Government of Western Australia
Department of Mines, Industry Regulation and Safety

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

| | |
|---|---|
| **Permit application No.:** | 8549/1 |
| **Permit type:** | Purpose Permit |

### 1.2. Proponent details

| | |
|---|---|
| **Proponent's name:** | **Evolution Mining (Mungari) Pty Ltd** |

### 1.3. Property details

| | |
|---|---|
| **Property:** | Mining Lease 15/829<br>Mining Lease 15/1827<br>Miscellaneous Licence 15/387 |
| **Local Government Area:** | Shire of Coolgardie |
| **Colloquial name:** | Cutters Ridge |

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 86.5 | | Mechanical Removal | Mineral Production and Haul Road |

### 1.5. Decision on application

| | |
|---|---|
| **Decision on Permit Application:** | Grant |
| **Decision Date:** | 28 November 2019 |

## 2. Site Information

### 2.1. Existing environment and information

*2.1.1. Description of the native vegetation under application*

**Vegetation Description**

The vegetation of the application area is broadly mapped as the following Beard vegetation associations:
9: Medium woodland; coral gum (*Eucalyptus torquata*) and goldfields blackbutt (*Eucalyptus lesouefii*); and
540: Succulent steppe with open low woodland; sheoak over saltbush (GIS Database).

A flora and vegetation survey was conducted over the application area by Phoenix Environmental Sciences Pty Ltd (Phoenix) during 13-15 June and 2-9 October, 2018. The following vegetation associations were recorded within the application area (Phoenix, 2019a):

***Tecticornia* shrublands**

**MhTiDc:** Isolated tall *Melaleuca halmaturorum and Grevillea sarissa* subsp*. sarissa* shrubs over low *Tecticornia indica* subsp. *bidens*, *Tecticornia doliiformis* and *Tecticornia pruinosa* chenopod shrubland over isolated low *Disphyma crassifolium*, *Calandrinia ?quartzitica* (P1) and *Sclerolaena* spp. forbs.

**Mosaic of *Tecticornia* species shrublands**: Various *Tecticornia* shrublands occurring on the salt lake playa.

**Low chenopod shrublands**

**CsAvDc:** Isolated mid *Cratystylis subspinescens*, *Pimelea microcephala* and *Senna artemisioides* subsp. *filifolia* shrubs over low *Atriplex vesicaria*, *Tecticornia* sp. (sterile 1) and *Roycea divaricata* shrubland over isolated low *Disphyma crassifolium*, *Brachyscome ciliaris* and *Vittadinia dissecta* var. *hirta* forbs.

**Shrublands**

**AbDlPo:** Tall *Acacia burkittii* shrubland over sparse to open mid *Dodonaea lobulata*, *Acacia tetragonophylla* and *Eremophila oldfieldii* shrubland over isolated low *Ptilotus obovatus*, *Scaevola spinescens* and *Olearia pimeleoides* shrubs.

**CpEsEd:** Isolated low *Casuarina pauper* trees over mid open *Eremophila scoparia*, *Dodonaea viscosa* and *Rhagodia drummondii* shrubland over isolated low shrubs to low open *Eremophila decipiens* subsp. *decipiens*, *Ptilotus obovatus* and *Enchylaena tomentosa* shrubland.

***Eucalyptus* woodlands**

**EcEsOm:** Mid *Eucalyptus clelandiorum* and *Eucalyptus oleosa* subsp. *oleosa* woodland over isolated mid *Eremophila scoparia*, *Exocarpos aphyllus* and *Senna artemisioides* subsp. *filifolia* shrubs to open shrubland over isolated low *Olearia muelleri*, *Ptilotus obovatus* and *Westringia rigida* shrubs to low open shrubland.

**EcDlOm:** Mid *Eucalyptus clelandiorum* woodland with other *Eucalyptus* trees, frequently *Eucalyptus celastroides* subsp. *celastroides* or *Eucalyptus griffithsii,* over isolated shrubs to mid open *Dodonaea lobulata*, *Eremophila scoparia* and *Exocarpos aphyllus* shrubland over isolated low to sparse *Olearia muelleri, Ptilotus obovatus* and *Westringia rigida* shrubland.

**EsEsAb:** Mid *Eucalyptus salmonophloia* and *Eucalyptus salubris* woodland over mid *Eremophila scoparia*, *Senna artemisioides* subsp. *filifolia* and *Exocarpos aphyllus* shrubland over low open *Atriplex bunburyana*, *Maireana trichoptera* and *Ptilotus obovatus* shrubland.

**ElEaAv:** Mid *Eucalyptus longicornis* woodland with *Eucalyptus clelandiorum* and *Eucalyptus griffithsii* trees over mid to tall open *Exocarpos aphyllus*, *Eremophila glabra* and *Senna artemisioides* subsp. *filifolia* shrubland over isolated low *Atriplex vesicaria*, *Ptilotus obovatus* and *Rhagodia drummondii* shrubs.

**EtEsOm:** Mid *Eucalyptus transcontinentalis* woodland with other *Eucalyptus* trees frequently *Eucalyptus clelandiorum* and *Eucalyptus salubris* over mid open *Atriplex nummularia*, *Eremophila scoparia* and *Senna artemisioides* subsp. *filifolia* shrubland over isolated low *Olearia muelleri*, *Eremophila parvifolia* subsp. *auricampa* and *Ptilotus obovatus* shrubs.

**Clearing Description**

Cutters Ridge.
Evolution Mining (Mungari) Pty Ltd proposes to clear up to 86.5 hectares of native vegetation within a boundary of approximately 235.296 hectares, for the purpose of mineral production and haul road. The project is located approximately 20 kilometres west of Kalgoorlie-Boulder, within the Shire of Coolgardie.

**Vegetation Condition**

Pristine: No obvious signs of disturbance (Keighery, 1994).

To:

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

**Comment**

The vegetation condition was derived from a vegetation survey conducted by Phoenix (2019).

The proposed clearing is for development of the Cutters Ridge Gold Mine and a new haul road which will extend from the existing Mungari haul road to the Run-of-Mine (ROM) Pad at Cutters Ridge.

## 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 clearing permit application area is located within the Eastern Goldfields subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Coolgardie Bioregion (GIS Database). The Eastern Goldfields subregion is characterised by undulating plains interrupted by low hills and ridges, supporting mallees, *Acacia* thickets and shrub-heaths on sandplains, and diverse *Eucalyptus* woodlands around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. The subregion is rich in endemic *Acacia* species (CALM, 2002).

The application area falls within the area known as the Great Western Woodlands, which represents the largest and most intact eucalypt woodland remaining in southern Australia and is one of the best examples of its type in the world (DEC, 2010). The Great Western Woodlands covers a total area of approximately 16 million hectares, and is recognised for its flora and fauna species richness and high number of endemic flora species (DEC, 2010). However, at approximately 86.5 hectares in size, the clearing permit application area represents less than 0.001% of the area covered by the Great Western Woodlands, and the proposed clearing is unlikely to have any significant impact on the conservation values of the Great Western Woodlands.

A vegetation assessment of the application area was conducted by Phoenix (2019a) during 13-15 June and 2-9 October 2018 (Phoenix, 2019a; Talis, 2019a). The vegetation of the application area was dominated by open *Eucalyptus* woodlands, shrublands, and *Tecticornia* and chenopod shrublands associated with salt lakes. Vegetation types described within the application area were all represented in surrounding areas, indicating a wider distribution. No Threatened or Priority Ecological Communities were identified as potentially occurring in the application area and the field assessment of the application did not record any (Phoenix, 2019a; Talis, 2019a; GIS Database).

A desktop assessment of the application area and surrounds identified a total of 884 flora taxa, including 48 conservation significant species (two Threatened, 17 Priority 1, six Priority 2, 19 Priority 3 and four Priority 4), within 40 kilometres of the application area (Phoenix, 2019a). Nine conservation significant species were identified as possibly occurring in the application area due to the presence of suitable habitat. A total of 215 flora species from 81 genera and 36 families were recorded within the application area and surrounding areas during the field assessment (Phoenix, 2019a). Of the nine conservation significant species identified in the desktop as possibly occurring, four priority flora were recorded during the field survey of the application area and surrounding areas (Phoenix, 2019a; Talis, 2019a). *Allocasuarina eriochlamys* subsp. *grossa* (P3) was recorded within the EcDlOm vegetation type with 165 individuals recorded outside of the application area (Phoenix, 2019a; Talis, 2019a). *Austrostipa blackii* (P3) was recorded within the AbDlPo vegetation type within 50 metres of the application area (Phoenix, 2019a; Talis, 2019a). *Eremophila praecox* (P1) was recorded

within the EtEsOm vegetation type with three individuals recorded at two locations outside of application area approximately eight kilometres north (Phoenix, 2019a; Talis, 2019a). *Calandrinia* ?*quartzitica* / *Calandrinia* ?*lefroyensis* (P1) was recorded within vegetation type MhTiDc on the boundary of the application area (Phoenix, 2019a; Talis, 2019a). Although all records of these species exist outside of the application area, all four species have the potential to occur within the application area due to suitable habitat being present. The occurrence of all recorded priority flora represent new populations of the species (DBCA, 2019). The populations of *Allocasuarina eriochlamys* subsp. *grossa* (P3), *Eremophila praecox* (P1) and *Calandrinia* ?*quartzitica* / *Calandrinia* ?*lefroyensis* (P1) also represent range extensions and are considered to be significant to the conservation of the species (DBCA, 2019). However, the proposed clearing is unlikely to have a significant impact on the local and regional populations of *Allocasuarina eriochlamys* subsp. *grossa* (P3), *Austrostipa blackii* (P3) and *Eremophila praecox* (P1) due to their existence outside of the application area and all vegetation associations being well represented in the wider area. Given the limited information available from the field survey, the close proximity of the population to the proposed clearing and the very limited populations known to exist of *Calandrinia* ?*quartzitica* / *Calandrinia* ?*lefroyensis* (P1), further information on the local population was required to determine the significance of the impact of the proposed clearing on the species.

To confirm the identity and determine the extent and size of the population, a targeted survey of *Calandrinia* ?*quartzitica* / *Calandrinia* ?*lefroyensis* (P1) was requested. Spectrum Ecology conducted a targeted search during 6-8 November 2019 which identified 253 individuals from three local populations and confirmed the identity of the species as *Calandrinia lefroyensis* (P1) (Spectrum Ecology, 2019). Two of the local populations will not be impacted by the proposed clearing, with the proposed haul road dissecting the third population (Spectrum Ecology, 2019). Ten plants were recorded within the application area, representing 4% of the total plants recorded and 10% of the population dissected by the haul road (Spectrum Ecology, 2019). Disturbance to surface water flows were also considered and were considered unlikely to effect the *Calandrinia lefroyensis* (P1) population (AQ2, 2019; Talis, 2019b). The proposed clearing is unlikely to have a significant impact on the local population.

Seven species of weeds were recorded during the field assessment of the application area and surrounding areas, however none were declared pest species or listed weeds of national significance (Phoenix, 2019a). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. Potential impacts to biodiversity as a result of the introduction of weeds may be minimised by the implementation of a weed management condition.

A desktop assessment of the application area and surrounds identified a total of 274 fauna species as potentially occurring in the application area, including 38 mammals, 158 birds, 72 reptiles and six amphibians (Phoenix, 2019b; Talis, 2019a). The desktop assessment identified 22 conservation significant fauna species with the potential to occur within the application area including, 14 migratory birds (with two of these species also listed as Priority or Threatened), seven Threatened fauna species, one other specially protected species and two priority species (Phoenix, 2019b; Talis, 2019a). Of the 22 conservation significant fauna species with the potential to occur within the application area six were determined as unlikely to occur due to the absence of suitable habitat or due to a historical decline in the species resulting in a regional extinction (Phoenix, 2019b; Talis, 2019a). Seventy five fauna species, including 52 birds, 13 reptiles and 10 mammals (3 introduced), were recorded during the field survey conducted between 2 and10 October 2018, representing approximately 27% of the total species potentially occurring within the area (Phoenix, 2019b; Talis, 2019a). Three species were recorded during the field survey that were not identified by the desktop. Malleefowl (*Leipoa ocellata*) listed as Vulnerable at both State and Federal level, was recorded during the field assessment of the application area and surrounds, including one individual sighted in shrubland habitat and one old mound (of age unknown but egg fragments present within the mound) recorded in a small narrow patch of thick tall shrub (Phoenix, 2019b; Talis, 2019a). The sighting and mound were approximately one kilometre apart and were both recorded outside of the application area (Phoenix, 2019b; Talis, 2019a). Potential impacts to malleefowl as a result of the proposed clearing may be minimised by the implementation of a fauna management condition.

Forty-three Short Range Endemic (SRE) invertebrate fauna were identified as potentially occurring in the application area, including two conservation significant species: the arid bronze azure butterfly, *Ogyris subterrestris petrina* (CR at both State and Federal level); and inland hairstreak, *Jalmenus aridus* (P1) (Phoenix, 2019b; Talis, 2019a). However, no SRE fauna were recorded during the field survey (Phoenix, 2019b; Talis, 2019a).

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

**Methodology**

AQ2 (2019)
CALM (2002)
DBCA (2019)
DEC (2010)
Phoenix (2019a)
Phoenix (2019b)
Talis (2019a)
Talis (2019b)

GIS Database:
- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers
- Threatened Fauna

**(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**

The following four broad fauna habitats have been recorded within the application area and surrounds (Phoenix, 2019b; Talis, 2019a):

**Open eucalypt woodland:** Structure and species diversity often variable, though often comprising of scattered eucalypts to 15 metres over mixed large shrubs to 3 metres, when present, over mixed small to medium shrubs to 2 metres, and occasionally sparse grasses to 0.5 metres on clay loam to gravelly clay loam substrate. The majority of the application area was comprised of the open eucalypt woodland habitat type.

**Shrubland:** Consisting of a mosaic of differing structures and density, shrubland comprised of mixed shrub species up to 3 metres, often dominated by *Acacia* and/or *Casuarina* species, with density ranging from open shrubland to scattered sparse areas of dense vegetation with understorey ranging between areas of open to dense medium to tall shrub cover on clay loam to gravelly clay loam substrate.

**Chenopod shrubland:** Dominated by *Tecticornia* species with height and density variable, though often low (<.3 metres) and open. Occasionally with scattered isolated individual or small patches of small to medium shrubs on clay loam substrates. Often on low lying plain areas that are inundated following rainfall events. Some areas, particularly close to edges of salt lakes, inundated at time of field survey.

**Saltlake:** Salt lake with vegetation largely absent with the exception of individual or small patches of small *Tecticornia* shrubs, particularly on shorelines where salt lake transitions into chenopod shrubland. Largely inundated following rainfall prior and during the field survey. The saltlake habitat type was only present in the surrounding areas and was not recorded within the application area.

Malleefowl (*Leipoa ocellata*, VU at both state and federal level) were recorded during the field assessment of the application area and surrounds, including one individual being sighted in shrubland habitat and one old mound (of age unknown but egg fragments present within the mound) recorded in a small narrow patch of thick tall shrub (Phoenix, 2019b; Talis, 2019a). Small isolated patches of suitable nesting habitat were recorded within the application area, however it is more likely that malleefowl would be nesting outside the application area where numerous patches of suitable habitat were observed (Phoenix, 2019b; Talis, 2019a). The open eucalypt woodland and shrubland habitat types were considered suitable foraging habitat and may represent significant habitat if malleefowl are nesting in the vicinity (Phoenix, 2019b; Talis, 2019a).

The saltlake and associated fringing chenopod shrubland habitat within the application area may provide suitable foraging and possibly roosting habitat for one Priority 4 species, the hooded plover (*Thinornis rubricollis*) and 12 migratory shorebirds and waterbirds (Phoenix, 2019b; Talis, 2019a). The migratory shorebirds and waterbirds include: oriental pratincole, *Glareola maldivarum*; common sandpiper, *Actitis hypoleucos*; sharp-tailed sandpiper, *Calidris acuminata*; sanderling, *Calidris alba*; curlew sandpiper, *Calidris ferruginea* (also CR at both state and federal level); pectoral sandpiper, *Calidris melanotos*; red-necked stint, *Calidris ruficollis*; long-toed stint, *Calidris subminuta*; grey-tailed tattler, *Tringa brevipes* (also P4 at state level); wood sandpiper, *Tringa glareola*; common greenshank, *Tringa nebularia*; and glossy ibis, *Plegadis falcinellus* (Phoenix, 2019b; Talis, 2019a). The habitat value is considered highest following rainfall events when the area is inundated, however none of the species were observed during the field survey which occurred when the area was inundated (Phoenix, 2019b; Talis, 2019a). The application area is unlikely to represent significant foraging habitat, although it may still be utilised, as similar habitat occurs in surrounding areas and is likely to be extensive within the lake system during inundation events (Phoenix, 2019b; Talis, 2019a). The presence of roosting habitat is also probably considered to be too small to accommodate migratory shorebirds in nationally significant numbers (Phoenix, 2019b; Talis, 2019a). In addition two birds; peregrine falcon, *Falco peregrinus* (OS); and fork-tailed swift, *Apus pacificus* (MI), were identified as potentially utilising the application area, however due to their broad habitat preferences and highly mobile nature, they are unlikely to be significantly impacted by the proposed clearing (Phoenix, 2019b; Talis, 2019a).

Limited suitable habitat for SRE species was identified within the application area, however the saltlake habitat and associated chenopod shrublands were noted as being potentially suitable. As these habitat types were observed as being subject to complete inundation (and hindering the collection of any specimens), they may be unfavourable to SREs commonly restricted to burrowing into the lake playa or inhabiting the fringing riparian vegetation (Phoenix, 2019b; Talis, 2019a). As these habitat types represent only a small portion of the application area and extend beyond the application area, it is unlikely that SRE taxa would be restricted to the application area alone (Phoenix, 2019b; Talis, 2019a).

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

**Methodology** Phoenix (2019b)
Talis (2019a)

GIS Database:
- Imagery
- Pre-European Vegetation
- Threatened Fauna

**(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**
There are no known records of Threatened flora within the application area (GIS Database). Flora surveys of the application area and surrounds did not record any species of Threatened flora (Phoenix, 2019a; Talis, 2019a).

The vegetation associations within the application area are common and widespread within the region (Phoenix, 2019a; Talis, 2019a; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened (rare) flora.

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

**Methodology** Phoenix (2019a)
Talis (2019a)

GIS Database:
- Pre-European Vegetation
- 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**
There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database).

A flora and vegetation survey of the application area did not identify any TECs (Phoenix, 2019a; Talis, 2019a).

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

**Methodology** Phoenix (2019a)
Talis (2019a)

GIS Database:
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

**(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 Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97% of the pre-European vegetation still exists in the IBRA Coolgardie Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 9: Medium woodland; coral gum (*Eucalyptus torquata*) and goldfields blackbutt (*Eucalyptus lesouefii*), (also some e10,11); and 540: Succulent steppe with open low woodland; sheoak over saltbush (GIS Database). Approximately 97-98% of the pre-European extent of each of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019).

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DBCA managed lands |
|---|---|---|---|---|---|
| IBRA Bioregion – Coolgardie | 12,912,204 | 12,648,491 | ~97 | Least Concern | 16 |
| Beard vegetation associations – WA | | | | | |
| 9 | 240,509 | 235,161 | ~97 | Least Concern | 7 |
| 540 | 202,423 | 200,158 | ~98 | Least Concern | 27 |
| Beard vegetation associations – Coolgardie Bioregion | | | | | |
| 9 | 240,441 | 235,100 | ~97 | Least Concern | 7 |
| 540 | 75,810 | 73,619 | ~97 | Least Concern | N/A |

* Government of Western Australia (2019)
** 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 (2019)

GIS Database:
- IBRA Australia
- 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**

The application area contains two vegetation types that are growing in association with salt lakes: MhTiDc – Isolated tall *Melaleuca halmatororum* shrubs over low *Tecticornia indica* subsp. *bidens* chenopod shrubland over isolated low *Disphyma crassifolium* forbs; and Tecticornias – Mosaic of *Tecticornia* species (Phoenix, 2019a; Talis, 2019a).

There are no permanent watercourses or wetlands within the area proposed to clear (Phoenix, 2019a; Talis, 2019a; GIS Database). The application area intersects a saline ephemeral lake system which is typically only briefly inundated following periods of intense rainfall (Talis, 2019a). A number of minor drainage lines pass through the application area (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall.

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to vegetation growing in association with the watercourse may be minimised by the implementation of a watercourse management condition.

**Methodology** Phoenix (2019a)
Talis (2019a)

GIS Database:
- Hydrography, Lakes
- Hydrography, linear

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

**Comments** **Proposal is not likely to be at variance to this Principle**

The application area lies within the Coolgardie land system (DPIRD, 2019). The Coolgardie land system is described as uplands and undulating plains with ultramafic greenstones supporting eucalypt woodlands and halophytic shrublands (DPIRD, 2019). There are very gently inclined footslopes and gently undulating plains with pebble mantle. Where not protected by a stoney mantle, the lower footslopes and lower alluvial tracts are susceptible to water erosion, particularly when the perennial vegetation cover is removed or reduced (DPIRD, 2019). Potential land degradation impacts 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 is not likely to be at variance to this Principle.

**Methodology** DPIRD (2019)

**(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**
There are no conservation areas in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the Kurrawang Nature Reserve which is located approximately 11 kilometres south-east of the application area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation area.

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**
There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). The application area intersects a small section of a saline ephemeral lake system which is typically only briefly inundated following periods of intense rainfall (Talis, 2019a). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.

The proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

**Methodology** Talis (2019a)

GIS Database:
- Hydrography, Linear
- Public Drinking Water Source 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 climate of the region is arid to semi-arid, with an average annual rainfall of 200-300 millimetres occurring primarily in winter (CALM, 2002). The nearest weather station is Coolgardie, approximately 20 kilometres south of the application area, with an average rainfall of approximately 270.7 millimetres per year (BoM, 2019).

There are no permanent water courses or waterbodies within the application area (GIS Database). The application area intersects a small section of a saline ephemeral lake system which is typically only briefly inundated following periods of intense rainfall (Talis, 2019a). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following 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** BoM (2019)
CALM (2002)
Talis (2019a)

GIS Database:
- Hydrography, linear

## Planning Instrument, Native Title, previous EPA decision or other matter.

**Comments**

The clearing permit application was advertised on 1 July 2019 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims (WC2017/001 and WC2017/007) over the area under application (DPLH, 2019). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 (DPLH, 2019). 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 Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

**Methodology** DPLH (2019)

## 4. References


AQ2 (2019) Cutters Ridge Surface Water Management Plan – Mungari Operations. Report prepared by AQ2 Pty Ltd and RPS Australia West, for Evolution Mining Ltd, January 2019.

BoM (2019) Bureau of Meteorology Website – Climate Data Online, Coolgardie. Bureau of Meteorology. http://www.bom.gov.au/climate/data/ (Accessed 4 July 2019).

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

DBCA (2019) Advice received in relation to Clearing Permit Application CPS 8549/1. Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, Western Australia, August 2019.

DEC (2010) A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands. Department of Environment and Conservation, Western Australia.

DPIRD (2019) Advice received in relation to Clearing Permit Application CPS 8549/1. Deputy Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, July 2019.

DPLH (2019) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. http://maps.daa.wa.gov.au/AHIS/ (Accessed 3 July 2019).

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.

Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Phoenix (2019a) Flora and vegetation survey for Mungari Gold Operations Cutters Ridge Project. Report prepared by Phoenix Environmental Sciences Pty Ltd, for Evolution Mining Ltd, May 2019.

Phoenix (2019b) Fauna survey for Mungari Gold Operations Cutters Ridge Project. Report prepared by Phoenix Environmental Sciences Pty Ltd, for Evolution Mining Ltd, May 2019.

Spectrum Ecology (2019) Evolution Mining – Targeted Flora Search: Calandrinia lefroyensis/quartzitica. Report prepared by Spectrum Ecology Pty Ltd, for Evolution Mining Ltd, November 2019.

Talis (2019a) Cutters Ridge NVCP Application – Supporting Document. Report prepared by Talis Consultants, for Evolution Mining Ltd, June 2019.

Talis (2019b) Cutters Ridge – CPS 8549/1 – Additional Information. Report prepared by Talis Consultants, for Evolution Mining Ltd, November 2019.


## 5. Glossary

### Acronyms:

| | |
|---|---|
| **BoM** | Bureau of Meteorology, Australian Government |
| **DAA** | Department of Aboriginal Affairs, Western Australia (now DPLH) |
| **DAFWA** | Department of Agriculture and Food, Western Australia (now DPIRD) |
| **DBCA** | Department of Biodiversity, Conservation and Attractions, Western Australia |
| **DEC** | Department of Environment and Conservation, Western Australia (now DBCA and DWER) |
| **DEE** | Department of the Environment and Energy, Australian Government |
| **DER** | Department of Environment Regulation, Western Australia (now DWER) |

| | |
|---|---|
| **DMIRS** | Department of Mines, Industry Regulation and Safety, Western Australia |
| **DMP** | Department of Mines and Petroleum, Western Australia (now DMIRS) |
| **DPIRD** | Department of Primary Industries and Regional Development, Western Australia |
| **DPLH** | Department of Planning, Lands and Heritage, Western Australia |
| **DRF** | Declared Rare Flora |
| **DoE** | Department of the Environment, Australian Government (now DEE) |
| **DoW** | Department of Water, Western Australia (now DWER) |
| **DPaW** | Department of Parks and Wildlife, Western Australia (now DBCA) |
| **DSEWPaC** | Department of Sustainability, Environment, Water, Population and Communities (now DEE) |
| **DWER** | Department of Water and Environmental Regulation, Western Australia |
| **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 |
| **TEC** | Threatened Ecological Community |

## Definitions:

**{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-**

**T** **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

***Threatened fauna*** is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

***Threatened flora*** is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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 in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

**EN** **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

**VU** **Vulnerable species**
Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

**Extinct Species:**

**EX** **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

**EW** **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

**Specially protected species:**

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

**MI** **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes 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 fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**CD** **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**OS** **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**P** **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species 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.