



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 9046/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: EMR Golden Grove Pty Ltd

1.3. Property details

Property: Mining Leases 59/91, 59/92, 59/93 and 59/195
Local Government Area: Shire of Yalgoo
Colloquial name: Gossan Valley Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
109.82		Mechanical Removal	Mineral Production and Associated Activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 26 November 2020

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:
202: Shrublands; mulga & *Acacia quadrimarginea* scrub; and
420: Shrublands; bowgada & jam scrub (GIS Database).

A flora and vegetation survey was conducted over the application area by Maia Environmental Consultancy Pty Ltd during September, 2019 and April, 2020. The following vegetation associations were recorded within the survey area (Maia, 2020):

ASL(1): Tall Shrubland to Tall Open Shrubland of mixed *Acacia* species, mainly *Acacia ramulosa* var. *ramulosa*, *A. burkittii* and *A. tetragonophylla* with a mixed Sparse Shrubland mainly *Scaevola spinescens*, *Eremophila oppositifolia* subsp. *angustifolia* and *E. pantonii* with a Low Open Shrubland of mixed species mostly *Eremophila granitica*, *E. eriocalyx* and *Ptilotus obovatus* var. *obovatus*;

ASL(2): Tall Shrubland to Tall Open Shrubland of mixed *Acacia* species, mainly *Acacia ramulosa* var. *ramulosa*, *A. effusifolia* and *A. tetragonophylla* with a Low Open Shrubland of mixed species mainly *Rhagodia drummondii*, *Ptilotus obovatus* var. *obovatus* and *Senna artemisioides* subsp. *filifolia* and sometimes with Low Isolated Trees of *Callitris columellaris* and / or *Eucalyptus kochii* subsp. *plenissima*;

ASL(3): Tall Shrubland to Tall Open Shrubland of mixed *Acacia* species mainly *Acacia ramulosa* var. *ramulosa*, *A. burkittii* and *A. tetragonophylla* with an Open Shrubland of mixed species mainly *Eremophila clarkei*, *Scaevola spinescens* and *Acacia exocarpoides* and a Low Sparse mixed Shrubland mainly of *Solanum lasiophyllum*, *Ptilotus obovatus* var. *obovatus* and *Sida* sp. dark green fruits (S. van Leeuwen 2260);

ASL(4): Tall Shrubland to Tall Open Shrubland *Acacia ramulosa* var. *ramulosa* and *A. sibina* with an Open Sparse mixed Shrubland mainly of *Acacia exocarpoides*, *Eremophila georgei*, *E. clarkei* and a Low Sparse mixed Shrubland mainly of *Olearia humilis*, *Ptilotus obovatus* var. *obovatus* and *Cryptandra imbricata*;

ASL(5): Tall Open Shrubland of mixed *Acacia* species, mainly *Acacia ramulosa* var. *ramulosa*, *A. assimilis* and *A. aulacophylla* with a Low Open Shrubland of mixed species mainly *Eremophila latrobei* subsp. *latrobei*, *Philotheca brucei* subsp. *brucei* and *P. sericea* with a mixed Sparse Shrubland mainly of *Aluta aspera* subsp. *hesperia*, *Thryptomene decussata* and *Eremophila forrestii* subsp. *forrestii*;

ASL(6): Tall Open Shrubland of mixed *Acacia* species mainly *Acacia incurvaneura*, *A. aneura* and *A. ramulosa* var. *ramulosa* with a Sparse Shrubland of *Eremophila forrestii* subsp. *forrestii* and *E. latrobei* subsp. *latrobei* and a Low Sparse Shrubland of *Ptilotus obovatus* var. *obovatus*;

ASL(7): Tall Open Shrubland of mixed *Acacia* species mainly *Acacia umbraculiformis*, *A. grasbyi* and *A. ramulosa* var. *ramulosa*, with a Low Open mixed Shrubland mainly of *Thryptomene costata*, *Eremophila latrobei* subsp. *latrobei* and *Philotheca brucei* subsp. *brucei* with isolated clumps of *Borya sphaerocephala*;

ASL(8): Tall Open Shrubland to Tall Sparse Shrubland of *Acacia aulacophylla* with an Open mixed Shrubland mainly of *Philotheca brucei* subsp. *brucei*, *Thryptomene costata* and *Micromyrtus trudgenii* (P3) and a Low Open mixed Shrubland mainly of *Mirbelia* sp. *Bursarioides* (T.R. Lally 760), *Eremophila glutinosa* and *Calytrix uncinata*;

ASL(9): Tall Shrubland to Tall Open Shrubland of *Acacia effusifolia* and *A. sibina* with a Sparse mixed Shrubland mainly of *Eremophila forrestii* subsp. *forrestii*, *Philotheca tomentella* and *P. deserti* subsp. *deserti*;

ASL(10): Tall Shrubland of *Acacia effusifolia* and *A. sibina* with a Sparse mixed Shrubland mainly of *Eremophila forrestii* subsp. *forrestii*, *Grevillea globosa* (P3) and *P. deserti* subsp. *deserti* and a Low mixed Open Shrubland mainly of *Aluta aspera* subsp. *hesperia*, *Hemigenia* sp. Yalgoo (A.M. Ashby 2624) and *H. benthamii*;

ASL(11): Tall Open Shrubland of *Acacia effusifolia* with a Sparse mixed shrubland mainly of *Senna artemisioides* subsp. *filifolia* *Olearia pimeleoides* and *Mirbelia* sp. *Bursarioides* (T.R. Lally 760 and Isolated Low Trees of *Bursaria occidentalis* +/- *Callitris columellaris*;

MCSL: Low mixed Chenopod Shrubland mainly of *Atriplex codonocarpa*, *Maireana tomentosa* and *Rhagodia drummondii* with Tall mixed Isolated Shrubs mainly of *Hakea preissii*, *Persoonia manotricha* or *Acacia masliniana* and occasionally a Low Open Samphire Shrubland of *Tecticornia laevigata*;

MSL: Low Shrubland to Low Open Shrubland of *Aluta aspera* subsp. *hesperia* and +/- *Thryptomene costata* with isolated Tall Shrubs *Acacia assimilis* subsp. *assimilis*.

Clearing Description	Gossan Valley Project. EMR Golden Grove Pty Ltd proposes to clear up to 109.82 hectares of native vegetation within a boundary of approximately 417.95 hectares, for the purpose of mineral production and associated activities. The project is located approximately 55 kilometres south-east of Yalgoo, within 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 vegetation condition was derived from a vegetation survey conducted by Maia Environmental Consultancy Pty Ltd (2020).

3. Assessment of application against Clearing Principles

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

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area is located within the Talling subregion of the Yalgoo Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). The Talling subregion is characterised by low woodlands to open woodlands of <i>Eucalyptus</i>, <i>Acacia</i> and <i>Callitris</i> on red sandy plains, and is often rich in ephemerals (CALM, 2002). The subregion is rich and diverse in flora and fauna, however most species are wide ranging and usually occur in at least one, and often several, adjoining regions (CALM, 2002). The dominate land-use of the subregion is grazing, and the subregion remains largely uncleared (CALM, 2002).</p> <p>EMR commissioned a detailed vegetation and flora survey for Gossan Valley, which was conducted by Maia Environmental Consultancy (2020). The detailed vegetation and flora assessment covered most of the application area, and included:</p> <ul style="list-style-type: none">• a desktop assessment to identify potential for Threatened or Priority flora or ecological communities to occur within, or near the survey area• a targeted census survey for <i>Stylidium scintillans</i>, a Threatened flora species known to occur in the Golden Grove area, carried out in August 2019• flora and vegetation surveys conducted in September 2019 and April 2020. <p>No Threatened flora, Threatened Ecological Communities or Priority Ecological Communities (PECs) occur within the application area (Maia, 2020). The broader area surveyed by Maia (2020) overlaps two small sections of the buffer for the 'Minjar and Chulaar Hills vegetation complexes (banded ironstone formation)' P1 PEC. None of the vegetation surveyed within the application area is representative of the PEC (AECOM, 2020).</p> <p>Three Priority flora species have been identified within the application area:</p> <ul style="list-style-type: none">• <i>Drummondita fulva</i> Priority 3);• <i>Micromyrtus trudgenii</i> (Priority 3);• <i>Grevillea globosa</i> (Priority 3). <p><i>Drummondita fulva</i> is typically found on hills and outcrops and 222 plants from 80 populations have been recorded in the Gossan Valley area. Twelve of these populations comprising 139 individuals were recorded within the application area (AECOM, 2020). A total of 19,166 individuals of this species are known to occur in Western Australia with all of these are known from the Yalgoo region (AECOM, 2020). Approximately 0.7% of the regional population is within the application area (AECOM, 2020). Based on the above, the proposed clearing is considered unlikely to have a significant impact on this species or its conservation status.</p>
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Micromyrtus trudgenii is typically found on hills, low rises, outcrops and ranges. A total of 758 plants from 88 populations have been recorded in the Gossan Valley area. Seven of these populations comprising 439 individuals were recorded within the application area (AECOM, 2020). A total of 20,885 individuals of this species are known to occur in Western Australia (AECOM, 2020). 20,872 (99.9%) of these are known from the Yalgoo region (AECOM, 2020). The populations of *Micromyrtus trudgenii* within the application area represents 2.1% of the individuals in the region (AECOM, 2020). Based on the above, the proposed clearing is considered unlikely to have a significant impact on this species or its conservation status.

Grevillea globosa was found on hardpan plains, sandplains and undulating plains (AECOM, 2020). A total of 127 plants were recorded at multiple quadrats and traverses in the survey area (AECOM, 2020). Nine of these plants were recorded within the application area, representing 0.2% of the individuals of the region (AECOM, 2020). EMR have advised that none of these currently occur within proposed disturbance areas (AECOM, 2020),

One fauna habitat type was mapped within the application area: shrubland and undulating plain. This habitat type is well represented in the local area and region (AECOM, 2020; Phoenix, 2020).

Eleven weed species have been recorded in the Gossan Valley area (AECOM, 2020). No weeds of national significance or weeds declared as pests in WA were recorded within the application area (AECOM, 2020). However, two of the eleven species recorded (*Aira caryophyllea* and *Mesembryanthemum nodiflorum*) have both a high ecological impact and rapid invasiveness rating (AECOM, 2020). 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 proposed clearing may be minimised by the implementation of a weed management condition.

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas (AECOM, 2020; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.

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

Methodology AECOM (2020)
CALM (2002)
Maia (2020)
Phoenix (2020)

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

Five terrestrial fauna surveys have been conducted at Golden Grove since 1997 (AECOM, 2020). The main environmental value identified in these surveys is potential for Malleefowl (*Leipoa ocellata* –Vulnerable). A desktop assessment by Phoenix Environmental Science Pty Ltd identified 20 conservation significant fauna species with the potential to occur in the Gossan Valley area (AECOM, 2020). These comprised 19 vertebrate and one invertebrate fauna species. Previous surveys adjacent to Gossan Valley have recorded few significant fauna species. Records were predominantly old, inactive Malleefowl mounds (AECOM, 2020; Phoenix, 2020).

To further support development of the Gossan Valley Project, EMR commissioned a Level 1 fauna survey of the Gossan Valley area (AECOM, 2020). This was conducted by Phoenix Environmental Science Pty Ltd in Spring, 2019 (AECOM, 2020). A total of 67 terrestrial vertebrate species representing 41 families and 51 genera were recorded during the 2019 survey (AECOM, 2020; Phoenix, 2020). Only one fauna habitat type was mapped within the application area: shrubland and undulating plain. This habitat type is well represented in the region.

One significant vertebrate fauna species was recorded in the broader area of the 2019 survey: Malleefowl (AECOM, 2020). Historical records indicated that few active Malleefowl mounds have been recorded in the area. Phoenix (2020) recorded a total of 11 mounds (including two of the three previously known from the area) seven of which were new to the study area. Of these, only two Malleefowl mounds were recorded in the application area. Both were degraded and did not show any signs of recent use (AECOM, 2020). One of these Malleefowl mounds occurs within the Indicative Clearing Area. This occurs within the footprint proposed for the waste rock dump (AECOM, 2020). Tracks and foraging debris were also recorded by Phoenix (2020), indicating Malleefowl are utilising habitat within the Gossan Valley area for foraging. Foraging evidence was only located in one location in the application area and it is unlikely that Malleefowl are restricted to or reliant on habitat within the application area (AECOM, 2020; Phoenix, 2020). Potential impacts to Malleefowl may be

managed by the implementation of a fauna management condition. The fauna management condition requires that prior to undertaking any clearing, engage an *environmental specialist* to conduct an inspection of the area to be cleared to identify active (in use) Malleefowl (*Leipoa ocellata*) mounds; and where an active (in use) Malleefowl mound is identified, ensure that no clearing occurs within 50 metres of the mound, during the months of September through to January, unless first approved by the CEO.

Based on the habitat present in the application area, there is potential for *Egernia stokesii* subsp. *badia* and *Cyclodomorphus branchialis* to occur. However, extensive searches of the area did not detect these species (AECOM, 2020; Phoenix, 2020). Given the proximity of historic records (1.58 kilometres and 9.44 kilometres, respectively) they cannot be completely ruled out, however they are considered unlikely to occur (AECOM, 2020; Phoenix, 2020; GIS Database).

No short-range endemic (SRE) invertebrate habitats were identified within the survey area (AECOM, 2020; Phoenix, 2020). While breakaways in the Murchison region and other semi-arid areas are often associated with SREs, in this case they were poorly vegetated and offered no mesic conditions on which SREs might be found to persist (AECOM, 2020; Phoenix, 2020).

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

Methodology AECOM (2020)
Phoenix (2020)

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 may be at variance to this Principle

One Threatened flora species, *Stylidium scintillans*, occurs within the Gossan Valley area (AECOM, 2020). It has been known to occur throughout the Golden Grove area since 2011, when up to 157,147 individuals were recorded in the wider region, with 1,390 individuals located around the Gossan Valley mine.

Flora surveys of the application area identified 12 individuals of *Stylidium scintillans* just within the application area, along the northern border of the permit boundary (AECOM, 2020). EMR has designed the Gossan Valley Project to minimise any direct or indirect impacts to *Stylidium scintillans*, including a commitment to no clearing of *Stylidium scintillans* (AECOM, 2020). Potential impacts to *Stylidium scintillans* may be minimised by the implementation of a flora management condition, requiring no clearing within 50 metres of this species.

The vegetation associations within the application area are well represented in surrounding areas (AECOM, 2020; 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 may be at variance to this Principle.

Methodology AECOM (2020)

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 (AECOM, 2020; Maia, 2020).

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

Methodology AECOM (2020)
Maia (2020)

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 Yalgoo Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97% of the pre-European vegetation still exists in the IBRA Yalgoo Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 202: Shrublands; mulga & *Acacia quadrimarginea* scrub; and 420: Shrublands; bowgada & jam scrub (GIS Database). Approximately 99% of the pre-European extent of vegetation association 202 remains uncleared at both the state and bioregional level, and approximately 97% of vegetation association 420 remains at the state level and approximately 99% at the bioregion 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 – Yalgoo	5,057,326	4,923,840	~97	Least Concern	31.18
Beard vegetation associations – WA					
202	448,344	448,344	~99	Least Concern	22.91
420	859,632	830,216	~97	Least Concern	14.11
Beard vegetation associations – Yalgoo Bioregion					
202	45,096	45,012	~99	Least Concern	40.08
420	621,396	620,266	~99	Least Concern	16.38

* 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

There are no permanent watercourses or wetlands within the area proposed to clear (AECOM, 2020; GIS Database). Several seasonal creek lines pass through the application area (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (AECOM, 2020).

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

Methodology AECOM (2020)

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 may be at variance to this Principle

The application area lies within the Kalli, Tealtoo and Watson land systems (GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development).

The Kalli land system is described as 'Elevated, gently undulating red sandplains edged by stripped surfaces on laterite and granite; tall acacia shrublands and understorey of wanderrie grasses (and spinifex locally); replaced by more extensive areas of Bullimore land system.' This land system is susceptible to erosion (Curry et al., 1994).

The Tealtoo land system is described as 'Level to gently undulating loamy plains with fine ironstone lag gravel supporting dense acacia shrublands.' This land system is not generally susceptible to erosion (Curry et al., 1994).

The Watson land system consists of 'Hills, rises and gravelly plains on sedimentary rocks supporting bowgada shrublands with non-halophytic undershrubs.' Stone and gravel surface mantles provide effective protection against erosion, however, disturbance or removal of mantles may initiate erosion (Curry et al., 1994)

The proposed clearing of up to 109.82 hectares of native vegetation within a boundary of approximately 417.95 hectares, for the purpose of mineral production may cause appreciable land degradation. Based on the above, the proposed clearing may be at variance to this Principle. Potential impacts to the land may be minimised by the implementation of a staged clearing condition.

Methodology Curry et al. (1994)

GIS Database:
- Landsystem Rangelands
- Soils, Statewide

(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 an unnamed timber reserve located about 60 kilometres southwest of the application area and the nearest Environmentally Sensitive Area (ESA) is located approximately 22 kilometres southeast (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). Creek 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 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 semi-arid, with a low average rainfall of approximately 258 millimetres per year (BoM, 2020). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (AECOM, 2020).

There are no permanent water courses or waterbodies within the application area (GIS Database). 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 AECOM (2020)
BoM (2020)

GIS Database:

- Hydrographic Catchments - Catchments
- Hydrography, linear

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

Comments

The clearing permit application was advertised on 21 September 2020 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 is one native title claim over the area under application (DPLH, 2020). This claim has been determined by the Federal Court on behalf of the claimant group. 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, 2020). 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.

As Malleefowl mounds have been identified within the clearing permit application area, it is recommended that an EPBC referral for Matters of National Environmental Significance be undertaken by the proponent. This is due to the real chance or possibility that the proposed clearing will:

- reduce the area of occupancy of the species;
- adversely affect habitat critical to the survival of a species;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- introduce disease that may cause the species to decline; or
- interfere with the recovery of the species.

Methodology DPLH (2020)

4. References

- AECOM (2020) Gossan Valley Underground Mine, Native Vegetation Clearing Permit Application. Unpublished report prepared by AECOM for EMR Golden Grove, September 2020.
- BoM (2020) Bureau of Meteorology Website – Climate Data Online, Weather Station Name. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 16 November 2020).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Curry, P J, Payne, A L, Leighton, K A, Hennig, P, and Blood, D A. (1994), *An inventory and condition survey of the Murchison River catchment, Western Australia*. Department of Agriculture, Perth. Technical Bulletin 84.
- DPLH (2020) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 16 November 2020).
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- 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.

Maia Environmental Consultancy Pty Ltd (Maia) (2020). Post survey update - first phase of detailed (Level 2) flora and vegetation survey. Email correspondence for EMR Golden Grove, 2020.

Phoenix Environmental Sciences, 2020. Terrestrial fauna survey for the Gossan Valley Project. Unpublished report prepared by Phoenix Environmental Sciences for EMR Golden Grove, March 2020.

5. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016, Western Australia</i>
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)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
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)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986, Western Australia</i>
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)</i>
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, Western Australia</i>
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.