Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6369/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Minjar Gold Pty Ltd**

1.3. Property details

Property: Mining Lease 59/379
Mining Lease 59/380
Local Government Area: Shire of Perenjori
Colloquial name: Minjar Gold Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 22 January 2015

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. Two Beard vegetation associations have been mapped within the application area:

420: Shrublands; bowgada and jam scrub.

A flora and vegetation survey was conducted over the application area by Mattiske (2009) and Terratree (2014). A total of five vegetation communities were identified within the application area, including:

Eucalypt Woodlands:
E7: Low Woodland of *Eucalyptus loxophleba* subsp. *supralaevis* with occasional *Eucalyptus horistes* over *Acacia tetragonophylla*, *Acacia ramulosa* var. *ramulosa* and *Acacia effusifolia* with *Alyxia buxifolia* and *Eremophila* spp. Over mixed low shrubs over chenopods and annuals on orange-brown clayey loam drainage flats.

E8: Low Woodland of *Eucalyptus horistes* with *Eucalyptus loxophleba* over *Acacia effusifolia* with *Acacia ramulosa* var. *ramulosa*, *Allocasuarina acutivalvis* subsp. *prinsepiana* and *Hakea recurva* over *Eremophila clarkei* and *Philotheca brucei* subsp. *brucei* over *Ptilotus* spp. and mixed low shrubs over annuals on orange clay on flats.

Acacia Shrublands:
A20: Tall Shrubland of *Acacia ramulosa* var. *ramulosa* and *Acacia sibina* with *Acacia burkittii* and occasional *Melaleuca lateriflora* subsp. *acutifolia* over *Eremophila* spp., *Hibbertia arcuata* and mixed low shrubs over annuals, with occasional emergent *Eucalyptus horistes* on orange/red clayey loam on flats.

A21: Shrubland of *Acacia burkittii* over *Eremophila forrestii* subsp. *forrestii* over mixed low shrubs over annuals on orange clayey flats.

Shrublands:
S10: Shrubland of *Aluta aspera* subsp. *hesperia* and *Acacia sibina* with *Acacia burkittii* over *Philotheca deserti* subsp. *deserti* over annuals on orange sandy loam with pebbles, on flats.

Clearing Description

Minjar Gold Project.
Minjar Gold Pty Ltd (Minjar) proposed to clear up to 112 hectares of native vegetation within a total boundary of approximately 113.8 hectares, for the purpose of mineral production. The project is located approximately 92 kilometres west of Morawa, in the Shire of Perenjori.

Vegetation Condition

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

To:

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

Comment

Vegetation condition was determined by Mattiske (2009). A total of 7.44 hectares are Completely Degraded, and are associated with pre-existing infrastructure including a haul road. Undisturbed vegetation is in Excellent condition according to the Keighery scale (Mattiske, 2009).

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 is located in the Tallering subregion of the Yalgoo IBRA region (GIS Database). The Yalgoo bioregion is situated between the South-western bioregion and the Murchison bioregion (Desmond and Chant, 2001). It is characterised by low to open woodlands of *Eucalyptus, Acacia* and *Callitris* on red sandy plains of the Western Yilgarn Craton and the southern Carnarvon Basin (Desmond and Chant, 2001). A total of five vegetation communities have been recorded within the application area, comprising Eucalypt woodlands, Acacia shrublands and mixed shrublands (Mattiske, 2009; Terratree, 2014). During a flora survey of the application area and surrounds, Mattiske (2009) recorded 32 families, 66 genera and 112 taxa, which is not considered to represent an area of significant floristic diversity. While a number of endemic *Acacia* species are known to occur in the surrounding region, none of these were recorded within the application area (APM, 2014a).

No Threatened Ecological Communities were recorded within the application area (APM, 2014a; GIS Database). The original application area intersected the eastern boundary of the Mount Karara/ Mungada 25 vegetation complex (banded ironstone formation) Priority 1 Priority Ecological Community (PEC) (GIS Database). Following consultation with the proponent, the application area was amended to exclude the PEC.

No Threatened flora occur within the application area (APM, 2014a). However, a total of four Priority flora species have been recorded within the application area, including:

*Drummondita fulva (*Priority 3) - Local population estimated at 515 individuals. Four plants may be impacted by the proposed clearing.
Micromyrtus acuta (Priority 3) - Local population estimated at 938 individuals. Nine plants may be impacted by the proposed clearing.
Micromyrtus trudgenii (Priority 3) - Local population estimated at 225 individuals. A total of 16 plants may be impacted by the proposed clearing.
Persoonia pentasticha (Priority 3) - Local population estimated at seven individuals, all of which occur within the area proposed to be cleared. However, populations at Mugs Luck and Southern Deposits are estimated at 37 and 50, respectively (APM, 2014b).

With the exception of *Micromyrtus acuta*, Priority flora recorded within the application area have also been recorded in other areas within the Minjar Gold project (APM, 2014b). Given the small proportion of plants to be cleared compared to the number of individuals which occur outside the application boundary, the proposed clearing is not likely to impact the conservation status of any Priority flora listed above.

A fauna assessment was conducted by APM in 2012 over the entire Minjar Gold project, of which the application area comprises less than 8% (113.8 hectares) (APM, 2014b). The Keronima deposit contains similar habitat types to those which occur elsewhere across the Minjar Gold project (APM, 2014a; APM, 2014b). Based on a desktop review and field survey, APM (2012) estimated that 132 birds, 71 reptiles, 28 mammals and five amphibians had the potential to occur within the Minjar Gold project. The Keronima deposit provides habitat for Malleefowl (*Leipoa ocellata*; Schedule 1) and the Shield-backed Trapdoor Spider (*Idiosoma nigrum*; Schedule 1), and potential habitat for the Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*; Schedule 1). Minjar Gold has designed the application boundary to avoid Shield-backed Trapdoor Spider habitat and minimise impacts to Malleefowl breeding habitat. The Western Spiny-tailed Skink has not been recorded within the application area, however some suitable habitat of varying quality does occur within the Eucalypt woodland vegetation communities (APM, 2014a). Given that impacts to conservation significant fauna habitat has been minimised and the application area does not contain any significant fauna habitat features, it is unlikely that the application area supports a high diversity of fauna in comparison to surrounding areas.

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

Methodology

APM (2012)
APM (2014b)
Desmond and Chant (2001)
GIS Database:
- IBRA WA (Regions - Subregions)
- 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

Two Level 1 fauna surveys have been conducted over the Keronima Prospect, including Mattiske (2009) and APM (2012). Targeted searches within the application area have also been conducted by APM (2012) and Terratree (2014) for Malleefowl (*Leipoa ocellata*; Schedule 1) and Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*; Schedule 1). Based on flora and vegetation assessments conducted within the Keronima deposit and using the habitat types defined over the wide project area by APM (2012), the following three fauna habitat types occur within the application area; Eucalypt woodland; Shrubland on Loam Flats; and Shrubland on Rocky Loam Flats (Mattiske, 2009; Terratree, 2014). These habitat types are not restricted on a local or regional scale (Mattiske, 2009; APM, 2012).

Based on the habitat types present within the Keronima deposit and the fauna that have been previously recorded in the surrounding area, two conservation significant fauna species may be reliant on habitat within the application area (APM, 2014a). Mallefowl and Malleefowl mounds have been recorded across the Minjar Gold Project (APM, 2012). This ground-nesting species primarily occurs in semi-arid and arid shrublands and low woodlands, using the sandy substrate and leaf litter found in these habitats for mound construction and heat regulation (Department of the Environment, 2015). Malleefowl mounds can be and are often re-used in subsequent years (Department of the Environment, 2015). The Malleefowl breeding season begins in spring, with egg-laying occurring from September to mid-to-late summer, or in some seasons early autumn (APM, 2014a). Eggs hatch after 60-90 days, after which chicks leave the nest and receive no parental care (Department of the Environment, 2015).

A total of nine Malleefowl mounds have been recorded over the Keronima deposit (APM, 2014a). These consist of five historic mounds, which have lost much of their structural integrity, three inactive mounds, which have the potential to be re-used, and one active mound that was in use at the time of survey (Terratree, 2014). Minjar Gold has maintained a 250 metre buffer around the active Malleefowl mound and the application boundary, such that the proposed clearing will not impact this mound. One of the three inactive Malleefowl mounds is located within the application area (APM, 2014a). However, as it is positioned between the areas excluded to avoid the active Malleefowl mound and *Stylidium scintillans* habitat, there is little opportunity to adjust the clearing envelope to avoid impacting this inactive mound. DPaW advises that clearing activities within this area should be conducted outside of the Malleefowl breeding season that occurs between 1 September and 30 April to avoid impacts on the local breeding population (DPaW, 2015). Given that additional inactive mounds occur in the area surrounding the proposed clearing and a buffer will be maintained around the active mound, the disturbance to one inactive mound is not considered likely to impact the local Malleefowl population. Impacts to Malleefowl as a result of the proposed clearing may be minimised by the implementation of a fauna management condition.

The Western Spiny-tailed Skink occurs within the northern Wheatbelt of Western Australia (APM, 2014a). This species exists in small family groups, inhabiting hollow logs or trees, or rock crevices (APM, 2014a). The Eucalypt woodland that occurs within the application area is considered to be suitable habitat for the Western Spiny-tailed Skink, as it provides hollow Eucalypt trees and branches (APM, 2014a; Terratree, 2014). However, most hollows were considered to be unsuitable, as some were inhabited by termites, some had cracked and left the hollow exposed to predators, and some were elevated and therefore unable to be accessed from ground level (APM, 2014a). Furthermore, APM (2014a) advised that while the Western Spiny-tailed Skink prefers large piles of hollow logs, most hollows within the application area consisted of single branches or trees. Targeted searches conducted by APM (2012) and Terratree (2014) found no individuals or secondary evidence of occupation within the application area. While some suitable habitat for the Western Spiny-tailed Skink does occur within the application area, it is of varying quality and unlikely to represent significant habitat for this species.

The Shield-backed Trapdoor Spider has been recorded across the Minjar Gold Project during previous surveys. Using habitat mapping conducted by previous fauna assessments, suitable habitat for this species was identified within the Keronima deposit (APM, 2014a). However, the application area has been designed to exclude these areas, and the proposed clearing is therefore not likely to impact significant habitat for the Shield-backed Trapdoor Spider.

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

Methodology

APM (2012)
APM (2014a)
Department of the Environment (2015)
DPaW (2015)
Mattiske (2009)
Terratree (2014)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal is not likely to be at variance to this Principle

According to available databases and survey reports, no Threatened flora species occur within the application

area (Mattiske, 2009; Terratree, 2014; GIS Database). The Threatened flora *Stylidium scintillans* is known to occur within the Minjar Gold Project Area. During a targeted search by Terratree (2014), a population was recorded adjacent to the eastern boundary of the application area. The proponent has maintained a 50 metre buffer between *Stylidium scintillans* habitat and the application boundary.

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

Methodology Mattiske (2009)
Terratree (2014)
GIS Database:
- Threatened and Priority Flora

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

Comments

Proposal is not likely to be at variance to this Principle

A search of available databases indicates that the application area is not likely to occur within a Threatened Ecological Community (TEC) (GIS Database). No TECs have been recorded within the application area during field surveys (APM, 2014a). The nearest TEC occurs approximately 56 kilometres south-west of the application area (GIS Database).

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

Methodology APM (2014a)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

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

The vegetation within the application area has been mapped as Beard vegetation association 420 (GIS Database). Over 90% of this Beard vegetation association remains at both a state and bioregional level (Government of Western Australia, 2013). 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). 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 DPaW Managed Lands (and post clearing %)
IBRA Bioregion – Yalgoo	5,057,326	4,924,606	~97.38	Least Concern	31.69 (32.39)
IBRA Subregion - Tallering	3,498,943	3,387,859	~96.83	Least Concern	~24.22 (~24.98)
Local Government - Perenjori	830,116	468,851	~56.48	Least Concern	~27.32 (~47.49)
Beard veg assoc. - State					
420	859,632	830,218	~96.58	Least Concern	~14.17 (~14.67)
Beard veg assoc. - Bioregion					
420	621,396	620,265	~99.82	Least Concern	~16.47 (~16.50)
Beard veg assoc. - Subregion					
420	615,816	614,686	~99.82	Least Concern	~16.62 (~16.65)

* 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:
- Pre-European Vegetation
- Rothsay 50cm Orthomosaic - Landgate 2006

(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**
According to available databases, one minor, non-perennial watercourse occurs within the application area (GIS Database). However, none of the five vegetation communities recorded during flora surveys were found to occur in or in association with a watercourse or wetland (Mattiske, 2009; Terratree, 2014).

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

Methodology Mattiske (2009)
Terratree (2014)
GIS Database:
- Hydrography, linear

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

Comments **Proposal is not likely to be at variance to this Principle**
The application area occurs over the Moriarty land system (GIS Database), which is comprised of Archaean greenstone, minor granite, Tertiary ferruginous duricrust and Quaternary colluvium and alluvium. The landscape consists of low rises and gently undulating lower plains with pebble mantles, and level to gently inclined alluvial plains with poorly defined and sparse drainage patterns (Payne et al., 1998). Alluvial plains and drainage tracts are moderately susceptible to water erosion if native vegetation is cleared (Payne et al., 1998). Given that one ephemeral drainage line occurs within the application area, some minor water erosion may occur as a result of the proposed clearing. Potential impacts from erosion may be minimised by the implementation of a staged clearing condition.

Two weed species have been recorded within the application area, including *Mesembryanthemum nodiflorum* (Slender Iceplant) and *Aira cupaniana* (Silvery Hairgrass) (Mattiske, 2009). Additional flora surveys across the wider Minjar Gold project area have recorded a further 25 weeds in the area (APM, 2014a). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area (DEC, 2011). Potential land degradation 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 APM (2014a)
DEC (2011)
Mattiske (2009)
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 may be at variance to this Principle**
The western portion of the application area occurs within the former Warriedar pastoral lease, which is a conservation area managed by the Department of Parks and Wildlife (DPaW) (GIS Database). DPaW (2015) provided advice in relation to Priority flora, Malleefowl and a Priority Ecological Community that occur within and adjacent to the former Warriedar pastoral lease. This advice has been incorporated into the assessment of Principles (a) and (b). The proposed clearing may also lead to soil erosion and contribute to the spread of weeds within the conservation area. Impacts from erosion and weed invasion may be minimised by the implementation of a staged clearing condition and weed management condition.

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

Methodology DPaW (2015)
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 is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses in or surrounding the application area (GIS Database), and APM (2014a) advises that surface drainage predominantly takes the form of sheet flows. There is one minor, non-perennial watercourse within the western portion of the application area (GIS Database). Climate statistics for Morawa indicate that rainfall is much lower than evaporation in this region (BoM, 2015; GIS Database), and surface water is therefore likely to evaporate quickly. Therefore, the proposed clearing is not likely to lead to deterioration in the quality of surface water.

Groundwater within the application area occurs approximately 65 meters below ground level (APM, 2014a). According to available databases, groundwater salinity within the application area ranges between 3,000 and 7,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database), which is considered to be brackish to saline. The proposed clearing is not likely to alter groundwater quality on a local or regional scale.

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

Methodology

APM (2014a)
BoM (2015)
GIS Database:
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 application area is located within the YarraMonger catchment area (GIS Database). Given the size of the area to be cleared (112 hectares) in relation to the size of the catchment area (4,182,476 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

The region experiences an average annual rainfall of 287.2 millimetres (BoM, 2015) and an average annual evaporation rate of 3,000 millimetres (GIS Database). With an arid to semi-arid warm Mediterranean climate (Desmond and Chant, 2001), the area is generally not susceptible to extreme rainfall events (BoM, 2015). While some low-lying areas across the Minjar Gold Project hold water after rain, the application area is located on a moderately high point in the catchment (GIS Database). The proposed clearing is therefore not likely to lead to an increase in the incidence or intensity of flooding on a local or regional scale.

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

Methodology

BoM (2015)
Desmond and Chant (2001)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim over the application area (GIS Database). This claim (WC1996/098) has 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 is one registered Site 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.

The larger Minjar Gold Project was referred to the Environmental Protection Authority (EPA) by the proponent. The EPA published a decision of 'Not Assessed - Public Advice Given' on 15 April 2013. Public advice was given on terrestrial fauna, flora and vegetation and rehabilitation and closure factors. The terrestrial fauna and flora and vegetation factors were considered during the assessment of the clearing permit application, and have been addressed under the relevant clearing principles. Rehabilitation and mine closure factors are considered under the *Mining Act 1978*.

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 1 December 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 - Filed at the Federal Court
- Native Title Claims - Registered with the NNTT

4. References

APM (2012) Fauna Assessment Austin, Blackdog, Bobby McGee, Bugeye, Camp, Highland Chief, Keronima, M1, Monaco, Mugs Luck, Riley, Silverstone, Trench and Windinne Well Projects. Unpublished report prepared by Animal Plant Mineral Pty Ltd for Minjar Gold Pty Ltd dated August - October 2012.

APM (2014a) Minjar Gold Pty Ltd Clearing Permit (Purpose Permit) Application Supporting Information: Application for a native vegetation clearing permit (purpose permit) for the Minjar Gold Keronima Deposit South Murchison Region, Western Australia. Unpublished report prepared by Animal Plant Mineral Pty Ltd for Minjar Gold Pty Ltd dated October 2014.

APM (2014b) Amendment Application for CPS 5809/2 - Minjar Gold Pty Ltd. Unpublished report prepared by Animal Plant Mineral Pty Ltd for Minjar Gold Pty Ltd dated October 2014.

BoM (2015) Climate Statistics for Australian Locations. Climate Statistics for Australian Locations. A Search for Climate Statistics for Morawa, Australian Government Bureau of Meteorology. http://www.bom.gov.au/climate/averages/tables/cw_008296.shtml, viewed January 2015.

Desmond, A. and Chant, A (2001) Yalgoo (Yal). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.

DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conservation, Perth.

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.

Department of the Environment (2015) *Leipoa ocellata* in Species Profile and Threats Database, Department of the Environment, Canberra. http://www.environment.gov.au/sprat, viewed January 2015.

DpaW (2015) Advice provided by the Department of Parks and Wildlife to the Assessing Officer on 6 January 2015.

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.

Mattiske (2009) Flora and vegetation Survey of the Keronima Project Area within Tenement M59/420, Minjar Project Area. Unpublished report prepared by Mattiske Consulting Pty Ltd for Golden Stallion Resources.

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

Terratree (2014) Targeted Survey of Keronima for Malleefowl (*Leipoa ocellata*), Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*), and Declared Rare and Priority Flora. Unpublished report prepared by Terratree for Minjar Gold Pty Ltd dated September 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 DPaW according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.

Rankings:
CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
EN: Endangered - considered to be facing a very high risk of extinction in the wild.
VU: Vulnerable - considered to be facing a high risk of extinction in the wild.

X **Presumed Extinct species:**
Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).

IA **Migratory birds protected under an international agreement:**
Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.

S **Other specially protected fauna:**
Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P1 **Priority One - Poorly-known species:**
Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

P2 **Priority Two - Poorly-known species:**
Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

P3 **Priority Three - Poorly-known species:**
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

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.