



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 8039/1  
File Number: 2018/000584  
Duration of Permit: 18 August 2019 to 18 August 2021

### PERMIT HOLDER

Mr Nils Arnold Blumann

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 650 on Deposited Plan 89159, Gibson

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.837 hectares of native vegetation within the area hatched yellow on attached Plan 8039/1.

### CONDITIONS

#### 1. Avoid, minimise and reduce the impacts and extent of 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.

#### 2. Dieback and 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* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *dieback* or *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 area to be cleared.

#### 3. Wind erosion management

The Permit Holder shall not clear native vegetation unless agricultural activities begin within 3 months of the clearing being undertaken.

### RECORD KEEPING AND REPORTING

#### 4. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this permit:

- (a) 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;
- (b) the date that the area was cleared;
- (c) the date that agricultural activities began;
- (d) the size of the area cleared (in hectares);

- (e) actions taken to avoid, minimise and reduce the impacts and the extent of clearing in accordance with condition 1 of this Permit; and
- (f) actions taken to minimise the introduction and spread of *weeds* and *dieback* in accordance with condition 2 of this Permit.

#### 4. Reporting

The Permit Holder must provide to the *CEO* the records required under Condition 3 of this Permit, when requested by the *CEO*.

#### DEFINITIONS

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

*CEO* means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

*dieback* means the effect of *Phytophthora* species on native vegetation;

*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 a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



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Mathew Gannaway  
MANAGER  
NATIVE VEGETATION REGULATION



*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

19 July 2019

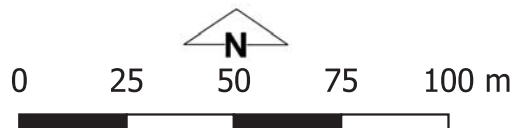
# Plan 8039/1




## Legend

-  CPS areas approved to clear
-  Cadastre

## Image



  
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Officer delegated under section 20 of the  
Environmental Protection Act 1986



GOVERNMENT OF  
WESTERN AUSTRALIA



## 1. Application details

### 1.1. Permit application details

Permit application No.: 8039/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: Mr Nils Arnold Blumann  
Application received date: 6 April 2018

### 1.3. Property details

Property: Lot 650 on Deposited Plan 89159  
Local Government Authority: Shire of Esperance  
Localities: Gibson

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.837 hectares (originally a 12.5 hectare area was sought)		Mechanical Removal	Horticulture

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 19 July 2019

**Reasons for Decision:** This clearing permit application has been assessed against the clearing Principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing within the original application area is at variance to Principles (b), (e), (f) and (i), may be at variance to Principles (a), (c), (d), (g) and (h) and is not likely to be at variance to Principle (j).

Through assessment it was identified that the application area has the potential to provide suitable habitat for fauna and flora species of conservation significance and may be representative of a threatened ecological community. The application area also occurs within a mapped vegetation complex which only retains approximately 14.21 per cent of its pre-European clearing extent. In addition, this assessment determined the area within a 20 kilometre radius of the application area only retains 9.16 per cent of its pre-European vegetation extent.

The above assessment also determined the application area has value as an ecological linkage connecting remnant stands of native vegetation together. The remnant vegetation stands connected by this ecological linkage and includes those associated with local surface water features.

The Delegated Officer determined that the proposed clearing had the potential to result in significant environmental impacts. Further information was sought from the applicant to address these concerns.

During the assessment process the Delegated Officer amended the application area to incorporate only the linear portion of the original application areas south eastern extent. This revised application area represents approximately 6.7 per cent of the original application areas extent. A reassessment of the proposed clearing against the clearing Principles on this basis determined the proposed clearing is not likely to be at variance to any of the clearing Principles.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds and dieback into adjacent vegetation. To minimise this risk, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

## 2. Site Information

### Clearing Description

The applicant proposes to clear up to 12.5 hectares of native vegetation within Lot 650 on Deposited Plan 89159, Gibson, for the purpose of agriculture. The application area comprises two separate areas (approximately 60 metres apart), herein referred to as the western application area and the eastern application area (see Figure 1).

On 29 September 2017 DWER emailed the applicant to advise that a review of aerial imagery had identified clearing within Lot 650 on Deposited Plan 89159, which was specific to the current application area. It was determined that the application area had been burnt and chained, and on 18 January 2018, DWER sent the applicant a letter of warning, noting that unlawful clearing had occurred. DWER advised that a clearing permit would be required to maintain the application area in a cleared state, noting its regenerative capacity. A clearing permit application was subsequently received on 6 April 2018.

The following assessment has been undertaken with consideration of the condition and extent of vegetation that existed prior to the abovementioned clearing. Consideration has also been given to the capacity of the area to regenerate to a state similar to that which existed prior to clearing, and the extent to which vegetation has regrown since that disturbance.

Based on this assessment, the Delegated Officer determined that reducing the application area to a 0.837 hectare area, representing the linear corridor comprising the south eastern extent of the original application area, would allow the applicant to expand their existing horticultural operations without the potential environmental impacts associated with the original application area. The assessment supporting this determination is contained in Section 5 of this report.

### Vegetation Description

The application area is mapped as Beard vegetation association 6048, described as shrublands comprising banksia scrub-heath on sandplain in the Esperance Plains Region (Shepherd et al. 2001).

A biological assessment titled 'Description and Assessment of the Nature Conservation Values of Benje-Benjenup Lake and Adjacent Bushland' (the Biological Assessment) (Chapman, 2006), which included a description of the vegetation adjacent to Benje-Benjenup Lake (likely to be representative of the application area pre-clearing) noted that the vegetation structure has been influenced by logging during the 1960's as part of initial land clearing, which has reduced the vegetation to a structural uniformity, particularly with respect to height and to a lesser extent density. The Biological Assessment notes that the vegetation adjacent to Benje-Benjenup Lake comprises "sandplain shrubland on deep gutless sand" (Chapman, 2006) and included *Nuytsia floribunda*, *Banksia speciosa* and *Lambertia inermis* to five metres, with medium height shrubs comprising *Adenanthos cuneatus* to two metres with lower shrubs comprising *Banksia* sp., *Beaufortia micrantha*, *Agonis spathulata*, *Jacksonia spinosa*, *Melaleuca striata* and *Xanthorrhoea gracilis* (Chapman, 2006).

Largely consistent with the abovementioned Biological Assessment, a site inspection of the application area undertaken by officers of the Department of Water and Environmental Regulation (DWER) on 28 June 2018 identified that the majority of the application area comprises sandplain shrubland and includes a healthy recruitment of native shrubland species, including *Adenanthos cuneata*, *Xanthorrhoea* sp., *Hibbertia* sp., *Hakea* sp., *Beaufortia micrantha*, *Petrophile teretifolia*, *Jacksonia spinosa*, and *Anigozanthos* sp. (DWER, 2018). There was also the occasional re-sprouting *Banksia speciosa*, and based on some remnant dead vegetation, this species appears to have been represented by scattered individuals throughout the application area. *Nuytsia floribunda* also occurs throughout the application area.

The south western corner of the western application area (0.5 hectares) was not subject to the same extent of recent burning and chaining (although it had been affected by recent fire), and contained several *Banksia speciosa*, *Melaleuca* sp., *Nuytsia floribunda*, *Xanthorrhoea* sp. and *Adenanthos cuneata* (DWER, 2018).

### Vegetation Condition

The current (post clearing) condition of the vegetation within the application area is described as follows:

- Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994); to
- Completely Degraded: No longer intact; completely / almost completely without native species (Keighery 1994).

As mentioned above, the application area has been recently burnt and chained, however the soil has not been significantly disturbed, ploughed or converted to pasture or crop and as a result, appears to be recovering well, with numerous emergent species (DWER, 2018).

The condition of the vegetation under application ranges from very good to completely degraded, with the majority of the application area in a very good (Keighery, 1994) condition, showing limited signs of weed invasion, with weeds largely confined to the borders of the application area as a result of edge effects (DWER, 2018). Based on these

observations it is considered that the majority of the application area has the potential to recover to its recently pre-disturbed state.

The degraded to completely degraded (Keighery, 1994) portion of the application area was largely confined to the linear strip which forms the southernmost portion of the eastern application area. This area has been heavily impacted by capeweed (*Arctotheca calendula*), and contains only scattered native understorey species (DWER, 2018).

Based on aerial imagery, the Biological Assessment (Chapman, 2006), a site inspection (DWER, 2018) and a historical photograph of the application area, the pre-clearing (2017) condition of the vegetation within the application area is considered to have been very good to degraded (Keighery, 1994) with the majority in a very good (Keighery, 1994) condition.

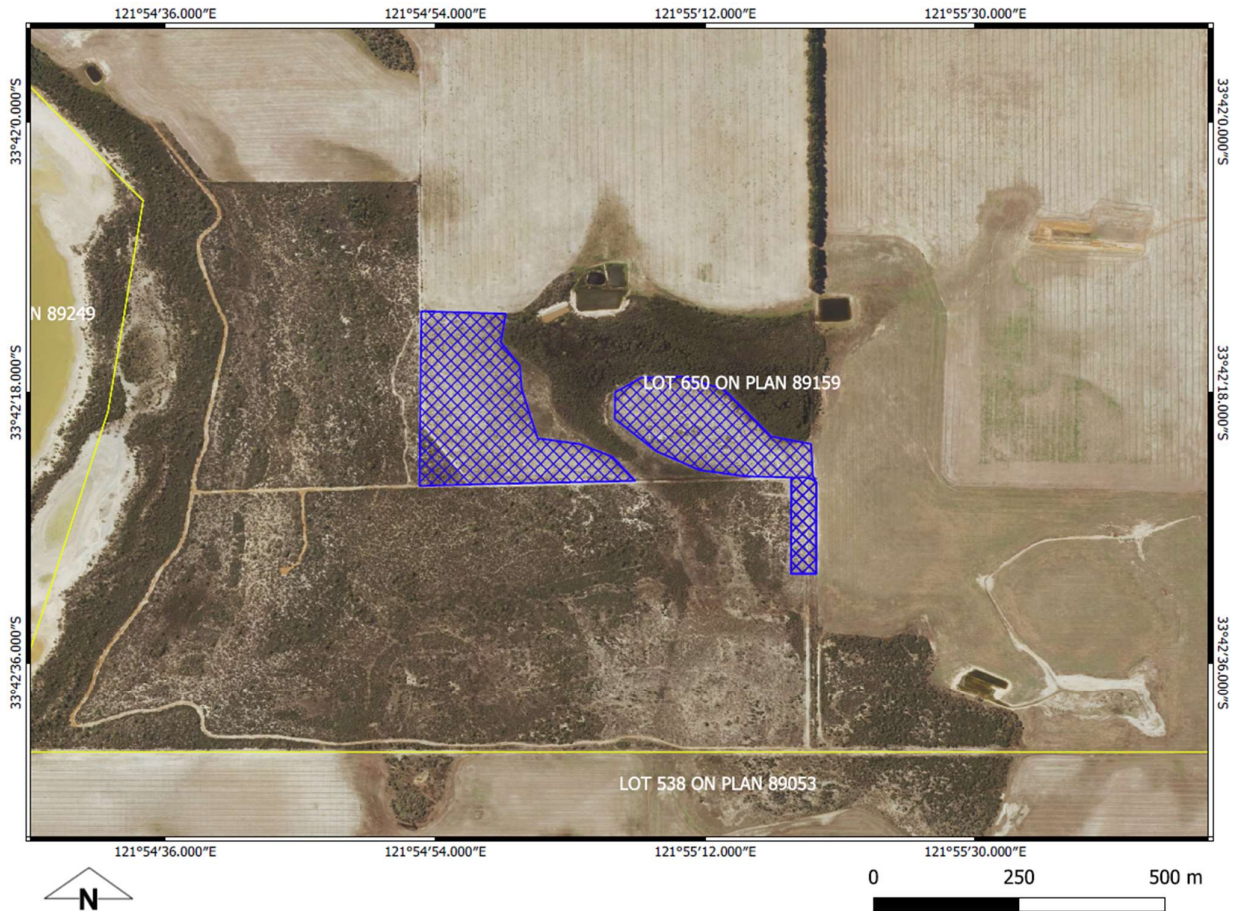
**Soil type**

The application area is mapped as the following Landform Subsystems:

- Esperance 2E3b Phase (Map Unit 245Es\_2E3b), which comprises gently undulating plain, with a 1-3 per cent slope. This Map Unit comprises deep uniform sand and podzol greater than 80 centimetres (Corinup) overlying tertiary sediments of the Pallinup formation; and
- Esperance 2 Cy Phase (Map Unit 245Es\_2Cy), which comprises seasonally inundated shallow depressions with wet and semi-wet soils overlying tertiary sediments of the Pallinup formation.

**Comment**

The local area referred to in the below report refers to the area within a 20 kilometre radius of the application area. The local area has been extensively cleared and contains approximately 9.16 per cent native vegetation cover.



**Figure 1: The application area (shown in blue) in comparison to local lot boundaries (shown in yellow).**

### 3. Assessment of application against clearing Principles

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

##### Proposed clearing may be at variance to this Principle

The application area occurs approximately 600 metres east of Benje-Benjenup Lake, which is a permanent saline like fed by brackish seepages along its shoreline, and a saline creek which enters from the north west.

As discussed within Section 2, dominant plants present in the native vegetation that surrounds the application area included *Nuytsia floribunda*, *Banksia speciosa* and *Lambertia inermis* to five metres, with medium height shrubs comprising *Adenanthos cuneatus* to two metres with lower shrubs comprising *Banksia* sp., *Beaufortia micrantha*, *Agonis spathulata*, *Jacksonia spinosa*, *Melaleuca striata* with *Xanthorrhoea gracilis* (Chapman, 2006).

A site inspection identified that the application area has been recently burnt and chained, however the soil was not significantly disturbed via ploughing or otherwise, and as a result the vegetation appears to be recovering well, with numerous emergent species (DWER, 2018).

Largely consistent with the abovementioned Biological Assessment, the site inspection identified that the majority of the vegetation within the application area comprises of sandplain shrubland and includes a healthy recruitment (post disturbance) of native shrubland species (DWER, 2018).

The northern and western extent of the eastern application area and eastern extent of the western application area border a mapped swamp (mapped within the wheatbelt wetlands dataset), and there is a clear transition zone from the sandplain shrubland under application to the riparian vegetation associated with the mapped swamp. This transition zone sees a higher prevalence of *Melaleuca* sp., *Chamelaucium* sp. and sedges. Small portions of the application area closest to the swamp appear to include some of these riparian species (albeit scattered), as there is no buffer afforded to the swamp occurrence (DWER, 2018).

The condition of the vegetation within the application area ranges from very good to completely degraded (Keighery, 1994; DWER, 2018). The majority of the application area is in a very good (Keighery, 1994) condition, with weeds largely confined to the borders of the application area as a result of edge effects (DWER, 2018). Based on these observations it is considered that the majority of the application area has the potential to recover to its recent pre-disturbed state. The degraded to completely degraded (Keighery, 1994) portion of the application area was largely confined to the linear strip which forms the southernmost portion of the eastern application area. This area has been heavily impacted by capeweed (*\*Arctotheca calendula*), and contains only scattered native understorey species (DWER, 2018).

According to available datasets, the vegetation under application is mapped as a Priority Ecological Community, known as the 'Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia'. This state recognised PEC is also listed as a threatened ecological community (TEC) (endangered) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As discussed under Principle (d), the application area is considered to be potentially representative of this TEC / PEC, and a floristic survey would be required to determine whether the application area is an occurrence of this TEC.

According to available datasets, a total of 41 priority flora species have been recorded within the local area. Of these, the following have been recorded within habitat that may be consistent with the application area:

- *Schoenus* sp. Grey Rhizome (Priority (P1) (closest record 13 kilometres west);
- *Leucopogon corymbiformis* (P2) (closest record 7 kilometres south west);
- *Hibbertia turleyana* (P2) (closest record 20 kilometres north);
- *Paracaleana parvula* (P2) (closest record 11 kilometres west);
- *Comesperma griffinii* (P2) (closest record 15 kilometres west); and
- *Eucalyptus foliosa* (P3) (closest record 8.1 kilometres west).

The Department of Biodiversity, Conservation and Attractions (DBCA) provided comment on the application areas potential to contain priority flora species and advised (DBCA, 2018a):

"Esperance District advises that *Hibbertia turleyana* (Priority 2), *Leucopogon corymbiformis* (Priority 2) and *Schoenus* sp. Grey Rhizome (Priority 1) occur in similar habitats in the local area. These taxa occur on grey sands, in low heath, with scattered *Banksia* and *Melaleuca* species. *Paracaleana parvula* (Priority 2) occurs on white/grey sands, in heath with scattered *Banksia*, similar to habitat described in the site inspection report. *Comesperma griffinii* (Priority 2) is recorded on grey sands with *Xanthorrhoea platyphylla*, *Anarthria laevis*, *Goodenia pterigosperma*, *Velleia trinervis*, and *Desmocladius flexuosa*. All of the aforementioned taxa may potentially occur in the application area. The area may also provide habitat for *Goodenia laevis* subsp. *laevis* (P3) (recorded approximately 28 kilometres north of the application area) and *Eucalyptus foliosa* (P3)".

DBCA provided comment on the potential impacts to the abovementioned flora species should they occur, and advised (DBCA, 2018a):

"With regard to the abovementioned Priority 1 and 2 listed taxa with the potential to occur within the application area, with the exception of *Comesperma griffinii* (Priority 2), all are known from very few locations with relatively restricted ranges extending across a highly cleared landscape, and often many of the known locations are based on old records and it is unknown whether these populations are extant. Any new records of these Priority 1 and 2 taxa have the potential to be significant to the conservation of these flora taxa.

*Comesperma griffinii* (Priority 2) is known from numerous disjunct locations with a broad range between Mullewa and Esperance, and may warrant downgrading to Priority 3 subject to a more detailed review. The record from Helms Arboretum, west of the application

area, is south-eastern extent of the current known range of the species. Any new populations recorded within the application area would represent a range extension and therefore have the potential to be significant to the conservation of the species at the regional scale.

*Goodenia laevis* subsp. *laevis* (Priority 3) is known from a range of 180 kilometres east-west and 150 kilometres north-south between Norseman and Gibson. It is known from 16 records in the WA Herbarium, with the majority of records at the southern extent of the range being 20 or more years old. The southern extent of the range is within a highly cleared landscape. The application area is south of the known range and any new records in this location would represent a range extension. Any new populations recorded within a sustainable area of remnant vegetation within the southern extent of the range are potentially significant with respect to the conservation of this taxon.

*Eucalyptus foliosa* (Priority 3) is known from a highly restricted range of 50 kilometres east-west and 30 kilometres north-south between Scaddan and Helms Arboretum. It is known from 31 records with many of these records 20 or more years old. Native vegetation within the known range of the species has been heavily cleared. With the exception of a population of 2-5 plants at Helms Arboretum, there are no other records on conservation estate. The application area is within the known range of the species. Any areas of known habitat would be significant with respect to the conservation of this species".

DBCA also provided comment on the potential for the abovementioned species to occur within the application area noting the recent burning and chaining that had occurred and advised (DBCA, 2018a):

"There is very limited information available on the fire and disturbance response of the abovementioned priority flora taxa, but the limited available information would suggest that most regenerate well post-fire or other disturbance.

- *Hibbertia turleyana* (Priority 2) has been recorded in a fire access clearing and fire access tracks, so it is likely that this species regenerates well post-disturbance. There is no specific information regarding fire response;
- *Leucopogon corymbiformis* (Priority 2) has been recorded as locally common in Cape Arid, 5-6 years post-fire. Other *Leucopogon* species have been noted to recruit from seed *en mass* after fire;
- There is little information available for *Schoenus* sp. Grey Rhizome (Priority 1), however, fire response of other similar *Cyperaceae* would suggest that it is likely to re-sprout from rhizomes after fire;
- *Paracaleana parvula* (Priority 2) is a geophyte that would most likely regenerate from an underground tuber, but may be killed by fire during the growing season, so it would depend on when the fire occurred as to whether this species is likely to regenerate;
- *Comesperma griffinii* (Priority 2) has been described as a post-fire ephemeral and, given the recent fire within the application area, this spring would be an ideal time to survey for this species;
- *Goodenia laevis* subsp. *laevis* (Priority 3) has been reported to be more common in disturbed areas, but there is no specific information on fire response; and
- *Eucalyptus foliosa* (Priority 3) is a mallee and may potentially resprout from lignotubers, even after disturbance and fire.

On the basis of the above, many of the conservation significant flora taxa that may occur within the application area have the potential to regenerate post-disturbance and fire. The burning of the vegetation post-clearing may help to regenerate some of the fire responsive conservation significant flora taxa noted above".

As discussed under Principle (c), the application area may also provide suitable habitat for the threatened flora species *Anigozanthos bicolor* subsp. *minor* which has been recorded approximately 17 kilometres north east of the application area.

Based on the potential for several conservation significant flora species to occur within the application area, DBCA concluded (DBCA, 2018a):

"Targeted flora surveys are recommended to assess this application.

The targeted surveys should focus on conservation significant taxa known to occur in similar habitat in the local area (including, but not limited to, those taxa noted above). The proponent should request a search of the department's flora databases prior to the targeted surveys to ensure that the most up-to-date data is used to support the targeted searches. The database searches should be at a scale appropriate to the locality, noting the extent of similar habitat types and survey intensity in the region.

The flora surveys should be appropriately timed to detect the presence of targeted conservation significant taxa and be conducted by a suitably qualified botanist. Targeted surveys for *Paracaleana parvula* should be conducted September – November, when the species is flowering. Where limited information is available on the flowering times of targeted conservation significant taxa or there is variability in flowering times, nearby known populations should be observed prior to survey to confirm flowering. If threatened or priority taxa are recorded, the extent of the local population and suitable habitat should be recorded to enable an assessment of the proportional impact on the local population.

If conservation significant flora taxa are identified through the targeted flora survey, measures to avoid or minimise impacts to conservation flora taxa will need to be addressed. Further advice should be sought from the Department in the event that conservation taxa are recorded during the survey".

Excluding marine and aquatic species, 33 conservation significant fauna species have been recorded within the local area (DBCA, 2007-). These include the following:

- one terrestrial species listed as 'fauna that is rare or is likely to become extinct as vulnerable fauna' under the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Fauna Notice);
- two non-migratory avian species listed as 'fauna that is rare or is likely to become extinct as endangered fauna' and 'fauna that is rare or is likely to become extinct as vulnerable fauna' under the WC Fauna Notice respectively;
- one non-migratory avian species listed as 'other specially protected fauna' under the WC Fauna Notice;
- one terrestrial species listed as Priority 3;
- two terrestrial species listed as Priority 4; and
- 26 migratory avian species, of which five are listed as 'fauna that is rare or is likely to become extinct as endangered fauna', three are listed as 'fauna that is rare or is likely to become extinct as critically endangered fauna', one is listed



as 'fauna that is rare or is likely to become extinct as vulnerable fauna' under the WC Fauna Notice, one is listed as Priority 4, and 17 are protected under international agreements.

The application area provides suitable habitat for the Quenda (*Isoodon fusciventer*), the Southern Death Adder (*Acanthophis antarcticus*), Western Brush Wallaby (*Notamacropus irma*) and provides some scattered foraging habitat for Carnaby's Cockatoo (*Calyptorhynchus latirostris*).

Noting that the application area comprises 12.5 hectares of native vegetation largely in a very good (Keighery, 1994) condition within an extensively cleared landscape (only 9.16 per cent native vegetation remains within the local area), the vegetation under application is considered to act as a stepping stone and facilitate the movement of fauna and ecological processes throughout an extensively cleared landscape.

Noting that the application area contains vegetation predominantly in a very good (Keighery, 1994) condition, may contain conservation significant flora, may be representative of a State recognised PEC and a Federally listed TEC, and provides linkage values in an extensively cleared landscape, the proposed clearing may be at variance to this Principle.

Targeted surveys undertaken at appropriate times by suitably qualified persons would be required to determine whether the proposed clearing is likely to impact on any conservation significant species or communities, and to guide appropriate management measures to mitigate impacts.

**(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.**

**Proposed clearing is at variance to this Principle**

Excluding marine and aquatic species, there are records of 33 conservation significant fauna species recorded within the local area (DBCA, 2007- ). Of these species, the application area is considered to provide suitable habitat for the Carnaby's Cockatoo, Western Brush Wallaby, Quenda, and the Southern Death Adder (whereby it is considered that the application area will regenerate to a comparable state to that prior to the recent clearing activities).

Carnaby's Cockatoo (listed as 'Endangered' under the *Biodiversity Conservation Act 2016*) forage on the seeds, nuts and flowers of a large variety of plants including proteaceous species (*Banksia*, *Hakea*, *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008). To be suitable as a Carnaby's Cockatoo breeding site, trees require a suitable nest hollow or need to be of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). While the application area provides some suitable foraging habitat for Carnaby's Cockatoo in the form of scattered *Banksia* sp., and *Hakea* sp., these species were not considered to occur in great enough density to be considered significant foraging habitat (DWER, 2018). There were no large trees (or larger emerging species) suitable for use as breeding habitat for Carnaby's Cockatoo (DWER, 2018).

Western Brush Wallaby (listed as Priority 4) occupy a wide range of habitats, including open forest and woodland, mallee, heathland, low open grasses, and scrubby thickets, but favour open, grassy areas (Woinarski and Burbidge, 2018). The Western Brush Wallaby is found in the southwest coastal region of Western Australia from Kalbarri down to Cape Arid. Noting that this species occupies a number of varying habitats, and that it is known over an extensive range, the application area is unlikely to provide significant habitat for this species.

Quenda (listed as Priority 4) have a preference for wet or dry sclerophyll forest through to open woodland and scrubby vegetation on sandy soils. Dense undergrowth and low ground cover are particularly important in providing cover for Quenda (DEC, 2010). Noting that the application area comprises sandplain shrubland and is adjacent to a mapped swamp (DWER, 2018), it is considered to provide suitable habitat for this species. The denser riparian vegetation associated with the swamp (immediately adjacent to the application area) is likely to provide habitat of greater significance to this species, however the application area plays an important role in providing a linkage between the riparian vegetation surrounding Benje-Benjenup Lake and the swamp. The application area also provides a protective buffer to the western portion of the swamp, which would be subject to greater edge effects as a result of the clearing. Therefore, is considered that the application area comprises part of, and is necessary for the maintenance of significant habitat for Quenda.

The Southern Death Adder (listed as Priority 3 by DBCA) occupies a range of habitats, from rainforest to shrublands and heaths, as well as grasslands (Hobson et al, 2018). This species is known from Yanchep to Pinjarra and inland to Narrogin and Cunderdin within its northern population extent, and from Hopetoun to the Western Australian - South Australian border within 200 kilometres of the coastline in its southern population extent. Noting that the application area comprises sandplain shrubland, it is considered to provide suitable habitat for this species. However given the range of this species, and that it occupies a wide range of habitats, the application area is not likely to provide significant habitat for this species. Mechanical clearing activities would however pose a risk of fauna fatalities should this species occur within the application area.

The application area provides value as a stepping stone for fauna (including the abovementioned terrestrial and avian fauna species) moving between existing landscape remnants within a highly cleared landscape. Specifically, the vegetation under application provides a stepping stone for fauna moving between Benje-Benjenup Lake and remnant vegetation east and south of the application area (between dryland and wetland vegetation types), including the riparian vegetation growing in association with the aforementioned swamp (east) and vegetation growing in association with a drainage line (south). Noting the minimal extent of native vegetation within the local area, it is considered that the application area may be critical for the survival of fauna species within the local area and broader region. The proposed clearing would result in further fragmentation of fauna habitat in the landscape and largely isolate the occurrence of the swamp and its high value habitat, subjecting it to further degradation.

DBCA provided comment on the proposed clearing and advised (DBCA, 2018b):

"The gradual reduction in the size of this remnant and the ingress creating a greater boundary to area ratio that the current clearing has / will cause is reducing the viability of this remnant maintaining its local and regional ecological and water management values...

The total area of native remnant vegetation on the property is 110 hectares, of which the cleared area makes up 11% and the [proposed clearing] will lead to a greater level of fragmentation of the remaining vegetation and leave only a small corridor of uncleared vegetation linking the wheatbelt wetland [swamp] to Benje-Benjenu Lake. These edge effects then lower the conservation value of the remaining intact vegetation and communities... clearing in this instance is likely to directly impact on the Wheatbelt Swamp and habitat values of the adjacent vegetation communities and native flora and fauna that it supports".

Given the importance of the application area as a stepping stone for fauna within an extensively cleared landscape, the proposed clearing is at variance to this Principle.

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

**Proposed clearing may be at variance to this Principle**

According to available datasets, one threatened flora species has been recorded within the local area, being *Anigozanthos bicolor* subsp. *minor* which has been recorded approximately 17 kilometres from the application area. This species is a rhizomatous, perennial, herb that grows to between 0.05 - 0.2 meters in height and flowers green and red between August and October. This species is commonly found within sand on well-watered sites (Western Australian Herbarium, 1998-).

DBCA provided comment on potential impacts to this species and advised (DBCA, 2018a):

"The application area is within the known range of the taxon and there are records of the taxon occurring in proximity to and within depressions in the landscape. There may be the potential for suitable habitat to occur within or in proximity to the area mapped as a swamp. This taxon has been observed growing on old tracks associated with scrub rolling and is known to respond well to summer fire. It is often recorded shortly after a disturbance event, flowering in the first year, and then declining in numbers in subsequent years...[This species] is known from 15 populations and approximately 2000 mature plants. However, many of the records are old and some of the populations have not been relocated since they were originally recorded. Any impacts to the taxon are potentially significant".

Given that the application area provides suitable habitat for and may thus contain *Anigozanthos bicolor* subsp. *minor*, and noting the absence of on-ground surveys to confirm otherwise, it is considered that the application area may include or be necessary for the continued existence of this species.

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

As recommended by DBCA, a targeted flora survey undertaken at the appropriate time of year by a suitably qualified botanist would be required to determine whether the proposed clearing is likely to impact on threatened flora.

**(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.**

**Proposed clearing may be at variance to this Principle**

According to available databases, the majority of the application area (with the exception of a linear portion on the eastern border of the eastern most portion of the application area) is mapped as the Commonwealth listed TEC 'Proteaceae Dominated Kwongkan Shrubland' (Kwongkan Shrublands). This TEC is listed as 'Endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The Kwongkan Shrublands TEC is predominantly located within the Esperance Sandplains and Mallee bioregions, and typically occurs on sandplains, occupying lower and upper slopes and ridges, as well as uplands, where rainfall ranges from 400 to 800 millimetres a year (Threatened Species Scientific Committee (TSSC), 2014). It largely occurs on duplex soils and deep to shallow soils on the sandplains, and comprises shrublands dominated by plants from the family *Proteaceae*, including plants from the genera *Adenanthos*, *Banksia*, *Grevillea*, *Hakea*, *Isopogon* and *Lambertia* (TSSC, 2014).

Whilst the application area has been mapped as the Kwongkan Shrublands TEC, the Commonwealth of Australia notes that detailed mapping of this TEC is not available, and ground truthing is required to verify if a site meets the required diagnostic criteria to be the described TEC (TSSC, 2014). The site inspection noted that the application area comprises sandplain shrubland and includes numerous species from the *Proteaceae* family, including *Adenanthos cuneatus*, *Lambertia inermis* and *Hakea* sp. Therefore, the application area may represent an occurrence of this TEC (DWER, 2018).

The Commonwealth listing advice notes several key characteristics in determining the significance of impacts to the Kwongkan TEC, including the connectivity to other remnant native vegetation, the presence of listed threatened species, condition of vegetation, high species richness, good faunal habitat, areas with few weeds and no dieback impacts, and whether the TEC occurs in an area that has been heavily cleared (TSSC, 2014).

Given the above, the proposed clearing may be at variance to this Principle. Further survey work, involving floristic analysis against the known vegetation of the TEC, would be required to determine whether the application area is representative of this TEC.

**(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.**

**Proposed clearing is 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 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Esperance Plains Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 51.5 per cent of its pre-European vegetation extent (Government of Western Australia, 2018). However, the local area (20 kilometre radius) retains only approximately 9.16 per cent native vegetation cover (taking into account the coastal water mark). The application area represents approximately 0.12 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 10,712.5 hectares. The vegetation within the application area is mapped as Beard vegetation association 6048 which retains 14.16 per cent of its pre-European vegetation extent within the Esperance Plains IBRA bioregion and 14.21 per cent of its pre-European vegetation extent within all bioregions (Government of Western Australia, 2018).

Noting that the local area and the mapped vegetation association retain less than the abovementioned 30 per cent native vegetation threshold, the application area is considered to be within an extensively cleared area.

The application area provides value as a stepping stone for fauna moving between existing landscape remnants within a highly cleared local area. Specifically, the vegetation under application provides a stepping stone for fauna moving between Benje-Benjenup Lake and remnant vegetation east and south of the application area (between dryland and wetland vegetation types), including the riparian vegetation growing in association with the aforementioned swamp (east) and vegetation growing in association with a drainage line (south). The proposed clearing would result in further fragmentation of fauna habitat in the landscape and largely isolate the occurrence of the swamp and its high value habitat, subjecting it to further degradation.

Noting that the application area provides ecological linkage values, suitable habitat for conservation significant fauna, may be representative of a TEC and may contain threatened and priority flora species, the application area is considered to be significant as a remnant.

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

**Table 1: Vegetation extents**

	Pre-European	Current Extent	Extent Remaining	Current Extent in all DCBA Managed Lands	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
	(ha)	(ha)	(%)	(ha)	(ha)
<b>IBRA Bioregion*</b>					
Esperance Plains	2,899,940	1,494,448	51.5	822,990	28.85
<b>Beard vegetation association in Bioregion</b>					
6048	113,688	16,099	14.16	4000	4.04
<b>Beard vegetation association</b>					
6048	114,135	16,214	14.21	4,031	4.11

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

**Proposed clearing is at variance to this Principle**

Approximately 0.3 hectares of the application area is mapped as a swamp within the Wheatbelt Wetlands Dataset (northern portion of eastern area) and the remainder of the application area is largely adjacent to this mapped swamp (see Figure 2 below). The application area is also within the mapped Benje-Benjenup Wetland Suite (Conservation category) within the South East Coast Wetlands (Esperance Water Resource Region) Dataset. The application area is also approximately 750 metres east of Benje-Benjenup Lake, which is a permanent saline lake fed by brackish seepages along its shoreline, and a saline creek which enters from the north west (Chapman, 2006).

A site inspection of the application area identified a clear transition zone from the sandplain shrubland under application to the riparian vegetation associated with the mapped wetland. This transition zone sees a higher prevalence of *Melaleuca* sp., *Chamaelaucium* sp. and sedges. Small portions of the application area closest to the swamp appear to include some of these riparian species (albeit scattered), as there is no buffer afforded to the swamp occurrence (DWER, 2018).

DBCA provided comment on the proposed clearing in relation to the abovementioned wetlands and advised that (DBCA, 2018b):

“The impact of removing 12.5 hectares of deep rooted native vegetation has a high potential risk to cause localised alteration of the natural hydrology of the area and directly impact on wheatbelt wetland [mapped swamp] where vegetation has been cleared...the EPA Guidance Statement 33 identifies a minimum 50 mete buffer be applied to wetlands, to protect ecological linkages between a

wetland and neighbouring vegetation and to avoid direct, indirect and cumulative impacts that may adversely affect the attributes and functions of wetland areas. In cases where some loss of any wetland value or function has occurred, the EPA recommends that compensatory actions are implemented, with a view to achieving 'no net loss of wetland values'"

Noting that the application area includes some riparian vegetation growing on the border of the abovementioned mapped swamp, the proposed clearing is at variance to this Principle.



Figure 2: Proximity of the application area to the mapped wetland (shown in green).

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

**Proposed clearing may be at variance to this Principle**

According to available datasets, the application area is mapped as the following Landform Subsystems:

- Esperance 2E3b Phase (Map Unit 245Es\_2E3b) (mapped over approximately 87 per cent of the application area), which comprises gently undulating plains with a 1-3 per cent slope. This Map Unit comprises deep uniform sand, podzol greater than 80 centimetres (Corinup) overlying tertiary sediments of the Pallinup formation; and (to a lesser extent);
- Esperance 2 Cy Phase (Map Unit 245Es\_2Cy) (mapped over approximately 13 per cent of the application area), which comprises seasonally inundated shallow depressions with wet and semi-wet soils overlying tertiary sediments of the Pallinup formation.

Based on the site inspection undertaken, it is possible that a very small portion of the Esperance 2 Cy Phase map unit occurs along the northern border of the eastern application area, however the application area appears to mostly incorporate the Esperance 2E3b Phase map unit (DWER, 2018). The application area occupies the lower slope positions in the landscape.

The Commissioner of Soil and Land Conservation provided advice on the potential risk of land degradation, including a desktop assessment of these likely risks, which identified the following with respect to the proposed clearing on the Esperance 2E3b Phase landform unit (CSLC, 2018):

- The risk of waterlogging is unlikely to significantly increase as a result of the proposed clearing, with the risk of waterlogging causing land degradation considered to be low;
- The risk of eutrophication is unlikely to increase as a result of the proposed clearing with the risk of eutrophication causing land degradation considered to be low;
- The proposed clearing is not expected to contribute to flooding, with the risk of flooding causing land degradation considered to be low;
- The risk of water erosion is unlikely to significantly increase as a result of the proposed clearing, given the lack of land slope, with the risk of water erosion causing land degradation considered to be low;
- With regard to wind erosion, 95% of Esperance 2E3b Phase has a high risk of wind erosion and sufficient groundcover should be retained in all areas proposed to be cleared. No significant change with respect to wind erosion is expected if sufficient pasture cover is maintained, in which case the risk of wind erosion causing land degradation would be low; and
- The proposed clearing is not likely to result in any significant changes in salinity and the risk of salinity causing land degradation is considered to be low.

With respect to the Esperance 2 Cy Phase landform the CSLC notes that 60 per cent of this map unit has a very high risk of waterlogging and 100 per cent of the map unit has an extreme risk of eutrophication. Noting this, it is considered that any substantial clearing on this landform has the potential to result in appreciable land degradation via waterlogging and / or eutrophication. However, noting that only 13 per cent of the application area is mapped as this landform type (approximately 1.7

hectares), which comprises four small areas, the proposed clearing is not expected to result in appreciable land degradation via waterlogging or eutrophication.

Given that 95 per cent of the Esperance 2E3b Phase has a high risk of wind erosion, the proposed clearing may be at variance to this Principle.

Ensuring that bare soils are not left for an extended period of time will assist in mitigating potential impacts from wind erosion.

**(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.**

**Proposed clearing may be at variance to this Principle**

There are no conservation areas within or adjacent to the application area. The closest conservation area is Helms Arboretum located approximately 6.8 kilometres west of the application area. The next closest conservation area is Mullet Lake Nature Reserve located approximately 9.8 kilometres south of the application area.

As discussed under Principles (a) and (b), the application area acts as a stepping stone for fauna moving across an extensively cleared landscape and is likely to assist in the movement of ecological processes between landscape remnants, including between the abovementioned conservation areas. The proposed clearing may therefore lead to a reduction in fauna movement and ecological processes between the abovementioned conservation areas, and thus impact on the values of these areas.

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

**(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.**

**Proposed clearing is at variance to this Principle**

As discussed under Principle (f), approximately 0.3 hectares of the application area is mapped as a swamp and the remainder of the application area is adjacent to this mapped swamp. The application area is also approximately 750 metres east of Benje-Benjenup Lake.

Groundwater salinity levels within the application area are mapped at between 3,000 and 7,000 milligrams per litre/total dissolved solids.

The CSLC provided comment on the potential impacts to groundwater quality in the wider catchment as a result of the proposed clearing and advised (CSLC, 2018):

"I have taken advice from ...[a] Hydrologist at DPIRD's Esperance Office...[whom] advised that a small area of clearing (12.5 hectares) in an already over cleared catchment is unlikely to cause appreciable changes to the waterbalance and any subsequent impact on groundwater would be difficult to detect or separate from the wider catchments contribution" (CSLC, 2018).

DBCA provided comment on the impacts of the proposed clearing on localised groundwater and advised that (DBCA, 2018b):

"Clearing of deep rooted shrublands comprising *Banksia* scrub-heath and maintaining this cleared area is likely to have had an impact on groundwater and natural hydrology within this vicinity and nearby wetland systems...

A change to shallow rooted vegetation may potentially lead to localised increase in groundwater and secondary cumulative degradation such as edge effects and salinization".

DBCA provided comment on the impacts of the proposed clearing on surface water and advised the following (DBCA, 2018b):

"the impact of removing 12.5 hectares of deep rooted native vegetation has a high potential risk to cause localised alteration of the natural hydrology of the area and directly impact on the wheatbelt wetland where vegetation has been cleared"

As mentioned under Principle (f), EPA Guidance Statement 33 identifies a minimum 50 metre buffer be applied to wetlands, to protect ecological linkages between a wetland and neighbouring vegetation and to avoid direct, indirect and cumulative impacts that may adversely affect the attributes and functions of wetland areas.

The proposed clearing would leave the riparian vegetation within the swamp as a largely isolated patch, and noting that the majority of the application area is adjacent to this swamp, the proposed clearing is likely to result in greater sedimentation of the swamp, through increased run-off and wind erosion, particularly should the application remain bare for any length of time, noting the potential for wind erosion to occur (see Principle (g)).

While it is acknowledged that the proposed clearing is not likely to impact upon groundwater within the wider catchment, as advised by DBCA, the proposed clearing may result in a localised increase to groundwater levels and subsequent salinity.

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

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

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

The application area is situated near the 550 millimetre annual rainfall isohyet. The subject land generally occupies the lower slope positions in the landscape and the majority of the application area contains highly permeable sandy soils (DWER, 2018).

The CSLC provided comment on the potential for flooding and advised that (CSLC, 2018):

“the proposed clearing is not expected to contribute to flooding, with the risk of flooding causing land degradation considered to be low”.

While a small portion of the application area is within a mapped swamp, given the presence of highly permeable sandy soils within the majority of the application area, moderate annual rainfall of the region, and advice from the CSLC, 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.

**Planning instruments and other relevant matters.**

As discussed under Section 2, the application area was burnt and chained in 2017. On 29 September 2017 DWER emailed the applicant to advise that aerial imagery had identified clearing within Lot 650 on Deposited Plan 89159, requesting for the applicant to provide additional information on the clearing. On 18 January 2018 DWER sent the applicant a letter of warning, noting that unlawful clearing had occurred and advised that a clearing permit would be required to maintain the area as a cleared area, noting its regenerative capacity. A clearing permit application was subsequently received on 6 April 2018.

The clearing permit application was advertised on the DWER website on 3 May 2018 with a 21 day submission period. No public submissions have been received in relation to this application.

The application area is zoned as ‘rural’ under the Shire of Esperance town planning scheme.

According to available datasets, no Aboriginal Sites of Significance have been mapped within the application area.

DBCA provided comment on the proposed clearing and end land use and advised that (DBCA, 2018a):

“The gradual reduction in the size of [the remnant vegetation of this property] and the ingress creating a greater boundary to area ratio that the current clearing has/will cause is reducing the viability of this remnant maintaining its local and regional ecological and water management values...”

Further degradation in the remaining vegetated areas is likely as a result of edge effects and if the cleared area is used for agricultural purposes...

[It is] recommend that the [application area] be allowed to regenerate as it is likely such regeneration would be effective. To enable the regeneration to occur, the owner should be required to exclude stock from the remnant”.

The CSLC provided comment on the proposed end land use and advised that (CSLC, 2018):

“The land capability ratings for the application area are moderate to high for agriculture on Map unit 245Es\_2E3b and low on Map Unit 245Es\_2Cy”

**4. Applicant's Submissions**

In a letter dated 14 November 2018 the Department advised the applicant of the significant environmental impacts identified during the above assessment. This letter advised that surveys would be required to confirm the presence or absence of species and ecological communities of conservation significance which could be present in the application area. This letter further specified the methodology these surveys would need to comply with and the timing of these surveys. However, given the nature of the environmental impacts identified through the above assessment, surveys were not recommended at this time. The Department advised that after considering the potential impacts identified through the above assessment, the Delegated Officer had determined to refuse the clearing permit application. The Department provided the applicant 30 days written notice of the intent to refuse the clearing permit under section 51E(5)(b) of the *Environmental Protection Act 1986*. The applicant could provide additional information to support their application, including information on how the significant impacts identified through the above assessment may be avoided or minimised, during this time.

On 17 December 2018 a meeting was held between the applicant, a member of the Pastoralists and Graziers Association and Departmental staff where the potential environmental impacts identified by the above assessment were discussed further. The Department agreed to give the applicant an additional three months to respond to the letter the Department provided to the applicant on 14 November 2018.

Several additional extensions were given to the applicant to provide them with additional time to respond to the matters raised in the letter sent to them by the Department on 14 November 2018.

On 2 May 2019 the applicant provided a written response to the matters raised in the letter dated 14 November 2018. This response is summarised below:

- Historical aerial photography presented at the above meeting between the applicant and staff from the Department showed the vegetation targeted by this application had been cleared prior to the applicant's purchase of Lot 650;
- Subsequent aerial photography taken since 1994 of land registered as Land for Wildlife and adjacent land administered by the DBCA show this land has superior Kwongan heathland biodiversity compared to the application area. The application area does not therefore contain the biodiversity that DBCA allege;
- The applicant advises that there is unlikely to be any conservation significant flora species in the application area;
- The Department models for assessing environmental risk are not capable of providing evidence to support their assessments as they are generalist models which tend to apply to whole areas as an average and do not consider specific areas;
- The remnant vegetation to be cleared through this application is insignificant in the Shire of Esperance area and the applicant critiques the Department's methodology of assessing the extent of clearing in the application areas local context. The applicant views this methodology as the arbitrary selection of spatial configurations within extensively cleared landscapes;
- Land degradation risk assessments do not consider the application of horticultural practices to manage these risks, such as the application of clay to ameliorate wind erosion risk;
- The applicant advises that they have historically used groundwater in this area with no changes experienced to the salinity of the groundwater;
- The application area and its surrounds have a significant feral predator population and this area is unlikely to provide significant habitat for any ground dwelling conservation significant fauna species;
- The application area does not comprise foraging or breeding habitat for the Carnaby's Cockatoo; and
- Refusing the application is not in the public interest and fails to consider the economic benefits afforded by the clearing of the vegetation.

Under Section 3 of the *Environmental Protection Act 1986* (EP Act) native vegetation is defined to include 'indigenous aquatic or terrestrial vegetation and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition, but does not include vegetation in a plantation'. This definition is expanded upon under Section 51A of the EP Act to not include vegetation that was intentionally sown, planted or propagated unless the sowing, propagation or planting of the vegetation was required under the EP Act or another written law or that that vegetation is of a class declared by regulation to be included in this definition. The definition of 'native vegetation' is expanded upon further under Regulation 4 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, whereby 'native vegetation' includes intentionally planted indigenous aquatic or terrestrial vegetation if the planting was funded wholly or partly by a person who was not the owner of the land and for the purpose of biodiversity or land conservation or the vegetation is subject to one of the following:

- a conservation covenant or agreement to reserve under Section 30B of the *Soil and Land Conservation Act 1945*;
- a covenant to conserve under Section 21A of the *National Trust of Australia (W.A.) Act 1964*;
- a restrictive covenant to conserve under Section 129BA of the *Transfer of Land Act 1893*; or
- some other form of binding undertaking to establish and maintain, or maintain, the vegetation.

As detailed above, the EP Act and its associated legislative instruments do not exclude any area of native vegetation from consideration in relation to the clearing Principles contained under Schedule 5 of the EP Act on the basis that the condition of this vegetation has recovered over time from previous disturbance.

The Department notes the applicants concerns regarding the methodology used to undertake its assessments of the environmental impacts associated with proposed clearing. To provide clarity, this assessment is undertaken using available databases which detail the environmental attributes of landscapes across the State; including their hydrology and hydrogeology, soil types, land degradation risks, recognised vegetation complexes and their remaining extents and recorded occurrences of conservation significant flora and fauna species, as well as ecological communities of conservation significance. These assessments are undertaken on the basis of a 'local area' in order to place the assessment of the application area into context regarding its geographical location and local ecological conditions. The Department will supplement these assessments with site inspections and by seeking comment from stakeholders, including government agencies with specialist expertise in areas of significance to the assessment of the application, where necessary. In this instance the Department undertook an inspection of the application area and sought and received advice from the DBCA and CSLC. The Department considers that sufficient information was available to inform its assessment of this clearing permit application's potential environmental impacts.

As detailed earlier in this report, the application area was cleared by the applicant and was regenerating at the time of the inspection undertaken by Departmental Officers. No surveys detailing the floristic or fauna habitat values of the application area are available. The assessment of the application area's biodiversity was undertaken using available reference material detailing the biodiversity of areas similar to the application area and a review of available databases. Additional advice received from the DBCA was also sought to clarify the potential for conservation significant species to occur within the application area. It is considered that in lieu of surveys detailing the application areas floristic and fauna habitat values, an adequate level of information was available to determine the application areas likely biodiversity. Surveys of the application area which document its floristic and fauna habitat values would be required to provide a greater understanding of this area's biodiversity.

To address the applicants concerns with the use of a 'local area' to assess the extent of remnant vegetation in the vicinity of the application area, rather than the Local Government boundary, the Local Government boundaries are not utilised to support clearing permit assessments as these are arbitrary man-made boundaries. These boundaries vary widely in size and do not consider local ecological conditions. The Department's use of a 'local area' to support its assessment of clearing applications provides context for these assessments by articulating how much of the pre-European extent of native vegetation communities in an area with similar ecological conditions to the application area persists. This context allows the significance of the application area's vegetation to be determined in consideration of the attributes of the local environment.

Advice received from the CSLC advised that land degradation, including wind erosion impacts, are not likely due to the intended land use and the remaining native vegetation surrounding the application area (CSLC 2018). The Department notes the advice

provided by the CSLC, the intended use of the cleared area for horticultural purposes and information provided by the applicant, including the proposed use of practices to mitigate wind erosion risks such as soil amelioration through 'claying'. In consideration of the above, the Department has revised its assessment of the land degradation risk associated with this application to be 'not likely to be at variance' to Principle (g).

The document *A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environmental Protection Act 1986* articulates that Principle (i) aims to ensure that the quality of water supplies is not reduced, that salinity, pH or levels of nutrients in water bodies are not significantly altered by clearing and that water regimes and environmental water provisions are not adversely affected (Department of Environment Regulation 2014). The above document also notes that consideration should be given to clearing that may be likely to significantly alter salinity or pH of water tables (Department of Environment Regulation 2014). This document notes that clearing of native vegetation where the impacts of the clearing are likely to contribute to increased salinity in catchments already affected by or likely to be affected by salinity is likely to be at variance to this Principle (Department of Environment Regulation 2014). The Department notes the applicant's advice that they have been using groundwater to support agricultural developments on their property for some time and that testing of groundwater quality undertaken by the applicant has determined this groundwater has a total dissolved solids content of less than 500 milligrams per litre. The applicant however has not provided any further information to demonstrate the proposed clearing will not adversely impact the quality of local groundwater resources.

The Department notes the applicant's comments regarding the significance of the feral predator population in the vicinity of the application area. The applicant makes specific reference to the impact of the intensity of the feral predator population on the likelihood of the Quenda utilising the habitats of the application area. A review of available databases determined records of the Quenda have been recorded approximately 6.6 kilometres south east of the application area and 9.8 kilometres south west of the application area, with these records dating from 2010 (DBCA 2007). A review of aerial photography determined these records occur within or nearby stands of remnant vegetation which are in comparable or worse condition to the vegetation which would have existed in the application area pre-clearing. These areas are expected to experience similar feral predation levels to the application area.

The document *A Guide to the Assessment of Applications to Clear Native Vegetation under Part V of the Environmental Protection Act 1986* (December 2014) advises that Principle (b) aims to maintain indigenous fauna species and assemblages of fauna species in their local habitat (Department of Environment Regulation 2014). This is to be achieved through protecting habitat for threatened fauna and significant habitat for meta-populations of fauna (Department of Environment Regulation 2014). This guide advises that the clearing of native vegetation that is specially protected or threatened fauna habitat, clearing of native vegetation that is habitat for meta-populations of fauna and clearing of native vegetation that is necessary for the maintenance of the above habitat types is likely to be at variance to Principle (b). As detailed under Principle (b) of this report, the application area is significant for providing suitable habitat for fauna species of conservation significance and has value as an ecological linkage. The Department does not consider the presence of local feral predator populations in its assessments of clearing permit applications. These populations are not static, but subject to local lifecycle and ecological pressures and can also be subjected to aggressive control measures by government agencies and other stakeholders. Native animal populations have been found to recover over time in response to the absence or control of feral predator populations.

The Department notes the applicant's advice that Carnaby's Cockatoo's have little interest in foraging or nesting in the application area. This is supported by the Department's findings in Section 3 of this report under Principle (b).

The document *A Guide to the Assessment of Applications to Clear Native Vegetation under Part V of the Environmental Protection Act 1986* (December 2014) outlines the Department's considerations in undertaking an assessment of a clearing permit application in more detail. The Department's role is to conduct an assessment of the proposed clearing area, identify the environmental values and potential impacts from clearing, and impose conditions to mitigate and limit these impacts. The economic benefit provided by the land uses facilitated by clearing to the party undertaking the clearing, or the broader community, are not relevant considerations in the assessment of a clearing permit application.

The Department notes the applicant has not adequately addressed the matters raised in the letter dated 14 November 2018.

## **5. Assessment of Principle variances following a reduction of the application area**

The Delegated Officer determined that reducing the application area to a 0.837 hectare area, representing the linear corridor comprising the south eastern extent of the original application area, would allow the applicant to expand their existing horticultural operations without the potential environmental impacts associated with the original application area. The assessment supporting this determination is contained below. The revised application area is shown in Figure 2.





**Figure 3: The revised application area (shown in blue).**

As detailed earlier in this report, the revised application area represents an area of vegetation in degraded to completely degraded (Keighery, 1994) condition. This area has been heavily impacted by Cape weed (*Arctotheca calendula*), and contains only scattered native understorey species (DWER, 2018). Given the condition of the vegetation in the revised application area, this area is not anticipated to represent suitable habitat for any flora species of conservation significance.

As discussed in Principle (b) of this report, the original application area had value as habitat for the Quenda and other fauna species of conservation significance, as well as providing an ecological linkage between stands of remnant vegetation in an extensively cleared landscape. Given the condition of the vegetation in the revised application area shown in Figure 3, this area of vegetation would not be anticipated to share these values even when it has regenerated to reflect its pre-clearing condition. Therefore, the clearing of the revised application area is not likely to result in the loss of any significant habitat for fauna species of conservation significance. Given the extent of the revised application area and the knowledge that the remainder of the original application area will be allowed to regenerate over time, the clearing of the revised application area is not anticipated to undermine existing ecological linkages facilitating the movement of fauna species between stands of remnant vegetation.

The site inspection undertaken by Departmental Officers determined the linear corridor comprising the revised application area was dominated by Cape Weed (*Arctotheca calendula*) with only scattered native understorey species. Given the degraded to completely degraded condition of the vegetation found in the revised application area and the dominance of Cape Weed, the revised application area is not considered representative of the 'the *Proteaceae* Dominated Kwongan Shrublands of the southeast coastal floristic province of Western Australia' TEC.

As discussed Principle (e), the original application area represented a significant remnant of vegetation in an extensively cleared landscape due to its function as an ecological linkage, as well as its potential to provide habitat for flora and fauna species of conservation significance and to represent an occurrence of a TEC. As discussed previously, the revised application area due to its condition is not anticipated to provide suitable habitat for flora and fauna species of conservation significance and is not anticipated to be representative of any TEC. The clearing of this application area is also not anticipated to undermine any existing ecological linkages. Given the condition of the vegetation in the revised application area, this area is not anticipated to be representative of vegetation community 6048. Therefore, the revised application area is not considered to represent a significant remnant of native vegetation within an extensively cleared landscape.

The revised application area does not intercept any mapped wetland environments, with this area situated approximately 70 metres south of the nearest wetland. A review of available databases determined no watercourses intercept the revised application area. Therefore, no vegetation growing in association with a watercourse or wetland will be impacted by the proposed clearing of the revised application area.

As noted earlier in this report, the mapped Esperance 2E3b Phase (Map Unit 245Es\_2E3b) landform subsystem has a high risk of wind erosion unless suitable ground cover is maintained. This risk is anticipated to have been effectively mitigated by the small size of the revised application area and the use of this area for horticultural purposes. In addition, the application of soil treatments to manage wind erosion risk and improve soil suitability for agricultural purposes as detailed in Section 4 of this report is anticipated to further reduce wind erosion impacts resulting from the proposed clearing. The proposed clearing is therefore not anticipated to result in any land degradation impacts.

As previously discussed, the clearing of the revised application area is not anticipated to undermine any ecological linkages promoting fauna movement between remnant stands of native vegetation. Therefore, the proposed clearing is not anticipated to adversely impact the diversity or recruitment of species within any conservation reserves.

As discussed previously, the revised application area is situated approximately 70 metres south of the closest wetland. Due to the separation distance between the revised application area and wetland environments, no impacts to surface water quality such as the sedimentation of wetland areas are anticipated to result from the proposed clearing activities. Due to the reduction in the size of the application area, no adverse impacts to the quality of local groundwater resources are anticipated to result from the proposed clearing activities. The proposed clearing is not anticipated to alter the flooding regime of the local area.

Given the above, the proposed clearing is not likely to be at variance to any of the clearing Principles.

## 6. References

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### GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity Conservation and Attractions, Tenure
- Groundwater Salinity
- Hydrography, Linear
- Hydrography, Hierarchy
- Remnant Vegetation
- SAC bio datasets, accessed September 2018
- Soils, Statewide
- Topographic Contours