



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3505/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Australian Strategic and Precious Metals Investments Pty Ltd

1.3. Property details

Property: Mining Lease 63/515
Local Government Area:
Colloquial name: Mount Henry

1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|--------------------|-----------|--------------------|---------------------|
| 36.33 | | Mechanical Removal | Mineral Production |

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

| Vegetation Description | Clearing Description | Vegetation Condition | Comment |
|--|---|--|--|
| <p>Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia and are useful to look at vegetation extent in a regional context. Two Beard Vegetation Associations are located within the proposed clearing area (GIS Database):</p> <p>-Beard Vegetation Association 221: succulent steppe; saltbush, and</p> <p>-Beard Vegetation Association 3106: Medium woodland; salmon gum & Dundas blackbutt.</p> <p>The majority of the application area is composed of Beard Vegetation Association 221 (GIS Database).</p> <p>Marianna Partners (1996) undertook a vegetation survey of the application area in July 1996. As a result, the following vegetation associations were recorded in the application area:</p> <p>-Mixed eucalypt woodland over <i>Melaleuca sheathiana</i> upperstorey with a sparse understorey;</p> <p>-Mixed open eucalypt woodland over sparse understorey;</p> <p>-Mixed eucalypt woodland over Eremophila, Grevillea and Dodonaea on a ridge system; and</p> <p>-Sparse eucalypt woodland over a <i>Melaleuca sheathiana</i> upperstorey and a chenopod understorey.</p> | <p>Matsa Resources (a subsidiary of Australian Strategic and Precious Metals Investment Pty Ltd) have applied to clear up to 36.33 hectares for the purpose of undertaking a small scale mining operation. This will consist of three open pits, two waste dumps, low grade ore stockpile, two ROM pads and a site office/ laydown area. A 20 metre wide corridor centred along the existing unsealed access road from Mount Henry deposit to the Coolgardie-Esperance Highway is planned to be added at a later date (GHD, 2009a).</p> <p>Vegetation clearing will be undertaken via mechanical means in a three stage process; first clearing will occur for the laydown area, office area and Pit 5, then clearing would occur later for Pit 1 and associated waste dump and ROM Pad, whilst the middle pit will be cleared at a later date (Matsa Resources, 2010). Cleared topsoil and vegetation will be retained for future rehabilitation works (GHD, 2009a).</p> | <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)</p> | <p>The application area is located within Mining Lease 63/515 and is situated approximately 800 metres to the north of the historical town site of Dundas. The application area also lies approximately 19.35 kilometres south of the Norseman town site, and six kilometres east of the Coolgardie-Esperance highway (GIS Database).</p> <p>Disturbance from previous mining activities is evident across much of the site, the most obvious being an open pit and associated waste dump situated on the Banded Ironstone Formation (BIF) ridge within the application area. Further to this, there are numerous drill lines and vehicle tracks evident within the application area from exploration activities (GIS Database).</p> |

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 within the Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). At a broad scale, vegetation can be described as Mallees, Acacia thickets and shrub-heaths on sandplains with diverse Eucalyptus woodlands occurring around salt lakes, on ranges and in valleys (Cowan, 2001). The dominant land uses of the subregion include crown reserves, grazing-native pastures-leasehold, freehold, conservation and mining leases (Cowan, 2001).

A vegetation survey of the application area was undertaken by Marianna Partners in July 1996. As a result, 53 vascular plant species were recorded in the application area. Four vegetation associations were recorded within the application area, which can be broadly described as mixed eucalypt woodlands (Marianna Partners, 1996).

No introduced flora species were recorded by Marianna Partners (1996) during the initial flora survey. The proposed vegetation clearing has the potential to introduce weed species into the local area should adequate hygiene practices not be put in place. Weeds can affect biodiversity in a number of ways, including out competing native species for resources and increasing the fire risk. Standard weed management protocols can manage the risks posed by the introduction and spread of weeds.

The application area is highly fragmented from clearing associated with previous mining, including a pit area, vehicle tracks, and waste dump (GHD, 2009b). The area is also highly impacted upon from exploration activities including drill lines and vehicle tracks (GIS Database). On this basis, the proposed clearing area is not likely to exhibit a higher level of floristic diversity than other areas in the bioregion.

A level 1 desktop fauna survey of the application area was undertaken by GHD in October 2009. The survey identified 3 mammal, 1 reptile and 11 bird species of conservation significance as potentially occurring in the application area (GHD, 2009b). However, the fauna habitats present in the proposed clearing area are well represented in the surrounding region, and higher quality habitats exist outside the application area (GHD, 2009b).

Although Eucalypt communities were recorded in the application area (which are known to be diverse features of the Eastern Goldfields Subregion), much of the application area is in a degraded state (GHD, 2009a). Further to this, the fauna habitats and vegetation associations present are well represented within the local area (GHD, 2009c), and it is unlikely the vegetation within the application area supports a higher level of biodiversity in comparison to these areas.

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

Methodology

Cowan (2001).
GHD (2009a).
GHD (2009b).
GHD (2009c).
Marianna Partners (1996).
GIS Database:
-IBRA WA (Regions - Sub Regions).
-IBRA Australia.

(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

A level 1 desktop fauna study of the application area was undertaken by GHD (2009c), which included a search of the following databases:

- The Department of Environment and Conservation's (DEC) Threatened Fauna database;
- the Western Australian Museum (WAM)/DEC's NatureMap database for threatened and endangered fauna;
- the Department of Environment, Water, Heritage and the Arts' (DEWHA) database for areas listed under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

As a result of the desktop study a number of fauna species of conservation significance were highlighted as potentially occurring within the application area, including: Malleefowl (*Leipoa ocellata*); Carnaby's Black Cockatoo (*Claytonornis lathrostris*); Hooded Plover (*Charadrius rubricollis*); Crested Shrike-tit (south-western subsp.) (*Falcunculus frontatus leucogaster*); Peregrine Falcon (*Falco peregrines*); Shy Heathwren (*Hyacola cauta whitlocki*); Rainbow Bee-eater (*Merops ornatus*); Crested Bellbird (*Oreoica gutturalis gutturalis*);

Western Rosella - inland subsp. (*Platycercus Icterotis xanthogenys*); Fork-tailed Swift (*Apus pacificus*); Great Egret (*Ardea alba*); Cattle Egret (*Ardea ibis*); Carpet Python (*Morelia spilota imbricata*); Chuditch (*Dasyurus geoffroi*); Numbat (*Myrmecobius fasciatus*) and Brush-tailed Phascogale (*Phascogale Tapoata subsp. WAM 434*).

This list has been further refined based on habitat preferences and known distributions. As a result, the following two species are considered as having the greatest potential to inhabit the application area:

The Malleefowl (listed as Vulnerable under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) are large ground dwelling birds which inhabit semi-arid areas and remnant vegetation within agricultural zones of Western Australia up to Shark Bay (Johnstone & Storr, 1998). Their habitat is listed as scrub and thickets of mallee (*Eucalyptus spp. boree*), (*Malaleuca lanceolata* and *bowgada Acacia linophylla*); also other dense litter forming shrublands. Given that Eucalypt and Melaleuca woodlands are present within the application area, it is possible that this species could be found in the application area. However, the Eucalypt and Melaleuca woodlands found in the application area have been highly disturbed from historical exploration activities. Further to this, the vegetation communities recorded lack the dense understory which is required for nesting Malleefowl (GHD, 2009c). GHD (2009c) have stated that higher quality nesting habitat occurs to the south of the application near the North Scotia deposit. Based on this, it is unlikely the application area is high quality nesting habitat for the Malleefowl.

The Hooded Plover (listed as 'Near Threatened' under the *EPBC Act 1999*) is a wader bird that is found along the south of Western Australia's coastline up to Port Gregory, Mt Gibson across Lake Barlee to Eyre (Johnstone & Storr, 1998). Its habitat is known to be the margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries (Johnstone & Storr, 1998). This species is known to nest in scrape in sand on beaches, or in nearby coastal dunes or in the soil at the edge of inland lakes. Lake Dundas is located approximately 300 metres to the east of the application area (GIS Database). Although it is possible that Hooded Plovers move through the application area, it is highly unlikely they would nest in the application area and it is more likely they would nest closer to the margins of Lake Dundas. Based on this, it is unlikely the application area forms suitable nesting habitat for the hooded plover.

GHD (2009c) have stated that the broad fauna habitats present within the project area include the following:

- Woodlands;
- Shrublands; and
- Lake margins.

These habitats are considered to be widespread in the region, with similar vegetation occurring widely from near Lake Johnston to the edges of the Nullarbor, and from north of Kalgoorlie to near Esperance (GHD, 2009c).

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

Methodology GHD (2009c).
Johnstone & Storr (1998).
GIS Database:
-Hydrography, linear

(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

A vegetation survey of the application area was undertaken by Marianna Partners in July 1996. As a result, there were three Priority flora species recorded within the application area including; *Eromophila purpurascens* (Priority 3), *Eucalyptus brockwayi* (Priority 3) and *Philothea apiculata* (Priority 2) (Marianna Partners, 1996). Based on the presence of these Priority flora species, a further targeted flora survey of the application area was undertaken by GHD in September 2009 to verify the results of this earlier vegetation survey. As a result, the following Priority flora species were recorded within the application area (GHD, 2009b):

Philothea apiculata (Priority 2) is an erect shrub from 0.5 0 - 1.5 metres high, which occurs on stony clay loams on rocky outcrops and hillsides (Western Australian Herbarium, 2010). A total of 90 plants were recorded across the survey area, this included one large population of 50 plants with several smaller groups of around 5 - 10 individuals. According to GHD (2009) *Philothea apiculata* individuals were also observed beyond the survey area, occurring on ridge crests and slopes of the BIF.

The proposed clearing if approved will result in 90 individuals of this species being removed. However, this recorded population represents 1 of 23 known populations, all of which are within the Emu Rocks to Norseman region of the Goldfields (GHD, 2009b). This shows that although this flora species is restricted in distribution and numbers, it appears common in the local area. As a result, it is unlikely the removal of this population will result in significant impact to the conservation status of this species.

Eucalyptus brockwayi (Priority 3) is a tree ranging in height from 15-20 metres which is known to occur on gravelly sand loams on low rocky hills and slopes (Western Australian Herbarium, 2010). GHD (2009b) have stated that 132 individuals of *Eucalyptus brockwayi* were recorded within the application area on the BIF ridge in skeletal sandy clays interspersed with BIF derived rocky material. The proposed clearing will result in the loss of this population, however, stands of *Eucalyptus brockwayi* were observed immediately beyond the boundaries of the proposed clearing footprint (GHD, 2009b). Furthermore, DEC records show stands of *Eucalyptus brockwayi* are common throughout the nearby Brockway Timber Reserve, which is situated approximately four kilometres to the north (GHD, 2009b). This population of *Eucalyptus brockwayi* represents 1 of 74 populations recorded throughout the state; meaning the proposed clearing will result in a 1.35% reduction in known populations, most of which are found in the surrounding Norseman region (GHD, 2009b). Based on this, it is unlikely that the removal of this population will significantly impact on the conservation status of this species.

Eremophila purpurascens (Priority 3) is an erect, bushy shrub from 0.3 - 1.5 metres high, occurring in sandy clay and stony loam soil over greenstone as well as granite hills (Western Australian Herbarium, 2010). Eleven individuals of this species were recorded on the eastern side of the BIF ridge within the proposed waste dump site on the eastern facing slope. If the proposed clearing is approved this will result in all eleven individuals being removed in the application area. According to Western Australian Herbarium (2010c), there are approximately 22 records of *Eremophila purpurascens* in the state meaning the removal of this population represents a 4.5% reduction in known populations. However, it should be noted that although this species is seen as restricted in its distribution and known numbers, it does not appear to be extremely uncommon in suitable habitats where it is known to occur (GHD, 2009b). The habitats present within the application area are well represented in areas surrounding the application area (GHD, 2009c); as a result it is unlikely the clearing of this population will impact on the conservation status of this species.

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

Methodology GHD (2009b).
Marianna Partners (1996).
Matsa Resources (2010).
Western Australian Herbarium (2010a).

(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 GIS Databases, there are no known Threatened Ecological Communities (TEC's) within a 50 kilometre radius of the application area (GIS Database). Marianna Partners (1996) did not locate any TEC's or Priority Ecological Communities (PEC's) within the application area.

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

Methodology Marianna Partners (1996).
GIS Database:
-tec_sites_1

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

Comments Proposal is not at variance to this Principle

The application area falls within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion within which approximately 98.42% of the Pre-European vegetation remains (see table overleaf) (GIS Database; Shepherd, 2007).

The vegetation of the application area has been mapped as:

Beard Vegetation Association 221: succulent steppe; saltbush, and

Beard Vegetation Association 3106: Medium woodland; salmon gum & Dundas blackbutt.

According to Shepherd (2007) approximately 98.8% of Beard Vegetation Association 221 remains at a state level, whilst 100% remains at a bioregional level. Approximately 97.9% of Beard Vegetation Association 3106 remains at both a state and 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.

Whilst only a small percentage of the vegetation types within the Coolgardie bioregion are adequately protected within conservation reserves, the bioregion remains largely uncleared. As a result, the conservation of vegetation associations within the bioregion is not likely to be impacted by this proposal.

| | Pre-European area (ha)* | Current extent (ha)* | Remaining % | Conservation Status** | Pre-European % in IUCN Class I-IV Reserves (and post clearing %)* |
|------------------------------|-------------------------|----------------------|-------------|-----------------------|---|
| IBRA Bioregion – Coolgardie | 12,912,204 | 12,707,619 | ~98.42 | Least Concern | 10.87 (11.04) |
| Beard veg assoc. – State | | | | | |
| 221 | 63,720 | 62,969 | ~98.8 | Least Concern | 4.3 (4.3) |
| 3106 | 52,661 | 51,542 | ~97.9 | Least Concern | 5.9 (6.1) |
| Beard veg assoc. – Bioregion | | | | | |
| 221 | 19,498 | 19,498 | ~100 | Least Concern | 10.1 (10.1) |
| 3106 | 52,660 | 51,541 | ~97.9 | Least Concern | 5.9 (6.1) |

* Shepherd (2007)

** 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).
Shepherd (2007).
GIS Database:
- Pre-European Vegetation_1.
- IBRA Australia.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments Proposal is at variance to this Principle

The western shoreline of Lake Dundas (a large salt lake feature in the Norseman region) is located approximately 300 metres to the east of the application area at its nearest point (GIS Database). The proposed clearing will not result in the removal of any vegetation which acts as an important buffer for Lake Dundas.

There are no permanent watercourses or wetlands within the proposed clearing area (GIS Database). However, there is one deeply incised ephemeral drainage line in the application area which runs in a north to south direction. Matsa Resources (2010) have stated that that some vegetation within this drainage line will need to be cleared for a waste rock dump. In regards to the management of this, Matsa Resources have committed to form a diversion channel around the waste dump which will reinstate flows downstream (GHD, 2009d).

Given that this clearing proposal involves clearing of vegetation growing in, or in association with, an environment associated with a watercourse or wetland, the proposed clearing is at variance to this Principle.

Marianna Partners (1996) have mapped the vegetation of this drainage line as mixed eucalypt woodland over Eremophila, Grevillea and Dodonaea on a ridge system. This vegetation community is not noted as being riparian in nature (Marianna Partners, 1996).

Analysis of aerial photography indicates that ephemeral drainage lines are a common feature both locally (within a 50 kilometre radius) and regionally (within the Coolgardie bioregion) (GIS Database).

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

Methodology Marianna Partners (1996).
Matsa Resources (2010).
GHD (2009d).
GIS Database:
- Badja 1.4M Orthomosaic.
- 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 is dominated by a BIF ridge running in a north to south orientation, composed of shallow sandy loams, approximately 100 millimetres in depth (GHD, 2009b). Areas surrounding the BIF ridge are described as flat to undulating plains composed of sandy clay loams (Marianna Partners, 1996).

It is expected that soils in the application area, especially on the BIF are very shallow (0 -10 centimetres deep) and dominated by the presence of blocky fragmental rock material (GHD, 2009d). GHD (2009d) have stated that soils within the application area are non-dispersive and unlikely to be prone to erosion.

In the north-east of the application area, there is a deeply incised drainage line which runs in a north to south orientation (GHD, 2009d). Matsa Resources (2009) have stated that clearing will be required in this area for a waste dump. It is likely that clearing within this drainage line may cause some temporary erosion. In regards to the management of erosion, GHD (2009d) have stated that a diversion channel will be implemented to divert stormwater around the north-east and south-west corners of the waste dump (GHD, 2009d). The northern diversion channel will link up with the natural drainage line immediately east of the dump so its original pathway is maintained. This will ensure surface flows are maintained and vegetation downstream is not starved of surface water.

GHD (2009d) have stated that table drains, culverts, diversion channels and bunding will be implemented where necessary to manage surface water flows within the application area and to prevent erosion.

The soils within the proposed clearing area are generally saline to extremely saline due to their proximity to Lake Dundas (GHD, 2009d). Given this, the proposed clearing is not likely to result in changes to salinity within the proposed clearing area.

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

Methodology GHD (2009b).
GHD (2009d).
Marianna Partners (1996).
Matsa Resources (2010)

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

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

The application area is not located within a conservation reserve (GIS Database). The Dundas Nature Reserve is located approximately 12 kilometres south-west of the application area at its nearest point (GIS Database). Due to the distance between the application area and the Dundas Nature Reserve, it is unlikely the environmental values of this nature reserve will be compromised from the proposed clearing.

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

According to available databases, the proposed clearing area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The average annual rainfall within the proposed clearing area is 300 millimetres and the average annual evaporation rate is 2,600 millimetres (GIS Database). Therefore, during normal rainfall events surface water in the proposed clearing area is likely to evaporate quickly. However, during substantial rainfall events erosion may occur in cleared areas resulting in a higher sediment load. It is possible that erosion may result from clearing for the waste dump in the north east of the application area, which is proposed in a drainage line. In regards to the management of surface water flows, Matsa Resources have committed to form a diversion channel around the waste dump which will reinstate flows downstream (GHD, 2009d). Further to this, table drains, culverts, diversion channels and bunding will be implemented where necessary to manage surface water flows within the application area.

The proposed clearing area is characterised by a paleochannel aquifer containing hypersaline groundwater of >14,000 milligrams/Litre TDS (GHD, 2009d, GIS Database). Given the groundwater is already hypersaline, any vegetation clearing within the proposed clearing area is not likely to alter the existing groundwater quality.

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

Methodology GHD (2009d).
Matsa Resources (2010).
GIS Database:
- Hydrography, linear (medium scale, 250k GA)
- Public Drinking Water Source Areas (PDWSAs) - DOW

(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 described as arid to semi-arid with hot summers and cool winters. The average annual rainfall is 288.8 millimetres, with rains occurring in winter from cold fronts from the west, whilst in summer thunderstorms can produce heavy localised falls in short periods (Bureau of Meteorology (BoM), 2010). Based on an average annual evaporation rate of 2,600 millimetres (GIS Database), any surface water resulting from rainfall events is likely to be relatively short lived.

The clearing of native vegetation is likely to result in an increase in surface water runoff; however, the proposed clearing is not likely to increase the incidence or intensity of flooding.

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

Methodology BoM (2010).
GIS Database:
- Evapotranspiration, Point Potential.
- Rainfall, Mean Annual.

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

Comments

There is one native title claim over the area under application: WC99/002 (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement 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*.

According to available databases, there are no Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged throughout the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation 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.

One direct interest submission was received during the public submissions period stating no objection to the proposal.

Methodology GIS Databases:
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposed clearing is at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should a permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, record keeping and permit reporting.

5. References

- BoM (2010) Climate of Kalgoorlie - Boulder URL: <http://www.bom.gov.au/weather/wa/kalgoorlie/climate.shtml>
- Cowan, M (2001) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 3 (COO3 - Eastern Goldfields subregion).
- 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.
- GHD (2009a) Matsa Resources Limited - Proposed small scale mining operation and access road upgrades - Clearing permit

application - Supporting Documentation. Unpublished report prepared December 2009 for Matsa Resources Pty Ltd.

GHD (2009b) Mount Henry small scale mining operation supplementary targeted flora survey report. Unpublished report prepared 04 December 2009 for Matsa Resources Pty Ltd.

GHD (2009c) Norseman Gold Project - Small scale mining operation - Desktop fauna assessment. October 2009. Unpublished report prepared December 2009 for Matsa Resources Pty Ltd.

GHD (2009d) Matsa Resources Limited - Report for Norseman Gold Project (Stage 1) - Surface water assessment. Unpublished report prepared June 2009 for Matsa Resources Pty Ltd.

Johnstone, R.E. & Storr G.M. (1998) Western Australian Birds. Western Australian Museum. 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.

Marianna Partners (1996) Mercury – Mt Henry and Iron Prince Project Areas Norseman, Western Australia – Pre-Mining Environmental survey. Unpublished report prepared July 1996 for Australasian Gold Mines NL.

Matsa Resources (2010) Supporting information for clearing permit application CPS 3505/1.

Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

WAH (2010) FloraBase - The Western Australian Flora. Department of Environment and Conservation. URL: <http://florabase.calm.wa.gov.au/browse/profile/18520>

6. Glossary

Acronyms:

| | |
|-----------------|---|
| BoM | Bureau of Meteorology, Australian Government. |
| CALM | Department of Conservation and Land Management, Western Australia. |
| DAFWA | Department of Agriculture and Food, Western Australia. |
| DA | Department of Agriculture, Western Australia. |
| DEC | Department of Environment and Conservation |
| DEH | Department of Environment and Heritage (federal based in Canberra) previously Environment Australia |
| DEP | Department of Environment Protection (now DoE), Western Australia. |
| DIA | Department of Indigenous Affairs |
| DLI | Department of Land Information, Western Australia. |
| DMP | Department of Mines and Petroleum, Western Australia. |
| DoE | Department of Environment, Western Australia. |
| DoIR | Department of Industry and Resources, Western Australia. |
| DOLA | Department of Land Administration, Western Australia. |
| DoW | Department of Water |
| EP Act | Environment Protection Act 1986, Western Australia. |
| EPBC Act | Environment Protection and Biodiversity Conservation Act 1999 (Federal Act) |
| GIS | Geographical Information System. |
| IBRA | Interim Biogeographic Regionalisation for Australia. |
| IUCN | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| RIWI | Rights in Water and Irrigation Act 1914, Western Australia. |
| s.17 | Section 17 of the Environment Protection Act 1986, Western Australia. |
| TECs | Threatened Ecological Communities. |

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

- R** **Declared Rare Flora – Extant taxa** (= *Threatened Flora = Endangered + Vulnerable*): taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1** **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2** **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3** **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4** **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
 (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
 (a) is not critically endangered; and
 (b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU** **Vulnerable:** A native species which:
 (a) is not critically endangered or endangered; and
 (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD** **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.