GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6697/1
Permit Holder:	Grenleigh Pty Ltd
Duration of Permit:	From 12 November 2016 to 12 November 2036

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of pivot irrigation and associated activities.

2. **Land on which clearing is to be done**
   Lot 1539 on Deposited Plan 69939 (Eighty Mile Beach 6725)

3. **Area of Clearing**
   The Permit Holder must not clear more than 75 hectares of native vegetation within the area cross-hatched yellow on attached Plan 6697/1.

4. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. **Type of clearing authorised**
   This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the right to access land under the *Land Administration Act 1997* or any other written law.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

6. **Avoid, minimise etc. clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

7. **Weed control**
   When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
   (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

8. Control of permitted species

At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any species permitted to be grown under a Pastoral Diversification Permit, issued under the *Land Administration Act 1997*, which are growing within a 100 metre radius of each pivot area.

PART III - RECORD KEEPING AND REPORTING

9. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

(a) in relation to the clearing of native vegetation authorised under this Permit,
  (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  (ii) the date that the area was cleared; and
  (iii) the size of the area cleared (in hectares); and
(b) a description of the activities undertaken to control permitted species pursuant to condition 8 of this Permit.

10. Reporting

(a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report demonstrating adherence to all conditions of this permit, and setting out the records required under condition 9 of this permit in relation to clearing and other activities carried out between 1 January and 31 December of the previous calendar year.
(b) Prior to 19 August 2036, the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit where these records have not already been provided under condition 10(a) of this Permit.

Definitions

The following meanings are given to terms used in this Permit:

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

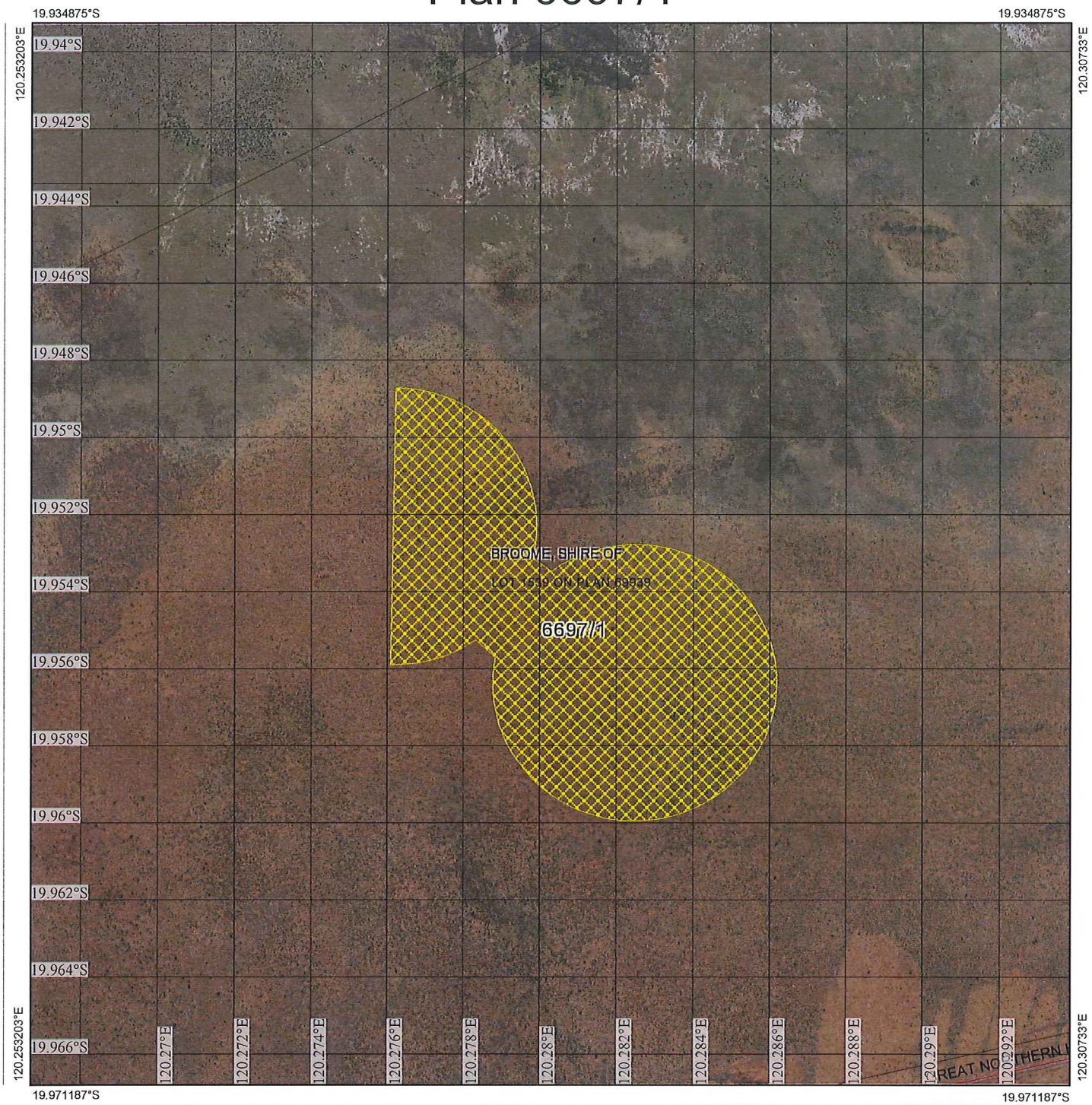
(a) that is declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*; or
(b) published in the Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
(c) not indigenous to the area concerned.

Kelly Faulkner
EXECUTIVE DIRECTOR
LICENSING AND APPROVALS

Officer delegated under Section 20
of the Environmental Protection Act 1986

13 October 2016

Plan 6697/1



Legend

- Imagery
- Clearing Instruments Activities
- Local Government Authority

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1:15,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 13/10/16.

Kelly Faulkner

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Environment Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6697/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Grenleigh Pty Ltd

1.3. Property details

Property: Lot 1539 on Deposited Plan 69939, Eighty Mile Beach
Colloquial name: Cooragoora Project
Local Government Authority: Shire of Broome
DER Region: North West
DPaW District: West Kimberley
LCDC: Roebourne - Port Hedland
Localities: Eighty Mile Beach

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
75		Mechanical Removal	Pivot irrigation and associated activities

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 13 October 2016
Reasons for Decision: The clearing permit application received on 11 August 2015 has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. The original application area of 170 hectares within an 831 hectare footprint was reduced to 75 hectares during the assessment of the application. It has been concluded that the proposed clearing may be at variance to principles (b) and (g), and is not likely to be at or is not at variance to the remaining principles.

The Delegated Officer determined that the proposed clearing of native vegetation will not result in significant environmental impacts, and has granted the permit subject to conditions to control weeds, and to avoid, minimise etc. clearing.

State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

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
One Beard vegetation association is mapped within the application area: • 32: Shrublands, pindan; *Acacia* shrubland with scattered low trees over *Triodia* spp. (Shepherd et al., 2001). A site inspection undertaken by the Department of Environment Regulation (DER) and the Department of Parks and Wildlife (Parks and Wildlife) on 20 April 2016 found vegetation to be representative of the mapped Beard vegetation association (DER, 2016a).	The applicant proposes to clear up to 75 hectares of native vegetation for the purpose of pivot irrigation and associated activities.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994); To: Completely degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	The current application represents the second stage of pivot irrigation associated with the Cooragoora Project. Vegetation condition was determined via aerial imagery and photographs of the application area provided by the applicant (Burton, 2015) and during a site inspection (DER, 2016a).

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 applicant proposes to clear up to 75 hectares of native vegetation within Lot 1539 on Deposited Plan 69939 (the property), 'Cooragoora', Eighty Mile Beach, for the purpose of pivot irrigation and associated activities. The application was reduced from the original area of 170 hectares during the assessment.

The application area is located within the Nita land system abutting the Mannerie land system to the north (CSLC, 2015). The Nita land system comprises deep red sand that generally supports shrubby hard and soft spinifex, and the lower lying areas of the Mannerie land system contain seepage areas on paleo-tidal plain that supports melaleuca thicket and halophytic shrubs (CSLC, 2015). Eighty two percent of the Nita land system has been mapped in very good condition (DAFWA, 2004).

The application area is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) region, which is characterised by acacia thickets with scattered trees, grasslands, and savannas over extensive plains, ranges and gorges (Bastin and ACRIS Management Committee, 2008), and retains approximately 99 per cent of its pre-European extent of native vegetation cover. The vegetation within the application area is mapped as Beard vegetation association 32, which is well-represented within the IBRA region (Government of Western Australia, 2015). Based on available information, the vegetation within the application area is representative of this Beard vegetation association, comprising *Acacia* shrubland with scattered low trees over *Triodia* spp. (Shepherd et al., 2001; Burton, 2015), and much of the vegetation within the application area appears to be in an excellent to very good condition (Keighery, 1994). A site inspection of the project footprint conducted by officers of the Department of Environment Regulation (DER) and Department of Parks and Wildlife (Parks and Wildlife) identified that the vegetation within the application area includes acacia shrubland with scattered low trees over *Triodia* spp. in good to excellent condition (DER, 2016a).

Based on aerial imagery, the local area (defined as a 20 kilometre radius around the application area) is well vegetated and retains an estimated 99 per cent of the pre-European extent of native vegetation cover.

Two weed species, *Aerva javanica* (kapok bush) and *Indigofera oblongifolia* (indigo), have been recorded within the local area (Parks and Wildlife, 2007-). Advanced Fertigation Systems (2015) advised that buffel grass (*Cenchrus ciliaris*) and bird grass (*C. setiger*) also occur within the property.

A total of 74 dicotyledon and five monocotyledon flora species have been recorded within the local area, including the priority 3 flora species *Keraudrenia katatona* and *Acacia monticola* x *tumida* var. *kulpam* (Parks and Wildlife, 2007-). The application area contains suitable habitat for these two priority flora however noting that both species have large distributions (Western Australian Herbarium, 1998-), it is considered that the proposed clearing is unlikely to impact on their conservation status.

During the site inspection, *Bonamia oblongifolia* (priority 1) was recorded within the property 20 kilometres north-east of the application area (DER, 2016b), as confirmed by the Western Australian Herbarium on 24 May 2016. Priority 1 flora species are known from one or a few locations (generally five or less) that are potentially at risk. All occurrences are either small, on lands not managed for conservation, or otherwise under threat of habitat destruction or degradation. This species is known from three records within the Dampierland IBRA region over sandy or gravelly soils in hummock grassland (Western Australian Herbarium, 1998-). Based on the presence of red pindan soils and hummock grassland (*Triodia* spp.) (DER, 2016a), this species may occur within the application area and may have been impacted by the clearing of 63 hectares within the application area. Given the low number of records of *B. oblongifolia*, any impacts to this species may be significant. A targeted survey for *B. oblongifolia* was conducted during 8-10 July 2016 (EnviroWorks Consulting, 2016). This species was not recorded within the application area.

The application area is located approximately five kilometres from the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotEE, 2016). The application area is located approximately seven kilometres from the Eighty Mile Beach Marine Park.

A number of fauna species of conservation significance (including two threatened fauna and six migratory birds protected under international agreement) have been recorded within the local area (Parks and Wildlife, 2007-).

The northern marsupial mole (*Notoryctes caurinus*; rare or likely to become extinct under the *Wildlife Conservation Act 1950* [WC Act], endangered under the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]) has been recorded within 20 kilometres of the application area. No recent records for this species occur within the region, and suitable habitat (sand dunes) does not occur within the application area (DER, 2016a).

A recent record for the greater bilby (*Macrotis lagotis*; rare or likely to become extinct under the WC Act, vulnerable under the EPBC Act) occurs within the application area, and Parks and Wildlife advised that the habitat within the application area is likely to support this species (Parks and Wildlife, 2015). During a site inspection, suitable habitat for the greater bilby was observed within and surrounding the application area (DER, 2016a). A survey for the greater bilby (bilby survey) was conducted within the application area during 11-12 July 2016 (Bamford, 2016). No evidence of the greater bilby (tracks, scats or burrows) was recorded within the application area (Bamford, 2016).

The bilby survey detected evidence of mulgara (*Dasycercus* sp.) within the application area, and advised that this is most likely to be the brush-tailed mulgara (*Dasycercus blythi*; priority 4). The survey report advises that the brush-tailed mulgara has similar habitat requirements to the greater bilby (Bamford, 2016). According to available databases, this record may represent a northern range expansion for this species (Parks and Wildlife, 2007-). However, the lack of records in the area may indicate a lack of survey effort in the region.

The six migratory bird species may utilise habitat within the application area for opportunistic foraging, however they are unlikely to be specifically reliant on habitat within the application area.

Based on the presence of the brush-tailed mulgara within the application area, it is considered that the application area and its surrounds may comprise a high level of biological diversity on a local or regional scale. However, it is considered the application area alone is unlikely to represent an area of high biodiversity in a local or regional context.

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

Methodology

References:
Advanced Fertigation Systems (2015)
Bamford (2016)
Bastin and ACRIS Management Committee (2008)
Burton (2015)
CSLC (2015)
DER (2016a)
DAFWA (2004)
DotEE (2016)
EnviroWorks Consulting (2016)
Government of Western Australia (2015)
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2015)
Shepherd et al. (2001)
Western Australian Herbarium (1998-)
Woolley (2016)

GIS Database:
- SAC bio datasets (Accessed October 2016)

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

Comments

Proposed clearing may be at variance to this Principle

The vegetation within the application area is mapped as Beard vegetation association 32, which is well-represented within the IBRA region (Government of Western Australia, 2015). It is understood that the Beard mapping within the Pilbara region was undertaken at a broad scale of 1:1,000,000 and may therefore not identify local vegetation communities.

Aerial imagery, photographs of the application area provided by the applicant (Burton, 2015), and a site inspection (DER, 2016a) indicates that one habitat type (acacia shrubland with scattered low trees over hummock grassland) occurs within the vegetated portion of the application area and occurred within the cleared portion of the application area. Based on available information, this habitat type also occurs in the area immediately surrounding the application area (DER, 2016a).

The application area is located within the Nita land system abutting the Mannerie land system to the north (CSLC, 2015). The Nita land system comprises deep red sand that generally supports shrubby hard and soft spinifex, and the lower lying areas of the Mannerie land system contain seepage areas on paleo-tidal plain that supports melaleuca thicket and halophytic shrubs (CSLC, 2015).

The Eighty Mile Beach Ramsar wetland is located approximately five kilometres from the application area. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotEE, 2016). The Ramsar site supports a number of fauna species of conservation significance, is considered to regularly support in excess of 500,000 birds, and is recognised as important refugia for biological diversity in arid Australia and one of the most important sites in Australia for migratory shorebirds listed under international agreements (DotEE, 2016).

A number of fauna species of conservation significance (including two threatened fauna, and six migratory birds protected under international agreements) have been recorded within the local area (20 kilometre radius) (Parks and Wildlife, 2007-). A recent record for the greater bilby occurs within the application area (Parks and Wildlife, 2007-). The greater bilby once occurred across 70 per cent of mainland Australia, but has now disappeared from up to 90 per cent of its historical range and occurs in fragmented populations in south-western Queensland, drier areas of the Northern Territory, and northern Western Australia (Pavey, 2006; Narayan et al., 2014). In Western Australia, the species occurs in a portion of the Gibson Desert and Great Sandy Desert bioregions, portions of the Pilbara bioregion, the Dampierland bioregion (within which the application area is located) along Eighty Mile Beach and north to Beagle Bay, and in the Central Kimberley and Ord-Victoria Plains bioregions south of the Fitzroy and Margaret Rivers. The distribution of the greater bilby is highly fragmented in this area (Pavey, 2006).

During a site inspection, suitable habitat for the greater bilby was recorded within the application area and immediate surrounds (DER, 2016a). Based on the presence of a recent record and suitable habitat within the application area, Parks and Wildlife (2015) advised that the application area is likely to contain habitat that supports this species. With consideration to the previous clearing of 150 hectares that has occurred within the application area's boundary under clearing permit CPS 5166/1, Parks and Wildlife (2015) advised that the proposed clearing will further reduce the quality and quantity of food resources available to the local sub-population and will increase habitat fragmentation, which is likely to impact the species on a local scale by impacting breeding success. The proposed clearing activities may cause direct mortality to bilbies (including pouched young, depending on the timing of clearing) and the exposure or collapse of burrows. A survey for the greater bilby (bilby survey) was conducted within the application area during 11-12 July 2016 (Bamford, 2016). No evidence of the greater bilby (tracks, scats or burrows) was recorded within the application area (Bamford, 2016).

The bilby survey detected evidence of mulgara (*Dasycercus* sp.) within the application area, and advised that this is most likely to be the brush-tailed mulgara (*Dasycercus blythi*; priority 4). The survey report advises that the brush-tailed mulgara has similar habitat requirements to the greater bilby (Bamford, 2016). According to available databases, this record may represent a northern range expansion for this species (Parks and Wildlife, 2007-). However, the lack of records in the area may indicate a lack of survey effort in the region. The brush-tailed mulgara is considered to occur in scattered populations at fairly low density, but may be locally abundant in areas (Woolley, 2016). It is suggested that threats to this species include grazing of introduced species, altered fire regimes, and predation by feral cats and foxes (Woolley, 2016).

Given the brush-tailed mulgara is known to occur in scattered populations and there are no published records of this species in the vicinity of the application area (Parks and Wildlife, 2007-; Woolley, 2016), potential impacts to this species as a result of the proposed clearing cannot be determined.

While records for the northern marsupial mole occur within 20 kilometres of the application area, suitable habitat for this species is not likely to occur within the application area and the proposed clearing is not likely to impact this species.

The six migratory bird species may utilise habitat within the application area for opportunistic foraging, however are unlikely to be specifically reliant on habitat within the application area

Advanced Fertigation Systems (2015) advised that liaison has occurred with the former Department of Environment and Conservation to ensure no sensitive ecological receptors will be impacted by the proposed pivot irrigation activities.

Based on the presence of the brush-tailed mulgara which is known to occur in scattered populations at low density, the application area may comprise significant habitat for indigenous fauna.

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

Methodology

References:
Advanced Fertigation Systems (2015)
Burton (2015)
CSLC (2015)
DotEE (2016)
Government of Western Australia (2015)
Keighery (1994)
Narayan et al. (2014)
Parks and Wildlife (2007-)
Parks and Wildlife (2015)
Pavey (2006)
Woolley (2016)

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

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

Comments

Proposed clearing is not likely be at variance to this Principle

There are no records for rare flora within 100 kilometres of the application area. According to aerial imagery, the Beard vegetation association mapped within the application area is well-represented within the local area (Government of Western Australia, 2015). It is understood that the Beard mapping within this region was undertaken at a broad scale of 1:1,000,000 and may therefore not identify local vegetation communities.

A site inspection of the project footprint conducted by officers of DER and Parks and Wildlife identified that the vegetation within the application area includes *Acacia* spp. shrubland with scattered low trees over hummock grassland in good to excellent (Keighery, 1994) condition (DER, 2016a).

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

Methodology

References:
DER (2016a)
Government of Western Australia (2015)
Keighery (1994)

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

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

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

According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area. A site inspection of the project footprint conducted by officers of DER and Parks and Wildlife identified that the vegetation within the application area includes acacia shrubland with scattered low trees over *Triodia* spp. (DER, 2016a). Vegetation within the application area is not considered to represent a TEC.

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

Methodology

References:
DER (2016a)

GIS Database:
- SAC bio datasets (Accessed October 2016)

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

Comments

Proposed clearing is not at variance to this Principle

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 application area is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 99 per cent of the pre-European extent of native vegetation cover (Government of Western Australia, 2015).

The vegetation within the application area is mapped as Beard vegetation association 32, which retains approximately 99 per cent of its pre-European extent at both a State and bioregion level (Government of Western Australia, 2015).

The application area is located within the Shire of Broome, within which there is approximately 99 per cent pre-European vegetation extent remaining (Government of Western Australia, 2015).

Based on aerial imagery, the local area (defined as a 20 kilometre radius around the application area) is well vegetated and retains an estimated 99 per cent of the pre-European extent of native vegetation cover.

On the basis that the native vegetation extents present within the application area, the Shire, the IBRA region and the local area retain more than 30 per cent representation respectively, it is considered that the vegetation within the application area is not significant as a remnant of native vegetation within an area that has been extensively cleared.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Dampierland	8,343,939	8,319,8729	99	1.27
Local government*				
Shire of Broome	5,469,3379	5,436,1039	99	1.22
Beard Vegetation Association in Bioregion*				
32	244,297	244,2659	99	0

Methodology

References:
Commonwealth of Australia (2001)
Government of Western Australia (2015)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

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

Comments

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

According to available databases, no wetlands or watercourses are mapped within or nearby the application area. The nearest watercourse is located approximately 3.8 kilometres from the application area.

It is considered that the Beard vegetation association (Shepherd et al., 2001) mapped within the application area is typically terrestrial, and according to aerial imagery is well-represented within the local area (Government of Western Australia, 2015).

On the basis of the above, it is considered that the vegetation within the application area is unlikely to be growing in association with a watercourse or wetland.

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

Methodology

References:
Government of Western Australia (2015)
Shepherd et al. (2001)

GIS Databases:
- Hydrography, 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 located within the Nita land system abutting the Mannerie land system to the north (CSLC, 2015). The Nita land system comprises deep red sand that generally supports shrubby hard and soft spinifex, and the lower lying areas of the Mannerie land system contain seepage areas on paleo-tidal plain that supports melaleuca thicket and halophytic shrubs (CSLC, 2015). The Nita Land System supports shrubby hard and soft spinifex over deep red sand with no organised drainage features (Van Vreeswyk et al., 2004).

The Commissioner of Soil and Land Conservation (CSLC) advised that the sandy soils of the Nita land system are prone to wind erosion following clearing activities (CSLC, 2015).

According to available databases, no watercourses or wetlands are located within or adjacent to the application area. Advanced Fertigation Systems (2015) advised that some sheet flow occurs in the vicinity of the application area following heavy rainfall; however, given the proposed clearing occurs within an area of flat topography the proposed clearing is not likely to cause land degradation via water erosion.

The CSLC advised that the proposed clearing is unlikely to cause appreciable land degradation in the forms of salinity or eutrophication (CSLC, 2015).

Based on the extent of clearing proposed and the potential for wind erosion between clearing and pasture establishment, it is considered that the proposed clearing may cause land degradation.

The CSLC advised that the pindan soils of the Nita land system have been successfully irrigated for many years without causing appreciable land degradation (CSLC, 2015). The CSLC advised that the risk of erosion can be managed by irrigation and crop establishment, and management after baling to retain about 50 per cent ground cover will be necessary (CSLC, 2015). An irrigation management plan has been developed for the project, outlining management measures to be implemented during pivot irrigation activities (Advanced Fertigation Systems, 2015). The irrigation management plan states that greater than 90 per cent ground cover will be maintained, which is likely to mitigate wind erosion within cleared areas (Advanced Fertigation Systems, 2015).

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

Methodology

References:
Advanced Fertigation Systems (2015)
CSLC (2015)
Van Vreeswyk et al. (2004)

GIS Databases:
- Imagery
- Rangeland land system mapping

(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

According to available databases, the application area does not include any conservation areas or Parks and Wildlife managed lands.

The application area is located approximately five kilometres from the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotEE, 2016).

The Eighty Mile Beach Marine Park is located approximately seven kilometres north of the application area.

Given the separation distance between these conservation areas and the application area, it is considered that the proposed clearing is unlikely to impact on the environmental values of nearby conservation areas.

Advanced Fertigation Systems (2015) advises that liaison has occurred with the former Department of Environment and Conservation to ensure no sensitive ecological receptors will be impacted by the proposed pivot irrigation activities.

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

Methodology

References:
Advanced Fertigation Systems (2015)
DotEE (2016)

GIS Databases:
- 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

According to available databases, no watercourses or wetlands are mapped within or adjacent to the application area.

Advanced Fertigation Systems (2015) advised that some sheet flow occurs in the vicinity of the application area following heavy rainfall. Given the proposed clearing occurs within an area of flat topography, it is considered that the proposed clearing is unlikely to impact the flow or quality of surface water following rainfall.

The application area is located within the Nita land system abutting the Mannerie land system to the north (CSLC, 2015). The Nita land system comprises deep red sand that generally supports shrubby hard and soft spinifex, and the lower lying areas of the Mannerie land system contain seepage areas on paleo-tidal plain that supports melaleuca thicket and halophytic shrubs (CSLC, 2015). The CSLC advised that given the nature of the pindan soils, it is unlikely that the proposed clearing will cause appreciable land degradation in the forms of salinity or eutrophication (CSLC, 2015).

Groundwater salinity within the application area is approximately 500-1,000 milligrams per litre total dissolved solids.

Based on the above, it is considered that the proposed clearing is unlikely to cause deterioration in the quality of groundwater.

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

Methodology References:
Advanced Fertigation Systems (2015)

GIS Databases:
- Hydrography, linear
- Groundwater salinity, 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 is located within the Sandy Desert Basin catchment, which has a total area of 29,288,220 hectares.

Mean annual rainfall in Shellborough, located 88 kilometres west of the application area, is approximately 326 millimetres (BoM, 2015). The Dampierland bioregion has a semi-arid to tropical monsoonal climate, receiving much of its rainfall during summer months (Bastin and ACRIS Management Committee, 2008; BoM, 2015). It is likely that during times of intense rainfall there may be some localised flooding. The proposed clearing is unlikely to significantly alter the intensity of flooding within the application area or surrounding areas.

The applicant's Irrigation Management Plan (Plan) states that annual rainfall has a very high variability from year to year influenced by cyclonic weather, however is generally between 200-1,200 millimetres per annum at Wallal Downs. The Plan states that drainage on the pindan sandplain is poorly defined and generally falls towards the coast, with wide-spaced ephemeral drainage depressions holding water only after heavy rainfall (Advanced Fertigation Systems, 2015).

Noting that the risk of standing water and water erosion is associated with high rainfall events and that local runoff is likely to be for short durations, it is considered that the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology References:
Advanced Fertigation Systems (2015)
Bastin and ACRIS Management Committee (2008)
BoM (2015)

GIS Database:
- Hydrographic catchments – catchments

Planning instruments and other relevant matters.

Comments Application history

The original application was to clear 170 hectares within an 831 hectare footprint, and was amended to 75 hectares during the assessment of the application.

Previous applications to clear native vegetation on Lot 1539 on Deposited Plan 69939:

- The previous lease holder applied to clear 25 hectares within a 154 hectare footprint to establish Stage 1 of two pivots (CPS 4390/1). On 3 November 2011 clearing permit CPS 4390/1 was granted. An application to increase the extent of clearing to 90 hectares was submitted but subsequently withdrawn.
- The previous lease holder applied to clear 520 hectares within a 3,282 hectare footprint on the property to establish Stages 2 and 3 of six pivots each (CPS 4563/1). The application was withdrawn due to other approvals not being obtained.
- The previous lease holder applied to clear 210 hectares within an 833 hectare footprint on the property to establish six pivots (CPS 5166/1). On 27 December 2012 clearing permit CPS 5166/1 was granted. Under this permit approximately 142.5 hectares was cleared and three pivots were established prior to the permit expiring. The current application provides for the expansion of this area.
- The applicant applied to clear 600 hectares within a 6,219 hectare footprint on the property to establish ten pivots (CPS 6744/1). The application was withdrawn.
- The applicant applied to clear 350 hectares within a 2,065 hectare footprint on the property to establish ten pivots (CPS 6950/1), overlapping a portion of the area applied for in application CPS 4563/1. The application was withdrawn.

There are a number of other applications for similar purposes in the broader area. The cumulative impacts of these and previous clearing activities is likely to increase impacts to flora, vegetation communities and fauna.

On 24 August 2015 the application was advertised in *The West Australian* newspaper for a 21-day submission period. No public submissions have been received.

On 1 December 2015 a DER Delegated Officer wrote to the applicant (DER ref. A1015609), advising of the significant environmental impacts identified during the assessment of the application (specifically, impacts to the threatened fauna greater bilby), and noting that a licence to abstract groundwater is required under the *Rights in Water and Irrigation Act 1914*. The letter invited the applicant to provide advice addressing the issues identified, on how the applicant intends to avoid or minimise the impacts identified, or to alternatively withdraw the application, within 30 days.

On 21 December 2015 the applicant provided the proposed survey methodology *Targeted investigations for the Greater Bilby Macrotis lagotis on Wallal Downs* (DER ref. A1080733). Parks and Wildlife Kimberley Region advised support of the proposed methodology (DER ref. A1073569).

On 26 February 2016 the applicant responded to the Delegated Officer's letter of 1 December 2015 (DER ref. A1057784):

- The applicant advised that Bamford Consulting Ecologists was contracted to undertake a desktop assessment of the potential for the greater bilby to occur within the project footprint based on photographs provided by the applicant. The applicant provided a copy of the consultant's report (Bilby Assessment Report). It is noted that a survey as proposed on 21 December 2015 was not conducted.
- The applicant advised that CyMod Systems has been contracted to undertake numerical modelling of the groundwater resource, that an assessment of drawdown impacts would be submitted to the Department of Water, and that the applicant would advise DER when the relevant groundwater licence has been obtained.

The Bilby Assessment Report was referred to Parks and Wildlife Kimberley Region for review of the adequacy of the survey and management measures proposed. Parks and Wildlife Kimberley Region noted that survey methodology differs from that previously supported by it, and advised that the report is insufficient to determine the presence or absence of the greater bilby within the application area. Parks and Wildlife Kimberley Region advised that the survey methodology outlined in *Targeted investigations for the Greater Bilby Macrotis lagotis on Wallal Downs* would be adequate to determine the presence of the greater bilby within the application area. On this basis, a greater bilby survey to be undertaken in accordance with the survey methodology *Targeted investigations for the Greater Bilby Macrotis lagotis on Wallal Downs* (21 December 2015) prepared by Bamford Consulting Ecologists and supported by Parks and Wildlife Kimberley Region is required.

A site inspection of the original project footprint conducted by officers of DER and Parks and Wildlife in April 2016 identified that approximately 63 hectares had been cleared within the application area (DER, 2016a).

On 25 May 2016 the applicant advised that Planning Approval had been granted by the Shire during the previous week (DER ref. A1107058).

On 8 July 2016 a DER Delegated Officer wrote to the applicant, requesting targeted surveys for the greater bilby and priority flora *Bonamia oblongifolia* (DER ref. A1129953). On 31 August 2016 the applicant provided surveys for the greater bilby and *Bonamia oblongifolia*, and amended the application area to 75 hectares (DER ref. A1157504).

On 14 September 2016 the Delegated Officer wrote to Parks and Wildlife, requesting advice on the adequacy of the bilby survey report provided by the applicant on 31 August 2016 (DER ref. A1164868). Parks and Wildlife identified inadequacies in the survey methodology and inconsistencies with the methodology outlined in *Targeted investigations for the Greater Bilby Macrotis lagotis on Wallal Downs* (21 December 2015), specifically that the survey did not appear to include the entirety of the application area or of habitat adjacent to the application area (Parks and Wildlife, 2016). Parks and Wildlife concluded that, noting these limitations, at the time of the survey it is unlikely that bilbies were present within the application area, however it is not possible to determine the broader impact on the species (Parks and Wildlife, 2016).

Potential impacts of pivot irrigation

The CSLC advised that provided careful irrigation water and fertiliser management is maintained, the subsequent land use is unlikely to cause salinity or eutrophication (CSLC, 2015).

In the desktop report provided by the applicant on 26 February 2016, it was noted that "of more concern to bilbies is the potential for the pivot irrigation schemes to support increased numbers of foxes that might spread further inland". Impacts to indigenous fauna as a result of the proposed pivot irrigation may be minimised by the implementation of fox management measures.

Other approvals

The application area occurs within the Canning-Kimberley Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). An amended licence to take groundwater for the purpose of stock watering and irrigation of up to 210 hectares has been issued by the Department of Water (DoW) under the RIWI Act (ref. GWL150360[13]). The licence expires on 31 December 2018.

The Shire of Broome (2015) advises that the proposed pivot irrigation associated activities is consistent with the land use objectives of the Shire's Local Planning Strategy and Local Planning Scheme No. 6, under which the application area is zoned as 'general agriculture'. Planning approval for an 'agricultural - intensive' land use has been issued by the Shire of Broome for the proposed activities (Shire of Broome, 2016).

The applicant has submitted an application for a permit to diversify to grow irrigated sorghum, maize and forage oats over the area subject to the native vegetation clearing permit application. The Department of Agriculture and Food (DAFWA) has listed these species as permitted non indigenous plant species and as being suitable for irrigated production (DAFWA, 2010). These species are considered to be lowest risk to the environment and should be suitable for most circumstances. The applicant has also applied to grow rhodes grass. DAFWA has listed this species as presenting a risk in certain circumstances or not being assessed for cultivation in Western Australia (DAFWA, 2010).

Native title

An Indigenous Land Use Agreement is in place over the property (register WI2010/26).

Methodology

References:
Commissioner of Soil and Land Conservation
DAFWA (2010)
DER (2016a)
DoW (2015)
Shire of Broome (2015)
Shire of Broome (2016)

4. References

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