Government of Western Australia
Department of Mines and Petroleum

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 6202/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

**Proponent's name:** **Mount Gibson Mining Limited**

### 1.3. Property details

**Property:** Mining Lease 59/406
Mining Lease 59/421
Miscellaneous Licence 59/54
**Local Government Area:** Shire of Yalgoo
**Colloquial name:** Shine Project

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 12.4 | | Mechanical Removal | Haul road construction |

### 1.5. Decision on application

**Decision on Permit Application:** Grant
**Decision Date:** 4 September 2014

## 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 and are useful to look at vegetation in a regional context. Three Beard vegetation associations have been mapped within the application area:

202: Shrublands; mulga & *Acacia quadrimarginea* scrub
352: Medium woodland; York gum
420: Shrublands; bowgada & jam scrub

A Level 1 flora and vegetation assessment was conducted over the application area in April 2014 by Ecologia Environment (Ecologia, 2014). A total of five vegetation associations were recorded within the application area, including:

ArrAbExDf: Tall *Acacia ramulosa* var. *ramulosa* and *Acacia burkittii* shrubland over mid *Eremophila exifolia* and *Drommondita fulva* sparse shrubland on midslopes and ridgetops;

ArrAcGooEffPt: Tall *Acacia ramulosa* var. *ramulosa*, *Acacia caesaneura* and *Grevillea obliquistigma* spp. *obliquistigma* sparse shrubland over mid *Eremophila forrestii* spp. *forrestii* and *Philotheca tomentella* sparse shrubland on undulating plains;

ArrAsEcAshHe: Tall *Acacia ramulosa* var. *ramulosa* and *Acacia sibina* shrubland over mid *Eremophila clarkei* and *Aluta aspera* spp. *heseria* sparse shrubland, over low *Hibbertia exasperata* sparse shrubland on low rises;

EhAcArrEffOp: Low *Eucalyptus horistes* open woodland over tall *Acacia caesaneura* and *Acacia ramulosa* var. *ramulosa* sparse shrubland, over mid *Eremophila forrestii* spp. *forrestii* and *Olearia pimeleoides* sparse shrubland on plains;

MhAtAsAt: Low *Melaleuca hamata* with or without *Allocasuarina tessellata* open woodland, over mid *Acacia sibina* and *Acacia tetragonophylla* sparse shrubland on low rises and ridgetops.

**Clearing Description**

Shine Project.
Mount Gibson Mining Limited (MGX) proposes to clear up to 12.4 hectares within a total boundary of 111.67 hectares for the purpose of haul road construction. The project is located approximately 57.8 kilometres south, south-east of Yalgoo, in the Shire of Yalgoo.

**Vegetation Condition**

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);

to:

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

**Comment**

The proposed clearing is for the purpose of widening an existing haul road for the transport of material from the Shine Project.

Vegetation condition was determined during a flora and vegetation assessment conducted by Ecologia (2014). A large portion of the application area is covered by an existing road and exploration tracks. The remaining area is vegetated and shows some evidence of grazing by introduced species (MGX, 2014).

## 3. Assessment of application against clearing principles

### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

**Comments**

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

The application area occurs within the Tallering subregion of the Yalgoo Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). This bioregion forms a transitional zone between South-western bioregions and the Murchison bioregion, and is characterised by low to open woodlands of *Eucalyptus*, *Acacia and Callitris* on red sandy plains (CALM, 2002).

A flora, vegetation and fauna assessment was conducted over the application area and surrounds by Ecologia Environment in April 2014 (Ecologia, 2014). A total of 103 flora species were recorded over the entire survey area, which is considered to be low. However, this is attributed to the timing of the survey during dry seasonal conditions which decreases the probability of detecting many annual and ephemeral flora species (Ecologia, 2014). One introduced flora species, *Mesembryanthemum nodiflorum*, was recorded within the application area (Ecologia, 2014). Invasive flora species can decrease the biodiversity value of an area, as they out-compete native vegetation for available resources, contribute to land degradation and increase the frequency and intensity of fires (DEC, 2011). Potential impacts to biodiversity within and nearby the application area as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Five vegetation associations were recorded within the application area (Ecologia, 2014). Four of these are considered to be components of two Priority Ecological Communities (PECs), referred to as Minjar and Chulaar Hills vegetation complexes (Banded Ironstone Formation) (Priority 1) (Ecologia, 2014; GIS Database). Approximately 25 hectares of the mapped area of these PECs lies within the application area; however, part of this area is covered by an existing road, and only 4.4 hectares of this vegetation within the application boundary is proposed for clearing (MGX, 2014). This equates to the disturbance of less than 0.1% of the known extent of these PECs (MGX, 2014), which is not considered to pose a risk to the conservation of these vegetation complexes. No Threatened Ecological Communities (TECs) were identified during the flora and vegetation assessment, which is consistent with available databases (GIS Database).

No declared rare flora were recorded within the application area during the flora and vegetation assessment (Ecologia, 2014). However, due to the presence of suitable habitat for Declared Rare Flora (DRF) species *Stylidium scintillans* within the application area, a targeted survey for *S. scintillans* was conducted in August 2014, when this species is more easily detected (Terratree. 2014). No individuals of *S. scintillans* were recorded within the application area (Terratree, 2014).

Two species of Priority 3 flora (*Micromyrtus trudgenii* and *Drummondita fulva*) have been recorded adjacent to the application area. However, MGX (2014) advises that no Priority flora have been recorded within the proposed disturbance area. Records of the Priority 1 flora (*Hydrocotyle* sp. Warriedar (P.G. Wilson 12267)) exist within the wider project area; however, it was not recorded during the flora survey and is considered unlikely to occur (Ecologia, 2014).

A Level 1 fauna survey was conducted concurrently to the flora survey by Ecologia (2014). A total of 53 fauna species, including seven native mammals, two introduced mammals, 36 birds and eight reptiles were recorded via opportunistic searches during the Level 1 field survey (Ecologia, 2014). A search of the Naturemap database using a 15 kilometre buffer returned records for 69 bird, six invertebrate, nine mammal and 17 reptile species (DEC, 2014). Of these, six species were conservation significant, including the Bush Stone-curlew (*Burhinus grallarius*; Priority 4), Peregrine Falcon (*Falco peregrinus*; Schedule 4), Malleefowl (*Leipoa ocellata*; Schedule 1), Masked Owl (southern subspecies) (*Tyto novaehollandiae* subsp*. novaehollandiae*; Priority 3), Shield-backed Trapdoor Spider (*Idiosoma nigrum*; Schedule 1), and the Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*; Schedule 1).

Ecologia (2014) recorded three Threatened fauna species within the survey area, including the Shield-backed Trapdoor Spider, Malleefowl, and Western Spiny-tailed Skink. A total of five additional conservation significant fauna species are considered highly likely to occur within the application area, including the Rainbow Bee-eater (*Merops ornatus*; Migratory), Major Mitchell's Cockatoo (*Lophocroa leadbeateri*; Priority 4), White-browed Babbler (*Pomatostomus superciliosus*; Schedule 3), Crested Bellbird (southern) (*Oreocia gutteralis gutteralis*; Schedule 3), and Gilled Slender Blue-tongue (*Cyclodomorphus branchialis*; Schedule 1) (Ecologia, 2014).

Although there are a number of unlisted and conservation significant fauna that may occur within the application boundary and wider area, the proposed clearing of 12.4 hectares within 111.67 hectares is unlikely to impact the conservation status of any fauna on a local or regional scale.

The process of widening an existing road minimises the amount of clearing required and mitigates any significant impact to the biodiversity values within the application area. Based on the above, the proposed

clearing is not likely to be at variance to this Principle.

**Methodology** CALM (2002)
DEC (2011)
DEC (2014)
Ecologia (2014)
MGX (2014)
Terratree (2014)
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 is not likely to be at variance to this Principle**

Three fauna habitats were recorded within the application area, including:

1. *Acacia* shrubland on clayey low slopes and plains;
2. *Acacia* shrubland on ironstone ridge; and
3. Open eucalypt woodland (Ecologia, 2014).

*Acacia* shrubland on clayey low slopes and plains is associated with flat plains and low slope landform features, containing mixed *Acacia* species with scattered trees of *Eucalyptus* species and *Callitris columellaris*. Areas of rocky microhabitat occur, while leaf-litter is present but restricted to directly under shrub vegetation (Ecologia, 2014). This habitat type is the most common within the local area (Ecologia, 2014).

*Acacia* shrubland on ironstone ridge is restricted to 4.08 hectares within the application area, and is associated with a section of the Chulaar Hills vegetation complex PEC (Ecologia, 2014; GIS Database). Vegetation within this habitat type is dominated by *Acacia* species, with other shrub species including *Eremophila exilifolia, Drummondita fulva* and *Aluta aspera* (Ecologia, 2014). No trees and very few grass and herb species occur. Some leaf litter is present under *Acacia* shrub species.

Open eucalypt woodland habitat occurs in one small section of the application area, and has a comparatively higher density of eucalypt tree species and sandier soil (Ecologia, 2014). Dominant shrub species include mixed *Acacia* and *Eremophila* species. Leaf and wood litter is prevalent under trees (Ecologia, 2014).

*Acacia* shrubland on clayey low slopes and plains and Open eucalypt woodland habitat types are widespread within the surrounding region (Ecologia, 2014; GIS Database). *Acacia* shrubland on ironstone ridge is important on a local scale due to its association with the Chulaar Hills vegetation complex PEC (Ecologia, 2014), and the proposed clearing will slightly increase the level of habitat fragmentation on a local scale. However, this is unlikely to have a significant impact on the persistence of fauna species on a local or regional scale.

The Western Spiny-tailed Skink was recorded in eucalypt woodland habitat south of the application area during the survey by Ecologia (2014), and therefore have the potential to occur within the proposed clearing (Ecologia, 2014). This species uses rock crevices and hollows within fallen logs as core refugia (Ecologia, 2014). Given that this species lives in social groups and are not considered to have a high dispersal ability (Ecologia, 2014), the proposed clearing may have a high localised impact if any core refugia is cleared. The proponent has advised that given the potential for this species to occur within the proposed clearing, the application area will be searched for fallen logs prior to clearing activities and any suitable habitat will be excluded from clearing if possible (MGX, 2014). Where disturbance is unavoidable, MGX will relocate skinks and log microhabitat.

Malleefowl are known to occur within the project area, but are highly unlikely to be dependent on habitat within the application area due to the presence of more suitable habitat elsewhere, and the absence of neither active nor inactive mounds within the application area (Ecologia, 2014).

The Gilled Slender Blue-tongue has been previously recorded in the surrounding region, and therefore may occur within the application area in *Acacia* shrubland on clayey low slopes and plains or ironstone ridges (Ecologia, 2014). The Gilled Slender Blue-tongue has greater dispersal habits than the Western Spiny-tailed Skink. No evidence of this species was found during field surveys (Ecologia, 2014), and the proposed clearing is not considered to pose a risk to the conservation of this species.

Shield-backed Trapdoor Spider burrows were found in one location both on and outside the application boundary. Ecologia (2014) advise that based on preliminary observations the population density in this area is likely to be lower than other populations in the region. Habitat within the application area is unlikely to be critical for this species on either a local or regional scale.

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

**Methodology** Ecologia (2014)
DEC (2014)

MGX (2014)
GIS Database:
- Threatened Ecological Sites Buffered
- Badja 1.4m Orthomosaic - Landgate 2003

**(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**

The DRF species *Stylidium scintillans* is known to occur in the area, and the vegetation association ArrAbExDf was considered to represent suitable habitat for this species (Ecologia, 2014). However, a targeted survey within the application area for *S. scintillans* in August 2014 did not detect any individuals (Terratree, 2014). Given that the species was observed in flower nearby (Terratree, 2014), it is unlikely that this species is present within the application area.

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

**Methodology**

Ecologia (2014)
Terratree (2014)

**(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 flora and vegetation assessment conducted within the application area did not record any vegetation communities which were representative of a TEC (Ecologia, 2014). The nearest known TEC is approximately 70 kilometres south-west of the application area and is a 'Plant assemblage of the Koolanooka System' TEC (GIS Database).

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

**Methodology**

Ecologia (2014)
GIS Database:
- Threatened Ecological Sites Buffered

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments**

**Proposal is not at variance to this Principle**

The application area occurs within the Yalgoo Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 97.4% of the pre-European vegetation remains (see table) (GIS Database; Government of Western Australia, 2013).

The vegetation within the application area has been mapped as Beard vegetation associations 202, 352 and 420 (GIS Database). Over 90% of Beard vegetation associations 202 and 420 remain at both a state and bioregional level (Government of Western Australia, 2013). Approximately 19.8% of Beard vegetation association 352 remains at a state level, however approximately 99.8% remains at a bioregional level. Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared. Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database).

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DPaW Managed Lands (and post clearing %) |
|---|---|---|---|---|---|
| IBRA Bioregion - Yalgoo | 5,057,326 | 4,924,606 | ~97.4 | Least Concern | ~31.7 (32.4) |
| IBRA Subregion - Tallering | 3,498,944 | 3,387,859 | ~96.8 | Least Concern | ~24.2 (25.0) |
| Local Government - Yalgoo | 2,794,952 | 2,733,274 | ~97.8 | Least Concern | ~22.5 (23.0) |
| Beard veg assoc. – State | | | | | |
| 202 | 448,529 | 448,344 | ~99.9 | Least Concern | ~22.0 (22.0) |
| 352 | 724,273 | 143,678 | ~19.8 | Vulnerable | ~1.8 (8.7) |
| 420 | 859,632 | 830,218 | ~96.6 | Least Concern | ~14.17 (14.7) |
| Beard veg assoc. – Bioregion | | | | | |
| 202 | 45,096 | 45,012 | ~99.8 | Least Concern | ~40.1 (40.2) |
| 352 | 14,281 | 14,255 | ~99.8 | Least Concern | ~1.9 (1.9) |
| 420 | 621,396 | 620,266 | ~99.8 | Least Concern | ~16.5 (16.5) |
| Beard veg assoc. – subregion | | | | | |
| 202 | 45,096 | 45,012 | ~99.8 | Least Concern | ~40.1 (40.2) |
| 352 | 14,281 | 14,255 | ~99.8 | Least Concern | ~1.9 (1.9) |
| 420 | 615,816 | 614,686 | ~99.8 | Least Concern | ~16.6 (16.6) |

* Government of Western Australia (2013)
** 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 (2013)
GIS Database:
- Badja 1.4m Orthomosaic - Landgate 2003
- 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 likely to be at variance to this Principle**

There are no permanent watercourses or wetlands within the application area (GIS Database). However, the proposed clearing intercepts a number of minor ephemeral drainage lines (GIS Database). None of the vegetation associations recorded by Ecologia (2014) appear to occur exclusively in association with a watercourse (GIS Database), and are therefore unlikely to be considered riparian in nature.

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

**Methodology** Ecologia (2014)
GIS Database:
- Hydrography, linear
- Badja 1.4m Orthomosaic - Landgate 2003

### (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 overlaps four land systems (GIS Database). A majority of the application area lies within the Tealtoo land system. This land system is characterised by flat or gently undulating loamy plains with fine ironstone lag gravel, which supports dense Acacia shrublands (Payne et al., 1998). The Tealtoo land system is not considered to be susceptible to soil erosion (Payne et al., 1998).

Approximately one third of the application area intersects the Tallering land system, which consists of prominent ridges and hills of banded ironstone, dolerite and sedimentary rocks supporting bowgada and other Acacia shrublands (Payne et al., 1998). The stone mantles which cover this land system provide protection against soil erosion (Payne et al., 1998). The clearing of vegetation in this area is unlikely to cause erosion.

Approximately 1.7 kilometres of the proposed haul road lies within the Watson land system. This land system is comprised of hills, rises and gravelly plains supporting bowgada shrublands with non-halophytic undershrubs (Payne et al., 1998). Similar to the Tallering land system, stone mantles protect against soil erosion, and the

proposed clearing is unlikely to cause land degradation via erosion.

A very small portion of the application area intersects the Rainbow land system, comprising hardpan plains supporting mulga shrublands (Payne et al., 1998). While this land system is generally not considered to be susceptible to soil erosion, the disruption of sheet water flow may cause water erosion (Payne et al., 1998). Disruption to water flow may also impact vegetation further downslope (Payne et al., 1998). However, the proportion of the proposed clearing within this land system is minimal, and the widening of an existing haul road is not considered to pose a land degradation risk to vegetation surrounding the application area.

Given that a majority of land within the application boundary is not considered to be susceptible to erosion, it is unlikely that a high level of land degradation will occur as a result of the proposed clearing.

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

**Methodology** Payne et al. (1998)
GIS Database:
- Rangeland Land System Mapping

**(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 does not lie within any conservation areas managed by the Department of Parks and Wildlife (GIS Database). The nearest conservation area is the Warriedar former leasehold proposed for conservation, which lies 300 metres south-east of the application area at its closest point (GIS Database). The proposed clearing may have the potential to spread weeds which could encroach into the adjacent conservation area. However, the risk of weed proliferation is unlikely to be noticeably higher than that which pre-exists with the current road. Impacts to the Warriedar former leasehold 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 is not likely to be at variance to this Principle.

**Methodology** GIS Database:
- DEC 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 does not occur within a Public Drinking Water Source Area (PDWSA) (GIS Database). The application area intersects a number of minor ephemeral drainage lines (GIS Database). These drainage lines are likely to be inundated for relatively short periods of time during rainfall. Clearing is proposed during October to December 2014, following the wet season for this area (MGX, 2014). Therefore, it is unlikely that surface water will be present during clearing activity. The proponent has advised that surface water flow from the cleared area will be maintained by use of drainage lines (MGX, 2014).

Groundwater salinity in the area ranges from 1,000 to 7,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered brackish to saline (GIS Database). The proposed clearing activity is not likely to significantly alter salinity levels within the application area.

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

**Methodology** MGX (2014)
GIS Database:
- Badja 1.4m Orthomosaic - Landgate 2003
- Groundwater Salinity, Statewide
- 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**
Mean annual rainfall in Yalgoo is approximately 259.4 millimetres (BoM, 2014). The Yalgoo bioregion represents a transitional zone between bioregions of the South-west and Murchison, and experiences an arid to semi-arid Mediterranean climate with winter rainfall (CALM, 2002). Due to the sandy soils which occur over much of this bioregion, natural flooding events (other than wetland inundation) are not likely to be significant. Some increase in water runoff may occur as a result of the proposed clearing, but this is highly unlikely to significantly increase the incidence or intensity of flooding in the surrounding area.

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

**Methodology** BoM (2014)
CALM (2002)

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

**Comments**

There are two native title claims over the application area (GIS Database). These claims (WC97/072 and WC 96/098) have been registered with the Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered 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 11 August 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

**Methodology** GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT
- Native Title Claims - Filed at the Federal Court

## 4. References


BoM (2014) Climate Statistics for Australian Locations. A Search for Climate Statistics for Yalgoo, Australian Government Bureau of Meteorology, http://www.bom.gov.au/climate/averages/tables/cw_007091.shtml, viewed August 2014.

CALM (2002) Bioregional Summary of the 2002 Biodiversity Audit for Western Australia. Department of Conservation and Land Management, Western Australia.DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conversation, Perth.

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DEC (2014) NatureMap: Mapping Western Australia's Biodiversity, DEC, http://naturemap.dec.wa.gov.au/default.aspx, viewed August 2014.

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.

Ecologia (2014) Mount Gibson Iron Limited Level 1 Flora and Fauna Assessment: Shine Haul Road. Consultants report prepared for Mount Gibson Mining Limited, July 2014.

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. 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.

MGX (2014) Supporting Information for Clearing Permit Application: Shine Project. Prepared by Mount Gibson Mining Limited.

Payne, A.L., Van Vreeswyk, A.M.E., Pringle, H.J.R., Leighton, K.A., Hennig, P. (1998) An inventory and condition survey of the Sandstone-Yalgoo-Paynes Find area, Western Australia, Technical Bulletin No. 90, Department of Agriculture Western Australia, South Perth.

Terratree (2014) Targeted Search for the Threatened (Declared Rare) species *Stylidium scintillans* within Freedon Road project area. Consultants report prepared for Mount Gibson Iron Limited (MGX), August 2014.


## 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** | *Environmental Protection Act 1986*, Western Australia |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* (Federal Act) |
| **GIS** | Geographical Information System |
| **ha** | Hectare (10,000 square metres) |
| **IBRA** | Interim Biogeographic Regionalisation for Australia |
| **IUCN** | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| **PEC** | Priority Ecological Community, Western Australia |
| **RIWI Act** | *Rights in Water and Irrigation Act 1914*, Western Australia |
| **s.17** | Section 17 of *the Environment Protection Act 1986*, Western Australia |
| **TEC** | Threatened Ecological Community |

## Definitions:

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

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

Threatened Fauna and Flora are further recognised by the Department 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.

**P4** **Priority Four - Rare, Near Threatened and other species in need of monitoring:**

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

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

**P5** **Priority Five - Conservation Dependent species:**
**Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.**