

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6802/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Avoca Mining Pty Ltd

1.3. Property details

Property: Mining Lease 15/1792
Local Government Area: Shire of Coolgardie
Colloquial name: Wills Project

1.4. Application

Clearing Area (ha) No. Trees Method of Clearing For the purpose of:

545 Mechanical Removal Mineral Exploration and Mineral Production

1.5. Decision on application Decision on Permit Application: Grant

Decision Date: 3 December 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. Two Beard vegetation associations have been mapped within the application area:

Beard vegetation association 125: Bare areas; salt lakes; and

Beard vegetation association 936: Medium woodland; salmon gum (GIS Database).

A Level 1 flora and vegetation survey conducted by Native Vegetation Solutions (2015) during 25 and 28 August 2015 identified eight vegetation types within the application area:

Mixed Eucalyptus woodland over sclerophyll shrubland

Dominant species were numerous *Eucalyptus* species, *Alyxia buxifolia, Eremophila scoparia, Eremophila ionantha, Olearia muelleri, Westringia rigida, Senna artemisioides* subsp. *filifolia, Eremophila decipiens* subsp. *decipiens* and *Acacia hemiteles;*

Eucalyptus mallee woodland over Spinifex

Dominant species were Eucalyptus griffithsii, E. platycorys, E. oleosa subsp. oleosa, Triodia scariosa, Westringia rigida, Eremophila caperata and Scaevola spinescens;

Riparian shrubland

Dominant species were Melaleuca lateriflora, Grevillea acuaria, Melaleuca thyoides, Jacksonia arida, Tecticornia pergranulata subsp. pergranulata and Darwinia sp. Karonie;

Eucalyptus mallee thicket over sclerophyll shrubland

Dominant species were Eucalyptus urna, E. flocktoniae subsp. hebes, Eucalyptus oleosa subsp. oleosa, Acacia hemiteles, Westringia rigida, Scaevola spinescens, Olearia muelleri and Halgania andromedifolia;

Acacia acuminata shrubland

Dominant species were Acacia acuminata, Eucalyptus torquata, Prostanthera grylloana, Scaevola spinescens, Eremophila alternifolia, Trymalium myrtillus subsp. myrtillus and Chlorocephalum puteale;

Tecticornia shrubland

Dominant species were *Tecticornia indica* subsp. *bidens*, *T. pergranulata*, subsp. *pergranulata*, *Frankenia pauciflora*, and *Gunniopsis quadrifida*.

Acacia shrubland on granite rocky outcrop

Dominant species were Acacia acuminata, Acacia hemiteles, Dodonaea viscosa subsp. angustissima, Prostanthera campbellii, Thryptomene australis subsp. brachyandra and Scaevola spinescens; and

Mixed Eucalyptus woodland over Melaleuca sheathiana

Dominant species were numerous Eucalyptus species, Melaleuca sheathiana, Alyxia buxifolia, Eremophila scoparia, Olearia muelleri and Westringia rigida.

Clearing Description Wills Project.

Avoca Mining Pty Ltd applied to clear up to 545 hectares of native vegetation within a total boundary of approximately 1,087 hectares, for the purpose of mineral exploration and mineral production. The project is

located approximately 74 kilometres south-west of Coolgardie, in the Shire of Coolgardie.

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

To:

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

1994).

Comment

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 Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised the vegetation of Mallees, Acacia thickets and shrub-heaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys. Salt lake support dwarf shrublands of samphire. Woodlands and *Dodonaea* shrubland occur on basic graninulites of the Fraser Range (CALM, 2002).

The flora and vegetation survey by Native Vegetation Solutions (2015) identified a total of 91 flora taxa representing 27 families and 48 genera. Species composition and vegetation types within the application area are typical of the local region and not considered to be unusually diverse (Native Vegetation Solutions, 2015). The area proposed to be cleared is not considered to be remnant vegetation (GIS Database).

A search of the Department of Parks and Wildlife's Threatened and Priority Flora databases revealed no records of Threatened Flora species, and five Priority Flora species within a 5 kilometre radius of the application area (DPaW, 2015). Native Vegetation Solutions (2015) recorded one population of 10 to 15 individuals of *Eutaxia rubricarina* (Priority 3) within the application area. This population is a significant range extension according to available databases, as this population is 170 kilometres east of known locations to the Department of Parks and Wildlife (Native Vegetation Solutions, 2015). Potential impacts to conservation significant flora as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

No Threatened or Priority Ecological Communities were identified within the application area by Native Vegetation Solutions (2015).

No weed species were identified by Native Vegetation Solutions (2015). 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.

There were five fauna habitat types recorded within the application area by Terrestrial Ecosystems (2015). All faunal habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to those found in similar habitat located elsewhere in the region (GIS Database).

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

Methodology CALI

CALM (2002) DPaW (2015)

Native Vegetation Solutions (2015) Terrestrial Ecosystems (2015)

GIS Database

(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

A reconnaissance fauna survey was conducted over the application area on 25 August 2015 by Terrestrial Ecosystems (2015) which mapped five broad habitats within the application area:

- 1 Eucalypt woodland over sclerophyll shrubs over spinifex with varying percentages of ground cover;
- 2 Eucalypt woodland over sclerophyll shrubs with varying percentages of ground cover;
- 3 Samphire flats on the periphery of Lake Lefroy or small clay pans;
- 4 Lake Lefroy; and
- 5 Acacia shrubland on granite outcrops.

The landforms and habitat found within the application area are considered as being well represented in the local region (Terrestrial Ecosystems, 2015). The application area does not contain habitats or faunal assemblages that are ecologically significant, and the fauna assemblage of the study area is considered common and typical of the region and is not specifically dependent on the habitats within the application area (Terrestrial Ecosystems, 2015).

Based on habitat type and previous fauna surveys in the local area, the following species of conservation significance listed as either threatened species under the *Environment Protection and Biodiversity Conservation Act* (EPBC) 1999 or protected under Western Australian legislation (*Wildlife Conservation Act* 1950 (WC)) are likely to occur in the application area (Terrestrial Ecosystems, 2015):

- Malleefowl (Leipoa ocellata) (EPBC Act Vulnerable; WC Act Schedule 1);
- Australian Bustard (Ardeotis australis) (DPaW Priority 4);
- Rainbow Bee-eater (Merops ornatus) (EPBC Act Migratory species; JAMBA, CAMBA); and
- Hooded Plover (*Thinornis rubricollis*) (EPBC Act Migratory species).

Potential habitat exists for the Rainbow Bee-eater within the application area, which is seasonally widespread and common in southern Western Australia, and utilises both natural and degraded habitats (DotE, 2015). This bird could potentially use the application area and adjoining areas for foraging, roosting and possibly breeding; however given the high mobility of this species, it is not likely that the proposed clearing will significantly impact the conservation significance of this species.

The Australian Bustard is known to be highly mobile but may use the application area for foraging as part of a larger territory. Although the Australian Bustard may forage in the area, the application area is not likely to represent significant habitat.

The Hooded Plover may potentially utlise Lake Lefroy which intersects the north-eastern section of the application area. However, the majority of Lake Lefroy exists outside the application area, therefore the proposed clearing is not likely to impact the conservation significance of this species.

Terrestrial Ecosystems (2015) also searched the application area for evidence of Malleefowl. One set of Malleefowl footprints were identified, however no Malleefowl mounds or large areas of suitable habitat for Malleefowl breeding was identified within the application area.

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

Methodology

DotE (2015)

Terrestrial Ecosystems (2015)

GIS Database

(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 area (GIS Database). A search of the Department of Parks and Wildlife's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 5 kilometre radius of the application area (DPaW, 2015).

Based on flora and vegetation surveys conducted by Native Vegetation Solutions (2015), no Threatened Flora species were recorded within the application area.

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

Methodology

DPaW (2015)

Native Vegetation Solutions (2015)

GIS Database

(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 showed that there are no known Threatened Ecological Communities (TEC's) situated within 60 kilometres of the application area (GIS Database).

Based on flora and vegetation surveys conducted by Native Vegetation Solutions (2015), no TEC's were recorded within the application area.

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

Methodology Native Vegetation Solutions (2015)

GIS Database

(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 areas fall within the Pilbara Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). The vegetation within the application areas is recorded as:

Beard vegetation association 125: Bare areas; salt lakes; and

Beard vegetation association 936: Medium woodland; salmon gum (GIS Database).

The above Beard vegetation associations retain approximately 90% or above of their pre-European extent at both the state and bioregion level (Government of Western Australia, 2014). The areas proposed to be cleared are not a significant remnant of native vegetation.

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

Methodology Government of Western Australia (2014)

GIS Database

(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 at variance to this Principle

According to available databases, the north section of the application area is partially located within Lake Lefroy. This is a large ephemeral salt lake which is surrounded by Chenopod/Samphire vegetation common throughout the local and regional area (Native Vegetation Solutions, 2015; GIS Database). As Lake Lefroy is only likely to inundate following significant rainfall or cyclonic events, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland provided natural surface water flow patterns are not disturbed. Potential impacts to riparian vegetation may be minimised through the implementation of a vegetation management condition.

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

Methodology Native Vegetation Solutions (2015)

GIS Database

(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

According to the available datasets the application area intersects the Lefroy, Lake Bed and Lakeside land systems (GIS Database). The application area partially sits within a salt lake where wind erosion at lake margins may be exacerbated by loss of stabilising perennial shrubs (Waddell et al., 2010).

The proposal to clear 545 hectares of native vegetation is considered to be a relatively large area and may lead to land degradation through soil erosion. Although typical surface runoff would be minimal given the climate (BoM, 2015), high rainfall events may cause short-term erosion through the transportation of sediments in surface flows. Potential impacts from land degradation as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology BoM (2015)

Waddell et al (2010) 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 application area is not located within any conservation area (GIS Database). The nearest conservation area Dordie Rocks Nature Reserve, located approximately 8 kilometres south-west of the application area (GIS Database).

Given the distance of the application area from Dordie Rocks Nature Reserve, the proposed clearing is not likely to provide a significant 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

(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 (GIS Database). The application area is located within the proclaimed Goldfields 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 annual evaporation rate exceeds the annual average rainfall for Coolgardie (BoM, 2015; GIS Database). Any surface water within the application area is likely to only remain for short periods following significant rainfall events. 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 has a groundwater salinity that is hypersaline (>35,000 milligrams/Litre Total Dissolved solids (TDS)) (GIS Database). With high annual evaporation rates and low annual rainfall, there is little recharge into regional groundwater. The proposed clearing is unlikely to further deteriorate the quality of underground water (GIS Database).

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

Methodology B

BoM (2015) GIS Database

(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 climate of the region is arid to semi-arid, with approximately 200 to 300 millimetres of rainfall, sometimes in summer but usually in winter, per year (CALM, 2002). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002). Temporary localised flooding may occur during heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.

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

Methodology

CALM (2002) GIS Database

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

There are no Native Title claims over the area under application (Department of Aboriginal Affairs, 2015; 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 Aboriginal Sites of Significance within the application area (Department of Aboriginal Affairs, 2015). 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 26 October 2015 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received stating that there were no planning issues with the proposed clearing.

Methodology Department of Aboriginal Affairs (2015)

4. Assessor's recommendations

Comment / recommendation

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, and the proposed clearing is at variance to Principle (f), may be at variance to Principle (g), is not likely to be at variance to Principles (a), (b), (c), (d), (h), (i), and (j), and is not at variance to Principle (e).

5. References

BoM (2015) Climate Statistics for Australian Locations. A Search for Climate Statistics for Coolgardie, Australian Government Bureau of Meteorology, viewed 4 November 2015,

http://reg.bom.gov.au/climate/averages/tables/cw_012018.shtml.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, Western Australia.

Department of Aboriginal Affairs (2015) Aboriginal Heritage Enquiry System. Government of Western Australia, viewed 4 November 2015 http://maps.dia.wa.gov.au/AHIS2/>.

Department of the Environment (DotE) (2015) Merops ornatus - Rainbow Bee-eater. Available online at

http://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=670. Accessed 30 November 2015.

DPaW (2015) NatureMap Department of Parks and Wildlife, viewed 4 November 2015 http://naturemap.dec.wa.gov.au.

Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, 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.

Native Vegetation Solutions (2015) Level 1 Flora and Vegetation Survey of the Proposed Wills Project Tenement M15/1792
Prepared for Metals X Limited, Avoca Resources Pty Ltd, Higginsville Gold Operation. September,
2015.

Terrestrial Ecosystems (2015) Level 1 Vertebrate Fauna Risk Assessment for the Wills Project. Prepared for Native Vegetation Solutions, September 2015.

Waddell, P A, Gardner, A K, and Hennig, P. (2010) *An inventory and condition survey of the Western Australian part of the Nullarbor region*. Department of Agriculture and Food, Western Australia. Technical Bulletin 97, 413p.

6. 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 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

PEC Priority Ecological Community, Western Australia

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:

{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 DPaW according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorynchus latirostris* is specially protected under the

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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.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare 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.
- (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.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (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.
- (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the

(j)	quality of surface or underground water. Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerba incidence or intensity of flooding.	te, the
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