banksia</i> species (Hedde et al, 1980).			The vegetation under application is in a completely degraded to good (Keighery, 1994) condition (DER, 2013).  The condition and description of the vegetation under application was determined from a site inspection undertaken by the Department of Environment Regulation on 12 November 2013.

### 3. Assessment of application against Clearing Principles

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

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

The application is to clear 20 hectares of native vegetation within Lot 1, for the purpose of pasture. The application area is approximately seven kilometres from the Gingin town site.

The proposed clearing is broken up into three different sections referred to as the top, middle and bottom. The applicant will only be clearing *Xanthorrhoea preissii* within the top and bottom proposed clearing areas. The middle proposed clearing area consists of *Melaleuca* species of which the applicant intends to clear approximately 85 percent of this vegetation. The vegetation under application is in a completely degraded to good (Keighery, 1994) condition (DER, 2013).

Several priority flora species have been recorded within 10 kilometres of the area under application, of which, six species have been mapped occurring within the same soil and vegetation associations/complexes as the application areas. It is unlikely that suitable habitat for these priority flora species exist within the application area given the historical grazing and clearing activities associated to the proposed clearing areas. Furthermore, the vegetation under application is in a completely degraded to good (Keighery, 1994) condition (DER, 2013) comprising of no native ground cover. The area is still being grazed, which was evident from the cattle observed during a site inspection (DER, 2013).

Considering the past disturbances within the applied areas and the current grazing practices, it is unlikely to provide suitable habitat for the known priority flora species recorded in the vicinity of the clearing area.

Given the above the clearing as proposed is not likely to comprise a high level of biological diversity and is therefore not likely to be at variance to this principle.

**Methodology** References  
- DER (2013)  
- Keighery (1994)

GIS Layers  
- SAC Bio Datasets November 2013

#### (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

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

Several fauna species of conservation significance have been recorded within 10 kilometres of the proposed clearing areas. This includes *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Dasyurus geoffroii* (Bilby), *Pseudocheirus occidentalis* (Western Ringtail Possum) and *Pseudomys shortridgei* (Heath Mouse).

The top and bottom proposed clearing areas consist of *Xanthorrhoea preissii* over a ground cover of weeds (DER, 2013). The middle section of the proposed clearing area consists of *Melaleuca* species over a ground cover of weeds (DER, 2013). All the areas under application are very open and given the absence of native ground cover, the proposed clearing areas are unlikely to provide habitat for ground dwelling fauna.

The proposed clearing areas do not contain any trees that would be suitable for roosting or breeding for Carnaby's cockatoo (DER, 2013).

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

**Methodology** References  
- DEC (2007-)  
- DER (2013)

#### (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 rare flora species has been recorded within 10 kilometres of the areas under application. This species has been recorded within different soil and vegetation types associated to the clearing areas. The vegetation under application is in a completely degraded to good (Keighery, 1994) condition (DEC, 2013) consisting of a ground cover of weeds/grasses and is unlikely to provide suitable habitat for the known rare flora species.

Considering the above, the application is not likely to be at variance to this principle.

**Methodology** References  
- DER (2013)

- Keighery (1994)
- GIS Layers
- SAC Bio Datasets November 2013

**(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**

Within 10 kilometres of the areas under application two threatened ecological communities (TEC) have been recorded.

The identified TEC's are SCP07, herb rich saline shrublands in clay pans; and SCP15, forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain.

The vegetation of the application area is in a completely degraded to good (Keighery, 1994) condition (DER, 2013) with little understorey species present with a ground cover comprising of weed species (DER, 2013) and does not represent these communities.

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

**Methodology**

References

References

- DER (2013)

- Keighery (1994)

GIS Layers

- SAC Bio Datasets November 2013

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

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

The area under application is represented by Beard vegetation associations 37 and 1014 which have 36 and 56 percent respectively of their pre-European vegetation remaining in the Swan Coastal Plain IBRA Bioregion (Government of Western Australia, 2013).

Hedde vegetation complexes Yanga and Bassendean Complex-North have also been mapped within the area under application and have 20 and 72 percent respectively of their pre-European vegetation remaining (Hedde et al, 1980).

The application falls within the Shire of Gingin which has 55 percent of its pre-European vegetation remaining. The proposed clearing is not within an extensively cleared landscape with approximately 55 percent of vegetation within a 10 kilometre of the applied areas remaining.

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). Hedde vegetation complex Yanga falls below the 30 percent threshold level.

The middle section of the proposed clearing area is a representation of the Hedde vegetation complex, Yanga. The proposed clearing within the middle area of the application will reduce the amount of the Yanga complex by approximately 12.4 hectares.

The proposed clearing will impact on a significant remnant of the unrepresented Hedde vegetation complex Yanga, therefore the proposed clearing is at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion				
Swan Coastal Plain	1,501,221	587,708	39.1	35
Shire				
Shire of Gingin	319,671	177,334	55	44
Beard Vegetation Association in Bioregion				
37	15,617	5,618	36	38
1014	41,064	22,937	56	53
Hedde Vegetation Complex				

Yanga Complex	26,176	5,163	20	2
Bassendean Complex- North	79,057	57,049	72	39

**Methodology** References  
- Commonwealth of Australia (2001)  
- Government of western Australia (2013)  
- Heddle et al (1980)

GIS Databases:  
- Interim Biogeographic Regionalisation of Australia  
- Pre European Vegetation

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

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

Approximately 12 hectares of the proposed clearing area is within a multiple use wetland. A further 0.6 hectares of the applied areas is located within a mapped conservation category wetland. A larger portion (approximately 2.2 hectares) of the identified conservation category wetland occurs outside of the proposed clearing area. The mapped multiple use and conservation category wetlands are associated with the proposed middle clearing area and not the top and bottom proposed clearing areas.

Conservation category wetlands are the highest priority wetlands which support a high level of ecological attributes and functions (Water and Rivers Commission, 2001). Multiple use wetlands are wetlands with few important ecological attributes and functions remaining (Water and Rivers Commission, 2001).

The closest water course to the proposed clearing area is a major tributary which runs between the middle and top proposed clearing areas. The tributary is associated to the nearby Gingin Brook. Two drains also run through the middle proposed clearing area.

The identified conservation category and multiple use wetlands are mapped as being adjoined which suggests the wetlands may be hydrologically linked. The proposed clearing is likely to change the hydrology of the mapped wetlands resulting in increased groundwater recharge. The increase in groundwater will result in prolonged seasonal water inundation. This reduces the amount of oxygen levels available to wetland plants potentially increasing stress and in some cases death to these plants (Water and Rivers Commission, 2000). Indirect impacts from the proposed clearing on water depended vegetation outside of the applied areas is likely to occur as a result in increased water inundation periods.

The vegetation under application is located within both conservation category and multiple use wetlands which contains wetland dependent vegetation. The proposed clearing areas are also within close proximity to other wetlands and water courses of which will be indirectly impacted upon from the proposed clearing as a result of prolonged water inundation.

Considering the above the proposed clearing is at variance to this Principle.

**Methodology** References  
- Water and Rivers Commission (2000)  
- Water and Rivers Commission (2001)

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

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

Two land forms and soil types are mapped over the application area, Map unit 212Bs\_G (Bassendean, Gavin Phase) and Map unit 213Ya\_GG (Yanga Gingin Brook Complex Phase) (Commissioner of Soil and Land Conservation, 2013).

The Bassendean map unit is a flat or gently undulating plains on sand over alluvial deposits with pale deep sands and semi-wet soils (Commissioner of Soil and Land Conservation, 2014). This map unit is associated to the top and bottom proposed clearing areas.

The Yanga Gingin Brook Complex map unit is a flat poorly drained landscape interrupted by broad low sandy rises. Soils include shallow sand over a ferruginous pan, red loam over limestone and black clay over limestone (Commissioner of Soil and Land Conservation, 2014). This map unit is associated to the middle proposed clearing area.

The Commissioner of Soil and Land Conservation (2014) is of the opinion that there is already salinity present

on the property and would be increased from the clearing of native vegetation. The main indicator of salinity occurring on the property is the presence of Samphire, which is a group of shrubs and annuals commonly associated with saline environments.

The purpose of the clearing is to grow pasture, however when trees are cleared and replaced with shallow rooted annual crops and pastures, less water is drawn from the ground and more water falls on the ground during rain (Water and Rivers Commission, 2000). After clearing, the volume of water soaking into the ground may be increased by more than 10 times resulting in a rise in groundwater. The rise in groundwater dissolves salt stored in the soil profile and brings it up to the surface resulting in dryland salinity causing significant land degradation (Water and Rivers Commission, 2000).

In addition, given the nature of the soils present within the property, the proposed clearing will increase waterlogging and eutrophication in the low lying areas (middle proposed clearing area) (Commissioner of Soil and Land Conservation, 2014).

The proposed clearing will cause land degradation in the form of increased salinity, waterlogging and eutrophication. The proposed clearing is seriously at variance to this principle.

**Methodology**    References  
- Commissioner of Soil and Land Conservation (2014)  
- Water and Rivers Commission (2000)

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

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

The closest conservation area to the application areas is the Yeal Nature Reserve which is located approximately three kilometres away. The Bambanup Nature Reserve has been recorded approximately 6.3 kilometres away from the application areas and the Nullilla Nature Reserve approximately seven kilometres away.

Given the distance between the clearing areas and nature reserves, the proposed clearing is unlikely to have any direct impacts to any conservation areas.

The identified nature reserves are east, south-east of the application area within close proximity of each other. Given the location of the nature reserves to the applied areas, it is unlikely the proposed clearing areas act as stepping stones to facilitate fauna movement between conservation areas.

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

**Methodology**    GIS Databases:  
- DPaW Tenure

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

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

Approximately 12 hectares of the proposed clearing area is within a multiple use wetland. A further 0.6 hectares of the applied areas is located within a mapped conservation category wetland. A larger portion (approximately 2.2 hectares) of the identified conservation category wetland occurs outside of the proposed clearing area.

The identified multiple use wetlands and conservation category wetland are adjoined, separated by cadastral boundaries rather than ecological factors. The close proximity of these wetlands suggests that they are hydrologically linked. The proposed clearing is likely to change the hydrology of the mapped wetlands resulting in increased groundwater recharge. Further hydrology impacts may occur on a major tributary associated to the Gingin Brook that passes between the middle and top proposed clearing areas.

Increased groundwater recharge are likely mobilise nutrients suspended within the soil profile ending up in the tributary identified within the property boundary that feeds into the nearby Gingin Brook. Excess nutrients are also likely to end up in the large proportion of the conservation category wetland that occurs outside the proposed clearing areas. An increase in nutrients will lead to eutrophication within the water bodies they reach, thus deteriorating the water quality. The Commissioner of Soil and Land Conservation (2014) also concludes that eutrophication will occur in the low lying areas of the property from the clearing.

There is already salinity present on the property and will be increased from the clearing of native vegetation (Commissioner of Soil and Land Conservation, 2014). The main indicator of salinity occurring on the property is the presence of Samphire, which is a group of shrubs and annuals commonly associated with saline

environments.

After clearing in association with increased rainfall during the wetter months, groundwater will rise and dissolves salt stored in the soil profile bringing it up to the surface resulting in dryland salinity (Water and Rivers Commission, 2000). Additionally, salt that is stored within the soil profile that is mobilised from increase groundwater recharge is likely to come in contact with the nearby tributary that is associated the Gingin Brook, consequently deteriorating the water quality in both the tributary and the Brook. It will also impact on the water quality within the conservation category wetland when inundated, thus devaluing the conservation values of the wetland.

The proposed clearing will cause deterioration in ground and surface water quality from increase salinity levels and eutrophication, therefore the application is at variance to this principle.

**Methodology** Reference  
- Commissioner of Soil and Land Conservation (2014)  
- Water and Rivers Commission (2000)

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
The middle proposed clearing area is subject to water inundation due to soil type and lack to slope. Although the proposed clearing will lead to increased waterlogging, the proposed clearing is unlikely to cause or exacerbate flooding due the topography and the annual rain fall of 700 millimetres is counteracted by the annual evapotranspiration rate of 700 millimetres that occurs in the area.

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

**Methodology** GIS Databases  
- Evapotranspiration, Area Actual  
- Rainfall, Mean Annual  
- Topographic Contours, Statewide

**Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.**

**Comments**  
The proposed clearing is within an area subject to the Environmental Protection Swan Coastal Plain Lakes Policy 1992 which places restrictions on the construction or alteration of any system for drainage of water into and out of the lake. The application has been referred onto the Environmental Protection Authority for consideration.

**Methodology** GIS Databases  
- EPP Lakes, Swan Coastal Plain

#### 4. References

- Commissioner of Soil and Land Conservation (2014); Land Degradation Advice and Assessment Report for clearing permit application CPS 5872/1 received 31/1/2014; Department of Agriculture and Food Western Australia (DER Ref:A723667).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
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- DER (2014) Site Inspection Report for Clearing Permit Application CPS 5872/1, Lot 1, Coonabidgee. Site inspection undertaken 12/11/2013. Department of Environment Regulation, Western Australia (DER Ref:A723696).
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- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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- Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
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