



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6823/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Avoca Mining Pty Ltd

1.3. Property details

Property: Mining Lease 63/515
Local Government Area: Shire of Dundas
Colloquial name: Mt Henry Mine Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 24 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. Three Beard vegetation associations are located within the application area (GIS Database):

Beard vegetation association 125: Bare areas; salt lakes

Beard vegetation association 221: Succulent steppe; saltbush; and

Beard vegetation association 3106: Medium woodland; salmon gum & Dundas blackbutt.

Seven vegetation communities have been described within the Mt Henry project area (Mattiske, 2013):

Woodlands

W1: Woodland to open woodland of *Eucalyptus dundasii*, *Eucalyptus torquata* and other mixed *Eucalyptus* spp. over *Melaleuca sheathiana*, *Exocarpos aphyllus*, *Scaevola spinescens*, *Alyxia buxifolia*, *Eremophila glabra* subsp. *glabra* and *Pomaderris forrestiana* over *Westringia rigida* and *Ptilotus obovatus* on orange-brown clayey loam with gravel on slopes and ridges.

W2: Woodland of *Eucalyptus urna*, *Eucalyptus lesouefii* and *Eucalyptus oleosa* subsp. *oleosa* and other mixed *Eucalyptus* spp. over *Melaleuca sheathiana*, *Exocarpos aphyllus*, *Scaevola spinescens* and *Eremophila scoparia* over *Olearia muelleri* and *Westringia rigida* on orange sandy clayey loam on flats and slopes. Variation exists within the midstorey and understorey of this community, ranging in foliage cover from very sparse and almost non-existent to thickets. Generally, where thickets of *Melaleuca sheathiana* occur, other understorey species become sparse. Small pockets of dense *Cratystylis conocephala* also exist throughout the community.

W3: Woodland to open woodland of *Eucalyptus kumarlensis* and *Eucalyptus griffithsii* over *Bossiaea walkeri*, *Alyxia buxifolia*, *Trymalium myrtillus* subsp. *myrtillus*, *Grevillea acuaris* sensu lato, *Beyeria lechenaultii* and *Scaevola spinescens* over *Hibbertia ?pungens*, *Lepidosperma sanguinolentum* and *Rytidosperma setaceum* on orange sand and sandy loam-gravel on upper slopes with ironstone outcropping.

Shrublands

S1: Open low shrubland of *Eremophila scoparia*, *Scaevola spinescens* and *Eremophila glabra* subsp. *glabra* over *Atriplex vesicaria*, *Tecticornia* spp., *Frankenia desertorum* and *Disphyma crassifolium* subsp. *clavellatum* with emergent *Eucalyptus* spp. on orange-brown sandy clay-loam on flats, lower slopes and mid slopes of salt lake margins.

S2: Open low shrubland to low shrubland of *Tecticornia* spp., *Lawrenzia squamata*, *Hemichroa diandra*, *Atriplex nana*, *Frankenia* spp. and *Disphyma crassifolium* subsp. *clavellatum* on pale sands on flats around salt lake margins.

S3: Scrub of *Acacia jibberdingensis*, *Melaleuca uncinata*, *Grevillea anethifolia*, *Allocasuarina campestris* and *Acacia ?burkittii* over *Beyeria sulcata* var. *brevipes* and *Alyxia buxifolia* with occasional emergent *Eucalyptus loxophleba* subsp. *lissophloia* over sparse mixed herbs on orange sandy loams around granite outcropping on slopes, flats and micro channels. The community changes to an open low woodland of *Eucalyptus loxophleba* subsp. *lissophloia* in areas associated with micro channels and between the granite outcropping and salt lake.

S4: Open scrub to scrub of *Acacia ?burkittii* and *Allocasuarina campestris* with occasional *Acacia neurophylla* subsp. *neurophylla* and occasional emergent *Eucalyptus griffithsii* over *Dodonaea microzyga* var. *acrolobata*, *Trymalium myrtillus* subsp. *myrtillus*, *Scaevola spinescens* and *Dampiera latealata* over *Lepidosperma* sp. *aff lyonsii* and small annual and perennial herbs on red to brown clayey loam on flats, slopes, valleys and micro channels.

Clearing Description	Mt Henry Mine Avoca Mining Limited proposes to clear up to 450 hectares of native vegetation within a total boundary of approximately 455 hectares, for the purpose of mineral production. The project is located approximately 15 kilometres south of Norseman in the Shire of Dundas.
Vegetation Condition	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994). To: Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).
Comment	The proposed activity (mineral production) involves the development of new open pits, waste dumps, roads, stockpiles, run of mine, office areas, lay downs, workshop and other required supporting infrastructure. The final site layout is not yet known and the exact location and/or amount of clearing is yet to be determined. This being the case, the environmental values of the entire clearing permit boundary have been assessed. The condition of the vegetation under application was determined via a flora and vegetation survey conducted by Mattiske Consulting Pty Ltd (2013).

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 may be at variance to this Principle**

The application area is located within the Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation for Australia bioregion (GIS Database). The subregion is characterised by Mallees, *Acacia* thickets and shrub-heaths on sandplains (CALM, 2002). Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. Woodlands and *Dodonaea* shrubland occur on basic granulites of the Fraser Range. The area is rich in endemic *Acacias* (CALM, 2002).

Seven vegetation communities were identified within the application area and surrounding area (the Mt Henry Project area). These communities bear resemblance to regional vegetation of the Great Western Woodlands and are typical of salt lake vegetation with low chenopod shrublands on salt lake fringes graduating into woodlands with mixed *Eucalyptus* spp. (Mattiske, 2013). The proposed clearing is not anticipated to have considerable detrimental effects on vegetation values at a regional level (Mattiske, 2013).

The majority of the vegetation within the Mt Henry Project area (~70%) is considered to be in 'Excellent' condition (Mattiske, 2013). The remaining vegetation, around existing pits and commonly used tracks, ranged from 'Degraded' to 'Good' condition (Mattiske, 2013).

With the exception of the patchily distributed granite outcrops, the fauna habitats present within the application area are generally widespread in the subregion (Western Wildlife, 2013).

No Threatened Ecological Communities (TECs) are known within the application area and none occur within 100 kilometres (GIS Database). A Priority Ecological Community (PEC) "Allocasuarina globosa assemblages on greenstone rock" is located approximately 3 kilometres north of the application area. No TECs or PECs were identified within the application area during the flora and vegetation survey (Mattiske, 2013).

Seven priority flora species consisting of one Priority 2, six Priority 3 and one possible Priority 1 species (yet to be positively confirmed) were present within the Mt Henry Project area. All Priority flora species recorded in the project area also occur outside the mining tenements, with all species occurring in the Brockway Timber Reserve to the north of the Mt Henry survey area (Mattiske, 2013). The Priority 1 specimen not yet identified is thought to be *Eucalyptus jimberlanica*. This species was recorded within the S1 vegetation community south of the proposed Mt Henry pit (Mattiske, 2013).

Although all Priority flora taxa recorded or identified during the flora and vegetation survey have distributions beyond the Mt Henry Project area, the Department of Parks and Wildlife (DPaW) have advised that four taxa have highly restricted distributions around Norseman, largely on live mining tenements, in particular *Eucalyptus jimberlanica* (P1), *Eremophila purpurascens* (P3) and *Eucalyptus brockwayi* (P3) (DPaW, 2015a). The application area is also at the southern extent of the range of these taxa. These taxa require particular consideration, not only with respect to potential impacts from this proposal, but also with respect to potential cumulative impacts from mining in the local area (DPaW, 2015a). *Philothea apiculata* (P2) is only known from a timber reserve with a live mining tenement and based on the limited available information, although this species is known from a broader range than the previously mentioned species, there is the potential for clearing impacts to reduce the known extent of the species. Any impacts on the populations of these four Priority flora species within the application area are potentially significant to the conservation of the species at both the local and regional scale (DPaW, 2015a).

Based on the flora survey data and the number of individuals recorded in the local area, *Goodenia laevis* subsp. *laevis* (P3) and *Cyathostemon* sp. *Salmon Gums* (P3) may also be significantly impacted by the

proposed clearing, as there is a potential for the proportional impacts to be locally significant (DPaW, 2015a). Potential impacts to the abovementioned six Priority flora species as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

Eight introduced flora (weed) species have been recorded within the local area, none of which are declared weed species. 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.

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

Methodology CALM (2002)
DPaW (2015a)
Matiske (2013)
Western Wildlife (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European vegetation
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments Proposal may be at variance to this Principle

A Level 2 fauna survey was conducted over the application area and surrounding Mt Henry project area. The November 2012 survey recorded a total of one frog, 44 reptile, 74 bird and 20 mammal species and identified the local area as having the potential to support a wide range of vertebrate species (Western Wildlife, 2013).

The fauna survey identified nine main habitats (Western Wildlife, 2013):

- Salt lake;
- Samphire on sandy lake edges;
- Saltpans;
- Shrubland on rocky ridges;
- Eucalypt woodland on rocky ridges;
- Eucalypt woodland on plains;
- Eucalypt woodland on sandy saltpan edges; and
- Granite outcrops

These habitats are generally widespread in the subregion; however granite outcrops are much less common and occur as isolated patches (Western Wildlife, 2013). Short Range Endemic (SRE) invertebrate species have been known to occur in association with granite outcrops (EPA 2009), although the amount of granite impacted by the proposed southern pit is relatively small and is part of a much larger outcrop that occurs to the west. There is also a granite outcrop to the west of the proposed northern pit that will not be impacted.

Nine fauna 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)*) have been recorded or have been identified as potentially occurring within the application area (DPaW 2015b; Western Wildlife, 2013):

- Rainbow Bee-eater (*Merops ornatus* - Marine; Migratory) - Recorded;
- Common Sandpiper (*Tringa hypoleucos* - Migratory);
- Common Greenshank (*Tringa nebularia* - Migratory);
- Red-necked Stint (*Calidris ruficollis* - Migratory) – Recorded nearby
- Sharp-tailed Sandpiper (*Calidris acuminata* - Migratory);
- Curlew Sandpiper (*Calidris ferruginea* - Migratory);
- Chuditch (*Dasyurus geoffroyi* - Vulnerable);
- Peregrine Falcon (*Falco peregrinus* – Schedule 7) – Recorded; and
- Malleefowl (*Leipoa ocellata* - Vulnerable)

The Department of Parks and Wildlife (DPaW) advised that the lake and shoreline parts of the application area may be used by migratory bird species and that there may be a reduction of foraging and breeding habitat (DPaW, 2015c). The Red-necked Stint, Common Sandpiper, Common Greenshank, Sharp-tailed Sandpiper and Curlew Sandpiper are all migrants that may occur in low numbers on Lake Dundas and saltpans during the summer months (Western Wildlife, 2013). Given the relatively small amount of salt lake and shoreline habitat to be cleared and that extensive amounts of similar salt lake habitat occurs in the local area, significant impacts to migratory species are considered unlikely.

Chuditch were not recorded during the fauna survey, however there has been recent anecdotal reports of Chuditch in the area with at least one road kill reported in the local area (DPaW, 2015c). The proponent has developed an environmental management plan for a separate mining area that will be implemented for the Mt Henry Mine Project.

The Rainbow Bee-eater is another migratory species and is a breeding visitor to the application area (Western Wildlife, 2013). The Rainbow Bee-eater is a common species that migrates southwards in summer to breed and utilises a range of habitats, but favours lightly wooded areas near water. South of the Tropic of Capricorn, breeding usually occurs between October and December, with the eggs laid in a burrow (Western Wildlife, 2013), although the breeding season extends from August to January (DotE, 2015). The burrow is dug on flat or angled sandy ground, including alongside tracks and roads with adults and newly fledged juveniles remaining at the breeding area for another 2-3 weeks (DPaW, 2015c).

The Rainbow Bee-eater was recorded within the application area during both the November 2012 and February 2013 fauna surveys, with one nesting burrow observed in 2012 (Western Wildlife, 2013). The Rainbow Bee-eater has a large range and a large population that appears to be stable (Western Wildlife, 2013). The Department of Parks and Wildlife (DPaW) has advised that the Rainbow Bee-eater is unlikely to be significantly impacted by the proposed clearing as they breed across a large portion of the State, however individuals will be impacted if clearing of nesting burrows occurs while they are in use, with the potential destruction resulting in loss of eggs and mortality of chicks and adult birds (DPaW, 2015c). The proponent has committed to inspect known burrow sites prior to any clearing activities. Potential impacts to Rainbow Bee-eater breeding sites as a result of the proposed clearing may be further minimised by the implementation of a fauna management condition, which restricts clearing activities during the breeding season.

The Peregrine Falcon is not confined to a specific habitat and can be found everywhere from woodlands to open grasslands and coastal cliffs and therefore is unlikely to be reliant on the vegetation under application.

The Mt Henry project area has been surveyed for the presence of Malleefowl. Surveys identified seven old (at least 25 years or older) Malleefowl mounds within the Mt Henry project area (Western Wildlife, 2013). No active mounds or evidence of live animals were observed, however it is not known if any Malleefowl currently utilise the area (Western Wildlife, 2013), although based on survey results, it appears as though Malleefowl no longer occur in the area. The Department of Parks and Wildlife (DPaW) has advised that it is possible that there are Malleefowl and active or more recently used mounds (< 25 years) within the unsurveyed portions of the application area but targeted systematic surveys would be required. It is also possible that Malleefowl have stopped using the area for nesting due to previous disturbance from past mining and exploration activities (DPaW, 2015c). Prior to clearing, the proponent has committed to inspecting areas to be cleared for the presence of Malleefowl mounds.

Priority listed fauna species, recognised by the Department of Parks and Wildlife as being of conservation significance, recorded within or within close proximity to the application area include the Hooded Plover (*Charadrius rubricollis* - P4), Inland Western Rosella (*Platycercus icterotis xanthogenys* - P4) and the Crested Shrike-tit (*Falculculus frontatus* - P4).

Due to the highly mobile or migratory nature of the above listed Priority fauna species, impacts to these species as a result of the proposed clearing are likely to be negligible. Local fauna species known from the area, such as the Carpet Python (*Morelia spilota imbricata*), Crested Bellbird (*Oreoica gutturalis gutturalis*) and Shy Heathwren (*Hylacola cauta whitlocki*) are unlikely to be significantly impacted, as extensive amounts of suitable habitat remains in the local area.

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

Methodology DotE (2015)
DPaW (2015a)
DPaW (2015b)
DPaW (2015c)
EPA (2009)
Western Wildlife (2013)

(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 species of Threatened flora known to occur within the application area and only one Threatened flora species (*Allocasuarina globosa*) is known within 10 kilometres of the application area. (GIS Database; DPaW, 2015b). *Allocasuarina globosa* was identified as possibly occurring within the application area; however no Threatened flora species were recorded during a flora and vegetation survey over the application area and surrounding area (Mattiske, 2013).

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

Methodology DPaW (2015b)
Mattiske (2013)
GIS Database
- Threatened and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposal is not at variance to this Principle

According to available datasets, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). A flora and vegetation survey of the application area and surrounding areas did not identify the presence of any TECs or communities similar to that of any known TECs (Mattiske, 2013).

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

Methodology Mattiske (2013)

GIS Database:

- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Ecological Communities Boundaries

(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 occurs within the Coolgardie Interim Biogeographic Regionalisation of Australia bioregion, in which approximately 98% of the pre-European vegetation remains (see table below) (GIS Database; Government of Western Australia, 2014).

Two Beard vegetation associations have been mapped within the application area (GIS Database). As the below table illustrates, all are well represented, retaining at least 93% of pre-European vegetation within the state and bioregion (Government of Western Australia, 2014). Given the amount of vegetation remaining in the local area and bioregion, the vegetation proposed to be cleared is not considered to represent a remnant within an extensively cleared area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	~ 98	Least Concern	~ 15.9
Beard veg assoc. - State					
125	3,485,787	3,146,498	~ 90	Least Concern	~ 9.0
221	63,720.06	59,923.05	~ 94	Least Concern	~ 17.1
3106	52,660.80	51,602.81	~ 98	Least Concern	~ 7.6
Beard veg assoc. - Bioregion					
125	545,718	506,803	~ 93	Least Concern	~ 6.6
221	19,497.70	19,304.66	~ 99	Least Concern	~ 10.1
3106	52,659.62	51,601.68	~ 98	Least Concern	~ 7.6

* Government of Western Australia (2014)

** 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 (2014)

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 at variance to this Principle

Two minor non-perennial watercourses intersect and a small part of Lake Dundas is located within the application area (GIS Database). Lake Dundas extends along the south eastern boundary of the application area, where a section (~56 ha) intercepts the application area. According to GIS mapping systems, Lake Dundas has an extent of approximately 6,886 hectares but is part of a larger lake system that is approximately 44,000 hectares. Large salt lakes are common to the local area and region (GIS Database). Lake Dundas is not listed on the directory of important wetlands in Australia (DotE, 2015) and the vegetation communities identified within the Mt Henry Project area are typical of salt lake vegetation with low chenopod shrublands on salt lake fringes graduating into woodlands with mixed Eucalyptus spp. (Mattiske, 2013).

The application area is situated within a peninsula type offshoot of Lake Dundas at its northern extent. Although the final site layout is not yet known and the exact location and/or amount of clearing is yet to be determined, the proposed pit locations do not extend into areas considered to be part of the salt lake and remaining mine infrastructure is situated to the west and north of fringing vegetation associated with Lake Dundas. However, it is likely that the proposed clearing will result in the clearing of some fringing vegetation growing in association with a wetland. Where possible, the clearing of riparian vegetation should be avoided. Potential impacts to vegetation growing in association with a watercourse or wetland as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.

A number of Priority flora species have been recorded within the fringing vegetation zone (Mattiske, 2013). These species may also be impacted by the proposed clearing. Potential impacts to Priority flora species growing in association with Lake Dundas may be minimised by the implementation of a flora management condition.

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

Methodology DotE (2015)
Mattiske (2013)
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

Three land systems have been mapped within the application area; Lake Bed, Lawrence and Coolgardie (DAFWA, 2015).

The soils of the Coolgardie land system are quite prone to soil erosion if disturbed and native vegetation is removed (DAFWA, 2015). The Lake Bed land unit is devoid of vegetation and is very resistant to land degradation (DAFWA, 2015).

The majority of the application area falls within the Lawrence land system. Although the soils of this land system are generally resistant to erosion under pastoral use, due to the topography of the area (slopes ranging from 4-5%) the removal of native vegetation, surface disturbance and altered surface water hydrology will trigger erosion (DAFWA, 2015).

While parts of the application area are prone to erosion, DAFWA (2015) considers that soil erosion can be managed by the implementation of appropriate management practises, including rehabilitation of the disturbed areas post mining. Potential land degradation as a result of the proposed clearing may be further minimised by the implementation of a staged clearing condition and a watercourse management condition.

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

Methodology DAFWA (2015)

(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 or adjacent to any conservation areas (GIS Database). An un-named Timber Reserve abuts the northern boundary of the application. This reserve is vested with the Conservation Commission of Western Australia and managed by the Department of Parks and Wildlife. The closest conservation area (Dundas Nature Reserve) is situated approximately 14 kilometres east (GIS Database).

Given that the local area is well vegetated, with large amounts of intact native vegetation remaining, the proposed clearing is unlikely to impact on the environmental values of adjacent or nearby conservation areas.

Based on the above, the proposed clearing is not likely to 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).

Lake Dundas extends along the eastern boundary of the application area, where a portion of the application area (~56 ha) lies within the lake. Lake Dundas is a large salt lake, with an extent of approximately 6,886 hectares and may hold water depending on seasonal rainfall.

Although the final site layout is not yet known and the exact location and/or amount of clearing is yet to be

determined, the proposed pit locations do not extend into areas considered to be part of the salt lake and do not block areas that may be depended on infill from the larger Lake Dundas area (Mattiske, 2013). Minor localised altered flow regimes and increased sedimentation may result from the proposed clearing activities. Potential impacts to surface water quality as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.

The application area has a groundwater salinity that is brackish to saline (14000 – 35000 milligrams/Litre Total Dissolved solids) (GIS Database). The proposed clearing of up to 450 hectares of native vegetation within an area that has extensive amounts of vegetation remaining, is unlikely to result in any significant impacts to groundwater quality.

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

Methodology GIS Database:
- Groundwater Salinity, Satewide
- 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 Coolgardie region has an arid to Semi-arid climate, with a mean rainfall of approximately 300 millimetres, falling predominately in the winter months, with evaporation far exceeding rainfall (CALM, 2002; BoM, 2015).

The proposed clearing is located within the Balladonia Catchment which has an area of approximately 3,481,034 hectares (GIS Database). Extensive clearing of native vegetation may increase the potential for small scale, localised flooding events, however given the climate of the region, sloping topography, proximity to Lake Dundas and the large amount of remaining vegetation in the local area, the proposed clearing is unlikely to result in a significant increase in the incidence or intensity of flooding.

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

Methodology BoM (2015)
CALM (2002)
GIS Database:
- Hydrographic Catchments – Catchments

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

Comments

There is one native title claim over the application area (WC1999/002) (GIS Database; DAA, 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 Sites of Aboriginal Significance located in the area applied to clear (GIS Database; DAA, 2015). 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 16 November 2015 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology DAA (2015)

4. References

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- 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) *Merops ornatus* in Species Profile and Threats Database, Department of the Environment, Canberra.

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DPaW (2015a) Flora Advice for CPS 6823/1 & CPS 6824/1. Department of Parks and Wildlife, Species and Communities Branch, Kensington, Western Australia.

DPaW (2015b) NatureMap, Department of Parks and Wildlife <<http://naturemap.dec.wa.gov.au>>.

DPaW (2015c) Fauna Advice for CPS 6823/1 & CPS 6824/1. Department of Parks and Wildlife, Species and Communities Branch, Kensington, Western Australia.

EPA (2009) Guidance Statements for the Assessment of Environmental Factors. Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia, No. 20. Environmental Protection Authority, Perth, Western Australia.

Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. 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.

Mattiske (2013) Flora and Vegetation Survey of the Mt Henry Survey Area. *Supporting Information for CPS 6823/1*. Mattiske Consulting Pty Ltd. Kalamunda, Western Australia.

Western Wildlife (2013) Mt Henry Area Baseline Fauna Survey: Level 2 Fauna Survey 2012 & 2013 – Final Report. *Supporting Information for CPS 6823/1*. Western Wildlife, Mahogany Creek, Western Australia.

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
TEC	Threatened Ecological Community

Definitions:

{DPaW (2015) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
Published as Specially Protected under the *Wildlife Conservation Act 1950*, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife

Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

- EN Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- VU Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- EX Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.
- IA Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- CD Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- OS Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3 Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations 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 locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
- 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 are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.