Government of Western Australia
Department of Environment Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6578/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Electricity Generation Corporation TA Synergy

1.3. Property details

Property: State Forest 24, Cardiff
State Forest 4, Cardiff
Lot 5192 on Deposited Plan 213624, Muja
Colloquial name: Muja Power Station
Local Government Authority: Collie, Shire Of
DER Region: Greater Swan
DPaW District: Wellington
LCDC: Collie
Localities: Muja

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
8		Mechanical Removal	Infrastructure upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 5 November 2015

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation 3 is described as a medium forest; jarrah-marri (Shepherd et al., 2001); Mattiske Vegetation Y5 Complex is described as: Mixture of open forest of *Eucalyptus marginata* subsp. *Thalassica* - *Corymbia calophylla* and woodland of *Eucalyptus wandoo* on lateritic uplands in semiarid to perarid zones (Mattiske and Havel, 1998).	Electricity Generation Corporation TA Synergy proposes to clear up to 8 hectares of native vegetation within a total boundary of 12.85 hectares for the purpose of infrastructure upgrades.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); To: Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	Vegetation condition was determined during a site inspection conducted by the Department of Environment Regulation (DER) on 11 June 2015 (DER, 2015). The application area comprises two small areas 0.378 and 0.535 hectares in size to the west, and a larger area measuring 11.937 hectares to the east. The proposed clearing pertains to upgrades to fly ash dams within the Muja Power Station.

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 is not likely to be at variance to this Principle

The application area comprises eight hectares of native vegetation within a total boundary of 12.85 hectares of jarrah-marri forest to be cleared for the purpose of infrastructure upgrades within the Muja Power Station. Vegetation within the application area ranges from completely degraded to good condition (Keighery, 1994), with a majority of vegetation in good condition (Keighery, 1994). Native vegetation within the application area has been impacted by both previous clearing activities and grazing pressure by kangaroos and rabbits (DER, 2015).

A flora survey conducted approximately 600 metres west of the application area recorded a total of 163 flora taxa from 41 families and 105 genera (Woodman, 2012). Based on the presence of grazing activity and absence of an intact understorey (DER, 2015), flora diversity within the application area is likely to be considerably lower than that within the survey area and surrounds. A total of two rare and 14 priority flora

species have been recorded within 10 kilometres of the application area. Based on the level of degradation of vegetation within the application area as a result of grazing pressure and proximity to existing cleared areas, no rare flora are considered likely to occur within the application area. With consideration to the condition of vegetation within the application area and the availability of suitable habitat in better condition within the Muja State Forest adjacent to the application area, the proposed clearing is not likely to impact the conservation of any priority flora species.

A total of 53 bird, 14 mammal, four reptile, six amphibian and two invertebrate species have been recorded within 10 kilometres of the application area, including seven threatened, five priority, one migratory and one other specially protected fauna species (Parks and Wildlife, 2007-). A total of three threatened fauna species are likely to utilise habitat within the application area for foraging, roosting and nesting activities. Based on the condition of vegetation and proximity to existing infrastructure, fauna diversity is likely to be lower within the application area than within adjacent native vegetation within the Muja State Forest.

According to available databases, there are no Priority or Threatened Ecological Communities (PECs or TECs) within 10 kilometres of the application area. Vegetation proposed to be cleared is not considered to represent a PEC or TEC.

Woodman (2012) recorded a total of 16 weed species during a survey of adjacent vegetation. Invasive flora species can decrease biodiversity in an area as they out-compete native vegetation for available resources and increase the frequency and intensity of fires (DEC, 2011). Evidence of dieback was also recorded (Woodman, 2012). The proposed clearing activity has the potential to facilitate the spread of weeds and dieback-affected material into the adjacent Muja State Forest. Impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of weed and dieback management practices.

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

Methodology

References:
DEC (2011)
DER (2015)
Keighery (1994)
Parks and Wildlife (2007-)
Woodman (2012)

GIS Database:
- SAC bio dataset (Accessed October 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 may be at variance to this Principle

Vegetation within the application area is in a completely degraded to good condition (Keighery, 1994), and is located between infrastructure associated within the Muja Power Station and the adjacent Muja State Forest. Vegetation within the application area has been degraded by grazing pressure from kangaroos and rabbits that occur within the fenced boundary of the Muja Power Station (DER, 2015). During a site inspection, vegetation within the adjacent Muja State Forest was observed to be in better condition than the application area, and is therefore more likely to provide significant fauna habitat than the vegetation proposed to be cleared.

A total of seven threatened, five priority, one migratory and one other specially protected fauna species have been recorded within 10 kilometres of the application area (Parks and Wildlife, 2007-). A lack of understorey vegetation and the presence of fencing between the Muja Power Station and the adjacent State Forest decreases the likelihood for a majority of threatened and priority fauna to utilise habitat within the application area. Of the threatened and priority fauna recorded within 10 kilometres of the application area, Carnaby's cockatoo (*Calyptorhynchus latirostris*; Endangered), Baudin's cockatoo (*Calyptorhynchus baudinii*; Endangered) and the forest red-tailed black-cockatoo (*Calyptorhynchus banksii naso*; Vulnerable) are most likely to utilise habitat within the application area. In particular, vegetation within the application area is mapped as unconfirmed foraging habitat for Carnaby's cockatoo, and trees of a suitable age and size to contain hollows were observed within the application area during a site inspection (DER, 2015).

Parks and Wildlife (2015a) advises that the application area provides foraging habitat and may provide nesting habitat for Carnaby's cockatoo, Baudin's cockatoo and the forest red-tailed black cockatoo. Impacts to Carnaby's cockatoo, Baudin's cockatoo and the forest red-tailed black cockatoo may be minimised by ensuring any clearing conducted during the nesting season does not result in the removal of trees being used for nesting by black cockatoos.

Based on the potential for large trees within the application area to be utilised by black cockatoo species for nesting, the proposed clearing may be at variance to this Principle.

Methodology

References:
DER (2015)
Parks and Wildlife (2007-)
Parks and Wildlife (2015a)

GIS Database:
- SAC bio datasets (Accessed October 2015)

(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

Two rare flora species have been recorded within 10 kilometres of the application area. Both rare flora species have been recorded within similar habitat to that within the application area, including open jarrah, marri and sheoak forest over grey sandy soils or lateritic gravels, and one rare flora species has been recorded within an adjacent property south of the application area (Western Australian Herbarium, 1998-; Onshore Environmental, 2013). However, vegetation within the application area has been impacted by heavy grazing pressure by kangaroos and rabbits that occur in high numbers inside the fenced boundary of the Muja Power Station (DER, 2015). As a result, the understorey within the application area has been heavily impacted, and very few understorey flora species remain (DER, 2015).

Vegetation outside the application area and within the adjacent state forest was observed to be in better condition than vegetation within the application area (DER, 2015), and therefore more likely to maintain populations of rare flora. Based on the condition of vegetation within the application area, the proposed clearing is not likely to include or be necessary for the continued existence of rare flora, and is therefore not likely to be at variance to this Principle.

Methodology

References:
DER (2015)
Keighery (1994)
Onshore Environmental (2013)
Western Australian Herbarium (1998-)

GIS Database:
- SAC bio datasets (Accessed October 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

Vegetation within the application area is comprised of jarrah-marri forest with a degraded understorey (DER, 2015). According to available databases, there are no Threatened Ecological Communities (TECs) within 10 kilometres of the application area. The vegetation proposed to be cleared is not considered likely to represent a TEC.

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

Methodology

GIS Database:
- SAC bio datasets (Accessed October 2015)

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

Comments

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

The application area occurs within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 54 per cent of the pre-European vegetation remains (see table below) (Government of Western Australia, 2014).

The application area is associated with the footprint of the Muja Power Station, which is surrounded by the Muja State Forest. Therefore, on a local scale the application area is not considered to occur within an area that has been extensively cleared.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion* - Jarrah Forest	4,506,660	2,425,551	54	69
Shire* - Shire of Collie	170,198	141,313	83	89
Beard Vegetation Association within Bioregion*				
3	2,390,591	1,613,658	68	80
Mattiske Vegetation Complex**				
Y5 - Yalanbee	126,610	84,032	66	38

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.

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 (2015b)

GIS Database:
- Imagery

(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
Approximately 0.9 hectares (nearly ten per cent) of an adjacent wetland occurs within the footprint of the application area. Vegetation associated within this wetland represents a low open shrubland, which differs from the surrounding jarri-marri forest (DER, 2015). However, the wetland occurs amongst existing infrastructure, and the potential clearing of a small portion of vegetation associated with the wetland is not likely to significantly impact this vegetation community.

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

Methodology

References:
DER (2015)

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

Comments

Proposed clearing is not likely to be at variance to this Principle
The application area occurs on a very slight slope over ironstone gravels with sandy and earthy matrices (Northcote et al., 1960-68). Based on the soil type and slope within the application area, the proposed clearing is not likely to cause appreciable land degradation via wind or water erosion.

The application area is located within Zone A of the *Country Areas Water Supply Act 1947* (CAWS Act) Wellington Dam Catchment Area and the Wellington Dam Catchment Public Drinking Water Source Area (PDWSA) (DoW, 2015b). This area has a high salinity risk, and the clearing of deep-rooted vegetation has the potential to increase salinity on a local scale. However, the application area is adjacent to a large vegetated remnant associated with a state forest, and therefore the proposed clearing is not likely to cause a significant increase in salinity on a local or regional scale.

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

Methodology

References:
DoW (2015b)
Northcote et al. (1960-68)

GIS Database:
- Topographic contours, 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 application area shares its south-western boundary with the Muja State Forest, which is continuous with the Collie State Forest. The proposed clearing has the potential to facilitate the spread of weeds and dieback into adjacent native vegetation within the Muja State Forest. Impacts to the Muja State Forest as a result of the proposed clearing may be minimised by the implementation of weed and dieback management practices.

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

Methodology

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 is one wetland slightly within and immediately north of the larger portion of the application area (DoW, 2015a). While the proposed clearing has the potential to increase turbidity within the adjacent wetland via erosion, this wetland is surrounded by infrastructure and previously cleared areas associated with the Muja

Power Station, and any impacts to the adjacent watercourse as a result of the proposed clearing are not likely to be significant.

According to available databases, groundwater salinity within the application area is 1,000 to 3,000 milligrams per litre total dissolved solids. Given the extent of surrounding vegetation, the clearing of eight hectares of native vegetation adjacent to a previously cleared area is not likely to cause deterioration in the quality of groundwater on a local or regional scale.

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

Methodology References:
DoW (2015a)

GIS Databases:
- Hydrography, linear
- Topographic contours, 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 occurs over ironstone gravels with sandy and earthy matrices (Northcote et al., 1960-68). Mean annual rainfall within the region is approximately 800 millimetres and annual evapotranspiration is approximately 600 millimetres. While some standing water may occur following heavy rainfall, any flooding is likely to be highly localised and short-lived. The clearing of eight hectares over three areas is not likely to increase the incidence or intensity of flooding on a local or regional scale.

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

Methodology References:
Northcote et al. (1960-68)

GIS Databases:
- Evapotranspiration, area actual
- Rainfall, mean annual

Planning instruments and other relevant matters.

Comments The applicant proposes to clear up to eight hectares of native vegetation within State Forest 24 and State Forest 4, Cardiff, and Lot 5192 on Deposited Plan 213624, Muja, for the purpose of upgrades the fly ash dams within the Muja Power Station. The applicant is granted authority to access State Forest under the *Energy Operators (Powers) Act 1979*.

The application area occurs within the *Country Areas Water Supply Act 1947* (CAWS Act) Wellington Dam Catchment Area, and the Wellington Dam Catchment Public Drinking Water Source Area (PDWSA). The Department of Water (DoW) advises that this catchment was been subject to CAWS Act native vegetation clearing controls since November 1976 to prevent the salinization of water resources (DoW, 2015b). A CAWS Act licence to clear up to 26.6 hectares has been previously granted within Lot 5192 on Plan 213624. No CAWS Act compensation has been paid to retain native vegetation at the site.

DoW (2015b) has advised that under the merger of the state's electricity retailer (Synergy) and generator (Verve Energy), Synergy has access to clearing credits accrued by Western Power for previously establishing offset plantations in excess of areas licenced to clear for various past electricity generation works. This clearing credit entitlement was originally transferred to Verve Energy under an *Electricity Corporations Act 2005* Transfer Order. DoW (2015b) has advised that if Synergy is in agreement, they will reduce Synergy's clearing credits by eight hectares once a clearing permit has been granted.

The Department of Water (2015a) has advised that there is a risk of contamination to groundwater due to the proposed end land use, where hydrocarbons from heavy machinery and other contiminated material may percolate into the groundwater. The Department of Water (2015a) has advised that to mitigate the risk identified above, the applicant should follow the practices outlined in DoW's "Water Quality Protection Note 27 – Liners for containing pollutants, using engineered soils", ensure extraction adheres to an appropriate project plan, and limit excavation to a depth that is a minimum of 0.3 metres higher than the maximum seasonal groundwater level.

The application is associated with DER Licence L4706/1972/17 and Works Approval W5867/2015/1.

There are no registered Aboriginal Sites of Significance located in the area applied to clear.

The clearing permit application was advertised on 29 June 2015 by the Department of Environment Regulation inviting submissions from the public. No submissions were received.

Methodology References:

DoW (2015a)
DoW (2015b)

GIS Database:
- Aboriginal Sites Register System

4. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conversation, Perth.

DER (2015) CPS 6578/1 site inspection report. Department of Environment Regulation, Perth. DER REF: A

DoW (2015a) Advice received from the Department of Water on 1 September 2015. DER REF: A962602.

DoW (2015b) CAWS advice received from the Department of Water on 24 August 2015. DER REF: A959275.

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.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Onshore Environmental (2013) Targeted flora survey for a rare flora species. Unpublished report prepared by Onshore Environmental for Griffin Coal.

Parks and Wildlife (2007-) Naturemap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife, Perth. http://naturemap.dpaw.wa.gov.au/default.aspx (Accessed October 2015).

Parks and Wildlife (2015a) Regional advice received from the Department of Parks and Wildlife on 31 August 2015. DER REF: A993914.

Parks and Wildlife (2015b) 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.

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.

Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. http://florabase.dpaw.wa.gov.au/ (Accessed October 2015).

Woodman (2012) Muja Power station, fly Ash Dam Plume Studies, flora and vegetation studies. Unpublished report prepared by Woodman Environmental Consulting for Verve Energy.