

Clearing Permit Decision Report

1. Application details

1.1. Permit application de	etails			
Permit application No.:	4285/1			
Permit type:	Purpose Permit			
1.2. Proponent details				
Proponent's name:	Scaddan Energy Pty Ltd			
1.3. Property details				
Property:	Mining Lease 63/192 Mining Lease 63/193 Prospecting Licence 63/1605			
	Prospecting Licence 63/1606			
Local Government Area:	Shire of Esperance			
Colloquial name:	Scaddan Energy Project			
1.4. Application				
Clearing Area (ha)No. Tr0.91	rees Method of Clearing Mechanical Removal	For the purpose of: Mineral Exploration		
1.5. Decision on applicati	ion			
Decision on Permit Application:	Grant			
Decision Date:	19 May 2011			
2. Site Information				
2.1. Existing environment	t and information			
2.1.1. Description of the native Vegetation Description Beard vegetation associations have mapped for the whole of Western Au	ve vegetation under application Clearing Description Scaddan Energy has applie ustralia up to 0.91 hectares within a cytont in a	d to clear Very Good: Vegetation structure altered;	Comment The vegetation condition was determined by the	

regional context. The following Beard vegetation association is located within the application area (GIS Database):

924: Shrublands; mallee scrub, Eucalyptus eremophila & red mallee.

Database). The application area is located approximately 40 kilometres south-west of Salmon Gums (GIS Database).

The purpose of the application is drilling for lignite. The application includes the drilling of five drill holes and access tracks. Clearing will be by mechanical means.

us sign disturbance (Keighery, 1994);

to

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

ing officer using aerial photography.

Assessment of application against clearing principles 3.

(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 application area occurs within the Mallee Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). At a broad scale the vegetation can be described as mainly mallee over myrtaceous-proteaceous heaths on duplex (sand over clay) soils (CALM, 2002).

There have been no detailed vegetation or flora surveys conducted over the application area. Salt Lake ecosystems of the Eastern Mallee subregion are likely to have a high level of species diversity, but lack sufficient survey information to quantify this (CALM, 2002). A search of Naturemap by the assessing officer revealed records of 194 flora species and 21 fauna species within the surrounding 10 kilometres of the application area (DEC, 2011).

There are several records of the Declared Rare Flora Eucalyptus merrickiae within 50 metres of the application area (Blackham Resources, 2011). There are also records of six species of Priority Flora within five kilometres of the application area (DEC, 2011). The presence of these Threatened and Priority listed species increases the diversity values of the vegetation within the local area. As the application area is located within a remnant

of native vegetation it has a higher level of diversity than the surrounding agricultural areas (GIS Database).

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

Methodology Blackham Resources (2011) CALM (2002) DEC (2011) GIS Database: - IBRA WA (Regions – Subregions)

- Scaddan 1.4m Orthomosaic - Landgate 2004

(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**

A search of Naturebase by the assessing officer revealed records of 129 vertebrate and 51 invertebrate fauna species within the surrounding 20 kilometres (DEC, 2011). Removal of remnant vegetation in fragmented landscapes has been shown to severely affect the dispersal and persistence of fauna, especially smaller or less mobile species (Lindenmayer et al., 1999). This is reflected in the records found, with 115 of the 129 vertebrate species being avian species (DEC, 2011).

The remnant in which the application area lies is of a significant size, covering over 10,000 hectares (GIS Database). This remnant has the potential to act as a linkage to several nearby nature reserves (GIS Database). Whilst this may be a significant local remnant, the proposed clearing of 0.91 hectares is not likely to result any significant fragmentation of this remnant.

At a broad scale the vegetation has been described as Shrublands; mallee scrub, *Eucalyptus eremophila* & red mallee (GIS Database). Larger Eucalypts may provide habitat for fauna species and impacts on fauna may be minimised by avoiding any large trees within the application area.

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

Methodology DEC (2011)

Lindenmayer et al. (1999)

GIS Database:

- DEC Tenure

- NLWRA, Current Extent of Native Vegetation

- Pre-European Vegetation

- Scaddan 1.4m Orthomosaic - Landgate 2004

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

Comments Proposal is at variance to this Principle

The application area is located within 50 metres of the Declared Rare Flora (DRF) species *Eucalyptus merrickiae* (Blackham Resources, 2011). A flora survey of the proposed clearing was conducted by Tilo Massenbauer on 25 and 26 of November 2010. Following this survey there is now a total of 296 individuals recorded in the vicinity of the proposed exploration (Blackham Resources, 2011). The proposed clearing will not require the removal of any *Eucalyptus merrickiae* (Blackham Resources, 2011).

Eucalyptus merrickiae is found from loamy depressions around the salt lakes and saline flats mainly east of Truslove to north-east of Mt Ridley (Craig & Coates, 2001). It has a range of approximately 60 kilometres for the known populations, except for a disjunct occurrence 160 kilometres to the east near Israelite Bay (Craig & Coates, 2001). It has been recorded in small numbers making this species vulnerable to impacts from localised disturbance. This species has been ranked in the category of species requiring the highest priority for protection and management within the Esperance district (Craig & Coates, 2001).

Two of the proposed drill holes are located within 10 metres of *Eucalyptus merrickiae* individuals (Blackham Resources, 2011). The other three proposed drill holes are located within 10 to 30 metres of individuals (Blackham Resources, 2011). Whilst the proposed clearing is a relatively small area (0.91 hectares), its close proximity to the DRF may lead to edge effects on these individuals (i.e. spread of weeds, dust, chemicals).

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

Methodology Blackham Resources (2011) Craig & Coates (2001)

(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 According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). There has been no vegetation survey has been conducted over the application area.

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

Methodology GIS Database:

- Threatened Ecological Sites Buffered

(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 is not at variance to this Principle

The application area falls within the Mallee Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 54.63% of the Pre-European vegetation remains (see table) (GIS Database; Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

924: Shrublands; mallee scrub, *Eucalyptus eremophila* & red mallee.

According to Shepherd (2009) over 57% of this Beard vegetation association remains at both a state and bioregional level. This is above the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). Whilst the vegetation at a bioregional level remains above the 30% threshold, the vegetation of the local area (~10 kilometres radius) has been more extensively cleared, mostly for agricultural purposes (GIS Database). Within the local area there is approximately 30% of the Pre-European vegetation remaining (GIS Database). The application area is located within the largest remnant of the local area. Whilst the proposed clearing will remove some vegetation that forms part of a remnant, the clearing of 0.91 hectares is not anticipated to have significant impacts on this remnant.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)*
IBRA Bioregion – Mallee	7,395,897	4,040,546	~54.63	Least Concern	17.97 (31.22)
IBRA Subregion – Eastern Mallee	3,414,181	2,714,848	~79.52	Least Concern	27.33 (34.09)
Local Government – Esperance	4,459,701	3,218,951	~72.18	Least Concern	21.98 (29.93)
Beard veg assoc. – State	-		-	-	-
924	107,612	61,514	~57.2	Least Concern	22.6 (39)
Beard veg assoc. – Bioregion			-		
924	107,515	61,417	~57.1	Least Concern	22.57 (38.93)
Beard veg assoc. – Subregion					
924	107,514	61,417	~57.1	Least Concern	22.57 (38.93)

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered	<10% of pre-European extent remains
Vulnerable	10-30% of pre-European extent exists
Depleted	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology	Department of Natural Resources and Environment (2002) EPA (2000) GIS Database: - IBRA WA (Regions – Sub Regions) - NLWRA, Current Extent of Native Vegetation - Pre-European Vegetation - Scaddan 1.4m Orthomosaic - Landgate 2004
(f) Native associa	vegetation should not be cleared if it is growing in, or in association with, an environment ated with a watercourse or wetland.
Comments	Proposal is at variance to this Principle The application area is located in close proximity to numerous small ephemeral salt lakes (GIS Database). One of the drill pads is located upon one of these salt lakes. The total amount of clearing is 0.91 hectares and the amount of vegetation that is associated with the salt lakes is substantially less than this. Given the relatively small amount of vegetation that will be cleared, there is not likely to be any significant impacts upon the salt lake systems within the local area.
	Based on the above, the proposed clearing is at variance to this Principle.
Methodology	GIS Database: - Hydrography, linear
(g) Native	vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable gradation.
Comments	Proposal is not likely to be at variance to this Principle The application area is located within the Salmon Gums Mallee soil-landscape zone (Tille, 2006). The landforms of the application area are part of the Halbert 1 and 2 subsystems (DAFWA, 2011). The Halbert 1 subsystem is described as gently to undulating plain with many small playas, whilst the Halbert 2 subsystem is described as large level saline playas with associated lunettes on the eastern edges of lakes (DAFWA, 2011). Both of the subsystems have a very low to moderate risk of water erosion (DAFWA, 2011). The application area is relatively flat so there is not likely to be increased runoff leading to erosion as a result of the proposed clearing (GIS Database). There is 17% and 10% of the mapped area of the Halbert 1 and 2 subsystems respectively, that has a very high risk of wind erosion (DAFWA, 2011). Given the small, linear nature of the proposed clearing, there is not expected to be any significant erosion. The soils of the local area are chiefly sandy alkaline yellow and yellow mottle soils and hard alkaline yellow and yellow mottled soils (Northcote et al., 1960 – 68). At a broad scale the surface soil within the application area has a pH of 5.5 – 6.0 (CSIRO, 2009). The removal of 0.91 hectares of native vegetation is not likely to contribute to a rise in the groundwater and salinity. Based on the above, the proposed clearing is not likely to be at variance to this Principle.
Methodology	CSIRO (2009) DAFWA (2011) Northcote et al. (1960 – 68) Tille (2006) GIS Database: - Topographic Contours, Statewide
(h) Native the env	vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on ironmental values of any adjacent or nearby conservation area.
Comments	 Proposal is not likely to be at variance to this Principle The application area is not located within any conservation area or DEC managed lands (GIS Database). It is located within 10 kilometres of the following three C Class Nature reserves (GIS Database): Ridley North Nature Reserve; Ridley South Nature Reserve; and Truslove Nature Reserve. In a highly cleared landscape, any remaining significant remnants of vegetation contribute to ecological linkages between conservation areas. The remnant in which the application area lies is a significant local remnant due to its large size and position in the landscape (GIS Database). The proposed clearing of 0.91 hectares is not expected to significantly impact on the remnants ability to act as an ecological link between the

nature reserves.

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Based on the above, the proposed clearing is not likely to be at variance to this Principle. Methodology GIS Databse: - DEC Tenure - Scaddan 1.4m Orthomosaic - Landgate 2004 Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration (i) in the quality of surface or underground water. Comments Proposal is not likely to be at variance to this Principle The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses within the application area (GIS Database). The application area is located in close proximity to and in one instance upon ephemeral salt lakes. The proposed clearing is not likely to alter the quality of the surface water within these ephemeral salt lakes. The groundwater salinity of the application area is over 35,000 milligrams per litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be hypersaline. Given the groundwater is already hypersaline, the proposed clearing of 0.91 hectares is not likely to cause salinity levels to alter within the local area. Based on the above, the proposed clearing is not likely to be at variance to this Principle. Methodology GIS Database: - Groundwater Saliny, Statewide - Hydrography, linear - Public Drinking Water Source Areas (PDWSAs) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the (j) incidence or intensity of flooding. Comments Proposal is not likely to be at variance to this Principle Given the proximity of the application area to ephemeral salt lakes, it would be expected that some flooding would occur (GIS Database). However, the proposed clearing of 0.91 hectares is not likely to cause an increase in the incidence or intensity of any flooding. The application area is relatively flat so it is not likely that the proposed clearing will lead to increased runoff that would exacerbate flooding outside of the application area (GIS Database). Based on the above, the proposed clearing is not likely to be at variance to this Principle. Methodology GIS Database: - Hydrography, linear - Topographic Contours, Statewide Planning instrument, Native Title, Previous EPA decision or other matter. Comments The clearing permit application was advertised on 11 April 2011 by the Department of Mines and Petroleum inviting submissions from the public. There was one submission received relating to Aboriginal heritage issues. a written response was provided on the matters raised. There is one native title claim over the area under application (GIS Database). This claim (WC96/64) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the Native Title Act 1993 and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the Native Title Act 1993. According to available databases, there is no registered Aboriginal Site of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the Aboriginal Heritage Act 1972 and ensure that no Aboriginal Sites of Significance are damaged through the clearing process. It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works. Methodology GIS Database: - Aboriginal Sites of Significance - Native Title - Registered with the NNTT

4. References

Blackham Resources (2011) Supporting documentation for a clearing permit application. Unpublished report dated 16 March 2011.
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DAFWA (2011) Salmon Gums-Esperance land resource survey, 1:250,000 soil-landscape map and report. Unpublished report for the Department of Food and Agriculture, Western Australia. Available online at: http://spatial.agric.wa.gov.au/slip/products_view.asp_Accessed on 10 May 2011.
DEC (2011) NatureMap - Department of Environment and Conservation and Western Australian Museum. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 10 May 2011).
Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
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.
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Tille. P. (2006) Soil-landscapes of Western Australia's Rangelands and Arid Interior. Technical Report 313. Department of Agriculture and Food, Western Australia. ISSN 1039-7205.

5. Glossary

Acronyms:

BoM CALM DAFWA	Bureau of Meteorology, Australian Government Department of Conservation and Land Management (now DEC), Western Australia Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEP	Department of Environment Protection (now DEC). Western Australia
	Department of Indigenous Affairs
DLI	Department of I and Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC). Western Australia
DolR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). Declared rare and priority flora list for Western Australia, 22 February 2005. Department of Conservation and Land Management, Como, Western Australia} :-

- P1 Priority One Poorly Known taxa: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2 Priority Two Poorly Known taxa: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- **P3 Priority Three Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4 Priority Four Rare taxa: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- **R Declared Rare Flora Extant taxa** (*= Threatened Flora = Endangered + Vulnerable*): taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora Presumed Extinct taxa: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1 Fauna that is rare or likely to become extinct: being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2 Fauna that is presumed to be extinct: being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3 Schedule 3 Birds protected under an international agreement: being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4 Other specially protected fauna: being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.
- {CALM (2005). Priority Codes for Fauna. Department of Conservation and Land Management, Como, Western Australia} :-
- P1 Priority One: Taxa with few, poorly known populations on threatened lands: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2 Priority Two: Taxa with few, poorly known populations on conservation lands: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3 Priority Three: Taxa with several, poorly known populations, some on conservation lands: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4 Priority Four: Taxa in need of monitoring: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- **P5 Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (Environment Protection and Biodiversity Conservation Act 1999)		
EX	Extinct: A native species for which there is no reasonable doubt that the last member of the species has died.	
EX(W)	 Extinct in the wild: A native species which: (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form. 	
CR	Critically Endangered: A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.	
EN	 Endangered: A native species which: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria. 	
VU	 Vulnerable: A native species which: (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria. 	
CD	Conservation Dependent: A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.	