GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7311/1
Permit Holder:	Kimberley Asparagus Pty Ltd
Duration of Permit:	16 December 2017 – 16 December 2022

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 horticulture.

2. **Land on which clearing is to be done**
   Lots 505, 506, 507, 508 and 509 on Deposited Plan 56733, Roebuck.

3. **Area of Clearing**
   The Permit Holder must not clear more than 165 hectares of native vegetation within the areas cross-hatched yellow on attached Plan 7311/1.

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.

PART II – MANAGEMENT CONDITIONS

5. **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.

6. **Direction of clearing**
   The Permit Holder shall conduct clearing in a progressive manner from one direction to the other (e.g. west to east) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

7. **Period in which clearing is authorised**
   The Permit Holder must ensure that the planting of crop species occurs within three months of the authorised clearing being undertaken.

8. Fauna management

(a) Immediately prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake clearance surveys within the areas cross-hatched yellow on attached Plan 7311/1 for the Dampier Peninsula goanna (*Varanus sparnus*), Dampierland burrowing snake (*Simoselaps minimus*) and Dampierland plain slider (*Lerista separanda*).

(b) Immediately prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake clearance surveys using transects spaced at a maximum 100 metres on average within the areas cross-hatched yellow on attached Plan 7311/1 for the greater bilby (*Macrotis lagotis*).

(c) Immediately prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to relocate any fauna found under condition 8(a) and 8(b) of this permit, in accordance with a fauna licence pursuant to Regulation 15 of the *Wildlife Conservation Regulations 1970*.

(d) Where fauna are identified and relocated under condition 8(a), 8(b) and 8(c) of this Permit, the Permit Holder shall include the following in a report submitted to the Department of Water and Environmental Regulation:

(i) the scientific name and gender of each fauna captured under condition 8(a) and 8(b);

(ii) the location of any fauna species, as listed in condition 8(a) and 8(b), captured 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;

(iii) the date, time, vegetation type and weather conditions at each location where a fauna species is captured under condition 8(d)(ii);

(iv) the scientific name and gender of each fauna relocated under condition 8(c);

(v) the location of any fauna species, as listed in condition 8(c), relocated 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;

(vi) the date, time, vegetation type and weather conditions at each location where a fauna species is relocated under condition 8(d)(v);

(vii) the name of the fauna specialist that relocated fauna under condition 8(c); and

(viii) a copy of the fauna licence authorising the relocation of fauna under condition 8(c).

PART III - RECORD KEEPING AND REPORTING

9. Records must 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 species composition, structure and density of the cleared area;

(ii) 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;

(iii) the date that the area was cleared; and

(iv) the size of the area cleared (in hectares).

10. Reporting

(a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:

(i) of records required under condition 8 and 9 of this Permit; and

(ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.

(c) Prior to 16 September 2022, the Permit Holder must provide to the CEO a written report of records required under condition 8 and 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:

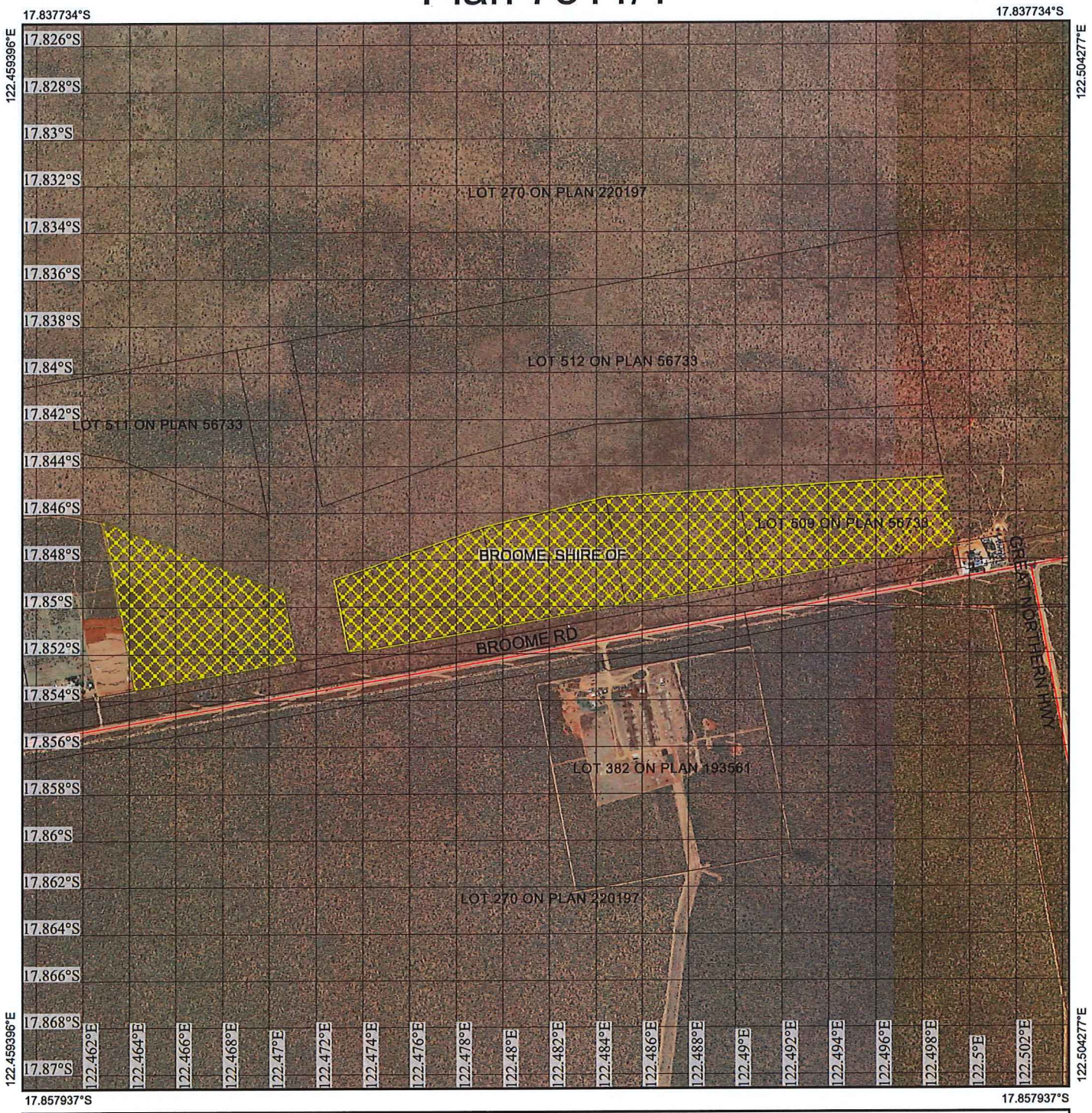
fauna specialist: means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*.

Adrian Wiley
A/SENIOR MANAGER
CLEARING REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

17 November 2017

Plan 7311/1



Legend

- Imagery
- Clearing Instruments Activities
- Local Government Authority

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(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 17/11/2017

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

GOVERNMENT OF WESTERN AUSTRALIA

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Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7311/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Kimberley Asparagus Pty Ltd

1.3. Property details

Property: Lots 505 to 509 on Deposited Plan 56733, Roebuck
Local Government Authority: Shire of Broome
DWER Region: North West

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 17 November 2017
Reasons for Decision:

The application for a clearing permit was received on 5 October 2016, and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing may be at variance to principles (a), (b) and (g), is not at variance to principle (e) and is not likely to be at variance to the remaining clearing principles.

During the assessment of the application, the applicant amended the application area to minimise environmental impacts. The original application area comprised 678 hectares of native vegetation. On 26 October 2017 the applicant amended the application area to 165 hectares (which comprises stage one of the proposed horticultural development), to avoid two populations of a Priority 1 flora species and better align with the current water licence application.

Based on the revised application area the Delegated Officer determined that:

- the application area may comprise an area of high biodiversity;
- the application area may be necessary for the maintenance of significant habitat for the greater bilby (*Macrotis lagotis*), Dampier Peninsula goanna (*Varanus spamus*), Dampierland burrowing snake (*Simoselaps minimus*), Dampierland plain slider (*Lerista separanda*) and spectacled hare-wallaby (*Lagorchestes conspicillatus* subsp. *leichardti*); and
- the proposed clearing may cause appreciable land degradation in the form of wind erosion between clearing and crop establishment.

The Delegated Officer has granted the clearing permit subject to conditions to address the abovementioned impacts.

To minimise impacts to the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby, the clearing permit contains conditions requiring:

- pre-clearance surveys to identify the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake and Dampierland plain slider within the application area, and the relocation of any individuals of these species recorded during pre-clearance surveys;
- one directional clearing to allow the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby to move into adjacent habitat; and
- the requirement to obtain a fauna licence issued pursuant to Regulation 15 of the *Wildlife Conservation Regulations 1970.*

To minimise the potential for appreciable land degradation the clearing permit contains a condition requiring:

- the planting of crop species within three months of any clearing being undertaken to minimise wind erosion.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Vegetation Description:

The application area is mapped as Beard vegetation association 750, which is described as shrublands, pindan; *Acacia tumida* shrubland with *Eucalyptus tectifica* (grey box) and *Corymbia flavescens* (cabbage gum) medium woodland over *Chrysopogon* sp. (ribbon grass) and *Triodia* sp. (curly spinifex) (Shepherd et al., 2001).

A Flora, Vegetation and Fauna Assessment (the Assessment) identified that the application area largely comprises open woodland over *Acacia plectocarpa* tall shrub over *Sorghum* and *Triodia* mixed hummock and tussock grassland (AECOM, 2017).

Clearing Description:

The application is for the clearing of 165 hectares of native vegetation within Lots 505-509 on Deposited Plan 56733, Roebuck, for the purpose of horticulture.

The applicant originally applied to clear 678 hectares of native vegetation (see areas hatched blue within Figure 1), however the applicant has amended the application area to 165 hectares (see areas hatched blue within Figure 2), which incorporates stage one of the proposed horticultural development.

Vegetation Condition:

Excellent; Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

To

Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment:

The condition and description of the vegetation within the application area was determined by the Assessment undertaken by AECOM (2017), and a site inspection undertaken by Officers of the former Department of Environment Regulation (DER, 2017).

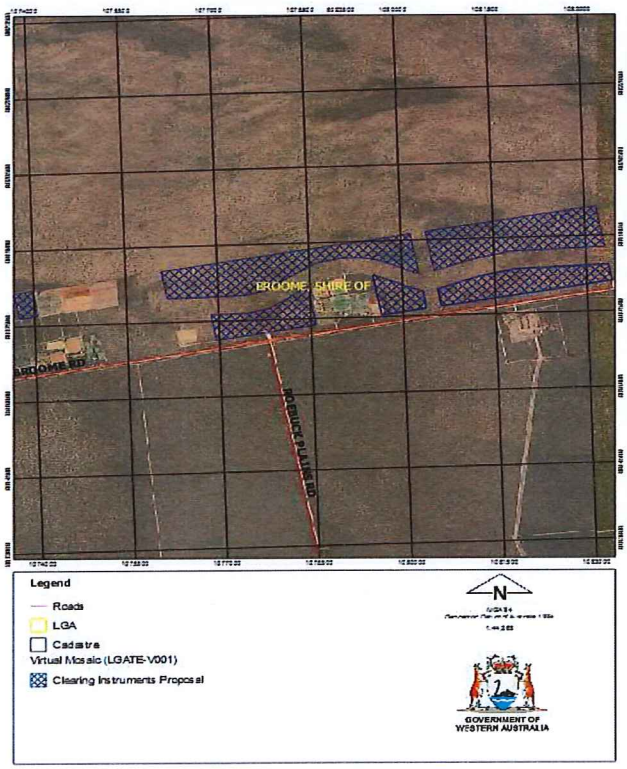

Figure 1. Original Application Area

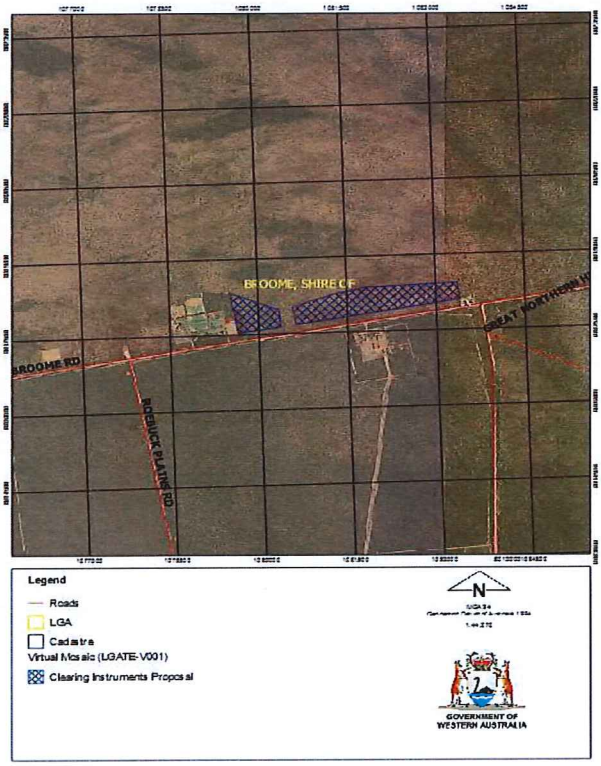

Figure 2. Amended (current) Application Area

3. Assessment of application against clearing principles

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

Comments

Proposed clearing may be at variance to this Principle

The applicant proposes to clear up to 165 hectares of native vegetation within Lots 505-509 on Deposited Plan 56733, Roebuck, for the purpose of horticulture. The applicant proposes to develop the land in three stages over four years which would produce approximately 1000 tonnes of asparagus when harvested (Kimberley Asparagus Pty Ltd, 2016; DER, 2017). The current application area incorporates stage one of the proposed horticultural development, which is approximately 150 metres from Broome Road.

A Flora, Vegetation and Fauna Assessment (the Assessment) undertaken over a larger area (957 hectares) encompassing the application area identified that the application area largely comprises open woodland over *Acacia plectocarpa* tall shrub over *Sorghum* and *Triodia* mixed hummock and tussock grassland (AECOM, 2017).

Specifically the vegetation types comprised *Bauhinia cunninghamii, Corymbia greeniana*, *Brachychiton diversifolius* subsp. *diversifolius, Hakea macrocarpa* and *Ehretia saligna* var. *saligna* low open woodland over *Acacia plectocarpa* subsp. *plectocarpa, Ficus aculeata* var. *indecora, Flueggea virosa* subsp. *melanthesoides* and *Denhamia cunninghamii* tall open shrubland over *Corchorus sidoides* subsp. *sidoides, Carissa lanceolata, Waltheria indica, Melhania oblongifolia* and *Solanum cunninghamii* low sparse shrubland with *Sorghum plumosum, Aristida holathera* var. *holathera*, *Eriachne melicacea* and *Panicum effusum* tussock grassland and *Triodia caelestialis* (Priority 3 species, as recognised by the Department of Biodiversity, Conservation and Attractions (DBCA)) open hummock grassland (AECOM, 2017).

The Assessment identified that the application area is largely in an excellent condition, with approximately 6.15 hectares in a very good condition, which lies adjacent to an existing farm (AECOM, 2017).

The Commissioner of Soil and Land Conservation (CSLC) advised that the application area is located within the Yeeda land system, described as red sandplain supporting pindan vegetation (CSLC, 2017). The Assessment identified the landform to comprise of flat terrain on red pindan soils (AECOM, 2017).

The local area considered in the assessment of this application is defined as a 50 kilometre radius surrounding the application area. The local area is extensively vegetated and contains approximately 99.3 per cent (808,100 hectares) native vegetation cover.

According to available databases, one rare and 27 priority flora species (as listed by DBCA) have been recorded within the local area. Based on a review of previous records in the local area and local knowledge of the preferred habitat type for these species, the former Department of Parks and Wildlife (Parks and Wildlife) advised that the following nine priority flora species may occur within the application area (Parks and Wildlife, 2017a; Parks and Wildlife, 2017b):

- *Jacquemontia* sp. Broome (Priority 1);
- *Tephrosia andrewii* (Priority 1);
- *Bonamia oblongifolia* (Priority 1);
- *Tetragonia coronata* (Priority 3);
- *Glycine pindanica* (Priority 3);
- *Seringia katatona* (Priority 3);
- *Triodia caelestialis* (Priority P3);
- *Pterocaulon intermedium* (Priority P3); and
- *Phyllanthus eremicus* (Priority P3).

The former Parks and Wildlife advised that the application area may also provide suitable habitat for one rare flora species (Parks and Wildlife, 2017a), which has been recorded within the local area.

The former DER's site inspection identified taxa that are representative of genus and families that contain conservation significant flora within the region (DER, 2017). Based on the findings of the site inspection, the former Parks and Wildlife advised that a targeted flora survey would be required to confirm the potential presence and distribution of rare and priority flora within the application area and surrounding areas (Parks and Wildlife, 2017b).

The applicant was notified of the potential occurrence of the abovementioned flora species within the application area and commissioned AECOM to conduct the Assessment, which included a flora survey targeted at conservation significant flora species. The survey was undertaken between 8 and 12 May 2017. The survey sampled floristic data from a combination of 17 quadrats and relevès with meandering transects also walked throughout the larger survey area (AECOM, 2017).

The flora survey identified two Priority flora species within the larger survey area, being *Jacquemontia* sp. Broome and *Triodia caelestialis* (AECOM, 2017).

Jacquemontia sp. Broome (A.A. Mitchell 3028) was recorded in four quadrats within the survey area and was identified within all recorded vegetation types. A total of three populations and 365 individuals were recorded across these four quadrats, all of which were recorded within the original application area of 678 hectares (see figure 2) (AECOM, 2017). DBCA provided comment on the findings of the survey and advised that, given this species has been recorded as occurring sparsely where it has been recorded previously; the large populations recorded within the survey area are of potentially high local and regional significance (DBCA, 2017). DBCA concluded that in the absence of data beyond the application area to provide local context, it is considered that clearing these populations has the potential to be significant to the conservation of the species (DBCA, 2017). The applicant has amended the application area to exclude the portions of the application area where this species was identified, whereby the current application area does not include any identified occurrences of this species. Therefore, the proposed clearing is not likely to impact on the conservation status of this species.

Triodia caelestialis was the common hummock grass throughout the survey area. This species was recorded in all 17 quadrats, representing between 6 to 40 per cent of understorey species composition. More than 1000 individuals of this species were recorded within the survey area (AECOM, 2017). DBCA advised that the impacts of the proposed clearing are unlikely to be significant to the conservation of the species at a regional scale (DBCA, 2017), however, noted the size of the population identified, and concluded that in the absence of data beyond the application area to provide local context, there is the potential for clearing impacts to be significant to the conservation of the species at a local scale (DBCA, 2017). As previously indicated, *Triodia caelestialis* was recorded within all 17 quadrats, including all five quadrats within the amended application area, however, given that this species was identified in large numbers within the greater survey area, the proposed clearing is considered unlikely to impact on the conservation status of this species.

As discussed under Principle (c), the targeted flora survey did not identify the aforementioned rare flora species (AECOM, 2017), and the application area is considered unlikely to contain, or be necessary for the continued existence of this species.

Excluding marine species, there are records of 100 conservation significant fauna species recorded within the local area (Parks and Wildlife, 2007-). These include seven terrestrial fauna classified as rare or likely to become extinct (under the *Wildlife Conservation Act 1950* (WC Act)), 12 avian fauna classified as rare or likely to become extinct (nine of which are migratory), one Other Specially Protected fauna (under the WC Act), one Priority 1 migratory avian fauna (as listed by DBCA), three Priority 2 fauna, three Priority 3 fauna, six Priority 4 fauna and 67 migratory avian fauna protected under international agreement. Of these species, the targeted fauna survey incorporated within the Assessment identified historical evidence of the greater bilby (*Macrotis lagotis*) (classified as rare or likely to become extinct under the WC Act) within the application area, in the form of a potential old burrow (AECOM, 2017). Noting this, and the availability of suitable habitat, the application area may comprise significant habitat for this species.

As discussed under Principle (b), the Assessment noted that in addition to the greater bilby, a further eleven conservation significant fauna species may occur within the survey area, based on the availability of suitable habitat (AECOM, 2017). Of these, it is considered that the proposed clearing may directly impact on four species, being the Dampier Peninsula goanna (*Varanus spamus*), Dampierland burrowing snake (*Simoselaps minimus*), Dampierland plain slider (*Lerista separanda*) and spectacled hare-wallaby (*Lagorchestes conspicillatus* subsp. *leichardti*), via mortalities associated with mechanical clearing.

As the application area contains vegetation predominantly in excellent (Keighery, 1994) condition, one Priority 1 and one Priority 3 flora species, habitat that is utilised by the greater bilby, and suitable habitat for the Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby, the proposed clearing may comprise a high level of biodiversity and may be at variance to this Principle.

To minimise direct impacts to the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby, the applicant will be required to:

- conduct pre-clearance surveys to identify the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake and Dampierland plain slider within the application area;
- relocate any greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake and Dampierland plain slider recorded during the pre-clearance survey; and
- undertake directional clearing to allow the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby to move into adjacent habitat.

While the application area may contain a high level of biological diversity, it is acknowledged that the values present within the application area also occur within the immediate vicinity, and throughout the local area. The local area retains approximately 808,100 hectares of native vegetation, of which 66,069 hectares remains within Lot 270 (Crown Lease) immediately north of the application area. Given this, and noting that the applicant has reduced the application area from 678 hectares to 165 hectares, it is considered that with the fauna management measures outlined above, the proposed clearing is not likely to have a significant impact on the level of biological diversity in the local area.

Given the above the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

Methodology

References:
AECOM (2017)
CSLC (2017)
DBCA (2017)
DER (2017)
Parks and Wildlife (2017a)
Parks and Wildlife (2017b)
Kimberley Asparagus Pty Ltd (2016)
Keighery (1994)

GIS Databases:
Kimberley Remnant Native Vegetation
SAC Bio Datasets (Accessed November 2017)

(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

Excluding marine species, there are records of 100 conservation significant fauna species recorded within the local area (Parks and Wildlife, 2007-). The Assessment identified that twelve conservation significant fauna species may occur within the larger survey area, based on the availability of suitable habitat. These species include the greater bilby, fork-tailed Swift (*Apus pacificus*) (protected under international agreement (IA)), letter-winged kite (*Elanus scriptus*) (protected under IA), rainbow bee-eater (*Merops ornatus*) (protected under IA), barn swallow (*Hirundo rustica gutturalis*) (protected under IA), peregrine falcon (Other specially protected fauna) (*Falco peregrinus*), Dampier Peninsula goanna (Priority 1), Dampierland plain slider (Priority 2), Dampierland burrowing snake (Priority 2), spectacled hare-wallaby (Priority 3), masked owl (northern) (*Tyto novae-hollandiae kimberli)* (Priority 3) and princess parrot (*Polytelis alexandrae)* (Priority 4) (AECOM, 2017).

The Assessment identified one fauna habitat type within the application area, which is described as open woodland over scattered *Acacia* shrubland and thick *Sorghum* Grassland (AECOM, 2017). The assessment incorporated a targeted fauna survey which involved survey area-wide transects (three meandering transects on an east-west axis throughout the survey area) and systematic quadrat searches within and outside of the survey area. The targeted survey also included grid searches for greater bilbies within two hectares of potential diggings or burrows (AECOM, 2017).

The Princess Parrot has been recorded once (in 1999) and the Masked Owl recorded twice (in 1906 and 1909) within the local area (Parks and Wildlife, 2007-). Noting a lack of recent records for both species, and that they are highly mobile avian species; the proposed clearing is not likely to significantly impact on these species. Similarly, noting that the fork tailed swift, letter winged kite, rainbow bee-eater, barn swallow and peregrine falcon are highly mobile avian species with large home ranges, the proposed clearing is considered unlikely to significantly impact on these species.

The Dampier Peninsula goanna was first described in 2014 and is known from four records; three near Coulomb Point (located approximately 60 kilometres north north-west of the application area) and one near Mount Jowlaenga (located approximately 70 kilometres east north-east of the application area) (Parks and Wildlife, 2017a). The preferred habitat for this species is within pindan shrubland (Parks and Wildlife, 2017a).

This species is likely to be extremely vulnerable to direct mortality during the clearing process as it is known to be an active burrower in captivity and is likely to shelter under hard objects on the ground or within spinifex or other dense shrubs and therefore has limited ability to disperse (Parks and Wildlife, 2017a). Given that records occur on either side of the application area and that suitable habitat occurs within the application area, there is potential for a resident population of this species to occur within the application area (Parks and Wildlife, 2017a).

While evidence of the Dampier Peninsula goanna was not identified within the application area, DBCA advised that the survey methods were not suitable for detecting the presence of this species (DBCA, 2017). DBCA noted that while this species was not identified during the Assessment, given the availability of suitable habitat, this species may be present within the application area at the time of clearing, and if present would be susceptible to mortality as a result of mechanical clearing (DBCA, 2017). Noting the limited number of records of this species, it is considered that fauna deaths as a result of clearing may be significant to this species at a local and regional scale.

There is relatively little available information regarding the Dampierland plain slider (known from 23 records) and Dampierland burrowing snake (known from nine records), however noting that there are relatively recent records of these species within the local area (both recorded in 2005) (Parks and Wildlife, 2007-), it is considered that they may utilise the application area (AECOM, 2017). These species would also be susceptible to mortality if occurring within the application area at the time of clearing, and noting the limited number of records of these species, it is considered that fauna deaths as a result of clearing may be significant to these species at a local and regional scale.

The Assessment recommended that a qualified fauna handler be on site for any clearing works, to identify and relocate any Dampier Peninsula goanna's, Dampierland plain slider's and Dampierland burrowing snake's from the application area prior to clearing proceeding (AECOM, 2017).

The greater bilby is known from 340 records within the local area (Parks and Wildlife, 2007-). This species is classified as rare or likely to become extinct (Vulnerable) in Western Australia under the WC Act and Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The greater bilby largely occupies three major vegetation types; open tussock grassland on uplands and hills, mulga woodland or shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (Department of the Environment and Energy, 2016). In Western Australia, the species occurs in parts of the Gibson Desert and Great Sandy Desert bioregions, parts of the Pilbara bioregion, the Dampierland bioregion (within which the application area is located) along Eighty Mile Beach 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 Western Australia, with populations occurring in the Gibson Desert and Great Sandy Desert bioregions, Pilbara bioregion, Dampierland (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 (Pavey, 2006).

The former DER's site inspection identified footprints and a potential burrow of the greater bilby within the original application area (DER, 2017) and the former Parks and Wildlife advised that the greater bilby has been recorded directly adjacent to the application area from a road kill specimen collected in 2002 by the former Department of Conservation and Land Management (Parks and Wildlife, 2017a).

The targeted fauna survey identified indirect evidence of the greater bilby within the larger survey area, which included diggings, scats and a potential old burrow (AECOM, 2017). The potential old burrow was identified within the current application area and the diggings and scats were identified outside of the application area (AECOM, 2017). The Assessment noted that the majority of greater bilby evidence was old and suggested that this species has not utilised the survey area in recent times. The Assessment concluded that the lack of numerous fresh diggings within the search area indicates that the greater bilby potentially traversed the survey area without constructing any burrow systems (AECOM, 2017).

DBCA provided comment on the Assessment findings, whereby these comments were based on the original application area comprising 678 hectares. DBCA advised that while it is unlikely that any individuals occupied the survey area at the time of survey, individuals have the potential to move into the survey area prior to clearing, therefore the proposed clearing may have a direct impact to individuals, particularly via mortality during the clearing process (DBCA, 2017). DBCA further advised that recent evidence indicates that greater bilbies are likely to utilise the survey area periodically, and therefore there may be a local population, though likely to be at a low density (DBCA, 2017).

DBCA concluded that while it is not considered necessary to amend the proposed clearing footprint to avoid greater bilbies, it is likely that the proposed clearing may have a direct impact to greater bilby individuals. DBCA therefore recommends that directional clearing measures and pre-clearance surveys be undertaken to minimise this impact (DBCA, 2017).

The spectacled hare-wallaby is known in the local area from a number of road kill and camera trap records within the last two years to the east and south of the application area (Parks and Wildlife, 2017a). This species is uncommon in WA and exists in a few isolated populations within the Pilbara and Kimberley regions (Winter et al., 2016). This species occupies a wide variety of habitat types including open forests, open woodland, tall shrublands, tussock grasslands and hummock grasslands. In the drier southern parts of its range in WA, it commonly occupies spinifex (*Triodia* sp.) sandplains interspersed with low shrubs and a diversity of soft grasses, sedges, or forb species (Winter et al., 2016). The preferred habitat for this species is poorly understood, however suitable habitat for this species may occur within the application area (Parks and Wildlife, 2017a). The targeted fauna survey did not identify evidence of this species, however noted that this species may occur within the application area (AECOM, 2017).

The former Parks and Wildlife advised that spectacled hare wallabies are agile and would be expected to move away from clearing activities, and any impact to this species is likely to be minimal (Parks and Wildlife, 2017b). Noting this, it is considered that directional clearing methods to ensure that this species is afforded the opportunity to move into adjacent vegetated areas would be sufficient to minimise impacts to this species.

While it is acknowledged that greater bilbies were not utilising the application area at the time of survey (AECOM, 2017), noting the extent of clearing proposed (165 hectares), that the application area provides suitable habitat for this species, that an old potential burrow was identified within the application area, and that the application area provides potentially suitable habitat for the Dampier Peninsula goanna, Dampierland plain slider, Dampierland burrowing snake and spectacled hare-wallaby, the proposed clearing may be at variance to this Principle.

To minimise direct impacts to the greater bilby, Dampier Peninsula goanna, Dampierland plain slider, Dampierland burrowing snake and spectacled hare-wallaby, the applicant will be required to:

- conduct pre-clearance surveys to identify the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake and Dampierland plain slider within the application area;
- relocate any greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake and Dampierland plain slider recorded during the pre-clearance survey; and
- undertake directional clearing to allow the greater bilby, Dampier Peninsula goanna, Dampierland burrowing snake, Dampierland plain slider and spectacled hare-wallaby to move into adjacent habitat.

It is considered that with the fauna management measures outlined above, the proposed clearing is not likely to have a significant impact on fauna indigenous to Western Australia, and will not lead to an unacceptable risk to the environment.

Methodology

References:
AECOM (2017)
DBCA (2017)
DER (2017)
Department of the Environment (2016)

Parks and Wildlife (2017a)
Parks and Wildlife (2017b)
Parks and Wildlife (2007-)
Winter et al (2016)
Pavey (2006)

GIS Databases:
SAC Bio Datasets (Accessed November 2017)

(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

According to available databases, one rare flora species has been recorded within the local area (50 kilometre radius). The closest known record of this species is located approximately 21 kilometres from the application area. This species is an erect, compact, multi-stemmed shrub that grows between 0.7 to 0.9 metres high and flowers purple from April to December (Western Australian Herbarium, 1998-).

The recovery plan for this species states that it requires habitat within relict desert dune swale in red sand (pindan), in *Acacia* spp. shrubland to three metres, with *Gyrostemon* spp., *Triodia* spp., *Hakea* spp. and *Eucalyptus* spp. within a range that is restricted to the Dampier Peninsula near Broome (Department of Environment and Conservation, 2010).

A site inspection of the application area undertaken by officers of the former DER identified suitable habitat for this species (DER, 2017). Based on the findings of the former DER's site inspection, the former Parks and Wildlife advised that a targeted flora survey should be required to determine the presence and significance of impacts on this species (Parks and Wildlife, 2017b).

The applicant commissioned AECOM to undertake a targeted flora survey of the application area between 8 and 12 May 2017. The survey sampled floristic data from a combination of quadrats and relevès with meandering transects also walked throughout the larger survey area (AECOM, 2017).

The survey did not identify the presence of rare flora within the application area (AECOM, 2017), and based on these findings it is considered unlikely that the application area includes or is necessary for the continued existence of rare flora.

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

Methodology

References:
AECOM (2017)
Department of Environment and Conservation (2010)
DER (2017)
Parks and Wildlife (2017a)
Parks and Wildlife (2017b)
Western Australian Herbarium (1998-)

GIS Databases:
SAC Bio Datasets (Accessed November 2017)

(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 threatened ecological communities (TEC) recorded within the application area. The closest TEC is known as 'Species-rich faunal community of the intertidal mudflats of Roebuck Bay' mapped approximately nine kilometres south west of the application area.

Intertidal mudflats were not identified within the application area (AECOM, 2017; DER, 2017) and noting the distance between the application area and this TEC and extent of remnant vegetation remaining between these areas, the proposed clearing is not considered to be necessary for the maintenance of this TEC.

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

Methodology

GIS Databases:
SAC Bio Datasets (Accessed November 2017)

(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 IBRA bioregion and the Shire of Broome, both of which retain greater than 99 per cent of their pre-European vegetation extents (Government of Western Australia, 2016).

The vegetation within the application area is mapped as Beard vegetation association 750 which retains approximately 99.7 per cent of its pre-European vegetation extent within the Dampierland IBRA bioregion (Government of Western Australia, 2016).

The local area is highly vegetated and retains approximately 99.3 per cent (813,100 hectares) of its pre-European vegetation extent (taking into account the coastal water mark). The application area represents approximately 0.02 per cent of the remaining native vegetation within the local area and the proposed clearing would reduce the extent of native vegetation within the local area to 812,935 hectares.

Noting that the Shire, the IBRA bioregion and the local area retain more than 30 per cent of their vegetation extents 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.

Table 1: Vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Department of Parks and Wildlife Managed Lands		
				Extent (ha)	Pre-European (%)	Current (%)
IBRA bioregion*						
Dampierland	8,343,939	8,319,873	99.7	136,452	1.64	1.57
Local government authority*						
Shire of Broome	5,469,337	5,436,104	99.4	154,329	2.82	2.69
Beard vegetation association in bioregion*						
750	1,225,281	99.7	99.7	33,998	2.77	2.77

Methodology

References:
Commonwealth of Australia (2001)
*Government of Western Australia (2016)

GIS Databases:
IBRA WA (Regions - Sub Regions)
Kimberley Remnant Native Vegetation
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, there are no watercourses or wetlands mapped within the application area. The closest hydrological feature to the application area is the Roebuck Plains wetlands system, located approximately nine kilometres south-east. The Roebuck Bay Ramsar site occurs approximately 15 kilometres south west of the application area.

The Assessment and the site inspection undertaken by the former DER did not identify riparian vegetation within the application area (DER, 2017; AECOM, 2017); therefore, it is considered that the vegetation within the application area is not likely to be growing in, or in an environment associated with a watercourse or wetland.

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

Methodology

References:
AECOM (2017)
DER (2017)

GIS Databases:
Hydrography, linear

Hydrography, hierarchy
RAMSAR Sites

(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 soils within the application area have been mapped at a regional scale as the Yeeda land System (Mapping Unit 335Ye) (CSLC, 2017). This soil type is described as red sandplain supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees over curly spinifex and ribbon grass (CSLC, 2017). Red pindan sandy to sandy loam soils were observed during the former DER site inspection (DER, 2017) and the Assessment identified the landform to comprise of flat terrain on red pindan soils (AECOM, 2017).

The CSLC advised that the risk of appreciable land degradation in the form of salinity and eutrophication is unlikely to occur as a result of the proposed clearing (CSLC, 2017).

The CSLC advised that the proposed clearing may result in appreciable land degradation in the form of water erosion given the episodic high intensity rainfall typically experienced in the region, especially during the accumulation of rainfall over the wet season (CSLC, 2017). Although the gradients across the application area are less than two per cent, there is sufficient slope to initiate soil erosion during high rainfall events if they occur before sufficient plant cover has re-established within the application area (CSLC, 2017).

The CSLC advised that there is also a risk of wind erosion causing land degradation, should the surface soils within the application area being exposed post clearing and during the establishment of crops. The CSLC advised that the wind and water erosion risk can be managed by timing the proposed clearing and cultivation operations to minimise the time of exposure of surface soils to wind erosion (CSLC, 2017).

Noting the above, and extent of proposed clearing (165 hectares), the proposed clearing may result in appreciable land degradation via wind and water erosion and may be at variance to this Principle.

To minimise the risk of wind and water erosion, the applicant will be required to plant the intended crops over the cleared areas within three months of the date of clearing, which will prevent the prolonged exposure of bare sandy soils.

Methodology

References:
AECOM (2017)
CSLC (2017)
DER (2017)

GIS Databases:
Soils, Statewide
DAFWA Subsystems

(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 closest conservation area to the application area is an un-named conservation area vested with the Conservation Commission of WA, located approximately 5.4 kilometres west. Numerous un-named conservation areas also occur approximately nine kilometres south, 14 kilometres west and 16 kilometres south-west of the application area. The Roebuck Bay Ramsar site occurs approximately 15 kilometres south west of the application area.

Given the distance to nearby conservation areas and noting the highly vegetated local area, the proposed clearing is unlikely to impact on the environmental values of these conservation areas.

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

Methodology

GIS Databases:
DBCA Tenure
RAMSAR Sites

(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

Noting the sandplain soil type present within the application area, that the local area retains approximately 99.3 per cent native vegetation cover and that no watercourses, wetlands or other hydrological features occur within the application area, the proposed clearing is unlikely to result in the deterioration of surface water quality.

Groundwater salinity within the application area has been mapped as fresh at between 0 to 500 milligrams per litre total dissolved solids. Given the extensive vegetative cover surrounding the application area, the proposed clearing is unlikely to lead to a perceptible rise in the water table or increase in groundwater salinity levels. The former Department of Water (DoW) advised that the proposed clearing is unlikely to have a significant impact on the quality of groundwater in the unconfined aquifer, provided activities are carried out in accordance with the former DoW's advice and guidelines (DoW, 2016).

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

Methodology

References:
DoW (2016)

GIS Databases:
Hydrography, linear
Groundwater Salinity, Statewide
Kimberley Remnant Native Vegetation

(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 Dampierland IBRA bioregion has a semi-arid to tropical monsoonal climate, receiving much of its rainfall during summer months (Bastin and ACRIS Management Committee, 2008).

The proposed clearing of 165 hectares of native vegetation may increase the risk of localised flooding following periods of heavy rainfall, which is commonly experienced by the region.

The soils within the application area comprise of red pindan soils (DER, 2017; AECOM, 2017). These soils are highly permeable, and while increased localised flooding may occur following periods of heavy rainfall, it is likely to be short term and is not likely to have a significant environmental impact.

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 not likely 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:
AECOM (2017)
Bastin and ACRIS Management Committee (2008)
DER (2017)

GIS Databases:
Hydrography linear

Planning instruments and other relevant matters.

Comments

The applicant proposes to develop the Skuthorpe Horticultural Area (identified under the former Water for Food Project) in three stages over four years which would produce approximately 1000 tonnes of asparagus when harvested (Kimberley Asparagus Pty Ltd, 2016). The current application area incorporates stage one of the proposed horticultural development, and is located approximately 150 metres from Broome Road.

The application was advertised in *The West Australian* newspaper on 28 November 2016 for a 21 day public submission period. No public submissions were received.

Other Relevant Approvals

The land parcels within which the application area is located are subject to an application for a licence under section 91 of the *Land Administration Act 1997*. The applicant was granted a Section 91 licence on the 9 March 2017 from the former Department of Lands (DoL) (DoL, 2017).

The Shire of Broome (Shire) advised that the subject land is zoned as 'Rural Small Holdings' under the Shire's Local Planning Scheme No.6 (LPS 6) (Shire of Broome, 2016). The Shire advised that development approval would be required for any activity or development that may be considered an 'Agriculture-Intensive' land-use under LPS 6, and that an application for development approval has not been submitted by the applicant to date (Shire of Broome, 2016; Shire of Broome, 2017).
An 'Agriculture – Intensive' land use is where land or premises are used for commercial purposes for the following (Shire of Broome, 2016):

- the production of grapes, vegetables, flowers or exotic or native plants, fruits or nuts;
- the establishment and operation of plant or fruit nurseries and
- the development of land for irrigated fodder, pasture or horticultural production (including turf farms).

Given that the proposed land use is for horticultural production, the applicant is required to obtain development approval from the Shire. The Shire advised that the undertaking of irrigated agriculture is consistent with the land-use objectives of LPS 6, and therefore the Shire has no objections to the clearing (Shire of Broome, 2016). The applicant has applied to the Shire for development approval, and a decision is currently pending.

The application area is located within the Broome Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Any taking or diversion of surface and ground water in this proclaimed area for purposes other than domestic and/or stock watering is subject to licensing under the RIWI Act.

The applicant's original application for a groundwater licence was for 2.7 gigalitres of water, which was deemed to be adequate for the original clearing permit application area of 678 hectares. The water licence application has since been amended and separated into three stages, with stage one of the application proposing to take 955,000 kilolitres of water to cover the development associated with the current application area.

As required by the former DoW, the applicant has undertaken a H3 Hydrogeological Assessment and submitted it to DWER for review. DWER completed the review and advised the applicant that a licence to take for 955,000 kilolitres per annum for stage one of the proposed works will be issued contingent on:

- An adequate pumping test being performed (designed in consultation with DWER) on at least one new production bore to verify aquifer parameterisation. The applicant will also be required to apply for a licence to construct or alter a well (CAW); and
- The provision of additional information relating to ecological monitoring, a commitment to installing additional monitoring bores (to measure impacts to adjacent users) and further information regarding data logging of the monitoring bores.

The submission of another H3 Hydrogeological Assessment and associated information would be required for the further stages of the proposed development.

The application area is within a Native Title Claimant area. The Rubibi Community People claimant and the Yawuru Aboriginal Corporation representative body have been notified of this application pursuant to section 24GB of the *Native Title Act 1993*. To date no response has been received. It is the applicant's responsibility to comply with all *Aboriginal Heritage Act 1972* and NT Act obligations.

Potential End Land Use Impacts

With regard to the original application area of 678 hectares, the former Parks and Wildlife advised that the end land use and associated operational works had the potential to impact on the Roebuck Bay Ramsar site that occurred approximately 7.5 kilometres south west, through the leaching of nutrients and pollutant chemicals draining into the wetland (Parks and Wildlife, 2017a). The former Parks and Wildlife advised that the potential impacts would be dependent on the effectiveness of management measures in preventing runoff, and that impacts could be addressed through a Nutrient Irrigation Management Plan (NIMP) (Parks and Wildlife, 2017a). The Shire of Broome confirmed that its development approval process can condition a requirement for a NIMP, if deemed required.

Noting that the applicant has amended the application area to 165 hectares, which is the eastern most portion of proposed clearing, and furthest from the Ramsar site (located approximately 15 kilometres away), it is considered that the proposed clearing and associated end land use is unlikely to significantly impact on the Ramsar site, particularly given the extent of native vegetation remaining between these areas.

Applicants Submissions

- On 2 June 2017, a Delegated Officer of the former DER wrote to the applicant, outlining the potential environmental impacts identified during the preliminary assessment, and inviting the applicant to provide targeted flora and fauna surveys to assist in determining the extent of impacts to conservation significant flroa and fauna species;
- On 7 August 2017, the applicant provided DWER with a copy of a Flora, Vegetation and Fauna Assessment undertaken over a larger survey area encompassing the application area. The Assessment incorporated targeted flora and fauna surveys. As discussed under Principle (a), the targeted flora survey identified two priority flora species within the application area, and historical evidence of greater bilbies;
- On 3 October 2017, a DWER Delegated Officer emailed the applicant to advise that, based on the findings of the Assessment, which identified a P1 (*Jacquemontia* sp. Broome) and P3 (*Triodia caelestialis*) flora species, further survey work incorporating the surrounding area would be required to better inform the local and regional impacts to both species. The Delegated Officer's email noted that the eastern portion of the application area, which incorporates stage one of the proposed development (165 hectares), did not contain any individuals of the P1 species; and
- On 24 October and 25 October 2017 respectively, the applicant emailed DWER to request for the application area to be amended to 165 hectares, noting that the amendment also aligned with the applicants water licence application of 955,000 kilolitres of water, which is expected to be available in the short term.

The applicant has indicated that a further clearing permit application for the remainder of the original application area (see Figure 1) would likely be applied for at a later date. Should the applicant wish to reapply

to clear the remaining areas within the original application area, further survey work would be required to determine the significance of impacts to *Jacquemontia* sp. Broome and *Triodia caelestialis.*

Methodology References:
Parks and Wildlife (2017a)
DoL (2017)
Shire of Broome (2016)
Shire of Broome (2017)

GIS Databases:
Native Title

4. References

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Shire of Broome (2017) Correspondence from Shire of Broome regarding development approval – Shire of Broome, Western Australia (DER Ref: A1436302).

Winter, J., Woinarski, J. & Burbidge, A. (2016) Lagorchestes conspicillatus. The IUCN Red List of Threatened Species 2016: Accessed 23 March 2017.