



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6279/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Redstone Minerals Pty Ltd

1.3. Property details

Property: Mining Lease 52/1063
Local Government Area: Shire of Meekatharra
Colloquial name: Warrawanda Creek Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
40		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 6 November 2014

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:	Warrawanda Creek Project. Redstone Minerals Pty Ltd (Redstone) proposes to clear up to 40 hectares of native vegetation within a total boundary of 141.7 hectares, for the purpose of sand mining. The project is located approximately 21 kilometres south-east of Newman, in the Shire of Meekatharra.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	Vegetation condition was based on available aerial imagery and site photographs provided by the proponent, and converted to the Keighery scale by the assessing officer.
29: Sparse low woodland; mulga, discontinuous in scattered groups; and			The proponent has advised that clearing of native vegetation within the river will be minimal, as sand extraction will occur within non-vegetated sections of the river bed. The clearing permit application is for the clearing of herbs and grasses that occur on these sandy areas, and are naturally removed during inundation events.
216: Low woodland; mulga (with spinifex) on rises.			

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 is located within the Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) region and the Augustus subregion (GIS Database). The Augustus subregion experiences a desert climate with bimodal rainfall, and consists of Mulga woodland with *Triodia* which occur on shallow stony loams on rises, and Mulga parkland which occurs on shallow earthy loams over hardpan plains (Desmond et al., 2001).

A flora and vegetation survey has not been conducted over the application area or surrounding region. Using a 20 kilometre search radius, the Naturemap database returned records for 79 flora taxa (DPaW, 2014). A search by the Department of Environment and Conservation (now the Department of Parks and Wildlife, DPaW) of their Threatened and Priority Flora databases (using a 25 kilometre search radius) identified two Threatened and 11 Priority flora to occur in the region (DEC, 2013; Redstone, 2014). Neither of the two Threatened flora identified (*Lepidium catapycnon* and *Thryptomene wittweri*) are likely to occur within the application area due to the absence of suitable habitat (DEC, 2013; Redstone, 2014).

Based on distribution and available habitat, three Priority flora species have the potential to occur within the application area. *Gymnanthera cunninghamii* (Priority 3) is a large shrub 1 - 2 meters in height (Western

Australian Herbarium, 2014). While it has not been recorded within the Gascoyne region, it has been found in the Pilbara bioregion nearby, occurring in sandy soils within drainage lines and creek lines (Western Australian Herbarium, 2014). It has a wide distribution across the Carnarvon, Great Sandy Desert, and Pilbara regions (Western Australian Herbarium, 2014). *Eremophila rigida* (Priority 3) has been recorded within the Augustus and Hamersley subregions of the Gascoyne and Pilbara IBRA regions, respectively (Western Australian Herbarium, 2014). This species is a bushy shrub that grows 30-40 cm high within red sand alluvium, such as that within the Warrawanda Creek bed, and has been recorded within 20 kilometres of the application area (DPaW, 2014; 2014c). *Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3) is a shrub which grows 1.5 - 2.5 metres in height (Western Australian Herbarium, 2014). This species is distributed across the Pilbara region, and part of the Augustus subregion of the Gascoyne region (Western Australian Herbarium, 2014). Western Australian Herbarium records for this species occur on both red-brown clay loam and red sandy loam within flood plains and alluvial sheet flow drainage areas, on lower slopes or at the bottom of hills and gullies (Western Australian Herbarium, 2014). Sand mining activity is proposed only within mostly un-vegetated sandy areas of the Warrawanda Creek bed, and the proponent will avoid all established vegetation (Austwide, 2014; Redstone, 2014). While it is possible that a small amount of vegetation may be cleared incidentally, the proposed clearing is not likely to have a significant impact on any of the aforementioned flora if they are present.

While no fauna survey has been conducted over the application area, a search of the Naturemap database using a 20 kilometre search radius returned records for 108 birds, two mammals and 28 reptile species (DPaW, 2014). Given that only one habitat type (riverine habitat) is encompassed by the application area, and considering that this riverine habitat extends outside the application boundary (GIS Database), the level of fauna diversity within the proposed clearing is not likely to be significant on a local or regional scale. A search conducted by DPaW for Threatened or Priority fauna in the surrounding region identified a total of 27 conservation significant species which have the potential to occur within the project area and surrounds (DEC, 2013; Redstone, 2014).

According to available databases, the application area does not occur within a Threatened Ecological Community (TEC) or a Priority Ecological Community (PEC) (GIS Database).

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

Methodology Austwide (2014)
DEC (2013)
Desmond et al. (2001)
DPaW (2014)
Redstone (2014)
Western Australian Herbarium (2014)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Threatened Ecological Sites Buffered
- Warrawanda 2850 Aug 2013 Mosaic

(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

The application area occurs over a 6 kilometre section of the Warrawanda Creek, which is a major non-perennial watercourse (GIS Database). According to aerial imagery, the application area is limited to riverine fauna habitat, which appears to be in good condition (GIS Database). Riverine habitat provides important resources for fauna, and may be used for foraging, breeding, roosting and denning by various species. However, riverine habitat appears to be common in the surrounding region (GIS Database) and the portion of habitat which occurs within the proposed clearing is unlikely to represent significant fauna habitat on a local or regional scale.

There are two conservation significant fauna species which have a moderate to high potential of occurrence within the application area (DEC, 2013; DPaW, 2014; Redstone, 2014). The Australian Bustard (Priority 4) is likely to utilise habitat within the Warrawanda Creek for foraging as part of a larger home range. This species is highly mobile, and is not likely to be impacted by the proposed clearing. The Rainbow Bee-eater (Migratory) may potentially use the Warrawanda Creek for foraging, roosting and breeding, but is unlikely to be specifically dependent on the application area. A number of birds protected under international agreements (JAMBA, CAMBA or ROKAMBA) and listed as Migratory may occur in passing within the application area (DEC, 2013; Redstone, 2014), but are unlikely to be specifically reliant on this habitat. Furthermore, the proponent has advised that trees within the proposed clearing boundary will not be cleared, which will preserve an important component of avian habitat within the application area.

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

Methodology DEC (2013)
DPaW (2014)
Redstone (2014)

GIS Database:
 - Warrawanda 2850 Aug 2013 Mosaic

(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 DEC (2013), two Threatened flora, *Lepidium catapycnon* and *Thryptomene wittweri*, occur in the region. However, these are highly unlikely to occur within the application area due to the absence of suitable habitat.

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

Methodology DEC (2013)

(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 available databases indicates that the application area is not likely to occur within a Threatened Ecological Community (TEC) (GIS Database). The nearest TEC occurs approximately 9 kilometres north of the application area and is the Ethel Gorge aquifer stygobiont community (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 Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 99.9% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

The vegetation within the application area has been mapped as Beard vegetation associations 29 and 216 (GIS Database). Over 90% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database). Therefore, the application area does not represent 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 DPaW Managed Lands
IBRA Bioregion - Gascoyne	18,075,219	18,067,441	~99.9	Least Concern	10.30
Beard veg assoc. - State					
29	7,903,991	7,900,200	~99.9	Least Concern	5.23
216	280,759	279,237	~99.5	Least Concern	0.00
Beard veg assoc. - Bioregion					
29	3,802,460	3,799,636	~99.9	Least Concern	7.82
216	254,090	252,864	~99.5	Least Concern	0.00

* Government of Western Australia (2013)

** 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)
 Government of Western Australia (2013)
 GIS Database:
 - Pre-European Vegetation
 - Warrawanda 2850 Aug 2013 Mosaic

(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 may be at variance to this Principle

According to aerial imagery (GIS Database), vegetation within the application area occurs only in association with watercourses, and is therefore considered to be riparian in nature. This vegetation has a low to medium level of ground cover, and appears to be dominated by large shrubs and trees (Redstone, 2014; GIS Database). Furthermore, Naturemap records (DPaW, 2014) show that flora species associated with watercourses, including Mulga (*Acacia* sp.), *Eucalyptus camaldulensis* and *Eucalyptus leucophloia*, have been recorded in the surrounding region and are therefore likely to occur within the application area.

The proposed clearing is for the purpose of sand mining within Warrawanda Creek, and will impact riparian vegetation. However, the vegetation proposed to be cleared is limited to small, ephemeral flora that are naturally removed during flooding events, and Redstone (2014) advise that 2 metre buffer zones will be established around trees and their drip zones within the creek bed. Any disturbance within the creek bed will also be set back at least 3 metres from the creek bank (Redstone, 2014). Using this approach, the vegetation cleared within the application boundary is likely to be minimal. Further impacts to riparian vegetation within and outside the application area may be minimised by the implementation of a watercourse management condition and a restricted clearing condition.

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

Methodology DPaW (2014)
Redstone (2014)
GIS Database:
- Warrawanda 2850 Aug 2013 Mosaic

(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

The application area occurs within the River land system (GIS Database), which contains active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands (Van Vreeswyk et al., 2004). As this land system is stabilised by buffel grass and spinifex cover, the removal of vegetation greatly increases the potential for erosion (Van Vreeswyk et al., 2004). However, established vegetation which serve to stabilise the creek bed will not be cleared under the proposed sand mining operation, and the proposed clearing is therefore unlikely to significantly increase erosion within the application area.

Naturemap (DPaW, 2014) returned records for one weed species, *Malvastrum americanum* (Spiked Malvastrum), within 20 kilometres of the application area. It is likely that additional weed species occur in the area surrounding the proposed clearing, and any of these species have the potential to be spread during clearing activities. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area (DEC, 2011). Potential land degradation and impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology DEC (2011)
DPaW (2014)
Van Vreeswyk et al. (2004)
GIS Database:
- Rangelands Land System Mapping

(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 application area does not lie within any conservation areas (GIS Database). The nearest conservation area is the Collier Range National Park, which is located approximately 102 kilometres south, south-west of the application area (GIS Database). From this distance, the proposed clearing is not likely to impact the environmental values of the Collier Range National Park.

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 does not occur within a Public Drinking Water Source Area (PDWSA), however it is located within the East Murchison groundwater area under the *Rights in Water and Irrigation Act 1914* (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 proposed clearing is situated over a section of the Warrawanda Creek, which is a major ephemeral watercourse subject to inundation (GIS Database). The creek experiences seasonal inundation during extreme rainfall events, such as rain-bearing depressions and cyclones (Redstone, 2014). Disturbance activity within the creek bed will occur during dry periods only, when the creek is not flowing (Redstone, 2014). Furthermore, the proponent has advised that vegetation comprising established shrubs and trees will not be cleared (Austwide, 2014), which reduces the potential for increased soil instability within the watercourse. Using this approach, it is unlikely that the proposed clearing will result in any significant impacts to water quality.

Groundwater salinity in the local area is 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered to be a 'marginal' level of salinity (GIS Database). The proposed clearing activity is not likely to cause deterioration of groundwater within the project area.

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

Methodology Austwide (2014)
Redstone (2014)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- RIWI Act, Groundwater 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 an arid climate with bimodal rainfall patterns, and an annual rainfall of approximately 318 millimetres (Desmond et al., 2001; BoM, 2014). Any water runoff into the application area will be transported downstream via Warrawanda Creek. Therefore, the proposed clearing is not likely to alter the incidence or intensity of flooding within the application area or surrounds.

The application area is located within the Fortescue River Upper catchment area (GIS Database). However, given the size of the area to be cleared (40 hectares) in relation to the size of the catchment area (2,975,192 hectares), the proposed clearing is not likely to increase the potential for flooding in this region (GIS Database).

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

Methodology BoM (2014)
Desmond et al. (2001)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim over the application area (GIS Database). This claim (WC2005/006) has been registered with the 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*.

There are no registered Sites of Aboriginal Significance located in the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Parks and Wildlife 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 29 September 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

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

4. References

- Austwide (2014) Information provided to the assessing officer on 29 October 2014. Austwide Mining Title Management Pty Ltd.
- BoM (2014) Climate Statistics for Australian Locations. Climate Statistics for Australian Locations. A Search for Climate Statistics for Newman Aero, Australian Government Bureau of Meteorology.
http://www.bom.gov.au/climate/averages/tables/cw_007176.shtml (Accessed October 2014).
- DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conservation, Perth.
- DEC (2013) request for Threatened and Priority Flora and Fauna Information. Threatened and Priority flora and fauna search conducted by the Department of Environment and Conservation for Austwide Mining Title Management Pty Ltd.
- Desmond, A., Kendrick, P., Chant, A (2001) Gascoyne 3 (GAS3 - Augustus subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.
- 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.
- DPaW (2014) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife.
<http://naturemap.dpaw.wa.gov.au/default.aspx> (Accessed October 2014).
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Redstone (2014) Mining Proposal M52/1063: 'Warrawanda Creek'. Redstone Minerals Pty Ltd. Submitted by Austwide Mining Title Management Pty Ltd.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A., Hennig, P (2004) An inventory and condition survey of the Pilbara Region, Western Australia, Technical Bulletin No. 92 Department of Agriculture Western Australia, South Perth.
- Western Australian Herbarium (2014) FloraBase - The Western Australian Flora. Department of Parks and Wildlife.
<http://florabase.dpaw.wa.gov.au/> (Accessed October 2014).

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of <i>the Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare

Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorhynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.

Rankings:

CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.

EN: Endangered - considered to be facing a very high risk of extinction in the wild.

VU: Vulnerable - considered to be facing a high risk of extinction in the wild.

- X Presumed Extinct species:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).
- IA Migratory birds protected under an international agreement:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
- S Other specially protected fauna:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3 Priority Three - Poorly-known species:**
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
- P5 Priority Five - Conservation Dependent species:**
Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.