



1. Application details

1.1. Permit application details

Permit application No.: 8059/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mr Simon Ensor
Application received date: 30 April 2018

1.3. Property details

Property: Lot 1 on Diagram 73539
Local Government Authority: Busselton, City of
Localities: Metricup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
9.5	0	Mechanical Removal	Extractive Industry

1.5. Decision on application

Decision on Permit Application: Refuse

Decision Date: 7 January 2019

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 is at variance to principles (a), (b), (d) and (e), may be at variance to principles (c) and (g) and is not likely to be at variance to the remaining principles.

Through assessment it was determined that the application area is known to support populations of conservation significant fauna and a threatened ecological community. It was also identified that the application area may support a number of rare and priority flora species and that it is a significant remnant in an extensively cleared area.

The Delegated Officer considered that the proposed clearing is likely to result in unacceptable environmental impacts to flora and fauna including species of conservation significance and a nationally-listed threatened ecological community.

2. Site Information

Clearing Description The applicant proposes to clear 9.5 hectares of native vegetation within Lot 1 on Diagram 73539, Metricup, for the purpose of sand extraction.

Vegetation Description The application area is mapped as Yelverton (Yd), described as woodland of *Allocasuarina fraseriana-Eucalyptus marginata* subsp. *marginata-Xylomelum occidentale-Banksia attenuata* on sandy slopes in the humid zone (Government of Western Australia, 2018a).

Vegetation Condition A site inspection of the application area conducted by officers from the Department of Water and Environmental Regulation (DWER) found the application area was in a Completely Degraded to Excellent condition (DWER, 2018), described as:

- Excellent; Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994); to
- Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

Soil type The application area is mapped as Yelverton deep sandy flats Phase, described as:

- Level to gently undulating raised shelf, lying 10-40 m above the Swan Coastal Plain. The soils are mainly sands (Schoknecht et al., 2004).

Comment The local area considered in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area.

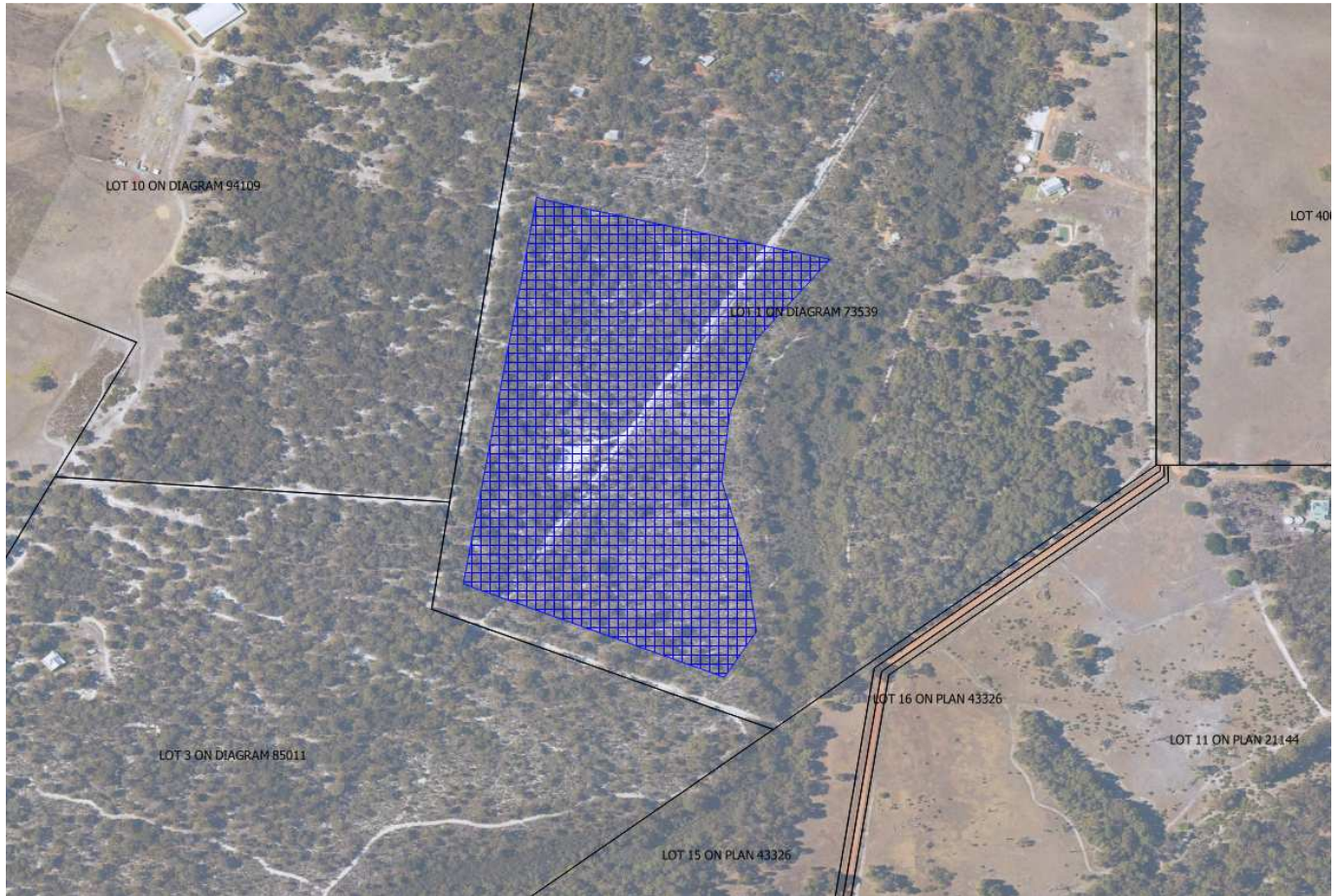


Figure 1: Application area hatched in blue



Figure 2: Banksia woodland within the application area (DWER, 2018).



Figure 3: Vegetation within the application area (DWER, 2018).

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 biological diversity.

Proposed clearing is at variance to this Principle

The application area is in the Whicher Scarp landform over the Yelverton (Yd) vegetation complex (DBCA, 2018a).

Approximately half of the application area (north-western area) is a Land for Wildlife site and the whole property is bounded by a predator exclusion fence. Dieback was observed to be prevalent in the south-eastern section of the application area and the Department of Biodiversity, Conservation and Attractions (DBCA) has speculated that this is the reason why this area was not included as Land for Wildlife. Dieback has changed the structure of the vegetation in this area. The majority of the Banksia's are dead and the area is now dominated by *Myrtaceae* sp. (including *Taxandria linearifolia*) (DWER, 2018).

Thirty one priority flora species and 10 rare flora species have been recorded within the local area (10 kilometre radius). Advice received from DBCA indicates that the application is likely to support a range of priority listed species known from grey sands of the western Whicher Scarp landform, including *Acacia semitrullata* (P4), *Johnsonia inconspicua* (P3), *Boronia capitata* subsp. *gracilis* (P3) and *Laxmannia jamesii* (P4) (DBCA, 2018a). Priority 2 species *Andersonia* sp. Echidna (A.R. Annel's ARA 5500) also has the potential to occur within the application area (DBCA, 2018b). Two rare flora species are also likely to occur within the application area. Rare flora are discussed in more detail under Principle (c).

On 16 September 2016, the Commonwealth Department of the Environment and Energy (DotEE) listed *Banksia* Woodlands of the Swan Coastal Plain ecological community as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (DotEE). The mapping of this TEC includes the application area. The application area contains three of the four key diagnostic species of this community (*Banksia attenuata*, *B. menziesii* and *B. ilicifolia*) and given its size and condition it is representative of this community.

The application area adjoins a wetland system which is an occurrence of the Priority 1 listed ecological community (PEC) *Shrublands of near permanent wetlands in creeklines* (WHSFCT_G2). The mapping of this PEC indicates it to be intermittent along the creek line however, it is more likely that the entire creek line adjacent to the application area (and beyond) is the PEC (DBCA, 2018a). This PEC is associated with permanent groundwater seepage and is known to support several priority listed species and range end/disjunct populations of species typically associated with the south coast (DBCA, 2018a). The proposed clearing may have an indirect impact on this PEC and associated priority flora through edge effects, such as weed and/or dieback introduction, increased light and wind etc.

Nine fauna species listed as specially protected under the under the *Biodiversity Conservation Act 2016* (BC Act) within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* have been recorded within the local area, being; Carnaby's cockatoo (*Calyptorhynchus latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus baudinii*), Baudin's cockatoo (*Calyptorhynchus baudinii*), chuditch (*Dasyurus geoffroii*), southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*), western ringtail possum (*Phascogale tapoatafa* subsp. *wambengeri*), Margaret River burrowing crayfish (*Engaewa pseudoreducta*), Dunsborough burrowing crayfish (*Engaewa reducta*) and Carter's freshwater mussel (*Westralunio carteri*) (DBCA, 2007-). The application area is known to support populations of western ringtail possum, woylie, brush-tailed phascogale, quenda, contains foraging habitat for black cockatoos and suitable habitat for chuditch. Fauna is discussed in more detail under Principle (b).

The application area contains vegetation in very good (Keighery, 1994) condition, is representative of a TEC, is likely to contain rare and priority flora and contains significant habitat for indigenous fauna. Therefore the application area contains a high level of biodiversity and is at variance to 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 indigenous to Western Australia.

Proposed clearing is at variance to this Principle

As discussed in Principle (a), nine fauna species listed as specially protected under the BC Act have been recorded within the local area, being; Carnaby's cockatoo, forest red-tailed black cockatoo, Baudin's cockatoo, chuditch, southern brush-tailed phascogale, western ringtail possum, Margaret River burrowing crayfish, Dunsborough burrowing crayfish and Carter's freshwater mussel (DBCA, 2007-).

Lot 1 has two areas of bushland registered with Land for Wildlife; the north-western half of the application area and the nearby creek area. The DBCA has speculated that the area of the property between the two Land for Wildlife sites (the south-eastern half of the application area) was excluded from Land for Wildlife due to dieback occurrence, as dieback management, treatment and monitoring were suggested in the Land for Wildlife report (DBCA, 2018c). The occurrence of dieback in the south-eastern half of the application area was confirmed during the site inspection undertaken by DWER officers on 6 July 2018. The 2008 Land for Wildlife report states that the owner's main wildlife interest for the property is "Conservation of the property and fauna habitat" (DBCA, 2018c). Lot 1 contains a predator exclusion fence.

In addition to the fauna species listed above, the property is known to contain a population of woylie (*Bettongia penicillata*). Woylie is listed as critically endangered under the EPBC Act. This population of woylie was established from individuals provided by DBCA. The woylie were animals from care/post fauna rehabilitation which would have limited their chance of survival in the wild without the protection of the predator exclusion fence (DBCA, 2018c).

DBCA advised that it has not received an update on the woylie population for a number of years; the last Land for Wildlife property visit was in 2008. The Land for Wildlife property revisit report noted that the following threatened or priority fauna species had been recorded on the property; western ringtail possum, woylie, brush-tailed phascogale, quenda, and burrowing crayfish (creek line only). The report noted "lots of diggings – bandicoots and woylies" and the estimated woylie population was 30 individuals at that time (DBCA, 2018c). In a newspaper article in 2011 the property owner is quoted as stating the population could be as high as 40 individuals (DBCA, 2018c).

DBCA has further advised that the proposed clearing is likely to have a significant impact on the woylie population present. Clearing of the application area would result in a significant reduction in habitat available to the species and it is unknown if the remaining habitat area would be sufficient to sustain the population (DBCA, 2018c). The proposed sand extraction activities are also a threat to the fauna; from potential vehicle strike and entrapment in the excavations, and disturbance from dust, noise and vibrations (DBCA, 2018c).

Carnaby's cockatoo and Baudin's cockatoo are listed as endangered and forest red-tailed cockatoo is listed as vulnerable under the EPBC Act. Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees

(Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). Jarrah was observed within the application area, which are known to develop suitable hollows for breeding cockatoos. A couple of stags with hollows were observed within the application area, one of which contained a hollow which appeared to be suitable for breeding cockatoos (DWER, 2018).

Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012). *Banksia* species were predominant throughout the application area and therefore the application contains suitable foraging habitat for black cockatoos. During the site inspection the applicant advised that black cockatoos are a frequent visitor to the property, however they forage in other areas of the property and have not been observed within the application area.

The chuditch is listed as vulnerable under the EPBC Act. Chuditch are now only present in approximately five per cent of their pre-European range. Most chuditch are now found in varying densities throughout the jarrah forest and south coast of Western Australia. The application area contains suitable habitat for this species.

The application area does not contain any watercourses and therefore it does not contain suitable habitat for Margaret River burrowing crayfish, Dunsborough burrowing crayfish and Carter's freshwater mussel. The watercourse recorded within 30 metres of the application may however support these three species.

The South West Regional Ecological Linkage (SWREL) report (Molloy et al., 2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches which, by virtue of their proximity to each other, act as stepping stones of habitat facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape". Axis lines in the SWREL Report are used to identify patches of remnant vegetation with high connectivity or linkage value; the emphasis for biodiversity planning and conservation becomes the protection and management of the patches identified using the linkage axis lines, rather than within the area defined by the line itself.

Remnant vegetation within the SWREL boundary can be assigned a 'proximity analysis' group. A patch of vegetation with an edge touching or less than 100 metres from a linkage (axis line) is assigned to proximity analysis group 1(a) which is the highest category group. A SWREL axis line is mapped approximately 700 metres south and 1.2 kilometres east of the application area.

Given the application area is located within this contiguous native vegetation, the application area falls within proximity analysis group 1(a) as the patch of vegetation which it is part of has an edge touching the linkage. The southern axis line links with Yelverton National Park to the west and to Blackwood State Forest to the east of the application area. Although the application area is contiguous with these conservation areas, Lot 1, on which the application is located, is surrounded by a predator proof fence which will inhibit ground dwelling and arboreal fauna using the application area as a linkage. The application area will however have some linkage value for avian fauna. The proposed clearing will not sever this linkage, however it will reduce available habitat for avian fauna moving across the landscape.

Given the above, the application area is known to support populations of western ringtail possum, woylie, brush-tailed phascogale, quenda, contains foraging habitat for black cockatoos and suitable habitat for chuditch. The application area also supports an ecological linkage. Therefore, 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, rare flora.

Proposed clearing may be at variance to this Principle

Ten Threatened flora species have been recorded within the local area. Based on commonality of soil and vegetation types, two of these species may occur within the application, being *Drakaea micrantha* and *Caladenia excelsa*.

Drakaea micrantha occurs in infertile grey sands, in *Banksia*, jarrah (*Eucalyptus marginata*) and common sheoak (*Allocasuarina fraseriana*) woodland or forest (TSSC, 2008). This species is usually found in cleared fire breaks or open sandy patches that have been disturbed, and where competition from other plants has been removed (Brown et al., 1998). A population of this species is known from comparable habitat within one kilometre of the application area (DBCA, 2018a).

Caladenia excelsa is found along the Leeuwin Naturalist ridge, between Yallingup and Karridate, where it occupies deep sandy soils amongst dense, low shrubs in *Banksia*, jarrah and marri woodlands (Brown et al., 1998). This species has previously been considered a Leeuwin Block endemic although a population was found in 2011 in grey sands of the western Whicher Scarp landform. The 2011 population is in *Banksia* woodland comparable to that of the application area and hence it would be considered suitable habitat for this species (DBCA, 2018a).

Threatened flora are taxa that are extant and considered likely to become extinct or Threatened, and are in need of special protection. To take Threatened flora you need permission from the Minister for Environment. This approval is required even if you already have approval to clear native vegetation.

Given the above, the application area may support *Drakaea micrantha* and *Caladenia excelsa* and therefore, the proposed clearing may be at variance to 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 at variance to this Principle

As discussed in Principle (a), the *Banksia* Woodlands of the Swan Coastal Plain TEC is listed as endangered under the EPBC Act.

The *Banksia* Woodlands ecological community is restricted to areas in and immediately adjacent to the Swan Coastal Plain IBRA bioregion, including the Dandaragan Plateau. This coastal plain stretches from around Jurien Bay in the north, to Dunsborough in the south (DotEE, 2016).

This ecological community has undergone a decline of about 60 per cent in its original extent and almost all of the ecological community that remains, occurs as highly fragmented patches less than 10 hectares in size (DotEE, 2016).

This ecological community has a dominant *Banksia* component, which includes at least one of four key species—*Banksia attenuata* (candlestick banksia), *B. menziesii* (firewood banksia), *B. prionotes* (acorn banksia) and/or *B. ilicifolia* (holly-leaved banksia) (DotEE, 2016).

The ecological community provides habitat for many native plants and animals that rely on *Banksia* Woodlands for their homes and food. Remaining patches of the ecological community provide important wildlife corridors and refuges in a mostly fragmented landscape (DotEE, 2016).

The DotEE mapping of this ecological community includes the application area. The application area contains three of the four key diagnostic species of this community (*Banksia attenuata*, *B. menziesii* and *B. ilicifolia*) and given its size and condition it is representative of this community.

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

The application area is located within the Swan Coastal Plain IBRA bioregion. This bioregion has approximately 38.57 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2018a).

The application area is also mapped as Yelverton vegetation complex which retains approximately 55.7 per cent (1,359 hectares) pre-European extent (Government of Western Australia, 2018b). The Local Government Biodiversity Planning Guidelines outlines criteria used to identify natural areas that are of greatest value for biodiversity. One of these criteria is an ecological community with only 1,500 hectares or 30 per cent or less (whichever is greater) of its pre-European extent remaining in the South West Natural Resource Management Region portion of the Swan Coastal Plain IBRA Bioregion or in the Southwest Forest Region portion of the Jarrah Forest and Warren IBRA Bioregions (Molloy et al., 2007). The Yelverton complex has been identified as meeting this criteria (Molloy et al., 2007).

The local area retains approximately 21 per cent native vegetation.

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (Commonwealth of Australia, 2001).

The application area is considered to be a significant remnant as it contains a high level of biodiversity, significant fauna habitat and a TEC. The Yelverton complex retains less than the recommended 1,500 hectare limit and the local area retains less than the 30 per cent threshold outlined above. Therefore the application area is significant as a remnant of native vegetation in an area that has been extensively cleared.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DBCA Managed Lands (%)
IBRA Bioregion				
Swan Coastal Plain	1,501,222	578,997	38.57	38.47
Vegetation Complex				
Yelverton - Yd	2,439	1,359	55.71	14.63

(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 to this Principle

No watercourses or wetlands are mapped within the application area.

A minor, non-perennial watercourse has been recorded approximately 30 metres east of the application area, however no riparian vegetation was observed within the application area (DWER, 2018).

Given the above, the vegetation proposed to be cleared is not likely to be growing in, or in association with, an environment associated with a watercourse or wetland.

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

The application area is mapped within the Whicher Scarp system and the following land subsystem (Schoknecht et al., 2004):

- Yelverton deep sandy flats Phase – Level to gently undulating raised shelf, lying 10-40 metres above the Swan Coastal Plain. The soils are mainly sands.

The land degradation risk categories that apply to this subsystem are (Schoknecht et al., 2004):

- **Water Erosion:**
 - <3% of map unit has a high to extreme water erosion risk.
- **Wind Erosion:**
 - >70% of map unit has a high to extreme wind erosion risk
- **Flood risk:**
 - <3% of the map unit has a moderate to high flood risk
- **Water logging:**
 - 10-30% of map unit has a moderate to very high waterlogging risk

Based on the mapped land degradation risk outlined above, the application area has a relatively low likelihood of water erosion, waterlogging and flooding.

Wind erosion is mapped at 70 per cent of the map unit having a high to extreme risk of wind erosion (Schoknecht et al., 2004).

Given the sandy nature of the soils and mapped land degradation risk, the proposed clearing may lead to appreciable land degradation through wind erosion.

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

The closest conservation area to the application area is Yelverton National Park, mapped approximately seven kilometres west of the application area. Blackwood State Forest is mapped approximately eight kilometres east of the application area.

Given the distance to these conservation areas, the proposed clearing will not impact on the environmental values of these areas through the introduction or spread of weeds or dieback.

As discussed under Principle (b), SWREL axis lines are mapped approximately 700 metres south and 1.2 kilometres east of the application area.

Given the application area is located within this contiguous native vegetation, the application area falls within proximity analysis group 1(a) as the patch of vegetation which it is part of has an edge touching the linkage. The southern axis line links with Yelverton National Park to the west and to Blackwood State Forest to the east of the application area. Although the application area is contiguous with these conservation areas, Lot 1, on which the application is located, is surrounded by a predator proof fence which will inhibit ground dwelling and arboreal fauna using the application area as a linkage. The application area will however have some linkage value for avian fauna. The proposed clearing will not sever this linkage, however it will reduce available habitat for avian fauna moving across the landscape. While this may reduce habitat available for avian fauna moving between conservation areas, it is not considered to have a direct impact on the environmental values of a conservation area.

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

A minor, non-perennial watercourse has been recorded approximately 30 metres east of the application area. The 30 metre vegetated buffer to this watercourse should be sufficient to ensure that the proposed clearing does not deteriorate the quality of surface water.

Groundwater salinity within the application area is mapped at less than 500 total dissolved solids, milligrams per litre. This level of groundwater salinity is classified as 'fresh'. Given this level, the proposed clearing is not likely to increase groundwater salinity.

Given the above, the proposed clearing is not likely to be 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

Given the porous nature of the soils identified within the application area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

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

Planning instruments and other relevant matters.

To date, an extractive industry licence from the City of Busselton has not been applied for.

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

The clearing permit application was advertised on the DWER website on 23 May 2018 with a 21 day submission period. One public submission was received in relation to this application. The submission noted that the property had been operating as a wildlife sanctuary for a number of years and that the application area contains a translocated population of woylie. It was also noted that the application area does, or is likely to contain brush tailed phascogale, Dunsborough burrowing crayfish, western ringtail possum, rare flora (*Drakaea mictantha*) and the Banksia Woodlands of the Swan Coastal Plain TEC (Submission, 2018).

Impacts to indigenous fauna have been addressed under Principle (b). Rare and priority flora have been assessed under Principles (a) and (c), and Principle (d) addresses threatened ecological communities.

4. Applicant's Submissions

In an email of 28 November 2018, the applicant's consultant advised that the client and their nominated contractor intended to undertake flora and fauna surveys to confirm or deny the presence of rare and priority flora, conservation significant fauna and threatened ecological communities.

On 29 November 2018, DWER contacted the applicant's consultant to advise that it was unadvisable to undertake flora and fauna surveys as they come at a considerable cost and would not guarantee a favourable outcome for this application. The applicant's consultant was advised that a decision on this application would be made based on the current information available and the applicant would have appeal rights.

5. References

- Brown, A, Thomson-Dans, C & Marchant, N (eds) (1998) Western Australia's threatened flora. Western Australia Department of Conservation and Land Management, Western Australia, pp. 1-220.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Biodiversity, Conservation and Attractions (DCBA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed June 2018
- Department of Biodiversity, Conservation and Attractions (DCBA) (2018a) South West Region Advice for Clearing Permit Application CPS 8059/1. Received on 23 July /2018 (DWER Ref: A1708706).
- Department of Biodiversity, Conservation and Attractions (DCBA) (2018b) Species and Communities Flora Advice for Clearing Permit Application CPS 8059/1. Received on 26 July 2018 (DWER Ref: A1708724).
- Department of Biodiversity, Conservation and Attractions (DCBA) (2018c) Species and Communities Fauna Advice for Clearing Permit Application CPS 8059/1. Received on 16 August 2018 (DWER Ref: A1712066).
- Department of the Environment and Energy (DotEE) (2016) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (s 266B). Approved Conservation Advice (incorporating listing advice) for the *Banksia* Woodlands of the Swan Coastal Plain ecological community.
- Department of Water and Environmental Regulation (DWER) (2018) Site Inspection Report for Clearing Permit Application CPS 8059/1. Site inspection undertaken 6 July 2018 (DWER Ref: A1714867).
- Government of Western Australia (2018a) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Government of Western Australia (2018b) 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009). South West Regional Ecological Linkages Technical Report. Western Australian Local Government Association and Department of Environment and Conservation.
- Submission (2018) Submission for Clearing Permit Application CPS 8059/1. Received on 11 June 2018 (DWER Ref: A1688873).
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Threatened Species Scientific Committee (TSSC) (2008). Commonwealth Conservation Advice on *Drakaea micrantha* Hopper & A.P.Brown nom. inval. (*Dwarf Hammer-orchid*). Department of the Environment, Water, Heritage and the Arts. In effect under the EPBC Act from 26-Mar-2008.

6. GIS Datasets

- Aboriginal Sites of Significance
- Clearing Regulations - Environmentally Sensitive Areas

- Carnaby's cockatoo: breeding, roosting, feeding
- Department of Biodiversity Conservation and Attractions, Tenure
- Geomorphic Wetlands, Swan Coastal Plain
- Groundwater salinity, statewide
- Hydrology, linear
- IBRA Australia
- Land for Wildlife
- PDWSA, CAWSA, RIWI Act Areas
- Remnant vegetation
- SAC Biodatasets (accessed October 2018)
- Soils, statewide
- South West Forest Vegetation
- Swan Coastal Plain Vegetation