



Clearing Permit Decision Report

Government of Western Australia
Department of Environment Regulation

1. Application details

1.1. Permit application details

Permit application No.: 5630/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: David Brinley Reid

1.3. Property details

Property: LOT 4156 ON DEPOSITED PLAN 207767 (Lot No. 4156 GOVERNOR BROOME SCOTT RIVER 6288)

Local Government Area: Shire of Augusta-Margaret River

Colloquial name:

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Refuse
Decision Date: 4 April 2014

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
The vegetation under application is mapped as:	The clearing consists of 123 hectares of native vegetation within Lot 4156 on Deposited Plan 207767, Scott River, for agriculture.	Pristine: No obvious signs of disturbance (Keighery 1994). To Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994).	The vegetation condition and description were determined through site inspections undertaken by former Department of Environment and Conservation staff in June and September 2010 as well as 25 June 2013 (Parks and Wildlife, 2013). Below is a brief description of the vegetation communities identified in 2010 (Parks and Wildlife, 2013). The majority of the vegetation is in a very good (Keighery, 1994) or better condition (Parks and Wildlife, 2013). Upland vegetation: Banksia attenuata and/or Jarrah open forest on small dunes and ridges of grey sand. The highest of these ridges found in the northern extent of the location supports a Banksia attenuata, Eucalyptus marginata low open forest plant community. The lower dunes and ridges lack Banksia attenuata and support a Eucalyptus marginata low open forest with an understory dominated by Taxandria parviceps, Kunzea recurva and Melaleuca thymoides.
Beard vegetation association's (Shepherd et al. 2001):			
27: Low woodland, Melaleuca sp.			
51: Sedgeland; reed swamps, occasionally with heath.			
975): Low woodland; jarrah.			
Mattiske vegetation complexes (Mattiske and Havel, 1998):			
Sd: Low open forest and low woodland of Eucalyptus marginata subsp. marginata-Corymbia calophylla-Agonis flexuosa with some Eucalyptus patens and Banksia spp. on low dunes to low woodland of Melaleuca preissiana-Banksia littoralis on interdune depressions in hyperhumid and perhumid zones.			
Swd: Mosaic of sedgeland of Restionaceae-Cyperaceae spp. and			

closed heath of Myrtaceae-Proteaceae spp. with occasional *Banksia ilicifolia* on swampy depressions and stunted *Eucalyptus marginata*²⁴ subsp. *marginata*-*Banksia attenuata*-*Xylomelum occidentale* on low sandy rises in hyperhumid and perhumid zones.

Sandy Jarrah ridges dominated by *Eucalyptus marginata* low open forest with an understorey dominated by *Taxandria parviceps*, *Kunzea recurva* and *Melaleuca thymoides* over sedges of *Anarthria scabra*, *Hypolaena exsulca* and the herb *Dasyogon bromelifolius*.

Wetland vegetation:

The southern extent of the location is a very wet closed heath community associated with loamy/clayey soils that are interwoven with areas of grey sandy soil mostly in the western and southern extent of the remnant vegetation. In areas this community is very dense with the scrambling shrub and sedge species *Jansonia formosa* and *Tyrbastes glaucescens*. The soils at the very southern extent of this community were noted to contain relatively coarse river grit and the plant community changed slightly to support *Melaleuca raphiophylla* and more *Astartea fascicularis* with *Jansonia formosa* and *Banksia occidentalis* becoming rarer in the community. A small area within this community supports a Blackbutt open forest over a closed heath.

The central wetlands of the location are a mixed closed low heath, on sand to loam soils. Occurrences of this community on sand soils can range from damplands to saturated sands depending on the depth of soil over lower impeding layers, dominant species on the damplands includes species such as *Dasyogon bromelifolius*, *Anarthria scabra*, *Hypocalymma ericifolium*, *Kunzea recurva*, *Melaleuca thymoides* sometimes with occasional Jarrah and *Nuytsia*. The saturated sands will often include *Evandra aristata*, *Melanostachya ustulata*, *Homalospermum firmum*, *Beaufortia sparsa*. The wetland vegetation when on loam soils will lack a number of these sand soils species and instead be more dominated by *Pericalymma elliptica*, *Hakea sulcata*, *H. linearis*, *Mesomelaena tetragona* and *Grevillea papillosa*. The northern extent of this vegetation overlays relatively shallow ironstone rock and in places this influence can be seen in the plant community through large stands of *Calothamnus lateralis* var. *crassus*. With appropriate survey it is likely that some northern areas of this community with *Calothamnus lateralis* var. *crassus* will be recognized as examples of Scott River Ironstone Vegetation.

A few small areas of deep seasonal inundation are within the locations remnant vegetation, these areas have a plant community dominated by Restionaceae sedge species with an overstorey of *Taxandria inundata* and/or *Melaleuca raphiophylla* with some *Melaleuca preissiana*.

Two permanently wet to near-permanently wet areas of wetland vegetation were noted within the location. One of which is associated with a natural streamline in the centre of the location, this area has peaty soils and was the only area to support *Lepidosperma effusum* and other creekline species. The second is at the northern extent of the location were an area of the above-described central wetlands supports a dense long inundated plant community in which the only noted occurrences of *Empodisma gracillima* and *Baumea rubiginosa* were found for the location.

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 seriously at variance to this Principle**

The amended application is to clear up to 123 hectares of native vegetation within Lot 4156 on Deposited Plan 207767, Scott River, for agriculture. The majority of the area is in a very good (Keighery 1994) or better condition.

Three Beard vegetation associations have been mapped within the application area ranging from sedgeland and reed swamps to medium forest of jarrah and marri (Shepherd et al. 2001). Three Mattiske vegetation associations have also been mapped over the application area (Mattiske and Havel, 1998).

An ecological linkage, defined by the South West Regional Ecological Linkage Report (Molly et al, 2009) runs through the centre of the application area connecting it to reserves north and south of the application area. A second linkage is also mapped adjacent to the southern portion of the application area and connects it to further reserves east and west of the application. As ecological linkages facilitate the maintenance of ecological processes and the movement of organisms within and across a landscape, the biological value of the vegetation is increased.

The area under application falls adjacent to the third largest occurrence of the 'Scott River Ironstone Association' Threatened Ecological Community (TEC). Site inspections (Parks and Wildlife, 2013) of Lot 4156 revealed further potential occurrences of this community within the application area. The conservation advice for this community also states "Additional areas such as adjoining native vegetation ... may be critical to the survival of the ecological community depending on factors such as presence of key functional, threatened, or rare species, their size and shape, linkages to other patches and landscape position" (DotE, 2013).

Given the location of the application area within the landscape, presence of rare and priority flora and the role the application area plays in maintaining the hydrology of the area, including that of the TEC vegetation, the application area is significant in the maintenance of a TEC.

The diverse range of plant communities intermingled and transitional with the ironstone found in the application area is not represented elsewhere in other remnants of ironstone vegetation (Parks and Wildlife, 2013). This transitional and diverse succession of vegetation communities leading north from the Scott River through the application area and the chain of almost unbroken vegetation leading from the Southern Ocean (approximately 3.5 kilometres south), through the application area to the forest vegetation of the Blackwood plateau to the north is unique (Parks and Wildlife, 2013).

Seven rare flora species have been recorded within the local area (10 kilometre radius). Site inspections within Lot 4156 (Parks and Wildlife, 2013) identified one of these and noted that following appropriate surveys, additional rare flora are highly likely to be found (Parks and Wildlife, 2013). The site inspections also recorded 12 priority flora species listed by the Department of Parks and Wildlife (Parks and Wildlife). It was noted that a further seven priority flora species are likely to be confirmed within the lot given appropriate surveys (Parks and Wildlife, 2013). The site inspections were limited by the large size of the survey area and flowering times of the flora (Parks and Wildlife, 2013).

As well as the recorded rare and priority flora, inspections of the property recorded a number of significant species, the extent and conservation status of which would require further study. Recorded examples of these species includes (Parks and Wildlife, 2013):

- A species considered to be a relict population on the Scott and Blackwood River Plain;
- A variation of a former priority listed species distinct for its adaptation to the hydrology of the area (DotE, 2013). Further research is likely to identify it as taxonomically distinct; and
- A species previously unrecorded on the Scott River Plain distinct in its leaf structure and habitat within a seasonally inundated plant community.

Fourteen fauna species listed as 'rare or likely to become extinct' under the Wildlife Conservation Act 1950 (WC Act) and nine fauna species listed as 'priority' by the Department of Parks and Wildlife have been recorded within the local area (20 kilometre radius). Given the mapped and observed vegetation associations as well as the habitat preferences for each species, the application area may provide habitat for 16 of these species.

Calyptorhynchus banksii subsp. *naso* (forest red-tailed black-cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo) are listed as 'rare or likely to become extinct' under the WC Act. The forest red-tailed black cockatoo and Carnaby's cockatoo are listed as 'Endangered' and Baudin's cockatoo is listed as 'Vulnerable' under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The application area may form feeding and roosting habitat for these species. The conservation advice for the 'Scott River Ironstone Association' TEC lists these species as well as *Dasyurus geoffroi* (chuditch), as species that may be present within the vegetation association.

Pseudocheirus occidentalis (western ringtail possum), *Dasyurus geoffroi* (chuditch), *Setonix brachyurus* (quokka) and *Nannatherina balstoni* (Balston's pygmy perch) are listed as 'rare or likely to become extinct' under the WC Act and 'Vulnerable' under the EPBC Act. The habitat requirements for these species are present within the application area and given the position of the application area within the landscape, these species may utilise the application area.

Galaxiella nigrostriata (black-stripe minnow), *Geotria australis* (pouched lamprey), *Isodon obesulus fusciventer* (quenda), *Tyto novaehollandiae* subsp. *novaehollandiae* (masked owl), *Elapognathus minor* (short-nosed snake), *Hydromys chrysogaster* (water-rat), *Macropus irma* (western brush wallaby) and *Westralunio carteri* (Carter's freshwater mussel) are listed as 'Priority' fauna by Parks and Wildlife. The habitat requirements for these species exist within the application area and as each has been recorded from within the local area, they may be present within the application area.

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

Methodology

References:

Parks and Wildlife (2013)
Government of Western Australia (2013)

Keighery (1994)
Mattiske and Havel (1998)
Molly et al (2009)
Shepherd et al (2001)

GIS databases:

- Hydrography, linear
- Pre-European vegetation
- SAC Biodatasets (Accessed July 2013)
- SWERL

(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 at variance to this Principle

The application area has been mapped adjacent to the Threatened Ecological Community (TEC) 'Scott River Ironstone Association'. The Department of the Environment (DotE, 2013) conservation advice for this vegetation association lists the forest red-tailed black-cockatoo, Baudin's cockatoo, Carnaby's cockatoo and the chuditch as species that may occur within the TEC.

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molly et al, 2009) runs through the centre of the application area connecting it to nature reserves to the north and south. A second linkage is mapped adjacent to the southern portion of the application area and connects it to reserves east and west of the application. The SWREL report (Molly et al, 2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape". Given this the application area is significant for the movement of local fauna within the landscape.

Fourteen terrestrial fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act) have been recorded within the local area (20 kilometre radius). A further nine fauna species listed as priority by the Department of Parks and Wildlife (Parks and Wildlife) have been recorded from within the local area (Parks and Wildlife, 2007-).

Calyptorhynchus banksii subsp. *naso* (forest red-tailed black-cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo) are listed as rare or likely to become extinct under the WC Act. The forest red-tailed black-cockatoo and Carnaby's cockatoo are listed as endangered and Baudin's cockatoo is listed as vulnerable under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Black cockatoos nest in large hollows of eucalyptus trees and forage on the seeds, nuts and flowers of a large variety of plants including *Eucalyptus* and *Banksia* species (Shah, 2006).

The revised application area now contains a vegetation community type described as sandy Jarrah ridges dominated by *Eucalyptus marginata* (Parks and Wildlife, 2013). Given this the revised application area may contain suitable breeding habitat for black cockatoo species as well as extensive, diverse roosting and foraging habitat.

Pseudocheirus occidentalis (western ringtail possum) is listed as rare or likely to become extinct under the WC Act and vulnerable under the EPBC Act and has been recorded from the local area. This species is restricted to the South West of Western Australia with *Agonis flexuosa* (Peppermint) forming a core habitat requirement. As the application area falls within the restricted distribution of this species and contains *Agonis flexuosa* (Parks and Wildlife, 2013), it represents potential habitat for this species.

Dasyurus geoffroii (chuditch) and *Setonix brachyurus* (quokka) are listed as rare or likely to become extinct under the WC Act and vulnerable under the EPBC Act. *Bettongia penicillata* subsp. *Ogilbyi* (woylie) is listed as rare or likely to become extinct under the WC Act and endangered under the EPBC Act. As all three species have been recorded within the local area, the application area is consistent with their habitat requirements and given the location of the application area within the landscape, the application area may form habitat for these species.

Nannatherina balstoni (Balston's pygmy perch) is listed as rare or likely to become extinct under the WC Act and vulnerable under the EPBC Act and has been recorded within the local area. This species occurs in a number of highly fragmented, smaller subpopulations, which are confined to smaller streams within the major river systems of south-west Western Australia. One of these subpopulations is recorded from the Scott River to which the application area is connected. Water quality degradation associated with the clearing or end land use may impact on the conservation status of this species. A land degradation assessment report completed by the Commissioner of Soil and Land Conservation (2013) noted that there would be a high risk of eutrophication to the Scott River should clearing proceed.

Geocrinia alba (white-bellied frog) and *Geocrinia vitellina* (orange-bellied frog) are listed as rare or likely to become extinct under the WC Act. The white-bellied Frog is listed as endangered and the orange-bellied Frog is listed as vulnerable under the EPBC Act and have been recorded within the local area. No records of these species exist within the Scott River and it is unlikely that undetected populations exist due to the high level of searching effort carried out prior to, and in the first two years of the implementing management plans for these species (DotE, 2013).

Leipoa ocellata (malleefowl) and *Phascogale tapoatafa* subsp. *tapoatafa* (brush tailed phascogale) are listed as rare or likely to become extinct under the WC Act and vulnerable under the EPBC Act and have been recorded from within the local area. As they generally utilise dry sclerophyll forests (DotE, 2013), the application area is unlikely to form habitat for these species.

Galaxiella munda is listed as rare or likely to become extinct under the WC Act and has been recorded from the local area. As this species is generally found within fresh fast flowing streams of Karri forests it is not likely to be found within the application area.

Geotria australis (pouched lamprey) is listed as Priority 1 by Parks and Wildlife and has been recorded from the local area. The distribution of this species extends from Margaret River to Denmark where it travels to the headwaters of streams and rivers to spawn. Juvenile lampreys may spend several years in these areas before migrating to the ocean. As the application area falls within the distribution of this species and is associated with the Scott River, it may contribute to habitat for this species.

Galaxiella nigrostriata (black-stripe minnow) is listed as Priority 3 by Parks and Wildlife and has been recorded within the local area. This species inhabits ephemeral watercourses between Northcliffe and Esperance, aestivating in summer. As large portions of the application area contain suitable habitat for this species it may be present within the application area.

Isoodon obesulus fusciventer (quenda) is listed as priority 5 by Parks and Wildlife. This species prefers dense often swampy vegetation, feeding within adjacent forest and woodland (DotE, 2013). A site inspection report of the application area noted that this species has previously been recorded from within the application area and observed suitable habitat (Parks and Wildlife, 2013).

Tyto novaehollandiae subsp. *novaehollandiae* (masked Owl) is listed as priority 3 and *Elapognathus minor* (short-nosed Snake) as Priority 2 by Parks and Wildlife. Both have been recorded within the local area. Given this, they may be present within the application area.

Hydromys chrysogaster (water-rat), *Macropus irma* (western brush wallaby) and *Westralunio carteri* (Carter's freshwater mussel) are listed as priority 4 by Parks and Wildlife. As the habitat preferences for these species are present within the application it may form habitat for these species.

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

Methodology

References:

Commissioner of Soil and Land Conservation (2013)
DEC 2007-
DotE (2013)
Parks and Wildlife (2013)
Molly et al (2009)
Shah 2006

GIS Datasets:

- Carnaby's cockatoo Feeding habitat
- Pre-European vegetation
- SWERL

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

Comments

Proposal is at variance to this Principle

The application areas are predominantly in a very good (Keighery, 1994) or better condition and contain a variety of vegetation types including Jarrah, Banksia and Marri forests as well as seasonally and permanently inundated wetlands. Seven rare flora species have been recorded within the local area (10 kilometre radius) and given the soil and vegetation types, may be present within the application area.

Site inspections of lot 4156 confirmed the presence of one rare flora species and given the observed vegetation type, it is highly likely to contain another (Parks and Wildlife, 2013). Due to the large size of the application area inspections undertaken were preliminary only and following appropriate surveys, additional rare flora species are highly likely to be found (Parks and Wildlife, 2013).

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molly et al, 2009) runs through the centre of the application area connecting it to nature reserves to the north and south. A second linkage is also mapped adjacent to the southern portion of the application area and connects it to reserves east and west of the application.

The SWREL report (Molly et al, 2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape". As the application area is likely to support rare flora populations, it is also likely to be critical in the conservation status of rare flora outside of the application area.

The area under application falls adjacent to the third largest occurrence of the Scott River Ironstone Association Threatened Ecological Community (TEC). Site inspections of Lot 4156 described vegetation associations that may be considered further occurrences of TEC vegetation within the northern portion of the application area (Parks and Wildlife, 2013).

The Scott River Ironstone Association is known to support three rare flora species. Of these two are largely restricted to this ecological community (DotE, 2013). As the application area adjoins and may contain representative TEC vegetation these species may occur within the application area. Fragmenting the ecological linkage supporting the remainder of the populations may also threaten the long term viability of these species.

Given the above the application is necessary for the continued existence of rare flora and is at variance to this clearing Principle.

Methodology

Reference:

DotE (2013)

Parks and Wildlife (2013)

Keighery (1994)

Molly et al (2009)

GIS Datasets:

- Pre European Vegetation

- SAC Biodatasets (accessed June 2013)

- SWERL

(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 at variance to this Principle

The Scott River Ironstone Association is described as a low to tall seasonally inundated shrubland or heathland, occurring on patches of shallow soils over massive ironstone formations of the Scott Coastal Plain in south-west Western Australia (DotE, 2013). It is listed as endangered under the Environment Protection and Biodiversity Conservation Act 1999 and the Wildlife Conservation Act 1950.

Site inspection's undertaken by former Department of Environment and Conservation in June and September 2010 as well as on the 25 June 2013 (Parks and Wildlife, 2013) confirmed the mapped presence of the Scott River Ironstone Association within lot 4156 as well as potential unmapped occurrences across the property. Due to its large size, the exact locations of the TEC was not able to be mapped and the entire application area was not able to be inspected (Parks and Wildlife, 2013).

The north-east portion of lot 4156, representative of Scott River Ironstone Association vegetation, as well as a 50 metre buffer, meets the Department of the Environment criteria for areas "critical to the survival of this ecological community" (DotE, 2013). The conservation advice for this community also states "Additional areas such as adjoining native vegetation ... may be critical to the survival of the ecological community depending on factors such as presence of key functional, threatened, or rare species, their size and shape, linkages to other patches and landscape position" (DotE, 2013).

An ecological linkage, defined by the South West Regional Ecological Linkage Report (Molly et al, 2009) runs through the centre of the application area. Further occurrences of the TEC are also located along this ecological linkage as well as within two kilometres north and east of the application area, accounting for almost all of the known 'Scott River Ironstone Association' vegetation. Given this, clearing the vegetation under application is likely to have an impact on the transfer of genetic material between remnant patches of TEC vegetation.

The Department of the Environment's (DotE) (2013) conservation advice for this TEC lists land clearing and grazing as major threats. It also lists the priority recovery and threat abatement actions which include:

- Avoid clearance of native vegetation within the ecological community and its surrounds (at least within a buffer zone of 50 metres from the edge of a given patch),
- Avoid any changes to hydrology that may result in changes to the natural hydrological regime of patches of the community, groundwater water table levels and subsequent increase or decrease in run-off, salinity, or pollution,
- Minimise disruptions to the local landscape that would influence the pattern of winter rain inundation, such as smoothing out depressions or creating banks/levees to store water,
- Ensure that development activities minimise direct impacts to the ecological community and indirect effects on its ecological function,
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible,

- Develop and implement best practice standards and regimes for management of remnants on private and public lands to maintain the biodiversity, including threatened species, of the ecological community,
- Recognise and implement appropriate management regimes to maintain distinctive biodiversity elements, such as threatened species as identified in national and state recovery plans and the connected landscapes and focal areas as identified through recovery planning processes,
- Ensure that networks of patches of the community that serve as refuge or linkages for wildlife and their habitat are maintained across the landscape, and
- Ensure that an appropriate management regime that is not detrimental to the ecological community, is in place where stock access patches of the ecological community.

The Commissioner of Soil and Land Conservation (2013) identified soil types that have a low phosphorus holding ability for which there is an increased risk of eutrophication especially when the soils become waterlogged. The risk of eutrophication causing land degradation is high (Commissioner of Soil and Land Conservation, 2013). The Commissioner also advised that "The risk of water logging with further clearing causing land degradation is high to very high". Given this, clearing a significant amount of the vegetation adjacent to the TEC may change the hydrology of the area and adversely impact on TEC representative vegetation.

The application to clear 123 hectares of native vegetation for the purpose of agriculture will impact upon the 'Scott River Ironstone Association' by potentially removing representative vegetation as well as further fragmenting the remaining patches and altering the hydrology of the area. It conflicts with the DotE recovery actions and recommendations for this TEC.

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

Methodology References:
 Commissioner of Soil and Land Conservation (2013)
 DotE (2013)
 Parks and Wildlife (2013)

GIS Datasets:
 - Pre European Vegetation
 - SAC Biodatasets (accessed June 2013)
 - SWERL

(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 may be at variance to this Principle

The area under application is located within the Warren Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 79 percent of its Pre European vegetation extent remaining (Government of Western Australia, 2013).

The application area is mapped as Beard Vegetation Associations 27, 51 and 975. These vegetation associations have approximately 74, 67 and 78 percent of their pre-European extent remaining in the Warren bioregion respectively (Government of Western Australia, 2013).

The area under application is mapped as Matiske Vegetation Complex's Scott Sd and Swd. These vegetation associations have approximately 46 and 69 percent of their pre-European extent remaining respectively (Matiske and Havel, 1998).

Digital imagery (Leeuwin 50cm Orthomosaic - Landgate 2004) indicates that the local area (10 kilometre radius) retains approximately 50 percent vegetation.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The majority of the application area is in a very good or better condition (Keighery, 1994). The vegetation is considered to be exceptionally diverse containing numerous priority and rare flora. The succession of plant communities leading from the Scott River to the North of the application area is not represented elsewhere (Parks and Wildlife, 2013).

An ecological linkage, defined by the South West Regional Ecological Linkage Report (Molly et al, 2009) runs through the centre of the application area. Given this and the condition of the vegetation, the application area is likely to form significant habitat for the dispersal of fauna and flora through the landscape.

Although the vegetation under application does not fall within a highly cleared mapped vegetation community. As the vegetation north of the Scott River has been highly cleared for agriculture and the application area contains one of the last intact vegetation remnants on the Scott River Plain, the application may fall within a highly cleared area. This is supported by the mapping of the application area as part of a north south ecological linkage.

Therefore, as the application area is a significant remnant and may fall within a highly cleared landscape, it may be at variance to this clearing Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion* Warren	833,985	664,435	79	84
Shire* Shire of Augusta-Margaret River	211,680	133,523	63	74
Beard Vegetation Association in Bioregion*				
27	70,203	52,409	74	88
51	35,867	24,235	67	85
975	2,840	2,224	78	74
Mattiske Vegetation Complexes				
Sd	37,716	17,362	46	29
Swd	10,377	7,205	69	54

Methodology

References:

Commonwealth of Australia (2001)
Parks and Wildlife (2013)
* Government of Western Australia (2013)
Keighery (1994)
* Mattiske and Havel (1998)
Molly et al (2009)

GIS Datasets:

- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2012
- Pre European Vegetation
- SWREL

(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

The application area falls approximately 100 metres from the main channel of the Scott River and is within its floodplain. The majority of application area is mapped as part of an extensive palusplain wetland (seasonally waterlogged flat).

A minor perennial watercourse runs through the centre of the application area.

A site inspection of the application area recorded diverse wetland dependent vegetation as well as area's inundated by water (Parks and Wildlife, 2013).

Given the above, the application is at variance to this Principle.

Methodology

References:

Parks and Wildlife (2013)

GIS Datasets:

- Geomorphic Wetlands Augusta to Walpole
- Hydrography, linear

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

Comments

Proposal is at variance to this Principle

The application area falls approximately 100 metres from the main channel of Scott River and is mapped as a palusplain wetland (seasonally waterlogged flat). A site inspection of lot 4156 undertaken by Department of Parks and Wildlife staff recorded area's inundated by water (Parks and Wildlife, 2013).

The area under application generally occupies the lower slope position in the landscape and is situated near the 1000 millimetre isohyets.

A site inspection of lot 4156 undertaken by the Department of Agriculture and Food (Commissioner of Soil and Land Conservation, 2013) identified four soil complexes within the area consisting mainly of poorly drained flats and wet sandy depressions. The risk of water logging within the application area is high and drainage from the property flows southward directly into the Scott River (Commissioner of Soil and Land Conservation, 2013).

Due to its position within the landscape and identified soil types, clearing native vegetation as described in this application is not likely to cause land degradation in the form of salinisation or wind erosion. The risk of water erosion is also low due to the present slope of the land (Commissioner of Soil and Land Conservation, 2013).

The Commissioner of Soil and Land Conservation (2013) advised that the identified soil types have a low phosphorus holding ability and there is an increased risk of eutrophication especially when the soils become waterlogged. Flooding events will also increase the risk of off-site eutrophication directly into the Scott River. The risk of eutrophication causing land degradation is high (Commissioner of Soil and Land Conservation, 2013).

The Commissioner of Soil and Land Conservations (2013) advised that "The risk of water logging with further clearing causing land degradation is high to very high".

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

Methodology References:
Commissioner of Soil and Land Conservation (2013)
Parks and Wildlife (2013)

GIS Datasets:
- Augusta-Walpole Wetlands
- Hydrography linear

(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 at variance to this Principle

The C class nature reserve R42377 falls approximately 1.2 kilometres to the north of the application area and a Crown reserve, vested with the Department of Parks and Wildlife (Parks and Wildlife), falls approximately 2.6 kilometres from the application area. These two reserves encompass occurrences of the Scott River Ironstone Association.

Gingilup Swamps Nature Reserve falls approximately 1.1 kilometres, along the Scott River, to the east of the application area. Scott National Park falls approximately 4.4 kilometres from the application area, along the Scott River to the west of the application area. Pagett Nature Reserve (A class) falls approximately 4.2 kilometres to the north of the application area. This reserve adjoins the South Blackwood State Forest and Blackwood River National Park.

The majority of the application area is in a very good (Keighery, 1994) or better condition. The vegetation is considered to be exceptionally diverse containing numerous priority flora, rare flora and vegetation necessary for the maintenance of a threatened ecological community.

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molly et al, 2009) runs through the centre of the application area connecting it to the reserves north and south of the application area. A second linkage is also mapped adjacent to the southern portion of the application area and connects it to the reserves east and west of the application.

The SWREL report (2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape". As the application area is part of, and significant, two ecological linkages it assists in the maintenance of the ecological process of conservation reserves within the local area. This value is heightened by its unique assemblage of flora and high fauna habitat value that assists in the maintenance of these species within the connected reserves.

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

Methodology References:
Molly et al (2009)
Keighery (1994)

GIS Datasets:
- DEC Tenure
- SAC biodatasets
- SWREL

(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**
The application area falls approximately 100 metres from the main channel of the Scott River. The application area is mapped as a palusplain wetland (seasonally waterlogged flat). A site inspection of the application area recorded area's inundated by water (Parks and Wildlife, 2013). The risk of water logging within the application area is high and drainage from the property flows southward directly into the Scott River (Commissioner of Soil and Land Conservation, 2013).

Eutrophication is the process by which a body of water acquires a high concentration of nutrients, especially phosphates and nitrates. These promote excessive plant growth. As this plant material decomposes, the oxygen within the water is depleted, causing the death of other organisms, such as fish.

Department of Agriculture and Food staff conducted a site inspection of the application area on 17 July 2013. The soil types present were noted to have a low phosphorus holding ability and there is an increased risk of eutrophication especially when the soils become waterlogged. The risk of nutrient export and eutrophication if the land is developed was reported to be high (Commissioner of Soil and Land Conservation, 2013).

The water table within the vicinity of the application area is very shallow therefore nutrients are likely to be transported via surface water flows. Given this, the proposed clearing is not likely to deteriorate the quality of groundwater however, it is likely to deteriorate the quality of surface water and is therefore at variance to this clearing Principle.

Methodology References:
DAFWA (2013)
Parks and Wildlife (2013)

GIS Database:
- Groundwater salinity, statewide
- Hydrography, linear

(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 may be at variance to this Principle**
The application area falls approximately 100 metres from the main channel of the Scott River. A minor perennial watercourse runs through the application area and it is mapped as a palusplain wetland (seasonally waterlogged flat). The majority of the vegetation is considered to be in a very good or better (Keighery, 1994) condition (Parks and Wildlife, 2013). Dense sedge vegetation as well as deep rooted vegetation is present within the application area.

A site inspection of lot 4156 in June 2013 undertaken by Department of Parks and Wildlife staff recorded wetland dependent vegetation as well as areas inundated by water (Parks and Wildlife, 2013). The Commissioner of Soil and Land Conservation (2013) has advised that the risk of water logging within the property is high.

As vegetation restricts the flow of water across a landscape, dissipating its energy and allowing it to be both transpired and drain into the aquifer. Removing the vegetation under application may exacerbate the intensity of flooding or cause previously upland areas to become seasonally inundated.

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

Methodology References:
Commissioner of Soil and Land Conservation (2013)
DAFWA (2013)
Parks and Wildlife (2013)
Keighery (1994)

GIS DataSets:
- Hydrography, linear
- Topographic Contours, Statewide

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments The amended application is to clear up to 123 hectares of native vegetation within Lot 4156 on Deposited Plan 207767, Scott River, for agriculture.

The application area originally contained the northern sections of Lot 4156 including a large area of vegetation representative of the Scott River Ironstone threatened ecological community. After review of the initial preliminary assessment report this area was removed from the application area, however vegetation within the centre of the property was included. The applicant has proposed to fence approximately 170 hectares of vegetation within Lot 4156, containing the highest environmental value, as an offset.

The offset proposal does not account for the significant environmental impacts of the application identified above.

The Shire of Augusta Margaret River was notified of the clearing and no comment has been received.

The application area is zoned general agriculture under the Local Town Planning Scheme Zone.

No submissions from the public have been received.

No Aboriginal sites of significance have been mapped within the application area.

Methodology GIS DataSets:
- Aboriginal sites of significance
- Town Planning Scheme Zone

4. References

- Commissioner of Soil and Land Conservation (2013); Land Degradation Advice and Assessment Report for clearing permit application CPS 5630/1 received 7/8/2013; Department of Agriculture and Food Western Australia (DER Ref A657933 and A657934).
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- Parks and Wildlife (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dec.wa.gov.au/>. Accessed July 2013.
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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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