



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6614/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Australian Garnet Pty Ltd

1.3. Property details

Property: General Purpose Lease 70/253
Mining Lease 70/1280
Local Government Area: Shire of Northampton
Colloquial name: Balline Garnet Mine Expansion Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 6 August 2015

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. One Beard vegetation association has been mapped within the application area (GIS Database):

17: Shrublands; *Acacia rostellifera* thicket.

Ecoscope (2009) undertook a flora survey over the application areas on 27 September 2008, and Onshore Environmental (2014) conducted a Level 2 flora survey of the application areas and surrounding area between 5 - 11 October 2013. Based off these surveys three vegetation communities have been identified within the application areas:

2: Planted/partly rehabilitated vegetation next to limestone pit within M70/1280

6a: High Shrubland to Open Scrub *A. rostellifera* over Open Annual Tussock
Grassland of **Avena barbata*, **Bromus rubens*, **Ehrharta longiflora* with Open
Shrubland of *Rhagodia latifolia* var. *latifolia*, *Pimelea microcephala*, *Olearia* sp. indet.

6b: High Shrubland of *A. rostellifera*, *Alyogyne hakeifolia* over Open Annual Tussock
Grassland of **Avena barbata*, **Bromus rubens* over Open Herbland of **Brassica
tournefortii*, **Medicago truncate*.

Clearing Description Balline Garnet Mine Expansion Project

Australian Garnet Pty Ltd proposes to clear up to 50 hectares of native vegetation within a total boundary area of approximately 95.4 hectares for the purposes of mineral production. The proposal is located approximately 32 kilometres south of Kalbarri in the Shire of Northampton.

Vegetation Condition Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);

To

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment The vegetation condition was assessed by botanists from Onshore Environmental (2014).

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 areas occur within the Geraldton Hills subregion of the Geraldton Sandplains Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The vegetation of the subregion is characterised by sand heaths with emergent *Banksia* and *Actinostrobus*, York Gum woodlands on alluvial plains, proteaceous heath and *Acacia* scrubs on limestone depending on depth of coastal-sand mantle, low closed forest of *Acacia rostellifera* (now cleared) on alluvial plains of Greenough and Irwin River (behind beach dune system south of Geraldton) (CALM, 2002).

The vegetation within the application areas consist of Beard vegetation association 17, which is common and widespread throughout the Geraldton Sand Plains bioregion with approximately 80% of the pre-European vegetation extent remaining (Government of Western Australia, 2015; GIS Database). A search of the Department of Parks and Wildlife Declared Rare and Priority Flora databases revealed that one Threatened Flora species and four Priority flora species may occur within a 10 kilometre radius of the application area (DPaW, 2015).

A vegetation survey by Onshore Environmental (2014) of the application areas and surrounding vegetation was undertaken between 5 to 11 October 2013. This survey identified 151 species of flora taxa, from 116 genera, belonging to 54 families. Ecoscape (2009) and Onshore Environmental (2014) identified three vegetation communities within the application areas, with the condition of these vegetation types being 'good' to 'completely degraded' (Keighery, 1994). Ecoscape (2009) and Onshore Environmental (2014) identified no DRF or Priority flora species within the application areas.

There are no known Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) mapped within the application areas (GIS Database). During a flora and vegetation survey, no TECs or PECs were recorded within the application areas (Ecoscape, 2009; Onshore Environmental, 2014). The nearest Threatened or Priority Ecological Community is the Kalbarri Ironstone Community (TEC), which is located approximately 28 kilometres to the north-west of the application areas (GIS Database).

Ten non-endemic species were identified during the flora surveys (Australian Garnet, 2015), these being: Wild Oats (*Avena fatua*); Great Brome (*Bromus diandrus*); Barley Grass (*Hordeum leporinum*); Ruby Dock (*Rumex versicarius*); Pigface (*Carpobrotus edulis*); Canola (*Brassica napus*); Geranium (*Geranium molle*); Pimpernel (*Anagallis arvensis*); Smooth Catsear (*Hypochaeris glabra*); and Sowthistle (*Sonchus oleraceus*). None of these are declared plants under the *Agriculture and Related Resources Protection Act 1976*. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Given the impacts of agricultural activities, the application areas are not likely to support large numbers of fauna species. However, it may form part of an ecological linkage with other remnants that may persist as important fauna habitats and refuges (DEC, 2010).

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

Methodology

Australian Garnet (2015)
CALM (2002)
DEC (2010)
DPaW (2015)
Ecoscape (2009)
Government of Western Australia (2015)
Keighery (1994)
Onshore Environmental (2014)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Threatened and Priority Flora
- 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 may be at variance to this Principle

A Level 1 fauna survey was conducted over the application areas by Ecoscape on 27 September 2008. The field survey identified the following broad habitat types within the application areas (Ecoscape, 2009):

- *Acacia rostellifera* Scrub; and
- *Melaleuca cardiophylla* Heath.

A search of the DEC Threatened and Priority Fauna database revealed 10 species of conservation significance that have been recorded within 30 kilometres of the application area (Australian Garnet, 2015; Ecoscape, 2009).

Whilst some of the species may utilise the application area, it is not likely to represent significant habitat for conservation significant fauna (Ecoscape, 2009).

There is the potential that the application areas may provide an ecological linkage. Most of the surrounding area and parts of the application areas have been cleared and degraded as a result of cropping and grazing activities. This has resulted in the local vegetation being fragmented into remnants. The application areas form part of a larger remnant of vegetation. Whilst the proposed clearing will not remove the entire remnant, it will increase edge effects on the remaining vegetation. The proposed clearing of 50 hectares of vegetation may result in the disruption of fauna corridors in the local area (DEC, 2010).

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

Methodology Australian Garnet (2015)
DEC (2010)
Ecoscape (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

According to available databases, there are no known records of Threatened flora within the application areas (DPaW, 2015; GIS Database). There is a record of the Threatened flora species *Caladenia bryceana* subsp. *cracens* approximately 11 kilometres north of the application areas (GIS Database). South of Kalbarri it is usually found in low heath on limestone hills (DPaW, 2015). It is not likely that suitable habitat exists for conservation significant flora known from the local area (DEC, 2010). A Level 1 flora survey of the application areas was conducted by Ecoscape (2009) on 27 September 2008 and Onshore Environmental (2014) conducted a Level 2 flora survey of the application areas between 5-11 October 2013. These surveys did not record any species listed as Threatened (Australian Garnet, 2015).

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

Methodology Australian Garnet (2015)
DEC (2010)
DPaW (2015)
Ecoscape (2009)
Onshore Environmental (2014)
GIS Database:
- Threatened and Priority Flora

(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 records of Threatened Ecological Communities (TEC's) within the application areas (GIS Database). A Level 1 survey of the application areas was conducted by Ecoscape (2009) on 27 September 2008 and Onshore Environmental (2014) conducted a Level 2 flora survey of the application and surrounding areas between 5-11 October 2013. These surveys did not identify any vegetation communities listed as a TEC (Ecoscape, 2009; Onshore Environmental, 2014).

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

Methodology Ecoscape (2009)
Onshore Environmental (2014)
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 Geraldton Sandplains IBRA bioregion (GIS Database). Approximately 44.9% of the pre-European vegetation in this bioregion remains (Government of Western Australia, 2013) which gives it a conservation status of 'Depleted' according to Department of Natural Resources and Environment (2002).

The vegetation in the application areas are broadly mapped as Beard Vegetation Association 17 (GIS Database):

17: Shrublands; *Acacia rostellifera* thicket.

According to the Government of Western Australia (2015), approximately 88.3% of Beard Vegetation

Association 17 remains at a state level while over 83% of pre-European vegetation remain in the bioregion and sub-region. This vegetation association would be given a conservation status of 'Least Concern' (Department of Natural Resources and Environment, 2002).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPAW Managed Lands
IBRA Bioregion - Geraldton Sandplains	3,136,038	1,408,375	~44.8	Least Concern	~18.2
IBRA Subregion - Geraldton Hills	1,964,263	901,457	~45.9	Least Concern	~18.2
Beard vegetation associations - State					
17	76,634	67,606	~88.2	Least Concern	~11.6
Beard vegetation associations - Bioregion					
17	54,078	45,160	~83.5	Least Concern	~11.2
Beard vegetation associations - Subregion					
17	49,605	42,016	~84.7	Least Concern	~11.2

* Government of Western Australia (2015)

** 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 (2015)
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 likely to be at variance to this Principle**
According to available databases, there are no watercourses or wetlands within the application areas (GIS Database). There is a low surface runoff due to the high infiltration rates associated with the sand and sandy soils present within the application areas (Environ Australia, 2010).

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

Methodology Environ Australia (2010)
GIS Database:
- Hydrography, linear

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

Comments **Proposal may be at variance to this Principle**
The application is located on the Tamala Limestone Unit which overlies the Tumblagooda Sandstone Unit of the Perth Basin (Playford et al., 1976). The landforms of the application areas are part of the Tamala North 1 subsystem, which is described as undulating rises and swales associated with coastal parabolic dunes, featuring some limestone outcrop (DAFWA, 2010).

The soils of the application areas have been broadly described as being calcareous deep sands (DAFWA, 2010). The sandy soils present throughout the application areas are internally draining with no clearly defined drainage lines (Environ Australia, 2010). A limestone ridge area in the north-east of the application areas may generate higher runoff rates than the surrounding areas (Environ Australia, 2010). However, the proposed clearing is not expected to contribute to water erosion as the sandy soils facilitate high infiltration rates.

At a broad scale the surface soil within the application area has a pH of 7.0 - 7.5 and there is no known occurrence of acid sulphate soils (CSIRO, 2013). As the application area is already within a predominantly cleared agricultural landscape, it is not likely that the proposed clearing will contribute to a rise in groundwater table and salinity (DAFWA, 2010).

The sandy soils of the application area may be at risk of wind erosion if left cleared (DAFWA, 2010).

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

Methodology CSIRO (2013)
DAFWA (2010)
Environ Australia (2010)
Playford et al. (1976)
GIS Database:
- IBRA WA (Regions – Sub Regions)

(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 application area is not located within any conservation area or DPAW managed lands (GIS Database). The nearest conservation area is the Utcha Well Nature Reserve located approximately 1.65 kilometres south of the application area (GIS Database). Most of the separating area has been cleared for agriculture and has resulted in the fragmentation of habitat between the southern application area and the nature reserve (GIS Database). Whilst highly mobile species such as birds may not be disrupted, the proposed clearing may disrupt some ecological linkages to the Utcha Well Nature Reserve.

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

Methodology GIS Database:
- DPaW 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 watercourses or wetlands within the application area (GIS Database). The average rainfall for Kalbarri (approximately 32 kilometres north) is 350 millimetres and the average annual evaporation rate is 2,600 millimetres (BoM, 2015; GIS Database). The soils within the application areas have a high infiltration rate so there is likely to be little surface runoff into lower lying areas west of the application areas (Environ Australia, 2010).

The groundwater of the application areas are considered to be fresh to brackish (Environ Australia, 2010; GIS Database). No fresh water lenses are evident at the top of the water table, suggesting rainfall recharge rates are low (Environ Australia, 2010).

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

Methodology BoM (2015)
Environ Australia (2010)
GIS Database:
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 soils of the application areas facilitate high infiltration rates with little surface runoff (Environ Australia, 2010). The annual evaporation rate is over seven times the annual average annual rainfall (BoM, 2015; GIS Database). Despite the application areas being on a sloping sandplain, there is likely to be little surface water runoff. The proposed clearing is not likely to cause an increase in flooding to areas subject to inundation west and south of the application areas (Australian Garnet, 2015; GIS Database).

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

Methodology Australian Garnet (2015)
BoM (2015)
Environ Australia (2010)
GIS Database:
- Evaporation Isopleths
- Hydrography, linear

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

Comments

There is one native title claim over the area under application; WC00/001 (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. 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 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 Regulation, 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 22 June 2015 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology DAA (2015)
GIS Database:
- Aboriginal Sites of Significance

4. References

- Australian Garnet (2015) Balline Garnet Mine Expansion Project Clearing Permit Application. Supporting Information prepared by Australian Garnet Pty Ltd, May 2015.
- BoM (2015) Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalbarri, Australian Government Bureau of Meteorology, viewed 03 August 2015, <http://www.bom.gov.au/climate/averages/tables/cw_012038.shtml>.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, Western Australia.
- CSIRO (2013) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 03 August 2015.
- DAA (2015) Aboriginal Heritage Inquiry System, Government of Western Australia, Department of Aboriginal Affairs, Perth, viewed 03 August 2015 < <http://maps.dia.wa.gov.au/AHIS2/>>.
- DAFWA (2010) Land Degradation Advice for clearing permit application CPS 3891/1. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum. Received 10 March 2010. Department of Agriculture and Food, Western Australia.
- DEC (2010) Advice for clearing permit application CPS 3891/1. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum, received 17 September 2010. Department of Environment and Conservation, Western Australia.
- 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 (2015) NatureMap - Mapping Western Australia Biodiversity, Department of Parks and Wildlife, viewed 03 August 2015, < <http://naturemap.dpaw.wa.gov.au/default.aspx>>.
- Ecoscape (2009) Haddington Resources Balline - Level 1 Flora and Fauna Assessment, Perth, April. Unpublished report for Australian Garnet Pty Ltd dated April 2009.
- Environ Australia (2010) Supporting Information for the Clearing Permit Application for the Balline Resources Garnet Mine M70/1280, L70/134. Unpublished report for Australian Garnet Pty Ltd dated August 2010.
- Government of Western Australia (2015) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). 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.
- Playford, P.E., Cockbain, A.E. and Low, G.H. (1976) Geology of the Perth Basin, Western Australia. Bulletin 124, Geological Survey of Western Australia.
- Onshore Environmental (2014) Balline Garnet Project Level 2 Flora and Vegetation Survey. Prepared for Australian Garnet Pty Ltd November 2013.

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.