



1. Application details

1.1. Permit application details

Permit application No.: 6531/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mrs Mikala and Mr Jason Bender

1.3. Property details

Property: Lot 2 on Diagram 80875
Local Government Authority: Shire of Gingin
DER Region: Greater Swan
DPaW District: Swan Coastal
LCDC: Gingin
Localities: Muckenburra

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Refuse
Decision Date: 30 May 2016
Reasons for Decision: The applicant has applied to clear 17.17 hectares of native vegetation.

The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*, and it has concluded that the proposed clearing is at variance to Principle (b), may be at variance to Principles (a), (c), (f), (g) and (i), and is not likely to be at variance to Principles (d), (e), (h) and (j).

The Delegated Officer determined that the proposed clearing will affect significant feeding habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), may impact on habitat suitable for threatened and priority flora, may impact on an occurrence of a priority ecological community, may result in land degradation in the form of wind erosion, and may impact on native vegetation growing in association with a conservation category wetland. The Delegated Officer also noted that planning approval is required from the Shire of Gingin for the purpose of the proposed clearing.

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 Mosaic: Low woodland; banksia / Shrublands; teatree thicket (Shepherd et al, 2001).	The proposed clearing of 17.17 hectares of native vegetation, on Lot 2 on Diagram 80875, is for the purpose of future horticulture.	Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The description and condition of the native vegetation under application was determined from a site inspection conducted by the Department of Environment Regulation on 12 May 2015.
Heddlle Vegetation Bassendean Complex-North is comprised of low open forest and low open woodland of Banksia species <i>Eucalyptus tottiana</i> to low woodland of Melaleuca species and sedgelands which occupy the moister sites (Heddlle et al, 1980).			The application area consists of very open Banksia woodland with scattered <i>Banksia menziesii</i> , <i>B. attenuata</i> , <i>B. illicifolia</i> and <i>E. tottiana</i> and a native understorey with minimal weed invasion (DER, 2015). This is consistent with the mapped vegetation types.
			The native vegetation within the application area is healthy, however the composition, structure and density of the vegetation within the application area has been compromised by previous disturbance, as indicated by the sparse canopy cover, gaps in the understorey compared with adjacent uncleared

vegetation and some areas of building and farm waste (DER, 2015).

The applicant has verbally advised the intention is to clear the whole area upfront and then gradually establish and expand horticultural pursuits such as a market garden or grazing pasture, rather than clear and develop the area in a staged manner.

Approximately six hectares of the property is cleared and currently used for grazing and horticulture. Apart from a network of access tracks, fire breaks and several small clearings, the remainder of the property supports native vegetation.

The applicant has indicated a potential willingness to retain the remaining native vegetation on the property (approximately 11 hectares), which is located at the northern end of the application area.

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 is to clear 17.17 hectares of native vegetation for the purpose of future horticulture.

The vegetation under application has been altered by historical and ongoing disturbance. Approximately 80 per cent of the application area appears to have been previously cleared (possibly during the 1970s, as evident in aerial imagery) and allowed to regenerate. The applicant advised there is a problem with feral pigs utilising the area and neighbouring wetland (DER, 2015).

A site inspection conducted by the Department of Environment Regulation (DER) noted the application area consists of very open *Banksia* woodland with scattered *Banksia menziesii*, *B. attenuata*, *B. illicifolia* and *Eucalyptus tottiana* trees over a native understorey with minimal weed invasion. The vegetation in the application area has regenerated to good (Keighery, 1994) condition (DER, 2015).

A number of flora species of conservation significance have been recorded in the local area (ten kilometre radius), from the same mapped vegetation and soil types as found within the application area. The Department of Parks and Wildlife (Parks and Wildlife, 2015a) advised that the application area may also contain suitable habitat for two critically endangered orchids within the intact *Banksia* woodland vegetation and that any impacts to critically endangered flora may potentially be significant.

The nearest record of conservation significant flora is a Priority two species, which Parks and Wildlife (2015a) advised is known only from low lying *Banksia* woodland on white-grey sand and appears to be restricted to a small part of the Swan Coastal Plain, approximately 16 kilometres east-west and 22 kilometres north-south. Recent collections have all been from an area to the west and south-west of Gingin, and the application area is within the known range. A record of this species is located within 320 metres of the application area and Parks and Wildlife (2015a) advised that the application area appears to contain suitable habitat for this species.

A priority ecological community (PEC), floristic community type (FCT) 23b 'Northern *Banksia attenuata* - *Banksia menziesii* woodlands' (P3), has been recorded from a point approximately 430 metres from the application area, on the same mapped vegetation and soil types as the application area. Parks and Wildlife (2015b) advised that this PEC is known from 85 point locations north of Perth from Red Gully to The Vines, over a distance of about 90 kilometres. None of the occurrences are mapped, however the point locations probably ascribe to about 50 occurrences (Parks and Wildlife, 2015b). Parks and Wildlife (2015b) advised that there is ongoing loss of relatively large areas of this community.

Parks and Wildlife (2015b) advised that, as FCT 23b is known across a small range and is undergoing continuing loss, it is essential to gain an understanding of the current area of occupancy to clarify its status. This may also become more critical if the proposal to list *Banksia* woodlands of the coastal plain as a threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* is successful. The application area is within the 500 metre buffer to this occurrence of FCT 23b and the vegetation it was recorded in is contiguous with the vegetation under application. Parks and Wildlife (2015b) advised that it is possible FCT 23b occurs in the application area.

The vegetation under application includes significant feeding habitat for the threatened Carnaby's cockatoo (*Calyptrorhynchus latirostris*) and may be used by other conservation significant fauna such as the western brush wallaby (*Macropus irma*) and quenda (*Isodon obesulus fusciventer*). Parks and Wildlife (2015c) advised that the proposed clearing is likely to impact the habitat surrounding a conservation category wetland (CCW),

mapped 320 metres to the west, including that used by wetland dependant fauna species such as frogs.

Soil disturbance and removal of native vegetation increases the risk of weeds and pathogens, such as dieback (*Phytophthora* species), being introduced or spread. This is of particular importance as the neighbouring Crown land contains a Conservation Category Wetland (CCW), which supports a high level of ecological values and functions and is the highest priority wetland for protection. Weed and dieback management practices would assist in mitigating the risk of introduction or spread of pathogens and invasive species into adjacent remnant vegetation and nearby CCW.

Although the vegetation under application has been subject to previous disturbance and is adjacent to similar vegetation that is likely to be in better condition, the 17.17 hectares of *Banksia* woodland in the application area has regenerated to good (Keighery, 1994) condition, contains significant habitat for Carnaby's cockatoo, may contain a priority ecological community and habitat for flora of conservation significance, including two critically endangered orchids, and support habitat for wetland dependent fauna.

On the basis of the above, it is considered that the vegetation under application may contain a high level of biodiversity values.

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

Methodology

References:

DER (2015)
Keighery (1994)
Parks and Wildlife (2015a)
Parks and Wildlife (2015b)
Parks and Wildlife (2015c)

GIS Database:

- Pre European Vegetation
- SAC Biodatasets – accessed April 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

Proposed clearing is at variance to this Principle

Two fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been recorded within the local area (ten kilometre radius), being: *Calyptorhynchus latirostris* (Carnaby's cockatoo) and *Nannatherina balstoni* (Balston's pygmy perch) (Parks and Wildlife, 2007-). There are also records of Priority 4 fauna species *Macropus irma* (western brush wallaby) and two birds protected under international agreement (eastern great egret and rainbow bee-eater) within the local area (Parks and Wildlife, 2007-).

The application area does not contain surface water and does not provide habitat for aquatic fauna species. It is also unlikely to represent critical habitat for the eastern great egret and rainbow bee-eater.

A site inspection (DER, 2015) identified the vegetation as *Banksia* woodland with the native vegetation within the application area compromised by previous disturbance, as indicated by the sparse canopy cover and gaps in the understorey compared with adjacent uncleared native vegetation. The vegetation was considered to be in good (Keighery, 1994) condition (DER, 2015).

The application area is contiguous with the surrounding areas of native vegetation on Crown land and is likely to provide a continuation of suitable habitat for indigenous fauna in the area.

The Carnaby's cockatoo population is declining dramatically due to land clearing for agriculture in regional areas and for urban development around Perth (Shah, 2006) and the species is listed as endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Carnaby's cockatoo nests in large hollows of *Eucalyptus* trees and forages on the seeds and nectar from the flowers of the Proteaceae family including *Banksia*, *Hakea*, and *Grevillea* as well as species from *Allocasuarina* and *Eucalyptus* (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, with a significant preference for large tracts of native vegetation and pine plantations, and that the Northern Region (in which the application area occurs) appears to be an important area throughout the season (Shah, 2006). The vegetation under application includes preferred feeding species for Carnaby's cockatoo and signs of foraging on cones of *Banksia* trees were recorded within the application area during a site visit by DER on 12 May 2015 (DER, 2015).

As one of the major threats to Carnaby's cockatoo is the accumulative clearing of feeding habitat on the Swan Coastal Plain (Cale, 2003), all feeding habitat within the Swan Coastal Plain is considered significant. Any clearing of cockatoo feeding habitat on the Swan Coastal Plain will contribute to the cumulative loss and fragmentation of remaining habitat and poses a significant threat to the long term survival of Carnaby's cockatoo.

The Department of Parks and Wildlife (2015c) advised that the proposed clearing is likely to impact the habitat

surrounding a conservation category wetland, mapped 320 metres to the west, including that used by wetland dependant fauna species such as frogs and possibly other fauna that utilise dense vegetation around wetlands such as quenda (*Isodon obesulus fusciventer*). The vegetation under application may also provide suitable habitat for ground dwelling fauna including western brush wallaby.

On the basis of the above, it is considered that the application area comprises significant habitat for indigenous fauna, including conservation significant species.

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

Methodology References
Cale (2003)
DER (2015)
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2015c)
Shah (2006)
Valentine and Stock (2008)

GIS Database:
- Pre European Vegetation
- SAC Biodatasets accessed April 2015

(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

The Department of Parks and Wildlife (2015a) advised that the application area may contain suitable habitat for two declared rare species of orchid within the intact Banksia woodland vegetation. Both species are listed as critically endangered and are known to occur on grey sandy soils (Western Australian Herbarium, 1998-) and, additionally, one of the species has been recorded within five kilometres of the application area, from the same mapped vegetation and soil types as found within the application area. Any impacts to critically endangered flora may potentially be significant (Parks and Wildlife, 2015a).

Considering the above, it is considered that the vegetation under application may provide suitable habitat for two species of rare flora.

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

Methodology References:
DER (2015)
Parks and Wildlife (2015a)
Western Australian Herbarium (1998-)

GIS Database:
- Pre European Vegetation
- SAC Biodatasets accessed April 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 Proposed clearing is not likely to be at variance to this Principle

Occurrences of two threatened ecological communities (TEC) have been recorded within ten kilometres of the application area, with the closest being the Vulnerable SCP07 'Herb rich saline shrublands in clay pans' located 2.6 kilometres northeast of the application area. This occurrence is within the same mapped vegetation and soil types as the application area, however SCP07 is associated with clay pan wetlands and the application area has sandy soils and is not mapped as wetland.

The other TEC in the local area is SCP26a '*Melaleuca huegelii* - *Melaleuca acerosa* (currently *M. systema*) shrublands on limestone ridges', known from multiple occurrences more than 7.6 kilometres to the southwest of the application area. Limestone ridges and *Melaleuca* shrublands have not been observed within the application area.

On this basis, it is considered that the proposed clearing is not expected to have an impact on the survival of TECs.

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

Methodology GIS Database:
- Pre European Vegetation
- SAC Biodatasets accessed May 2015
- Soils, Statewide

(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. This IBRA bioregion has approximately 39 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2013).

The vegetation within the application area is mapped as Beard vegetation association 1014, and Heddlé Bassendean Complex North, of which there is approximately 55 per cent and 71 per cent of pre-European extent remaining in the Swan Coastal Plain bioregion, respectively (Government of Western Australia, 2013; Parks and Wildlife, 2015d). Further, Beard vegetation association 1014 and Heddlé's Bassendean Complex North are well represented in secure tenure, with 53 per cent and 38 per cent, respectively, of their current extents held within Department of Parks and Wildlife managed lands (Government of Western Australia, 2013; Parks and Wildlife, 2015d).

Aerial imagery indicates that, although the vegetation under application adjoins a large tract of Banksia woodland vegetation on Crown land, approximately half of the local area (ten kilometre radius) has been cleared, predominantly for agriculture.

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).

The application area is a significant remnant as it contains significant habitat for indigenous fauna and may contain a high level of biodiversity. However, the local area and mapped vegetation types retain above the nationally recommended threshold level and therefore the application area is not considered to be located within an extensively cleared area.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DPaW Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,221	586,975	39	36
Local government area*				
Shire of Gingin	319,670	117,334	55	46
Beard Vegetation Association in Bioregion*				
1014	41,064	22,937	55	53 (12,241 ha)
Heddlé Vegetation Complex **				
Bassendean Complex North	79,057	56,600	71	38 (38,920 ha)

* Government of Western Australia (2013)

** Parks and Wildlife (2015d)

Methodology

References:

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

GIS Database:

- Pre European Vegetation
- DPaW, Tenure
- NLWRA, Current Extent of Native 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 may be at variance to this Principle

There are numerous watercourses and wetlands mapped in the local area (ten kilometre radius).

The application area is approximately 320 metres from Quin Brook which is a tributary of Gingin Brook, located approximately 7.5 kilometres away. There are also two conservation category wetlands (CCW) mapped approximately 150 metres east and 320 metres west of the application area. CCWs support a high level of

ecological values and functions and are the highest priority wetlands for protection.

The Commissioner of Soil and Land Conservation (CSLC) reported that soils in the areas visited were not wet or semi wet (CSLC, 2015). However, the Department of Parks and Wildlife (Parks and Wildlife, 2015c) considered that the actual extent of the damplands associated with the CCW to the west of the application area are likely to extend onto the northwest corner of Lot 2 and that it is possible it extends further, into the application area.

On the basis of the above, it is considered that the vegetation under application may be growing in association with a wetland.

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

Methodology References:
CSLC (2015)
Parks and Wildlife (2015c)

GIS Database:
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
- Hydrogeology, 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 is mapped as landscape and soil type Cb39 which is described as chiefly being leached sands, with small areas of other sand soils (Northcote et al, 1960 - 1968).

The Commissioner of Soil and Land Conservation (CSLC, 2015) advised that the proposed clearing has a risk of wind erosion causing land degradation, due to the sandy nature of the soils and the topographic position of part of the area to be cleared (dune crest).

The applicant has verbally advised the intention is to clear the whole area upfront and then gradually establish and expand horticultural pursuits such as a market garden or grazing pasture, rather than clear and develop the area in a staged manner. This strategy will exacerbate the risk of wind erosion.

The CSLC also advised that the proposed clearing has the potential for land degradation in the form of eutrophication, but considered the risk to be low as soils in the areas visited were not wet or semi wet (CSLC, 2015). However, the Department of Parks and Wildlife (Parks and Wildlife, 2015c) considered that the actual extent of the damplands associated with the conservation category wetland to the west of the application area are likely to extend onto the northwest corner of Lot 2 and that it is possible it extends further, into the application area. Parks and Wildlife advised that the proposed clearing may result in increased nutrient and sediment leakage into the wetland (Parks and Wildlife, 2015c).

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

The CSLC (2015) advised that the risk of wind erosion is able to be managed with existing field horticulture techniques and strategically placed wind breaks.

Methodology References:
CSLC (2015)
Northcote, K. H. et al. (1960-68)
Parks and Wildlife (2015c)

GIS datasets
- 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 **Proposed clearing is not likely to be at variance to this Principle**
The nearest conservation areas are the Yeal Nature Reserve and Gnaragarra-Moore River State Forest, which are located approximately one kilometre south and two kilometres west of the application area, respectively.

Noting the distance to conservation areas, it is considered that the proposed clearing is unlikely to have an impact on their environmental values.

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

Methodology GIS Database:
- 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

Proposed clearing may be at variance to this Principle

The application area is located nearby to a number of sensitive ecosystems and watercourses, with two conservation category wetlands (CCW) mapped approximately 150 metres east and 320 metres west of the application area and Quin Brook (a tributary of Gingin Brook) 320 metres to the east. CCWs support a high level of ecological values and functions and are the highest priority wetlands for protection.

Nitrogen levels in groundwater in the Perth metropolitan area are known to increase in response to land clearing and development due to the oxidation of organic matter in soil and fertiliser use (Cargeeg et al., 1987; Pionke et al., 1990; Appleyard, 1995). The Commissioner of Soil and Land Conservation (CSLC) advised that the proposed clearing has the potential to cause eutrophication, but considered the risk to be low as soils in the areas visited were not wet or semi wet (CSLC, 2015). However, the Department of Parks and Wildlife (Parks and Wildlife, 2015c) considered that the actual extent of the damplands associated with the CCW to the west of the application area are likely to extend onto the northwest corner of Lot 2 and that it is possible it extends further, into the application area. Parks and Wildlife advised that the proposed clearing may result in increased nutrient and sediment leakage into the wetland (Parks and Wildlife, 2015c).

On the basis of the above, it is considered that the proposed clearing may impact the quality of surface or underground water.

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

Methodology

References:

Appleyard (1995)
Cargeeg et. al. (1987)
CSLC (2015)
Parks and Wildlife (2015c)
Pionke et al. (1990)

GIS databases:

- EPP (Gnangara Mound Policy 1992)
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
- Hydrography, linear
- Public Drinking Water Source Areas

(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

Given the sandy soils present and relatively low annual rainfall (800 millimetres) the proposed clearing is not likely to increase the incidence or intensity of flooding.

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

Methodology

GIS databases:

- Soils, Statewide
- Rainfall, Mean Annual

Planning instruments and other relevant matters.

Comments The applicant advised that approximately 11 hectares of Banksia woodland, located adjacent to the northern end of the application area, will be retained on the property. This vegetation does not appear to have been previously cleared, has a denser overstorey of Banksia trees than found within the application area, appears to be in similar or better condition compared with the vegetation under application (DER, 2015), and is adjacent to and contiguous with Banksia woodland vegetation on Crown land, within which a number of flora and vegetation communities of conservation significance have been recorded.

On 20 April 2015 the application was advertised in *The West Australian* newspaper for a 21-day submission period. No public submissions were received.

The application area is located within the Gingin Groundwater Area, which is an area proclaimed under the *Rights in Water and Irrigation Act 1914*. The Department of Water (DoW) advised that the allocation under a current groundwater licence (GWL 109255(8)) for the property is not sufficient for the proposed future horticulture, and that the Perth – Superficial aquifer in the Gingin groundwater area has little water available for licensing (DoW, 2015). The applicant is encouraged to contact the DoW's Swan Avon Region office to discuss water management options (DoW, 2015).

The property is zoned Rural and the Shire of Gingin (2015) advised that the application to clear is premature in the absence of a Planning Approval for Intensive Horticulture.

There are no Aboriginal Sites of Significance mapped within the application area.

On 22 June 2015 DER wrote to the applicant, outlining the environmental issues identified in the preliminary assessment, and requesting a response within 30 days. On 22 February 2016 emailed the applicant to follow up on a response. On 3 May 2016 the applicant advised DER via a telephone conversation that they had decided not to proceed with the application. On 3 May and 19 May 2016 DER emailed the applicant to request written confirmation of the applicant's intention to withdraw the application. To date no formal response has been received from the applicant.

Methodology References
DoW (2015)
Shire of Gingin (2015)

GIS datasets
- Aboriginal Sites of Significance
- EPP Areas (Gnangara Mound 1992)
- RIWI Act, Groundwater Areas

4. References

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