



1. Application details

1.1. Permit application details

Permit application No.: 3183/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Foxbay Pty Ltd

1.3. Property details

Property: LOT 64 ON DIAGRAM 80539 (Lot No. 64 BANDY CREEK BANDY CREEK 6450)
 Local Government Area: Shire Of Esperance
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.9		Mechanical Removal	Extractive Industry

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The vegetation proposed to be cleared is mapped as Beard Vegetation Association 42 (Fanny Cove). This vegetation is described as shrublands; mallee & acacia scrub on south coastal dunes (Shepherd 2001). The soil type mapped for the property is A15 which is described as coastal dunes and their intervening swales with saline flats, swamps, and lakes; some lunettes; some estuarine areas: chief soils seem to be calcareous sands on the recent dunes fronting the coast, and siliceous sands on the older dunes and lunettes. There are various undescribed soils around the saline flats and swamps, around estuarine areas, and on aeolianite. As mapped, areas of unit Ca26 are included, particularly on headlands (Northcote et al. 1968).</p>	<p>Previous site inspections of the applied area confirmed the vegetation description (DEC, 2008). The vegetation consisted of a coastal dune shrubland with dominant overstory species including Acacia saligna, Spyridium globulosum and Actinostrobos pyramidalis. In the swales of the dunes there are damplands as indicated by species such as Lepidosperma gladiatum and Lepidosperma squamatum.</p> <p>The vegetation under application was determined to be in degraded to very good (Keighery, 1994) condition during a site inspection on the 1 April 2008 (DEC, 2008).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)</p>	<p>The condition of the vegetation was determined through a site inspection conducted in April 2008 (DEC, 2008).</p>

3. Assessment of application against clearing principles

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

Comments **Proposal may be at variance to this Principle**
 The proposal is to clear 1.9 ha of native vegetation in degraded to very good (Keighery, 1994) condition (DEC, 2008) for the purpose of sand extraction.

Eleven priority flora species have been recorded in the local area (10km radius) within the same mapped vegetation and soils as the applied area;

- Eucalyptus x erythrandra (P4)
- Grevillea baxteri (P4)

- *Melaleuca incana* subsp. *Tenella* (P3)
- *Pityrodia chrysocalyx* (P3)
- *Hopkinsia adscendens* (P3)
- *Lepidum fasciculatum* (P1)
- *Siegfriedia darwinioides* (P4)
- *Verticordia vicinella* (P4)
- *Astartea* sp. *Esperence* (P1)
- *Banksia prolata* subsp. *calpicola* (P1)

Of particular significance is *Banksia prolata* subsp. *calpicola* (P1) which is a restricted endemic known to occur on the same habitats recorded on site during a site inspection (DEC, 2008; DEC, 2009a)

Five threatened or priority fauna have been recorded in the local area (10km radius) excluding marine fauna; including Carnaby's Black Cockatoo (Endangered) and the Western Brush Wallaby for which the habitat under application may be suitable for use. The Carnaby's Recovery Plan distribution map identifies the area under application as marginal habitat (DEC, 2002) however the area under application is not likely to be significant habitat for this species as the vegetation is not significant as nesting or foraging habitat for this species (DEC, 2009b).

The local area retains approximately 25% native vegetation, with most areas to the north within DEC managed land. The application area is within the EPA defined extensively cleared agricultural area within which further clearing will likely lead to exponential biodiversity decline (EPA, 2000).

Removal of the vegetation under application will increase fragmentation of vegetation within the local area (10km radius), incrementally degrading connectivity between the internationally protected wetlands to the north and nearby conservation areas.

Given the potential for priority flora, potential impacts to Western Brush Wallaby habitat and clearing of very good (Keighery, 1994) condition vegetation in a highly cleared landscape the clearing as proposed may be at variance to this principle.

Methodology

References:

DEC (2008)
 DEC (2009a)
 DEC (2009b)
 Keighery (1994)

References:

ANCA wetlands - Environment Australia 26/3/99
 CALM Managed Lands and Waters - CALM 01/06/05
 Esperance Townsite 20cm Orthomosaic - Landgate 07
 Hydrography linear - DOW 13/7/06
 Pre European Vegetation - DA 01/01
 Ramsar wetlands - DEC 03
 SAC Biodatasets - accessed 26 June 2009
 Soils, Statewide DA 11/99

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

Comments

Proposal may be at variance to this Principle

Five threatened or priority fauna have been recorded in the local area (10km radius) excluding marine fauna:

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)
- Hooded Plover (*Charadrius rubricollis*)
- Recherche Cape Barren Goose (*Cereopsis novaehollandiae grisea*)
- Western Brush Wallaby (*Macropus irma*)
- Southern Death Adder (*Acanthophis antarcticus*)

The local area retains approximately 25% native vegetation, with most areas to the north within DEC managed land. The vegetation ranges from degraded to very good (Keighery, 1994) condition (DEC, 2008).

Removal of the vegetation under application will increase fragmentation of vegetation within the local area (10km radius), incrementally degrading connectivity and reducing habitat in a highly cleared landscape between the internationally protected wetlands to the north and the nearby conservation areas.

Five threatened or priority fauna have been recorded in the local area (10km radius) excluding marine fauna; including Carnaby's Black Cockatoo (Endangered) and the Western Brush Wallaby for which the habitat under application may be suitable for use. The Carnaby's Recovery Plan distribution map identifies the area under application as marginal habitat (DEC, 2002) however the area under application is not likely to be significant

habitat for this species as the vegetation is not significant as nesting or foraging habitat for this species (DEC, 2009b).

A site inspection of the applied area confirmed that the vegetation under application is described as shrublands; mallee and acacia scrub on south coastal dunes (Shepherd, 2007) therefore the vegetation under application may provide suitable habitat for the Western Brush Wallaby (Christensen, 1995) however given the size of the applied area it is not likely to be significant habitat.

Given the above the clearing as proposed may be at variance to this principle as the removal of the vegetation under application will incrementally degrade the ecological linkage of which it is a part.

Methodology References:
Christensen (1995)
DEC (2002a)
DEC (2008)
DEC (2009b)
Keighery (1994)
Shepherd (2007)

GIS Database:
CALM Managed Lands and Waters - CALM 01/06/05
Esperance Townsite 20cm Orthomosaic - Landgate 07
Ramsar wetlands - DEC 03
SAC Biodatasets - accessed 26 June 2009

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

Comments **Proposal is not likely to be at variance to this Principle**
There are no known records or rare flora occurring within the local area (10km radius).

Given the above the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Database:
SAC Biodatasets accessed 29 June 2009

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

Comments **Proposal is not likely to be at variance to this Principle**
There are no known records of threatened or priority ecological communities within the immediate proximity of the area under application.
The closest TEC is located approximately 10.3km west of the application area (Pink Lake).

The vegetation under application is not indicative of any known TEC or PEC.

Methodology GIS Database:
SAC Biodatasets accessed 29 June 2009

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

Comments **Proposal may be at variance to this Principle**

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves DEC Managed Land
IBRA Bioregions* Esperance Plains	2,899,951	1,500,351	51.74	53.81
Shire* Esperance	4,459,701	3,218,951	72.18	30.03
Beard Vegetation Association* 42	306,531	292,956	95.57	46.18

Beard Vegetation Association with Bioregion*
42 135,426 124,159 91.68 57.31

* (Shepherd et al. 2007)

The local area retains approximately 25% native vegetation.

Removal of the vegetation under application will incrementally degrade the ecological linkage between the Lake Warden system and the WA coastline.

Given that there is, and taking into account the low native vegetation retention ecological linkage/ stepping stone within the local area, the clearing as proposed may be at variance to this principle.

Methodology References:
Shepherd (2007)

GIS Database:
Esperance Townsite 20cm Orthomosaic - Landgate 07
Interim Biogeographic Regionalisation of Australia - EA 18/10/00
Local Government Authorities - DLI 8/07/04
Pre European Vegetation - DA 01/01
SAC Biodatasets - accessed 29 June 2009
Town Planning Scheme Zones - MFP 31/08/98

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

Comments **Proposal is not likely to be at variance to this Principle**
The closest watercourse is approximately 180m west of the application area.

The closest wetland is the Lake Warden system, located approximately 830m north of the applied area.

Given the above the vegetation under application is not likely to be growing in association with a wetland or watercourse, therefore the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Database:
ANCA wetlands - Environment Australia 26/3/99
CALM Managed Lands and Waters - CALM 01/06/05
Esperance Townsite 20cm Orthomosaic - Landgate 07
Hydrography linear - DOW 13/7/06
Hydrography linear (hierarchy) - DoW 13/7/06
Ramsar wetlands - DEC 03
Register of National Estate - Environment Australia, Australian and world heritage division 12 Mar 02

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

Comments **Proposal is at variance to this Principle**
The Bandy Creek, Esperance coast catchment (of which this application is a part) is highly cleared (~75%). The Bandy Harbour subcatchment (of which this application is a part) is also highly cleared (~80%). The area under application is low lying and flat with some coastal dunes. The annual rainfall is 700mm and evaporation is 1800mm.

The soil type mapped for the property is A15 which is described as coastal dunes and their intervening swales with saline flats, swamps, and lakes; some lunettes; some estuarine areas: chief soils seem to be calcareous sands on the recent dunes fronting the coast, and siliceous sands on the older dunes and lunettes. There are various undescribed soils around the saline flats and swamps, around estuarine areas, and on aeolianite. As mapped, areas of unit Ca26 are included, particularly on headlands (Northcote et al., 1968).

Salinity in the area has been recorded as 500 - 1000 mg/L TDS (total dissolved solids). Mean annual rainfall has been recorded as 700 mm/year, and evaporation recorded as 1800mm/year. The elevation of the proposed areas is 20m AHD. The soil within the area under application consists of Quaternary aeolian sands which are free draining and are not subject to induced dryland salinity caused by rising water tables

No data exists for this area with regard to Acid Sulfate Soils (ASS). It is possible that ASS occur on Lot 64 due to the proximity and presence of waterlogged areas however the disturbance of the soil profile of the proposed vegetation is unlikely to disturb any ASS. In addition the soils under application have a low phosphorus retention index and a moderate to extreme risk of wind erosion, given the sandy soil type and proximity to the

coast. The area has a low to nil risk of waterlogging given the combination of rainfall averages and mapped soil type.

Given that the clearing as proposed will result in appreciable wind erosion therefore the clearing as proposed is at variance to this principle.

Methodology References:

Northcote et al. (1968)

GIS Database:

Annual Evaporation Contours (Isopleths) - WRC 29/09/98
Average Annual Rainfall Isohyets - WRC 29/09/98
Esperance Townsite 20cm Orthomosaic - Landgate 07
Hydrographic catchments, catchments - DoW 01/06/07
Hydrographic catchments, subcatchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Salinity Risk LM 25m - DOLA 00
Topographic contours statewide - DOLA and ARMY 12/09/02
Soils, Statewide DA 11/99

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal may be at variance to this Principle**

The Lake Warden wetland suite is listed under Ramsar and ANCA as significant wetlands. Threats to this system include broad scale vegetation clearing, changed hydrology including salinity, pollution and urban encroachment (DEC, 2002b). The clearing is likely to incrementally contribute to the threatening processes affecting the Lake Warden wetlands suites.

Clearing of this remnant will increase fragmentation of the landscape and limit the connectivity of the vegetation in the local area (10km radius) namely between Woody Lake Nature Reserve, DEC covenant and Land for Wildlife sites and the WA coastline.

Given the above the clearing as proposed may be at variance to this principle.

Methodology References:

DEC (2002b)

GIS Database:

ANCA wetlands - Environment Australia 26/3/99
CALM Managed Lands and Waters - CALM 01/06/05
Esperance Townsite 20cm Orthomosaic - Landgate 07
Hydrographic catchments, subcatchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Ramsar wetlands - DEC 03
Register of National Estate - DEWHA 12 Mar 02
System 1 to 5 and 7 to 12 areas - DEC 11/7/06
Topographic contours statewide - DOLA and ARMY 12/09/02

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal is not likely to be at variance to this Principle**

Applied area is not in close proximity to surface water expression areas and removal of 1.9ha of native vegetation is not likely to significantly alter the groundwater resource in the local area.

Given the above the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS database:

Annual Evaporation Contours (Isopleths) - WRC 29/09/98
Average Annual Rainfall Isohyets - WRC 29/09/98
Esperance Townsite 20cm Orthomosaic - Landgate 07
Hydrographic catchments, catchments - DoW 01/06/07
Hydrographic catchments, subcatchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Salinity Risk LM 25m - DOLA 00
Soils, Statewide DA 11/99

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

Comments Proposal is not likely to be at variance to this Principle

The soil within the area under application consists of Quaternary aeolian sands which are free draining.

Given that the application area is small (1.9ha) and the soils are free draining, the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS database:

Annual Evaporation Contours (Isopleths) - WRC 29/09/98
Average Annual Rainfall Isohyets - WRC 29/09/98
Esperance Townsite 20cm Orthomosaic - Landgate 07
Hydrographic catchments, catchments - DoW 01/06/07
Hydrographic catchments, subcatchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Salinity Risk LM 25m - DOLA 00
Soils, Statewide DA 11/99

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

Extractive Industry (EI) Licence and Development Approval are required from the Shire of Esperance. The Shire of Esperance has provided comment on a previous denial to grant an EI licence over this property (DOC90310). The Shire is waiting on additional information from the applicant before a final decision on the current application can be made.

This application is for sand extraction within the EPA Position Statement No. 2 (2000) agricultural area that has been extensively cleared. This is evident when examining the local area which has 30% of vegetation remaining. The proposed clearing does not comply with section 4.2.1 (incremental biodiversity degradation) and 4.2.4 (land degradation), for all clearing within this area, not limited to clearing for the purpose of agriculture.

One Aboriginal Site of Significance exists within the application area, namely Barndi Creek.

Methodology

References:
EPA (2000)

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing is at variance to Principle (g), may be at variance to Principles (a), (b), (e) and (h) and is not likely to be at variance to the remaining clearing Principles.

5. References

- Christensen, P. (1995). Western Brush Wallaby. In R. Strahan (Ed.) The Mammals of Australia. Australian Museum and Reed Books. Chatswood, NSW.
- Department of Environment and Conservation (2002a) Carnaby's Black Cockatoo Recovery Plan 2002-2012 ISSN 0816-9713
- Department of Environment and Conservation (2002b) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Esperance 2 (ESP2 - Recherche subregion).
- Department of Environment and Conservation (2008) Site Visit Report. Native Vegetation Conservation CPS 2209/1. DEC TRIM Ref: 50103.
- Department of Environment and Conservation (2009) Flora and Fauna Advice. Native Vegetation Conservation CPS 3183/1. DEC TRIM Ref: DOC91650
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)

