

# **Clearing Permit Decision Report**

# 1. Application details

1.1. Permit application details					
Permit application No.:	6644/1				
Permit type:	Purpose Permit				
1.2. Proponent details					
Proponent's name:	Avoca Mining Pty Ltd				
1.3. Property details					
Property: Local Government Area: Colloquial name:	Mining Lease 15/31 Mining Lease 15/231 Mining Lease 15/348 Mining Lease 15/352 Mining Lease 15/375 Mining Lease 15/610 Mining Lease 15/748 Shire of Coolgardie				
-	Fairplay Project				
1.4. Application					
Clearing Area (ha) No. 1 177.66	Trees         Method of Clearing         For the purpose of:           Mechanical Removal         Mineral Production				
1.5. Decision on application					
Decision on Permit Application:	Grant				
Decision Date:	20 August 2015				

# 2. Site Information

Vegetation Description

# 2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

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 (Government of Western Australia, 2014; GIS Database):

- 8: Medium woodland; salmon gum & gimlet

A level one flora and vegetation survey has been undertaken over the application area by Native Vegetation Solutions (2015), which recorded six vegetation groups across the application area, which are:

### Salmon Gum Woodland

Dominant species were Eucalyptus salmonophloia, E. salubris, Melaleuca sheathiana, Atriplex nummularia subsp. spathulata, Eremophila interstans subsp. virgata, Maireana sedifolia, Cratystylis conocephala and Olearia muelleri.

### Eucalyptus ravida woodland

Dominant species were Eucalyptus ravida, E. flocktoniae subsp. hebes, Eremophila scoparia, E. maculata subsp. brevifolia, Atriplex nummularia subsp. spathulata, and Olearia muelleri.

### Eucalyptus flocktoniae over Melaleuca sheathiana

Dominant species were Eucalyptus flocktoniae subsp. hebes, Melaleuca sheathiana, Atriplex nummularia subsp. spathulata, Eremophila interstans subsp. virgata, Maireana sedifolia, Cratystylis conocephala and Olearia muelleri.

### Melaleuca sheathiana thicket

Dominant species were Melaleuca sheathiana, Atriplex vesicaria, Sclerolaena diacantha, Maireana georgei, Solanum nummularium, and Angianthus tomentosus.

### Mixed Eucalyptus woodland over mixed shrubland

Dominant species were numerous Eucalyptus species, Eremophila scoparia, E. interstans subsp. virgata, Atriplex vesicaria and A. nummularia subsp. spathulata.

#### Clearing Description

Fairplay Project

Avoca Mining Pty Ltd (Avoca) proposes to clear 177.66 hectares of native vegetation within a total boundary of approximately 178 hectares for the purpose of mineral production. The project is located approximately 51

kilometres north of Norseman, in the Shire Coolgardie.

Vegetation Condition

То

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

Comment

The vegetation condition was determined by botanists from Native Vegetation Solutions (2015).

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

## 8. 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). The Eastern Goldfields subregion is characterised by calcareous earths that cover much of the plains and greenstone areas (CALM, 2002). A series of playa lakes in the western half are the remnants of an ancient major drainage line (CALM, 2002). The vegetation is of mallees, Acacia thickets and shrubheaths on sandplains (CALM, 2002). Diverse Eucalypt woodlands occur around salt lakes, on ranges and in valleys (CALM, 2002).

A total of six vegetation communities have been mapped across the application area (Native Vegetation Solutions, 2015). The most dominant vegetation community was the Salmon Gum woodland community, which accounted for approximately 71% of the application area (Native Vegetation Solutions, 2015). None of the vegetation communities mapped within the application area represent Threatened or Priority Ecological Communities (Native Vegetation Solutions, 2015).

Native Vegetation Solutions (2015) has recorded a total of 73 plant species in the application area from 37 genera and 19 families. There were no Threatened flora species identified in the application area (Native Vegetation Solutions, 2015).

One Priority three species; *Diocirea acutifolia*, was recorded at multiple locations within the application area. This species is widespread and in large numbers through the local and regional area and is well documented by previous flora surveys (Native Vegetation Solutions, 2015). NatureMap (DPaW, 2015) confirms that this species has been recorded in around the Coolgardie, Kambalda and Norseman area. Given this species is found outside of the application area, the proposed clearing is not likely to significantly impact on this species.

Three introduced plant taxa were recorded in the application area (Native Vegetation Solutions, 2015). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

According to NatureMap (DPaW, 2015), there are 119 fauna species records within 20 kilometres of the application area, consisting of 65 bird, 38 reptile, 11 mammal, 3 invertebrate and 2 amphibian species. According to Native Vegetation Solutions (2015), the broad habitat types recorded in the application area are widespread in the region, therefore the application area is not considered to represent an area or relatively higher fauna diversity.

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

Methodology CALM (2002) DPaW (2015) Native Vegetation Solutions (2015) GIS Database: - IBRA WA (Regions - Sub Regions)

# (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

Terrestrial Ecosystems (2015) has undertaken a habitat assessment and reconnaissance survey over the application area, and identified one broad habitat type: mixed eucalypt woodland over mixed sclerophyll shrubland with or without chenopods. The condition of this habitat type ranged from poor to good, but not considered to provide high quality habitat (Terrestrial Ecosystems, 2015).

Terrestrial Ecosystems (2015) has not undertaken a detailed fauna survey over the application area, however they have identified 21 conservation significant fauna species that are potentially found in the region. The majority of these species have not been recently recorded in the vicinity of the application area, however based on habitat preference and distribution, the following may occur within the application area:

- Malleefowl (Leipoa ocellata) Schedule 1 under Wildlife Protection Act 1950 (WC Act), Vulnerable under Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);
- Rainbow Bee-eater (Merops ornatus) Schedule 3 under WC Act, Migratory under EPBC Act
- Fork-tailed Swift (Apus pacificus) Schedule 3 under WC Act, Migratory under EPBC Act
- Western Rosella (Platycercus icterotis xanthogenys) DPaW Priority 4
- Shy Heathwren (Hylacola cauta whitlocki) DPaW Priority 4
- Crested Bellbird (Oreoica gutturalis gutturalis) DPaW Priority 4

The Malleefowl occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation (Department of the Environment (DotE), 2015). The breeding habitat of the Malleefowl, within its home range, is characterised by light soil and an abundant leaf litter which is used in the construction of mounds (DotE, 2015). Terrestrial Ecosystems (2015) did not record any evidence (eg. tracks or mounds) of Malleefowl in the application area and there is limited high quality habitat available. The proposed clearing is unlikely to significantly impact on this species.

The proposed clearing are unlikely to impact on the remaining species as they are considered highly mobile and would likely move to adjacent undisturbed habitat.

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

## Methodology DotE (2015) Terrestrial Ecosystems (2015)

# (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 datasets, there are no known records of Threatened flora within the application area (GIS Database). The nearest record of Threatened flora is located approximately 43 kilometres south-east of the application area (GIS Database).

The flora assessment undertaken by Native Vegetation Solutions (2015) did not identify any Threatened flora 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: - 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 known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is located approximately 238 kilometres west of the application area. Native Vegetation Solutions (2015) did not identify any TECs in the flora assessment of 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: - 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 Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database) in which approximately 97.96% of pre-European vegetation remains (Government of Western Australia, 2013). This gives it a conservation status of 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation within the application area is recorded as Beard vegetation association:

- 8: Medium woodland; salmon gum & gimlett

Beard vegetation association 8 retains approximately 50% of pre-European extent at the state level and approximately 98% the bio-region level (Government of Western Australia, 2014).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Land
IBRA Bioregion - Coolgardie	593,837	585,749	~99	Least Concern	22.43
Beard vegetation associations - State					
8	694,638	346,569	~50	Depleted	6.94
Beard vegetation associations - Bioregion					
8	280,248	275,589	~98	Least Concern	9.72

\* Government of Western Australia (2014)

\*\* Department of Natural Resources and Environment (2002)

Although Beard vegetation association 8 is considered depleted at the State level, it will remain above the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000).

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

Methodology Department of Natural Resources and Environment (2002) EPA (2000) Government of Western Australia (2014) GIS Database: - IBRA WA (Regions - Sub Regions)

- 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 wetlands or watercourses within the application area (GIS Database).

Native Vegetation Solutions (2015) did not record any vegetation growing in association with a wetland or watercourse within the application area.

Methodology Based on the above, the proposed clearing is not at variance to this Principle Native Vegetation Solutions (2015) 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	<b>Proposal may be at variance to this Principle</b> The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006). Soils comprise calcareous loamy earths and red loamy earths with salt lakes soils and some red/brown hardpan shallow loams and red sandy duplexes (Tille, 2006).	
	The proposal to clear 177.66 hectares of native vegetation is considered to be a relatively large area and may lead to land degradation through soil erosion. According to Northcote et al (1960 -1968), the application area is within an area of sandy soils which can be susceptible to wind 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.	
	The application area has an annual average evaporation rate of approximately eight times the annual average rainfall (BoM, 2015; GIS Database). Based on this information, surface flows during normal rainfall events are likely to be short lived and recharge to groundwater would be considered minimal. This would reduce the likelihood of salinity increasing as a result of the proposed clearing.	
	Based on the above, the proposed clearing may be at variance to this Principle.	
Methodology	BoM (2015) Northcote et al (1960 – 1968) Tille (2006) GIS Database: - Evaporation Isopleths	
	vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on	
	rironmental values of any adjacent or nearby conservation area.	
Comments	<b>Proposal is not likely to be at variance to this Principle</b> The application area is not located within any conservation areas. The nearest conservation area is Binaronca Nature Reserve, which is located approximately four kilometres north-west of the application area (GIS Database). Aerial imagery shows continuous vegetation around the reserve, therefore the proposed clearing is not likely to disrupt any linkages to the reserve (GIS Database). Given the distance between the application area and Binaronca Nature Reserve, the proposed clearing is not likely to impact on the conservation area.	
	Based on the above, the proposed clearing is not likely to be at variance to this Principle.	
Methodology	GIS Database: - DPaW Tenure	
	vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration quality of surface or underground water.	
Comments	<b>Proposal is not likely to be at variance to this Principle</b> According to available databases the application area is not located within a Public Drinking Water Source Area (GIS Database).	
	There are no permanent water bodies or watercourses within the application area.	
	The climate of the area is arid to semi-arid with rainfall that usually occurs in winter but sometimes occurs in summer (CALM, 2002). The application area receives an average annual rainfall of approximately 309 millimetres with an average annual evaporation rate of between 2,400 and 2,800 millimetres (BoM, 2015; GIS Database). Any surface flows are therefore likely to be short lived.	
	Groundwater salinity in the local area is estimated to be between 14,000 – 35,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered saline (GIS Database). The proposed clearing is not likely to significantly alter groundwater salinity levels within the application area.	
	Based on the above, the proposed clearing is not likely to be at variance to this Principle.	
Methodology	BoM (2015) CALM (2002) GIS Database: - Evaporation Isopleths - PDWSAs - Salinity - Statewide	

- 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

With an average annual rainfall of 309 millimetres and an average annual evaporation rate of between 2,400 and 2,800 millimetres there is likely to be little surface flow during normal seasonal rains (BoM, 2015; GIS Database). Whilst large rainfall events may result in flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology BoM (2015) GIS Database: - Evaporation Isopleths

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

## Comments

There is one native title claim (WC1999/002) over the application area (Department of Aboriginal Affairs, 2015). 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 20 July 2015 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

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

## 4. References

- BoM (2015) Climate Statistics for Australian Locations. A Search for Climate Statistics for Norseman Airport, Australian Government Bureau of Meteorology. http://www.bom.gov.au.
- 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. http://maps.dia.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.
- DotE (2015) *Leipoa ocellata* (Malleefowl) in Species Profile and Threats Database. Department of the Environment. Canberra. http://www.environment.gov.au/sprat. Accessed 3 August 2015.
- DPaW (2015) NatureMap Mapping Western Australia Biodiversity. Department of Parks and Wildlife. Western Australia. http://naturemap.dec.wa.gov.au/default.aspx. Accessed 14 August 2015.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. 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 Fairplay Pit and Waste Landform Expansion and Development – Higginsville (M15/031, M15/231, M15/348, M15/352, M15/375, M15/610 and M15/748).

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Terrestrial Ecosystems (2015) Level 1 Vertebrate Fauna Risk Assessment for the Fairplay Pit and Waste Landform Expansion and Development. Unpublished report prepared for Native Vegetation Solutions.

Tille. P. (2006) Soil-landscapes of Western Australia's Rangelands and Arid Interior. Technical Report 313. Department of Agriculture and Food, Western Australia. ISSN 1039-7205.

# 5. Glossary

## Acronyms:

BoM DAA DAFWA DEC DER DMP DRF	Bureau of Meteorology, Australian Government Department of Aboriginal Affairs, Western Australia Department of Agriculture and Food, Western Australia Department of Environment and Conservation, Western Australia (now DPaW and DER) Department of Environment Regulation, Western Australia Department of Mines and Petroleum, Western Australia 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
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## **Definitions:**

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

## 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 *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.

### 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.

P4