



Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8628/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: B & J Catalano Pty Ltd
Application received date: 29 July 2019

1.3. Property details

Property: Lots 2 and 4 on Deposited Plan 15419
Local Government Authority: Shire of Harvey
Localities: Myalup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
6.7		Mechanical Removal	Extractive industry

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 8 April 2021

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance with principle (b), (g) and (h) and is not likely to be at variance with the remaining principles.

The Delegated Officer considered the following:

- Individual banksia trees, which provide foraging habitat for *Calyptrorhynchus latirostris* (Carnaby's cockatoo), were identified within the application area. Noting the small extent of the foraging habitat identified and that the local area is highly vegetated and is likely to comprise vegetation in similar or better condition than the vegetation in the application area, the Delegated Officer determined that the foraging habitat is not considered significant in the local context.
- Conservation significant fauna species may be utilising the application area at the time of clearing. Slow, directional clearing that enables fauna to move into adjacent habitat will mitigate impacts to individuals that may be present at the time of clearing. In addition, under the conditions of the clearing permit, the applicant will be required to have a fauna spotter on site at the time of clearing to ensure that no western ringtail possum individuals are impacted by the clearing activities.
- The proposed clearing may increase the risk of wind erosion. The Delegated Officer determined that this risk can be mitigated through imposing a condition on the clearing permit which requires the applicant to undertake mining activities within three months of clearing to prevent the long-term exposure of the site to wind erosion.
- The proposed clearing may increase the risk of weeds and dieback being spread into adjacent native vegetation, which includes an occurrence of a threatened ecological community. The Delegated Officer determined that adhering to weed and dieback management measures, as conditioned on the clearing permit, will minimise this risk.

The Delegated Officer considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area and that fauna, wind erosion and weed and dieback management practices will mitigate any potential impacts.

2. Site Information

Clearing Description The application is to clear 6.7 hectares of native vegetation within Lots 2 and 4 on Plan 15419, Myalup, for the purpose of limestone extraction (Figure 1).

Vegetation Description The application has been broadly mapped as Swan Coastal Plain vegetation complexes:

- Yongarillup Complex which is described as woodland to tall woodland of *Eucalyptus gomphocephala* (tuart) with *Agonis flexuosa* in the second storey. Less consistently an open forest of *Eucalyptus gomphocephala* (tuart) - *Eucalyptus marginata* (jarrah) - *Corymbia calophylla* (marri). South of Bunbury

is characterised by *Eucalyptus rudis* (flooded Gum) - *Melaleuca* species open forests.

- Cottesloe Complex-Central and South which is described as mosaic of woodland of *Eucalyptus gomphocephala* (tuart) and open forest of *Eucalyptus gomphocephala* (tuart) - *Eucalyptus marginata* (jarrah) - *Corymbia calophylla* (marri); closed heath on the Limestone outcrops (Heddlé, et al 1980).

A flora survey of the application area undertaken by Plantecology Consulting on 25 September 2019 identified that the application comprises the following vegetation types (Plantecology Consulting, 2019):

- *Eucalyptus decipiens* subsp. *decipiens* Open Woodland: Open Woodland of *Eucalyptus decipiens* subsp. *decipiens* over shrubland of *Melaleuca systema*, *Templetonia retusa* and *Hibbertia hypericoides* over an exotic dominated understorey of **Lysimachia arvensis*, **Trifolium campestre* var. *campestre* and **Geranium molle* on brown loamy sands with a limestone substrate.
- *Melaleuca systema* shrubland: low open woodland of *Banksia attenuata* over shrubland of *Melaleuca systema* and *Hibbertia cuneiformis* over an exotic dominated understorey of **Arctotheca calendula*, **Trifolium campestre* var. *campestre* and **Geranium molle* in grey sands with a limestone substrate.
- *Agonis flexuosa* woodland: woodland of *Agonis flexuosa* over open shrubland of *Melaleuca systema*, *Templetonia retusa* and *Hibbertia hypericoides* over an exotic dominated understorey of **Euphorbia peplus*, **Hypochaeris glabra* and **Geranium molle* in grey loamy sands with a limestone substrate.

Vegetation Condition

The vegetation structure has been highly modified from past grazing activities especially in the understorey, where native herbaceous species have largely been replaced by exotic species. The shrub mid-storey and tree overstorey are regenerating or have been retained in parts of the site, however, plant density has been reduced where the vegetation is rated as degraded or worse. Part of the *Eucalyptus decipiens* woodland is rated as good with much of the original vertical structure intact as well as the original shrub and tree density. The native herbaceous understorey has been highly modified in these areas and is unlikely to regenerate without intervention (Plantecology Consulting, 2019).

The condition of the vegetation within the application area ranges from completely degraded to good (Keighery, 1994) condition as described below.

- Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994);
- Degraded: Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management (Keighery, 1994).
- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery 1994)

Soil type

The application area is mapped as the Spearwood S1a Phase landform subsystem, which is described as dune ridges with shallow to moderately deep siliceous yellow brown sands, very common limestone outcrop and slopes up to 15 per cent (Schoknecht et al., 2004).

A site inspection of the application area undertaken by Department of Water and Environmental Regulation (DWER) officers on 24 September 2019 identified that the majority of the soil within the application area was grey sand with limestone outcrops (DWER, 2019)

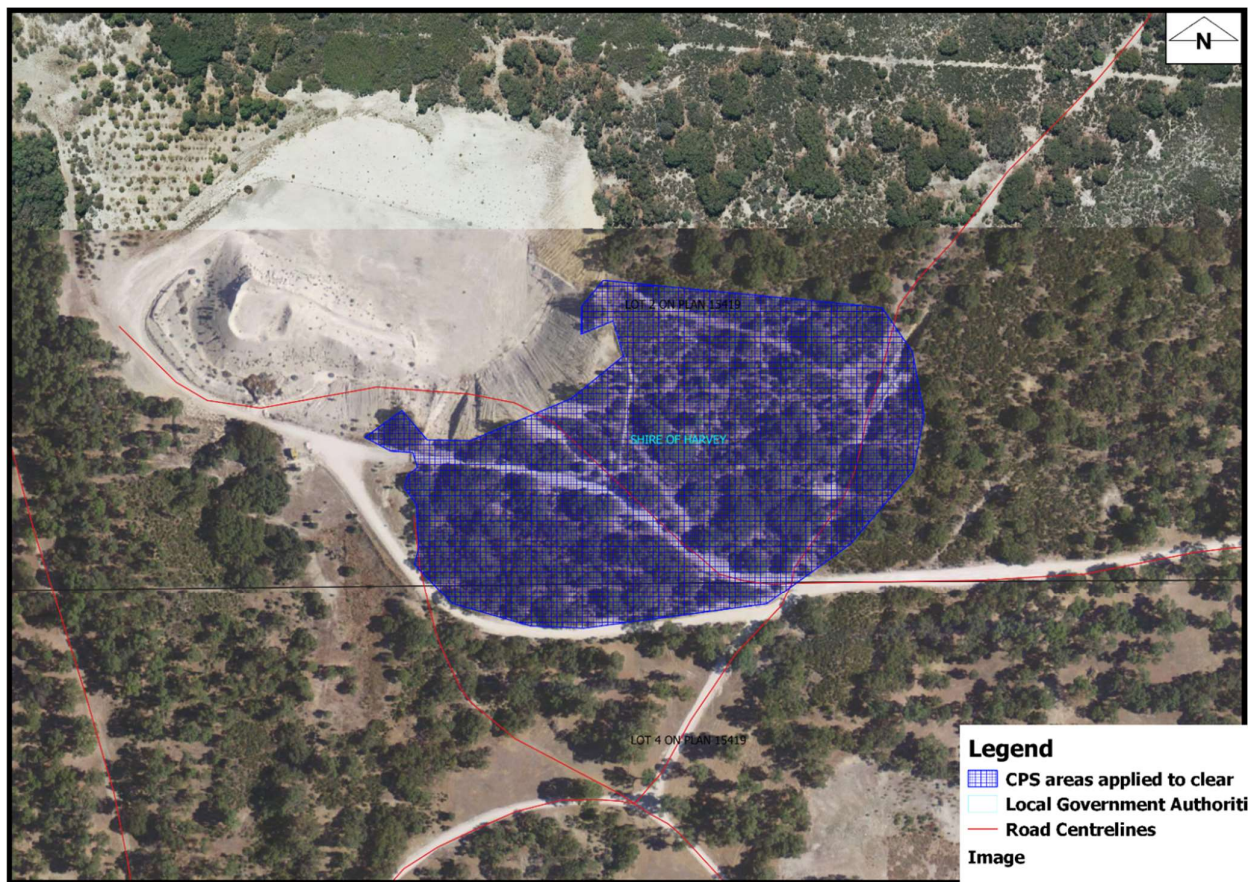


Figure 1: Application Area

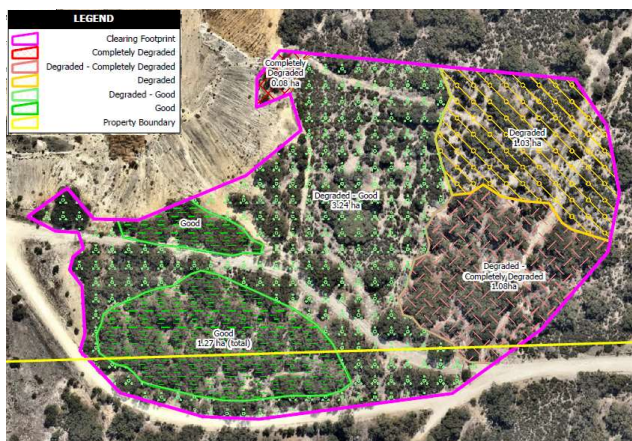


Figure 2: Condition of the application area (Plantecology Consulting, 2019)

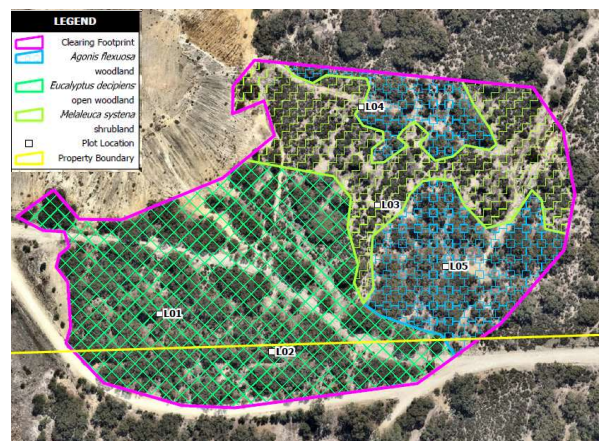


Figure 3: Vegetation types within application area (Plantecology Consulting, 2019)

3. Assessment of application against clearing principles, planning instruments and other relevant matters

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

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

Priority and threatened flora

According to available datasets, there are records of 20 priority flora species within the local area. A flora and vegetation survey was undertaken within the application area on 25 September 2019. This is considered an appropriate time to survey the area for threatened and priority flora. The survey included a targeted search for conservation significant flora which involved two botanists traversing the application area on foot.

The flora survey did not identify any priority flora species (Plantecology Consulting, 2019) and therefore it is considered that the proposed clearing is unlikely to impact on any priority flora.

As discussed under Principle (c), the proposed clearing is not likely to impact upon any threatened flora.

Conservation significant fauna and ecological linkages

As discussed under Principle (b), the proposed clearing may impact upon habitat for western ringtail possums and conservation significant black cockatoos species if present within the application area, however, is not likely to decrease the effectiveness of ecological linkages. Fauna management practices, which require the applicant to undertake slow, progressive clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing, will minimise the potential impacts to ground-dwelling fauna. As conditioned on the clearing permit, the applicant will also be required to have a fauna spotter on site during clearing to ensure that no western ringtail possum individuals or any other fauna individuals are impacted.

Priority and threatened ecological communities

According to available databases one priority ecological community (PEC) has been recorded within the application area being 'Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain' (Tuart Woodlands Threatened Ecological Community (TEC)). This PEC is listed as Priority 3(iii) by Department of Biodiversity Conservation and Attractions (DBCA) and as a 'Critically Endangered' TEC under *Environment Protection and Biodiversity Conservation Act 1999 Act* (EPBC Act). Approximately 1.2 hectares of the application area is mapped as 'likely to occur' as this TEC by the Department of Agriculture, Water and the Environment, which adjoins a larger remnant of native vegetation also mapped as 'likely to occur' as the TEC south of the application area.

A flora and vegetation survey undertaken within the application area identified that 'based on landscape position and dominants, the *Agonis flexuosa* woodlands vegetation type present within the application area may be representative of the Tuart woodlands TEC. Approximately 1.5 hectares of the application area is mapped as this vegetation type. The flora and vegetation survey noted that to be considered part of the tuart woodland TEC, at least two individual of *Eucalyptus gomphocephala* must be present within the canopy no more than 60 metres apart. The flora and vegetation identified only one individual of *Eucalyptus gomphocephala* within the survey area and therefore the vegetation present within the application area is not likely to be representative of this TEC (Plantecology Consulting, 2019).

Following receipt of DWER correspondence requesting additional information in relation to the potential impacts of the proposed clearing to the Tuart Woodland TEC, Plantecology Consulting (2020) advised that an additional survey, which surveyed vegetation outside the application area, was undertaken. The survey recorded the locations of *Eucalyptus gomphocephala* individuals (Figure 4). The survey confirmed the presence of only one individual of *E. gomphocephala* within the application area. The closest tuart tree from this individual was recorded approximately 160 metres south. Given this, the vegetation within the application area is not part of the Tuart Woodland TEC.



Figure 4: Recorded locations of *Eucalyptus gomphocephala* individuals in the application area and its close proximity (Plantecology Consulting, 2020)

While the proposed clearing is not likely to have direct impacts on the Tuart Woodland TEC, it may increase the risk of weeds and dieback being spread into an adjacent occurrence of this TEC. Weed and dieback management measures will mitigate this risk (as conditioned on the clearing permit).

One other PEC, 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA region listed as 'Priority 3(iii)' by DBCA, and as an 'Endangered' TEC under the EPBC Act has been mapped approximately 4.1 kilometres from the application area. A flora and vegetation survey indicates the vegetation type '*Melaleuca systema* shrubland' may be representative of the Banksia woodlands TEC (Plantecology Consulting, 2019). The Approved Conservation Advice for this TEC specifies a number of key diagnostic criteria for vegetation to be considered representative of this TEC (TSSC, 2016). Given the size of the area of vegetation considered representative of this TEC, the vegetation located within the application area does not meet the minimum patch size for vegetation in good (Keighery, 1994) condition and therefore is not considered to be the Banksia woodland TEC.

As discussed under principle (d), no state listed TECs are likely to occur within the application area.

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

(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 may be at variance with this Principle

According to available databases, ten fauna species specially protected under the *Biodiversity Conservation Act 2016* have been recorded within the local area. Furthermore, seven priority fauna and two other specially protected fauna have been recorded within the local area (DBCA, 2007-). Suitable habitat may be located within the application area for the following fauna species: Baudin's Cockatoo (*Calyptorhynchus baudinii*), Carnaby's Cockatoo (*Calyptorhynchus latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*) (collectively referred to as black cockatoos herein this report), *Dasyurus geoffroyi* (Chuditch), *Pseudocheirus occidentalis* (Western Ringtail Possum), *Phascogale tapoatafa* subsp. *wambenger* (South-western Brush-tailed Phascogale) and *Isodon fusciventer* (Quenda).

Black cockatoos

The proposed clearing is not likely to have impacts on black cockatoo breeding habitat. Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are 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). A site inspection undertaken within the application area identified a few trees of suitable DBH for providing potential habitat for breeding by black cockatoos. No observable hollows were identified within the application area during the site inspection (DWER, 2020).

Noting typical foraging resources for black cockatoos and the species identified within the application area (Plantecology Consulting, 2019), the application area contains approximately 0.46 ha of suitable foraging habitat for black cockatoos. Forest red-tailed black cockatoo forages within jarrah and marri woodlands and forest, and edges of karri forests including wandoo and blackbutt, within the range of the subspecies. The species largely feeds on seeds of marri and jarrah, as well as other Eucalyptus species and Allocasuarina cones (Commonwealth of Australia, 2012). Baudin's cockatoo prefer foraging within Eucalypt woodlands and forest, and proteaceous woodland and heath. During the breeding season (October to late January/early February) this species has a preference for marri seeds. Outside the breeding season the species may feed in fruit orchards and tips of Pinus spp. (Commonwealth of Australia, 2012). Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (Banksia, Hakea and Grevillea), as well as Allocasuarina and Eucalyptus species, Corymbia calophylla and a range of introduced species (Valentine and Stock, 2008). A site inspection undertaken by DWER officers did not identify any evidence of foraging by black cockatoos within the application area.

The local area comprises approximately 6,400 ha of black cockatoo foraging habitat (area coloured green in Figure 5). The majority of this habitat is located in Myalup State Forest and Yalgorup National Park (approximately 65 per cent). The extent of foraging habitat within the application area represents approximately 0.007 per cent of the foraging habitat within the local area.

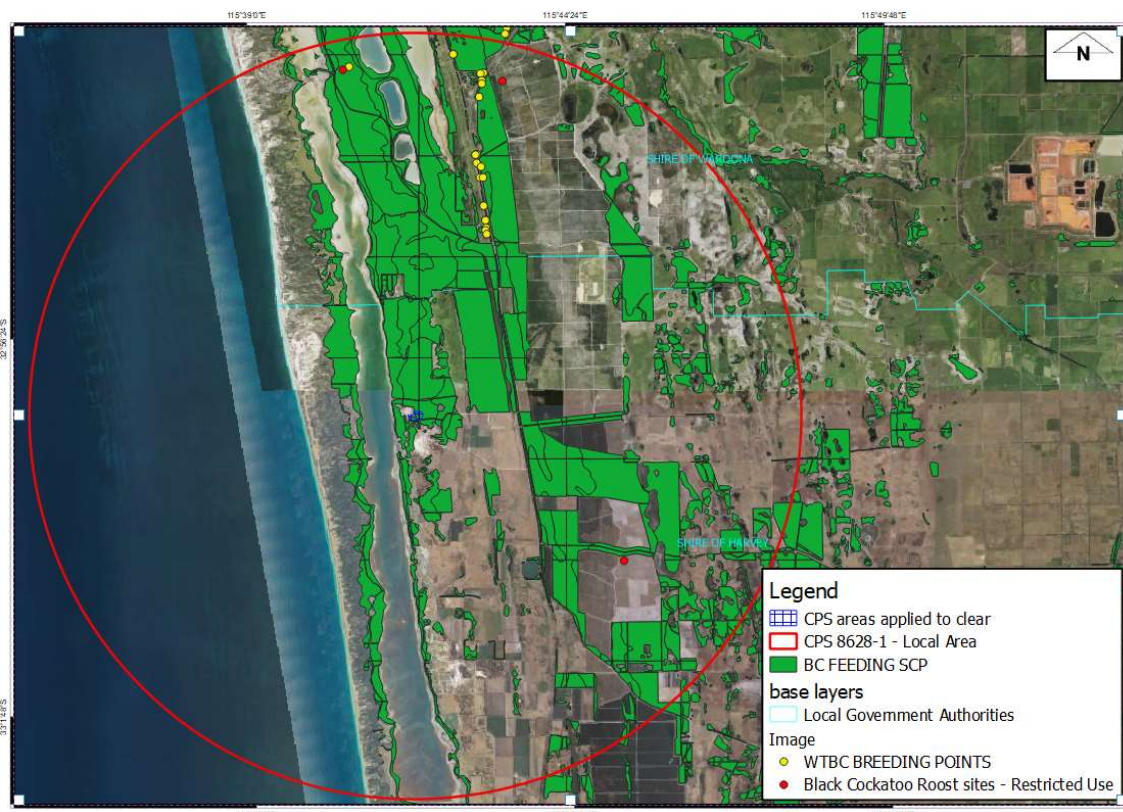


Figure 5: Extent of black cockatoo foraging habitat within the local area

Foraging habitat for black cockatoos within 7 kilometres (km) of a breeding site is important to adequately support breeding pairs (EPA, 2019). According to available databases, there is several confirmed breeding points within the local area. The closest breeding site occurs approximately 5.1 km northeast of the application area. The proposed clearing will reduce the extent of foraging habitat by approximately 0.46 ha. Noting the small extent of foraging habitat within the application area and

the abundance of native vegetation in the local area that is likely to comprise similar or better quality foraging habitat for black cockatoos, the foraging habitat within the application area is not considered to provide significant foraging habitat that supports black cockatoo breeding.

The assessment identified that the application area provides foraging habitat that potentially supports black cockatoo night roosting. Individual night roosting sites need suitable foraging habitat and water within 6 km (EPA, 2019). Overlapping foraging ranges within 12 km also support roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019). It has been acknowledged that three roosting sites are recorded within the local area. The closest roosting sites from the application area is approximately 6.6 km away. Taking into consideration the small extent of foraging habitat in the application area and abundance of native vegetation in the local area that is likely to comprise similar or better quality foraging habitat for black cockatoos, the foraging habitat is not considered significant to support night roosts.

Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species that is critical for its survival (Department of the Environment (now the Department of Agriculture, Water and the Environment), 2013). Noting the extent of remnant vegetation in the local area, the size of the application area and its location within a broader remnant containing vegetation which is likely to be of similar composition and condition as that proposed to be cleared, it is considered unlikely that the vegetation proposed to be cleared is significant for the survival of the above fauna species, or necessary for the maintenance of their significant habitat.

Taking into account the small size of the application area compared to the extent of native vegetation in the local area and that the application area is not within an ecological linkage, the proposed clearing is not likely to restrict the movement of black cockatoos across the landscape.

A condition has been imposed on the permit requiring the permit holder to revegetate the application area following the mining activities. These revegetation activities will result in the re-establishment of black cockatoo foraging habitat within the application area post-extraction.

Western ringtail possum

The western ringtail possum is listed as critically endangered under the EPBC Act. Western ringtail possum's current distribution is patchy and largely restricted to near coastal areas of peppermint woodland and peppermint/tuart associations from the Australind/Eaton area to east of Albany at Waychinicup National Park, and in the southern forest near Manjimup (DBCA, 2017a). Suitable habitat for the western ringtail possum is located within the *Agonis flexuosa* woodland present within the application area. However, the majority of this vegetation type is in a completely degraded and degraded (Keighery, 1994) condition. Vegetation in better condition is adjacent to the application area within close proximity to Lake Preston and is likely to provide better quality habitat for this species. No loss of significant habitat for this species is expected. Fauna management practices, which require the applicant to undertake slow, progressive clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing, will minimise the potential impacts to western ringtail possum individuals should they occur on site at the time of clearing activities. As conditioned on the clearing permit, the applicant will also be required to have a fauna spotter on site during clearing activities to ensure that no individuals of western ringtail possum or any other fauna species are impacted.

Southern brush-tailed phascogale

The southern brush-tailed phascogale inhabits dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC, 2012a). A site inspection undertaken by DWER officers did not identify any trees with hollows within the application area. Given this, the application area is not likely to provide significant habitat for this species.

Quenda

Quenda are widely distributed near the south coast from Guilderton north of Perth to east of Esperance. On the Swan Coastal Plain, Quenda are often associated with wetlands (DEC, 2012b). The application area does not contain any wetlands and therefore significant habitat for this species is not likely to be located within the application area.

Chuditch

Chuditch are predominantly found in jarrah forests and woodlands, mallee shrublands and heathlands (DBCA, 2017b). Given the vegetation type and condition present within the application area, the proposed clearing is not likely to impact upon significant habitat for this species.

Ecological linkages

There are several ecological linkages mapped within two kilometres of the application area (the closest of which is approximately one kilometre north). There is a 300 metre buffer of native vegetation to the west of the application area, including fringing vegetation to Lake Preston, which is in a better condition than the vegetation within the application area. The proposed clearing of vegetation predominantly in a degraded to good (Keighery, 1994) condition is not likely to sever or significantly impact on any linkage values.

The application area may impact upon significant habitat for western ringtail possums and black cockatoos if present within the application area, on which basis the proposed clearing may be at variance with this Principle.

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

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

According to available datasets, two threatened flora species have been recorded within the local area, being *Diuris purdiei* and *Diuris micrantha*.

Diuris micrantha has been recorded approximately four kilometres from the application area. This species is a tuberous perennial herb that grows to between 0.3 and 0.6 metres high within brown loamy clays in winter-wet swamps and in shallow water (Western Australian Herbarium, 1998-).

Diuris purdiei has been recorded approximately nine kilometres from the application area. This species is a tuberous, perennial herb that grows to between 0.15 and 0.35 metres high within grey-black moist sand and within winter-wet swamps (Western Australian Herbarium, 1998-).

Noting that the application area did not contain any standing water at the time of inspection and that no wetlands or watercourses are mapped within the application area, or were identified within the application area during the site inspection or during flora and fauna surveys (DWER, 2018 and Plantecology Consulting, 2019), the application area is unlikely to include *Diuris micrantha* or *Diuris purdiei*.

A targeted flora survey of the application area did not identify any rare flora species (Plantecology Consulting, 2019).

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

(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 is not likely to be at variance with this Principle

According to available datasets, there are two state listed TECs mapped within the local area being: 'Shrublands on calcareous silts of the Swan Coastal Plain' and 'Stromatolite like freshwater microbialite community of coastal brackish lakes (Lake Clifton)'.

A flora and vegetation survey undertaken within the application area did not identify any state listed TECs within the application area (Plantecology Consulting, 2019).

Noting the vegetation types present, the application area is not considered to be representative of any state listed TEC, or be necessary for the maintenance of a TEC.

The proposed clearing is not likely to be at variance with this Principle.

(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 not likely to be at variance with 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).

As indicated in table 1, the application area occurs within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia, 2019a). The vegetation within the application area is mapped as Cottesloe Complex - Central and South, which retains approximately 32.2 per cent of its pre-European vegetation extent within the IBRA bioregion (Government of Western Australia, 2019b).

The local area (10 kilometre radius) retains approximately 40 per cent native vegetation cover.

Noting that the above vegetation figures are all above the 30 per cent threshold, and that the application area is in a good to completely degraded (Keighery, 1994) condition, the application area is not considered to be a significant remnant within an extensively cleared area.

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

Table 1: Vegetation statistics (Government of Western Australia, 2019a and 2019b)

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA Bioregion*					
Swan Coastal Plain	1501,221.93	579,813.47	38.62	222,916.97	14.85
South West vegetation complex*					
Yoongarillup Complex	27,977.93	10,018.14	35.81	5,151.57	18.41
Cottesloe Complex Central and South	45,299.61	14,567.87	32.16	6,606.12	14.58

(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 not likely to be at variance with this Principle

There are no wetlands or watercourses mapped within the application area. The closest wetland to the application area is Lake Preston, which is classified by DBCA as a conservation management category wetland located approximately 350 metres from the application area. Lake Preston forms part of the Peel-Yalgorup System Ramsar site.

The Peel-Yalgorup System Ramsar site includes shallow estuarine waters, saline, brackish and freshwater wetlands of the Peel Inlet, Harvey Estuary, several lake systems including Lakes McLarty, Preston and Mealup and the Yalgorup National Park. The Ramsar site is considered to be geomorphically complex and biologically diverse (DEC, 2007). A site inspection and vegetation and flora survey of the application area did not identify the presence of any wetlands or watercourses (DWER, 2019 and Plantecology Consulting, 2019).

Given the absence of wetlands and watercourses within the application area and that the applicant has maintained a buffer of 350 metres to Lake Preston, the proposed clearing is not likely to be at variance with this Principle.

(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 with this Principle

The application area is mapped as Spearwood S1a Phase landform subsystem, which is described as dune ridges with shallow to moderately deep siliceous yellow-brown sands, very common limestone outcrop and slopes up to 15 per cent. A site inspection of the application area identified that the majority of the soil within the application area was grey sand with limestone outcrops (DWER, 2019).

The former Department of Agriculture and Food Western Australia developed land degradation risk potentials for mapped subsystems, as shown within Table 2 below for the Spearwood S1a Phase landform subsystem (DPIRD, 2017).

Table 2: Land Degradation Risk

Risk categories	Spearwood S1a Phase
Wind erosion	Greater than 70 per cent of map unit has a high to extreme wind erosion risk
Water erosion	50-70 per cent of the map unit has a high to extreme water erosion risk
Salinity	30-50 per cent of the map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	10-30 per cent of the map unit has a high subsurface acidification risk or is presently acid
Flood risk	Less than 3 per cent of the map unit has a moderate to high flood risk
Water logging	Less than 3 per cent of the map unit has a moderate to very high waterlogging risk
Phosphorus export risk	50-70 per cent of the map unit has a high to extreme phosphorus export risk

Based on the above, the greatest risk of land degradation is from wind erosion, water erosion and salinity.

No signs of salinity were identified within the application area (DWER, 2019). In addition, the proposed clearing area is located adjacent to remnant native vegetation which will minimise the likelihood of groundwater tables raising to surface soils and mobilising salt stored in soils. Therefore, the proposed clearing is not likely to lead to surface water salinity expression and subsequent land degradation.

With regard to the potential for water erosion, noting that there are no watercourses or wetlands mapped within the application area, and noting that the application area is predominantly in a degraded to good (Keighery, 1994) condition, the proposed clearing is not expected to result in appreciable land degradation via water erosion.

With regard to the potential for wind erosion, noting that greater than 70 per cent of the Spearwood S1a Phase has a high to extreme wind erosion risk, it is considered that the proposed clearing may result in appreciable land degradation should the site remain bare of vegetation for a lengthy period of time. To mitigate the potential for wind erosion the applicant would be required to undertake mining activities within three months of clearing, to prevent the long-term exposure of the site to wind erosion.

Based on the above, the proposed clearing may be at variance with this Principle.

(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 with this Principle

The closest conservation area to the application area is the Yalgorup National Park which is located approximately 300 metres from the application area and this National Park roughly aligns with the aforementioned Lake Preston and Peel-Yalgorup System Ramsar site.

Given the distance to this conservation area, the proposed clearing is not likely to directly impact upon this conservation area.

There are several ecological linkages mapped within two kilometres of the application area (the closest of which is approximately one kilometre north). There is a 300 metre buffer of native vegetation to the west of the application area, including fringing vegetation to Lake Preston in a better condition than the vegetation within the application area. The proposed clearing of vegetation predominantly in a degraded to good (Keighery, 1994) condition is not likely to sever or significantly impact on any north-south linkage values.

The proposed clearing may result in the spread of weeds and dieback into adjacent areas of native vegetation, which may eventually spread to the Yalgorup National Park, and thus impact on its environmental values. In order to minimise the potential risk for weeds and dieback to spread into adjacent vegetated areas, the applicant would be required to adhere to weed and dieback management measures.

Based on the above, the proposed clearing may be at variance with 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 not likely to be at variance with this Principle

As discussed under Principle (f), there are no wetlands or watercourses mapped within the application area. The closest wetland to the application area is Lake Preston, which is classified by DBCA as a conservation management category wetland and forms part of the Peel-Yalgorup System Ramsar site. The wetland is located approximately 350 metres west of the application area.

Conservation category wetlands are the highest priority wetlands for protection and conservation as they support a high level of ecological functions and attributes (Water and Rivers Commission, 2001). With regard to habitat modification within close proximity to wetlands, the Guideline for the Determination of Wetland Buffer Requirements identifies the following recommended buffers for conservation category wetlands (WAPC, 2005):

- 100 metres for weed infestation;
- 100 metres for bird dependent habitat;
- 6 to 50 metres for firebreaks; and
- 100 metres to minimise edge effects.

In addition to the above, a wetland position statement which specifies a number of management measures for wetland environments notes that the recommended buffer distance between mineral processing operations and wetlands is 200 metres (Water and Rivers Commission, 2001).

Given the distance to Lake Preston and the Ramsar site, the proposed clearing is not likely to have a significant impact to the water quality of this wetland. Any sedimentation or runoff that occurs as a result of the proposed clearing is likely to be minimal and short-term.

Groundwater salinity within the application area is mapped as 500 to 1000 milligrams per litre total dissolved solids (considered to be marginal). Noting this and given that the application area is predominantly in a degraded to good (Keighery, 1994) condition, the proposed clearing is not likely to result in a perceptible rise in the water table and thus an increase in groundwater salinity levels, or in the expression of surface water salinity.

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

The application area is subject to a moderate annual rainfall of 900 millimetres per annum. As discussed under Principle (g), the application area contains highly permeable sandy soils. Noting this, and that the vegetation within the application area is in a predominantly degraded to good (Keighery, 1994) condition, 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 with this Principle.

Planning instruments and other relevant matters.

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

The clearing permit application was advertised on the DWER website on 26 August 2019 with a 28 day submission period. No public submissions were received in relation to this application.

On 14 May 2020, the Shire of Harvey advised DWER that Development Approval for the proposed extraction activities was granted on 31 January 2020.

On 11 February 2021, the applicant submitted an approved Extractive Industry Licence to DWER (Applicant, 2021).

4. References

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- Parks and Wildlife tenure
- Hedde Vegetation Complexes
- Pre-European vegetation
- SAC bio datasets accessed March 2021
- Aboriginal sites register system
- Town Planning Scheme Zones
- Rainfall, Mean Annual