



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4462/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Shark Bay Resources Pty Ltd

1.3. Property details

Property: Shark Bay Solar Salt Industry Agreement Act 1983, Lease 3116/9188 (Document I 126360), Lot 62 on Deposited Plan 220252
Local Government Area: Shire of Shark Bay
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
15.77		Mechanical Removal	Airstrip maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 August 2011

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
Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. One Beard vegetation association has been mapped within the application area (Shepherd, 2009; GIS Database): 112: Hummock grasslands, shrub steppe; <i>Acacia ligulata</i> over <i>Triodia plurinervata</i> .	Shark Bay Resources has applied to clear up to 15.77 hectares of native vegetation to allow the maintenance of an existing airstrip. The vegetation will be cleared using a bulldozer with vegetation stockpiled for use in rehabilitation.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The vegetation condition has been inferred from orthophotos and historical land uses classified using the Keighery (1994) scale.

Mattiske Consulting Pty Ltd (1996) describe the vegetation of the application area as:

Association 9: Low closed to open shrubland with occasional emergent *Acacia ligulata* over *Triodia plurinervata* and/or *Triodia bromoides* on red sand dunes, occasionally with limestone pebbles larger than 20 centimetres, on the lower to upper slopes above birridas.

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 is not likely to be at variance to this Principle

The application area occurs within the Edel (YAL1) subregion of the Yalgoo Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This bioregion is characterised by sand and alluvial plains, low ranges and lakes. Mulga or bowgada shrublands dominate in the east. Western parts include sand plains, heathlands and some Eucalypt shrublands (CALM, 2002).

The vegetation within the application area consists of Beard vegetation association 112, which is common and widespread throughout the Yalgoo bioregion with approximately 99.9% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). Aerial photography suggests that the vegetation type within the application area is common and widespread in the local area (GIS Database).

The application area was mapped by Mattiske Consulting Pty Ltd (1996) as Association 9: comprised of low closed to open shrubland with occasional emergent *Acacia ligulata* over *Triodia plurinervata* and/or *Triodia*

bromoides on red sand dunes, occasionally with limestone pebbles larger than 20 centimetres, on the lower to upper slopes above birridas.

According to available databases there are no known records of Declared Rare Flora, Threatened Ecological Communities or Priority Ecological Communities within the application area or within a 100 kilometre radius of the application area (GIS Database). A search on the Department of Environment and Conservation Declared Rare and Priority Flora databases within a 15 kilometre radius of the application area revealed four Priority flora species outside the application area: *Acacia drepanophylla* (P3), *Lepidium biplicatum* (P2), *Olearia occidentissima* (P2) and *Sondotia glabrata* (P2) (DEC, 2011). The vegetation type within the application area is disturbed and unlikely to provide suitable habitat for these Priority Flora species.

Eight weed species were identified through a search on the Department of Environment and Conservation Declared Rare and Priority Flora databases within a 15 kilometre radius of the application area: Maltese Cockspur (*Centaurea melitensis*), Pimpernel (*Lysimachia arvensis*), Fountain Grass (*Pennisetum setaceum*), Fourleaf Allseed (*Polycarpon tetraphyllum*), False Sowthistle (*Reichardia tingitana*), *Rostraria pumila*, Common Sowthistle (*Sonchus oleraceus*) and False Hawkbit (*Urospermum picroides*) (DEC, 2011). The presence of weed species lowers the biodiversity value of the application area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The application area is located within an area that has been subject to a high degree of disturbance from previous clearing of native vegetation for the purpose of an airstrip. Aerial imagery indicates that the application area is situated adjacent to several salt crystallisation ponds (GIS Database). The aerial imagery demonstrates that the vegetation throughout the application area has been adversely impacted by historic clearing, and as a result the vegetation condition is 'good' (Keighery, 1994; GIS Database).

The previous disturbances that have occurred within the application area as well as the nearby mining activities are likely to have impacted on the biodiversity of the area, which would otherwise be quite high. Given the widespread distribution of higher quality vegetation throughout and off the mining lease area (Mattiske Consulting Pty Ltd, 1996), the vegetation within the application area is unlikely to be considered an area of significant biodiversity.

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

Methodology CALM (2002)
DEC (2011)
Keighery (1994)
Mattiske Consulting Pty Ltd (1996)
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation
- Threatened Ecological Sites Buffered

(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 is not likely to be at variance to this Principle**
No targeted fauna surveys were undertaken within the application area and the fauna habitats present within the application area have not been recorded. The vegetation within the application area has been described by Mattiske Consulting Pty Ltd (1996) as low closed to open shrubland with occasional emergent *Acacia ligulata* over *Triodia plurinervata* and/or *Triodia bromoides* on red sand dunes, occasionally with limestone pebbles large than 20 centimetres, on the lower to upper slopes above birridas.

Mattiske Consulting Pty Ltd (1996) stated that the vegetation association of the application area was common in the local area. As the vegetation and landforms within the application area are common throughout the local region, it would be considered likely that most fauna would be able to relocate into these surrounding areas if present within the application area upon clearing commencing.

There is one conservation significant fauna species listed as either a Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* or protected under Western Australian legislation (*Wildlife Conservation Act, 1950*), that may potentially occur within a 20 kilometre radius of the application area (DEC, 2011). This species; the Peregrine Falcon (*Falco peregrinus*) may use the application area for foraging as part of a larger territory area or as a seasonal visitor. The clearing of 15.77 hectares of native vegetation is not considered to impact the significance of the Peregrine Falcon due to its mobility and wide distribution (Mattiske Consulting Pty Ltd, 1996).

Aerial imagery indicates that the application area is situated adjacent to several salt crystallisation ponds and has been adversely impacted by previous clearing of native vegetation for the existing airstrip (GIS Database). The relatively high degree of disturbance that has occurred within the application area is likely to have impacted on the habitat value for the area.

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

Methodology DEC (2011)
Mattiske Consulting Pty Ltd (1996)
GIS Database:
- Shark Bay 1.4m Orthomosaic - Landgate 2004
- Pre-European Vegetation

(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

According to available databases, there are no records of Declared Rare Flora (DRF) within the application area (GIS Database). A search of the Department of Environment and Conservation's NatureMap database identified no DRF species as occurring within a 20 kilometre radius of the application area (DEC, 2011).

No flora survey has been conducted in the application area, however surrounding areas previously surveyed did not find any DRF (Mattiske Consulting Pty Ltd, 1996).

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

Methodology DEC (2011)
Mattiske Consulting Pty Ltd (1996)
GIS Database:
- Declared Rare and Priority Flora List

(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

A search of the available databases shows that there are no Threatened Ecological Communities situated within 100 kilometres 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:
- 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 Yalgoo IBRA bioregion (GIS Database). The vegetation within the application area is recorded as Beard vegetation association 112: Hummock grasslands, shrub steppe; *Acacia ligulata* over *Triodia plurinervata* (GIS Database; Shepherd, 2009).

According to Shepherd (2009), Beard vegetation association 112 retains approximately 98% of its pre-European extent. Therefore, the area proposed to be cleared is not a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)
IBRA Bioregion - Yalgoo	5,057,314.96	4,990,570.49	~98.68	Least Concern	9.86 (9.86)
IBRA Subregion - Edel	1,558,371.36	1,538,779.60	~98.74	Depleted	27.18 (27.11)
Local Government - Shark Bay	2,410,759.96	2,404,560.36	~99.74	Least Concern	21.45 (21.48)
Beard vegetation associations - State					
112	26,454.24	26,004.39	~98.30	Least Concern	1.07 (1.09)
Beard vegetation associations - Bioregion					
112	5,049.74	5,047.20	~99.95	Least Concern	-
Beard vegetation associations - subregion					
112	5,049.74	5,047.20	~99.95	Least Concern	-

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation

(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 at variance to this Principle

According to available databases, there are no watercourses or wetlands within the application area (GIS Database). The vegetation within the application area is not considered to be growing in association with any watercourse or wetland.

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

Methodology GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Shark Bay 1.4m Orthomosaic - Landgate 2004

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

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

According to the available databases, the application area is primarily comprised of the Edel land system (GIS Database).

The Edel land system is described as undulating sandy plains with occasional dunes, limestone rises and saline flats; low *Acacia* shrublands with some saltbush and heath communities. The land has small areas of outcropping limestone and saline plains with shallow sandy soils and no drainage features. Some areas are susceptible to wind erosion when locally over-used (Payne et al, 1987). The application area already contains an existing airstrip which has regenerating native vegetation. The clearing of 15.77 hectares of native vegetation for the safety maintenance of the airstrip would not cause appreciable land degradation.

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

Methodology Payne et al (1987)
GIS Database:

(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 is not likely to be at variance to this Principle

The proposed application area is not located within any conservation areas (GIS Database). The nearest conservation area is Shark Bay Marine Park, located approximately three kilometres east of the application area (GIS Database). Given that the Shark Bay Marine Park conservation area is aquatic and the area to be cleared is terrestrial, the area proposed for clearing does not provide an important ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

Methodology GIS Database:
- DEC Tenure

(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

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are no permanent watercourses or water bodies within the application area (GIS Database). Any surface water within the application area is likely to only remain for short periods following significant rainfall events as the annual evaporation rate exceeds rainfall (BoM, 2011). The proposed clearing is not likely to cause deterioration in the quality of any surface water within or outside of the application area.

The application area is located within the proclaimed Gascoyne groundwater area under the *Rights in Water and Irrigation Act 1994* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

The application area is situated adjacent to several salt evaporation ponds which are used by Shark Bay Resources for the production of salt. The quality of surface water within the salt evaporation ponds is likely to be considered hyper-saline. Groundwater salinities within the application area have been measured in the range of 3,000-7,000 milligrams/Litre Total Dissolved Solids (GIS Database). The area under application is situated approximately 50-100 metres west of several salt crystallisation ponds which would be considered as hyper-saline. Given the small scale of the proposed clearing and the porosity of the soils, the proposal is unlikely to cause water erosion or subsequent sedimentation and turbidity in nearby water bodies.

Given the low impact nature of the proposed clearing activities, the proposed clearing is not likely to cause deterioration in the quality of any underground water.

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

Methodology BoM (2011)
GIS Database:
- Geodata, Lakes
- RIWI Act, Groundwater Areas
- Hydrography, Linear
- Public Drinking Water Source Areas

(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 application area experiences a semi-arid to Mediterranean climate, with an annual average of approximately 225.7 millimetres per year (CALM, 2001; BoM, 2011). Based on an average annual evaporation rate of 2,400 - 2,800 millimetres (BoM, 2011), any surface water resulting from rainfall events is likely to be relatively short lived.

The small clearing size of 15.77 hectares in comparison to the size of the Coastal catchment area (2,214,353 hectares) (GIS Database) is not likely to lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

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

Methodology BoM (2011)
CALM (2002)
GIS Database:

- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

There is one Native Title claim (WC98/17) over the area under application. 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*.

There are no registered Aboriginal Sites 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.

The clearing permit application was advertised on 11 July 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Methodology

- GIS Database:
- Aboriginal Sites of Significance
 - Native Title Claims - Registered with the NNTT

4. References

- BoM (2011) Climate Statistics for Australian Locations. A Search for Climate Statistics for Denham WA, Australian Government Bureau of Meteorology, viewed 11 August 2011, <http://reg.bom.gov.au/climate/averages/tables/cw_006044.shtml>.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Yalgoo (YAL1 - Edel subregion) Department of Conservation and Land Management, Western Australia.
- DEC (2011) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation, viewed 11 August 2011, <<http://naturemap.dec.wa.gov.au>>.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting Pty Ltd (1996) Flora and Vegetation - Useless Loop Shark Bay, Prepared for John Consulting Services, Prepared by Mattiske Consulting Pty Ltd, September 1996.
- Payne, A.L., Curry, P.J., & Spencer, G.F (1987) Technical Bulletin No. 73 An Inventory and condition survey of rangelands in the Carnarvon Basin, Western Australia. Department of Agriculture, Western Australia.
- Shepherd, D.P. (2009) 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.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	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	Environmental 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** **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** **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** **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.