



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 5809/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Minjar Gold Pty Ltd

### 1.3. Property details

Property: Mining Lease 59/380  
Mining Lease 59/425  
Mining Lease 59/431  
Mining Lease 59/460  
Miscellaneous Licence 59/135  
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:
135.01		Mechanical Removal	Mineral Production and Associated Activities

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 16 January 2014

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations are located within the application area (GIS Database):

355: Shrublands; bowgada and jam scrub with scattered York gum and red mallee;  
420: Shrublands; bowgada and jam scrub; and  
434: Shrublands; *Acacia quadrimarginea* and jam scrub with scattered York gum and *Allocasuarina huegeliana*.

The application area comprises two separate areas. One is known as Mugs Luck and the second comprises several prospects including Blackdog, Highland Chief/Bobby McGee, Trench and Camp (Southern Deposits).

#### **MUGS LUCK**

Several flora and vegetation surveys have been conducted over Mugs Luck and the Minjar Gold tenements. Vegetation mapping for Mugs Luck is sourced from flora and vegetation surveys undertaken by Woodman Environmental Consulting Pty Ltd (Woodman) and Animal Plant Mineral (APM). Most of the mapping is sourced from a Woodman survey conducted on 19 to 22 January 2004 (Woodman, 2004). APM mapped a small area along the eastern boundary of the application area. This survey also included a targeted Threatened and Priority Flora survey. The APM survey included several other Minjar prospects and was undertaken from 29 August to 5 September 2012, 13 to 24 September 2012 and 4 to 14 October 2012 (APM, 2012b). According to APM (2013b), the following ten vegetation communities occur within the Mugs Luck application area:

#### **Woodlands**

1. W1: Open Low Woodland of mixed *Eucalyptus* species over Thicket to Scrub of *Acacia* species over a Dwarf Scrub of mixed species over Herbs on red loamy soils with gravel.

2. W3: Open Low Woodland of *Eucalyptus ?kochii* subsp. *plenissima* over Thicket of mixed *Acacia* species on red loamy-clay.

#### **Thickets and Scrubs**

3. T1: Thicket to Dense Thicket dominated by *Acacia ramulosa* var. *ramulosa* over a Low Scrub of mixed species over Herbs on red loamy soils with some gravel.

4. T3: Thicket to Open Scrub of mixed *Acacia* species over Heath dominated by *Thryptomene costata* or *Aluta aspera* subsp. *hesperia* on red silty-clay with gravel.

5. T4: Thicket to Scrub dominated by *Melaleuca hamata*, *Allocasuarina acutivalvis* ?subsp. *prinsepiana* and *Acacia* species on red loamy-clay on rocky ground.

6. T6: Scrub to Heath of mixed *Acacia* and *Eremophila* species, with emergent *Eucalyptus* species on red clay-

loam on lower slopes and water-gaining flats.

#### **Melaleuca Thicket**

7. maT1: *Melaleuca atroviridis* thicket, over *Acacia effusifolia* scattered shrubs, over mixed open seasonal herbland. Occurred on minor drainage lines with orange brown clay.

#### **Acacia Scrub**

8. aeS2: *Acacia effusifolia* (*Acacia quadrimarginea*) scrub, over *Acacia tetragonophylla* open shrubland, over scattered seasonal herbs. Occurred on flat plains with orange brown clay-loam.

#### **Acacia Open Scrub**

9. aqOS5: *Acacia quadrimarginea* open scrub, over *Thryptomene costata* open heath, over *Borya sphaerocephala* and seasonal mixed herbland. Occurred on slopes and hill crests with orange brown clay-loam associated with basalt.

#### **Eucalyptus Open Woodland**

10. elsOW1: *Eucalyptus loxophleba* subsp. *supralaevis* open woodland, over mixed *Acacia ramulosa* var. *ramulosa*, *Eremophila oldfieldii* subsp. *oldfieldii*, *Exocarpos aphyllus* open scrub, over *Ptilotus obovatus* var. *obovatus* scattered low shrubs over scattered seasonal herbs. Occurred on flat plains with orange brown clay-loam.

#### **SOUTHERN DEPOSITS**

Several flora and vegetation surveys have been conducted over the Southern Deposits. Vegetation mapping is sourced from a flora and vegetation survey undertaken by Woodman in September 2003 (Woodman, 2003). Targeted Threatened and Priority Flora surveys were conducted by APM in November 2011 and September and October 2012 (APM, 2011; APM, 2012b). According to APM (2013a), the following seven vegetation communities occur within the Southern Deposits application area:

#### **Woodlands**

1. W1: Open Low Woodland of mixed *Eucalyptus* species over Thicket to Scrub of *Acacia* species over a Dwarf Scrub of mixed species over Herbs on red loamy soils with gravel.
2. W2: Open Low Woodland of *Eucalyptus salmonophloia* and *Eucalyptus loxophleba* subsp. *supralaevis* over Open Scrub on red silty clay with quartz pebbles.
3. W4: Low Woodland of *Eucalyptus sheathiana* and *Eucalyptus ?striatocalyx* over Low Scrub of mixed shrubs over Open Herbs on red loamy-clay on rocky ground.
4. W9: Low Woodland to Scrub dominated by *Allocasuarina acutivalvis* ?subsp. *prinsepiana* on red-brown soils on rocky ground.

#### **Thickets and Scrubs**

5. T1: Thicket to Dense Thicket dominated by *Acacia ramulosa* var. *ramulosa* over a Low Scrub of mixed species over Herbs on red loamy soils with some gravel.
6. T3: Thicket to Open Scrub of mixed *Acacia* species over Heath dominated by *Thryptomene costata* or *Aluta aspera* subsp. *hesperia* on red silty-clay with gravel.
7. T4: Thicket to Scrub dominated by *Melaleuca hamata*, *Allocasuarina acutivalvis* ?subsp. *prinsepiana* and *Acacia* species on red loamy-clay on rocky ground.

#### **Clearing Description**

Minjar Gold Project. Minjar Gold Pty Ltd (Minjar) proposes to clear 135.01 hectares of native vegetation within a boundary of approximately 187 hectares (GIS Database) for the purpose of mineral production and associated activities. The project area is located within the Shire of Perenjori and approximately 70 kilometres north east of Perenjori (GIS Database).

#### **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 application area comprises two separate areas (approximately 7 kilometres apart). One is known as Mugs Luck (55 hectares) and the second area comprises several prospects including Blackdog, Highland Chief/Bobby McGee, Trench and Camp and is known as the Southern Deposits. The purpose of the application is to expand the existing pit at Highland Chief and develop new open cut pits at satellite deposits of Mugs Luck, Blackdog, Bobby McGee, Trench and Camp (APM, 2013b). These pits will form part of the larger Minjar Gold Project which involves development of new and expansion of previous mining operations over a 50 kilometre strike line.

The proposed clearing is for pit development, waste rock dumps, temporary run of mine (ROM) pads, haul and access roads and abandonment bunds (APM, 2013b). Clearing will be by mechanical means. Vegetation and topsoil will be stockpiled for use in rehabilitation and will be utilised progressively as required (APM, 2013b).

Vegetation condition rating was determined by Woodman (2003, 2004) and APM using various vegetation condition scales (APM, 2013b). These ratings were converted to the Keighery (1994) scale.

The flora and vegetation survey undertaken by APM in 2012 was conducted at the end of below average winter rainfall, hence conditions for field survey were not ideal and the below average rainfall appeared to affect the emergence of many spring herbs (APM, 2012b). The rainfall also appeared to have been patchy across the tenements as the diversity and abundance of spring herbs differed greatly between habitats of similar soil, land form and vegetation composition (APM, 2012b). However, many plants were in flower during the field survey

(APM, 2012b).

It is estimated that the Woodman 2004 flora and vegetation survey only recorded approximately 65 to 70% of species present due to the time of the year the survey was conducted (Summer) (APM, 2013b).

### 3. Assessment of application against clearing principles

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

##### Comments Proposal may be at variance to this Principle

Vegetation within the application area consists of thicket, scrub, open scrub, woodland and open woodland. Generally the vegetation of the area was rated as 'good' in areas of little disturbance and as 'degraded' in more disturbed areas (APM, 2013b). An existing pit is present at Highland Chief/Bobby McGee where 10.6 hectares has been previously cleared (APM, 2013b). Previous clearing has also occurred at the remaining prospects for exploration drills lines, drill pads and access tracks. Grazing impacts were also observed within the application area (APM, 2013b).

No Threatened Ecological Communities have been recorded within the application area (GIS Database; APM, 2013b). The application area is located within the Priority 1 Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) vegetation complexes (banded ironstone formation (BIF)) Priority Ecological Communities (PECs) (GIS Database). However, only 2.3 hectares of the application area intersects the outer edge of these PECs and associated buffers (GIS Database). APM (2013b) notes that no known PECs or BIF outcropping were detected during the flora and vegetation surveys.

The Woodman and APM flora and vegetation surveys recorded between 83 and 190 plant taxa from between 28 and 48 families over a range of survey areas (Woodman, 2003; Woodman, 2004; APM, 2013b). According to APM (2013b), flora and vegetation surveys of the Minjar tenements have identified 27 invasive weed species in low numbers. Potential impacts from weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened Flora have been recorded within the application area (GIS Database; APM, 2013b). Ten Priority Flora species were recorded within the application area during the APM surveys (APM, 2011; APM 2012b) including:

- *Chamelaucium* sp. Yalgoo (Priority 1) – Population estimated at 590+ plants at Southern Deposits and 114 at Mugs Luck (APM, 2013a). Also recorded at the Beryl West, Lexie and Monaco areas (APM, 2013b). Proposed clearing could impact 250 plants at Southern Deposits and 47 plants at Mugs Luck (APM, 2013a).
- *Rhodanthe collina* (Priority 1) - Population estimated at 200 plants at Mugs Luck (APM, 2012b). These were recorded at the one location along the north eastern boundary of the application area. One other record comprising of a single individual has been recorded approximately 400 metres east of this population (APM, 2013a). It has also been recorded at Monaco, Riley and Southern Deposits (APM, 2013a). No impacts are proposed, however, the population is 6.5 metres from the proposed waste rock landform (APM, 2013a).
- *Acacia diallaga* (Priority 2) – Population estimated at 1,497+ plants at Southern Deposits and four at Mugs Luck (APM, 2013a). The population at Mugs Luck extends outside the tenement to the south west (APM, 2012b). Proposed clearing could impact 1,003 plants at Southern Deposits and all four plants at Mugs Luck (APM, 2013a).
- *Acacia karina* (Priority 2) – Population estimated at 429 plants at Southern Deposits and six at Mugs Luck (APM, 2013a). Also recorded at the Beryl West and Lexie areas (APM, 2013b). Proposed clearing could impact 183 plants at Southern Deposits. No impacts are proposed at Mugs Luck (APM, 2013a).
- *Acacia subsessilis* (Priority 3) – Population estimated at 206 plants at Southern Deposits. Proposed clearing could impact on five of these plants (APM, 2013a).
- *Drummondita fulva* (Priority 3) - Population estimated at 340 plants at Southern Deposits (APM, 2013a). Also recorded at the Monaco, Bugeye, Keronima, Windinne Well and Riley areas (APM, 2012b). Proposed clearing could impact on 193 of these plants (APM, 2013a).
- *Grevillea scabrida* (Priority 3) - Population estimated at 1,953 plants at Southern Deposits and 413 at Mugs Luck (APM, 2013a). Also recorded at the Bugeye, Keronima, Beryl West, Lexie, Promises, Riley and Monaco areas (APM, 2012b). Proposed clearing could impact 241 plants at Southern Deposits and 245 plants at Mugs Luck (APM, 2013a).
- *Grevillea subtiliflora* (Priority 3) - Population estimated at 417+ plants at Southern Deposits (APM, 2013a). Also recorded at the Lexie, Keronima, Promises and Monaco areas (APM, 2013b). Proposed clearing could impact on 163 of these plants (APM, 2013a).
- *Micromyrtus trudgenii* (Priority 3) - Population estimated at 51 plants at Southern Deposits and 40 at Mugs Luck (APM, 2013a). Also recorded at the Austin, Monaco, Bugeye, Keronima, Windinne Well and Riley areas (APM, 2012b). Proposed clearing could impact all 51 plants at Southern Deposits. No impacts are expected at Mugs Luck (APM, 2013a).
- *Persoonia pentasticha* (Priority 3) - Population estimated at 95 plants at Southern Deposits and 60 at Mugs Luck (APM, 2013a). Also recorded at the Bugeye, Silverstone, Keronima, Beryl West, Promises, Riley and Monaco areas (APM, 2012b). Proposed clearing could impact 25 plants at Southern Deposits and 13 plants at Mugs Luck (APM, 2013a).

The above Priority Flora species have been recorded during previous surveys of the Minjar and/or Karara areas and although some species are regionally restricted, it is unlikely the proposed impacts will have a significant impact on their conservation status. The Department of Parks and Wildlife (DPaW) (2013)

considered the population of *Rhodanthe collina* as potentially avoidable due to its proximity to the boundary of the application area. Minjar proposes to avoid this population, mark the location on internal clearing permitting maps and to clearly flag the area on the ground as do not clear prior to the commencement of clearing (APM, 2013a). Potential impacts to *Rhodanthe collina* may be minimised by the implementation of a flora management condition.

Available databases also show *Acacia sulcatacaulis* (Priority 1) was recorded at one location within the Southern Deposits application area in December 2007 (GIS Database, DPaW, 2013). This species was identified during the APM 2012 targeted Threatened and Priority Flora survey but was not recorded within the application area. APM recorded 1,117 plants adjacent to the Southern Deposits application area (APM, 2012b). Woodman (2003) also recorded *Rhodanthe collina* (Priority 1) and *Hydrocotyle* sp. Warriedar (Priority 1) just outside the Southern Deposits application area. Single small populations of these species were found at one location at a creek line. Despite intensive searching, APM (2011) could not relocate these records and considered this might be due to the hydrology in the area no longer being active due to disturbance from road building and draining.

A desktop fauna survey undertaken by APM over several Minjar prospects identified 28 mammal, 132 bird, five amphibian and 71 reptile species that could potentially occur within the larger survey area (APM, 2012a). This indicates the application area is located within an area that has high faunal biodiversity. APM (2012a) identified seven habitat types within the application area and considered these to be well represented in the local area.

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

**Methodology** APM (2011)  
APM (2012a)  
APM (2012b)  
APM (2013a)  
APM (2013b)  
DPaW (2013)  
Woodman (2003)  
Woodman (2004)  
GIS Database:  
- Threatened and Priority Flora  
- 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 may be at variance to this Principle**

A fauna assessment designed to meet a Level 1 survey was conducted by APM over the Austin, Blackdog, Bobby McGee, Bugeye, Camp, Highland Chief, Keronima, M1, Monaco, Mugs Luck, Riley, Silverstone, Trench and Windinne Well areas. The field surveys were undertaken over five periods including 7 to 18 November 2011, 29 August to 5 September 2012, 13 to 24 September 2012, 4 to 14 October 2012 and 26 October 2012 (APM, 2012a). Surveys were designed to assess the presence of Malleefowl (*Leipoa ocellata*) (Vulnerable; Schedule 1) and Western Spiny-tailed Skink (*Egernia stokesii badia*) (Vulnerable; Schedule 1) with opportunistic observations of other species recorded (APM, 2012a). The survey areas were traversed on foot by a zoologist with transects covering the length of the survey areas and spaced 30 metres apart (APM, 2012a). All Malleefowl mounds and suitable Western Spiny-tailed Skink habitat were recorded. Where suitable Western Spiny-tailed Skink habitat was found the zoologist would examine the diameter and depths of the hollows or rock crevices and search for the presence of a latrine (APM, 2012a). Trapping for the skink was also conducted in several areas of suitable habitat including Bugeye, Mugs Luck, and Windinne Well in 2011 and Camp and Blackdog in 2012 (APM, 2012a).

The main habitat types identified within the application area include (APM, 2013a):

- *Eucalyptus* woodlands - low, mostly open, *Eucalyptus* woodland over low mixed shrubs on predominantly red loamy soils. This habitat type was identified at Southern Deposits and Mugs Luck.
- Shrubland on Loam Flats - tall open shrubland dominated by *Acacia ramulosa* over mixed low shrubs on loam flats. This habitat type was identified in the Southern Deposits and at Mugs Luck.
- Shrubland on Rocky Loam Flats - an open shrubland over low scrub dominated by several *Acacia* species on loam flats with surface rocks and gravel. This habitat type was identified at Southern Deposits and Mugs Luck.
- Shrubland on Sandy Loam Flats - tall open shrubland dominated by *Acacia ramulosa* over a mix of low shrubs on sandy loam flats and low slopes. This habitat type was identified at Mugs Luck.
- *Callitris* and *Allocasuarina* Woodland - low open woodland of *Callitris columellaris* or *Allocasuarina acutivalvis* over low mixed shrubs on deep orange sandy loam flats. This habitat type was identified at Southern Deposits.
- Low Shrubland on Rocky Slopes and Hilltops - A low shrubland of predominantly *Acacia* and *Melaleuca* species on rocky slopes and hilltops with occasional shale and granite outcroppings. This habitat type was identified at Southern Deposits and Mugs Luck.
- Lateritic Breakaway - *Acacia ramulosa* shrubs over *Ptilotus obovatus* open low shrubland, over very open seasonal hermland. This habitat type was identified at Southern Deposits.

According to APM (2012a), these fauna habitats are common features of eight of the nine land systems

occurring in the Minjar Gold project area and are considered well represented in the local area. The rocky hilltops and breakaway habitats are expected to support a few fauna species considered to be habitat specialists or dependent upon certain habitat for breeding. According to APM (2012a), the few areas of rocky hilltops that exist within the Minjar Gold project area might support minor populations of these specialists, but these would be small compared to surrounding populations.

Opportunistic recordings made during the fauna survey identified a total of 85 bird, 22 reptile and 7 mammal (four native, three introduced) species (APM, 2012a). Seven conservation significant species were recorded including the Malleefowl, Rainbow Bee-eater (*Merops ornatus*) (Marine, Migratory; Schedule 3), Peregrine Falcon (*Falco peregrines*) (Schedule 4), Major Mitchell's Cockatoo (*Cacatua leadbeateri*) (Schedule 4), Australian Bustard (*Ardeotis australis*) (Priority 4), White-browed Babbler (potentially *Pomatostomus superciliosus ashbyi* which is listed as Priority 4) and Crested Bellbird (potentially *Oreoica gutturalis gutturalis* which is listed as Priority 4) (APM, 2012a).

The Malleefowl occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation (Department of the Environment, 2013). According to APM (2013b), Malleefowl habitat is widespread throughout the Minjar tenements. A total of 62 Malleefowl mounds were recorded within the Minjar Gold Project area. Two of the mounds were active, while 22 were classified as inactive (between 1-20 years old) and 38 as historic (20-100+ years old) (APM, 2013b). The active mounds were recorded at Blackdog and north of the Monaco prospect. Several Malleefowl sightings were also made with a lone Malleefowl sighted at Riley and the remainder at Blackdog/Camp (APM, 2012a). Inactive mounds (1 to 20 years old) can be reused as they still retain structural integrity whereas historic mounds are considered severely weathered and unable to be reused due to loss of structural integrity (APM, 2012a). The Malleefowl mounds occurred throughout the tenements and did not appear to follow any specific landscape features (APM, 2012a).

Eight mounds were recorded at Southern Deposits (one active, one inactive and six historic) with one historic mound occurring within the application area (APM, 2012a). A motion detection camera recorded a bird at the active mound on three consecutive mornings in October 2012 (APM, 2012a). Three observations of Malleefowl pairs also occurred at the Blackdog/Camp prospect. It is unknown if this was the pair from the active mound or a new pair (APM, 2012a). Minjar has altered the application area to ensure there is at least 250 metres between the application area and active mound. This is supported by the Department of Parks and Wildlife (DPaW) (2013). As historic mounds are unlikely to be reused, any removal of them is not expected to have a significant impact on the species.

Three mounds were recorded at Mugs Luck (one inactive and two historic) with one historic mound occurring within the application area (APM, 2012a). Minjar has altered the application area to excise the inactive Malleefowl mound from the application area. Minjar has committed to a 50 metre buffer around inactive mounds where possible, however, can only implement a 10 metre buffer to the north of this inactive mound due to proposed location of abandonment bunding for one of the pits (APM, 2013a; APM, 2013b). This may impact on reuse of the mound although contiguous vegetation does exist to the east, south and west of the mound (GIS Database). Suitable habitat and other inactive mounds are also known to occur in the Minjar tenements. Minjar has committed to surveying existing mounds annually for evidence of use.

The Western Spiny-tailed Skink lives in small family groups and requires hollow trees/logs or rock crevices as habitat (APM, 2012a). Both hollow tree/log and rocky habitat was identified across the Minjar Gold Project area. Rocky habitat was located at Austin, Windinne Well, M1, Bugeye, Riley and Southern Deposits (APM, 2012a). The nature of the rock outcrops was variable, comprising slabs of rock in some areas and small scarps with wind and water erosion creating shallow cavities in other areas (APM, 2012a). However, many of the crevices were not sufficiently deep to accommodate the skink, although small pockets of suitable habitat were present along the hills (APM, 2012a). No skinks or secondary evidence of the skink were recorded in any of the rocky habitat sites (APM, 2012a).

Eucalypt tree and branches occur across the Minjar Gold Project area, however, the quality of the habitat for the skink varied extensively from marginal to good habitat (APM, 2012a). The skink prefers large piles of hollow logs where there are several basking areas and shelter opportunities. According to APM (2012a), almost all of the suitable habitat consisted of single branches or trees. No skinks were captured during the trapping program or observed during transect searches of the application area (APM, 2012a). Secondary evidence of the skink was found at Camp (approximately 50 metres outside of the application area) and consisted of a communal latrine of dried faeces on top of a fallen hollow tree (APM, 2012a). A motion detection camera was placed near the latrine but did not record any activity.

Based on the above, it is unlikely the application area comprises significant habitat for the Western Spiny-tailed Skink. APM (2013b) states that any suitable skink habitat (hollow logs) in the proposed clearing area will be moved outside the clearing area to suitable microhabitat within the close vicinity.

The Shield-backed Trapdoor Spider (*Idiosoma nigrum*) (Schedule 1) has also been recorded within the Minjar tenements. According to APM (2013a), the key indicators for the potential presence of the spider are *Acacia ramulosa* or other *Acacia* species; slopes; cobbles or gravel; drainage lines on flats; and clay/loam or sandy clay/loam soils, but not sandy or clay soils. In June 2013 Doctor Mike Bamford conducted a broad presence/absence survey across the Minjar tenements (APM, 2013a). A total of 246 spider burrows from 104 quadrats (each 100 m<sup>2</sup>) were recorded equating to an average of 2.36 burrows per quadrat or 236 burrows per hectare (APM, 2013a). According to APM (2013a), the broad spatial scale of the sampling has confirmed that

the known population around Minjar appears to be broadly distributed across the tenements. APM (2013a) adds that this survey and previous habitat assessments reveal a broad spectrum of habitat use by the spider.

An analysis of high resolution community scale vegetation mapping (over ten prospects or 2,137 hectares) was undertaken to determine the area of potential Shield-backed Trapdoor Spider habitat (APM, 2013a). Vegetation communities with one or more of the abovementioned key indicators were identified as potential spider habitat. Of the mapped area, 934.95 hectares or 44% shows one or more of the key indicators of the spider (APM, 2013a). Within the application area, 38.55 hectares and 72.95 hectares of potential spider habitat was identified within Mugs Luck and Southern Deposits, respectively (APM, 2013a). The proposed clearing is expected to impact a maximum of 32.77 hectares of potential habitat at Mugs Luck and 66 hectares of potential habitat at Southern Deposits (APM, 2013a). The proposed clearing will therefore impact a maximum of 10.5% of the potential habitat within the larger mapped area. The potential habitat within the application area is, therefore, likely to represent a small proportion of potential habitat within the local area. Based on this the proposed clearing is unlikely to have a significant impact on the conservation status of the spider.

APM (2012a) considered the Rainbow Bee-eater, Major Mitchell's Cockatoo, Australian Bustard, White-browed Babbler and Crested Bellbird to be either occasional visitors or using the area solely as foraging habitat. A pair of Peregrine Falcons was recorded using existing pits, however, these were not located within the application area (APM, 2012a). Several other conservation significant species may utilise the application area, however, it is unlikely the application area represents significant habitat for these species given the availability of similar habitat in the surrounding area.

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

**Methodology** APM (2012a)  
APM (2013a)  
APM (2013b)  
Department of the Environment (2013)  
GIS Database:  
- Ninghan 80cm Orthomosaic - Landgate 2005  
- Rothsay 50cm Orthomosaic - Landgate 2006

**(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**

According to available databases, there are no records of Threatened Flora within the application area (GIS Database). According to APM (2013b), no Threatened Flora species have been recorded during flora and vegetation surveys of the application area.

The Threatened Flora species, *Styloidium scintillans*, has been recorded in the surrounding area, with the closest record located approximately 1.2 kilometres north west of the Mugs Luck application area (GIS Database). This species is confined to the upper slopes and summits of low rises and breakaways composed of highly weathered granitic basement rock with weathered or colluvial ironstone rock and kaolinitic residue (Wege, 2012). According to APM (2012b), a population of 700 plants has been recorded adjacent to the existing haul road at Keronima (on Mining Lease 59/380), approximately 1.7 kilometres south west of the Mugs Luck application area. The substrate at this location is composed of eroded laterite which had formed low breakaways, pavements and patches of stony ground with a skeletal loam matrix (APM, 2012b). APM (2012b) adds that there is 3.5 hectares of known *Styloidium scintillans* habitat at this location.

According to APM (2013b), all survey areas underwent targeted searches for Threatened and Priority Flora. The survey areas were roughly divided into transects 15 metres apart and traversed by botanists. An intensive targeted search (transects five metres apart) was also conducted on 31 August and 21 September over the 3.5 hectares of known *Styloidium scintillans* habitat (APM, 2012b). However, the abovementioned record was not relocated. Two additional known locations of *Styloidium scintillans* within a 30 kilometre radius of Keronima were also searched, however, no individuals or evidence of *Styloidium scintillans* was found. APM (2012b) notes it is highly probable that winter rainfall in 2012 was insufficient to trigger the formation of base leaves and flowering of *Styloidium scintillans* and as a result, the targeted surveys carried out are inconclusive.

Based on the above it is likely *Styloidium scintillans* was not detectable during the targeted surveys which means it may be present within the application area where suitable habitat exists. To address this a habitat risk assessment was undertaken to determine whether possible habitat is present within the application area. Possible *Styloidium scintillans* habitat was determined on the basis of species composition of plant assemblages, geomorphological features and known geology (APM, 2013a). A total of 52.8 hectares of possible habitat was identified at Mugs Luck and Southern Deposits (APM, 2013a). At Southern Deposits 18.4 hectares of possible habitat was identified from four areas, however, these all occur outside the application area. At Mugs Luck 34.4 hectares of possible habitat was identified from two locations, both of which intersect the application area. These are described below (APM, 2013a):

- ML1: Includes vegetation types T4, T8 and aqOS5. These are thicket and open shrubland communities on dolerite/basalt north facing slopes. A total of 25.41 hectares was mapped of which 5.2 hectares occurs in the

application area.

- ML2: Includes lateritic outcrops and breakaways known to support the vegetation assemblages T6 and T3. Also known to occur in the area are *Micromyrtus trudgenii* (Priority 3) and *Borya sphaerocephala* both loosely associated with *S. scintillans* (Wege, 2012) (cited in APM, 2013a). A total of 9.04 hectares was mapped of which 2.69 hectares occurs in the application area.

A total of 7.89 hectares of possible *Stylidium scintillans* habitat has therefore been identified within the application area. Mapping of the Mugs Luck proposed disturbance footprint indicates most of the areas of possible habitat in the application area occurs in the proposed pit and haul road locations and will, therefore, be impacted by the proposed clearing (APM, 2013a). DPaW (2013) has advised that where impacts to mapped suitable habitat is unavoidable, a licence to take Threatened Flora under the *Wildlife Conservation Act 1950* will be required. This will involve an impact assessment of the species (DPaW, 2013).

Based on the above, it is not known whether the application area includes, or is necessary for the continued existence of, rare flora. This can be assessed when either a licence to take application is completed or a targeted flora survey under appropriate seasonal conditions is undertaken. Potential impacts to *Stylidium scintillans* may be minimised by implementation of a condition that prohibits clearing in the areas of possible habitat unless approval is obtained.

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

**Methodology** APM (2012b)  
APM (2013a)  
APM (2013b)  
DPaW (2013)  
Wege (2012)  
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**

According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is approximately 55 kilometres west, south west of the application area (GIS Database).

No TECs have been recorded within the application area (APM, 2013b).

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

**Methodology** APM (2013b)  
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 Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 97.4% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2013).

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

355: Shrublands; bowgada and jam scrub with scattered York gum and red mallee;

420: Shrublands; bowgada and jam scrub; and

434: Shrublands; *Acacia quadrimarginea* and jam scrub with scattered York gum and *Allocasuarina huegeliana*.

Over 95% of these vegetation associations remain at a state and bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared. A review of aerial imagery also shows that vegetation within the application area is not a remnant within the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Extent in DEC Managed Lands %* (and post clearing %)
IBRA bioregion – Yalgoo	5,057,326	4,924,606	~97.38	Least Concern	~31.69 (~32.39)
IBRA Subregion - Talling	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 vegetation associations - State					
355	63,069	60,166	~95.40	Least Concern	~43.83 (~46.00)
420	859,632	830,218	~96.58	Least Concern	~14.17 (~14.67)
434	1,387	1,387	~100.00	Least Concern	~85.23 (~85.23)
Beard vegetation associations - Bioregion					
355	56,407	56,081	~99.41	Least Concern	~44.36 (~44.62)
420	621,396	620,265	~99.82	Least Concern	~16.47 (~16.50)
434	1,387	1,387	~100.00	Least Concern	~85.23 (~85.23)
Beard vegetation associations - Subregion					
355	55,020	54,695	~99.41	Least Concern	~44.36 (~44.62)
420	615,816	614,686	~99.82	Least Concern	~16.62 (~16.65)
434	1,387	1,387	~100.00	Least Concern	~85.23 (~85.23)

\* 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:  
- IBRA WA (Regions - Sub Regions)  
- Ninghan 80cm Orthomosaic - Landgate 2005  
- 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 at variance to this Principle**

There are several minor, non-perennial watercourses within the application area and surrounding area (GIS Database). According to APM (2013b), watercourses in the area are scarce with surface water flow predominantly occurring as sheet flow. The majority of minor, non-perennial watercourses occur in the Southern Deposits application area. Aerial imagery shows numerous existing tracks occur across this area (GIS Database).

None of the vegetation communities mapped at Southern Deposits were identified as growing in association with a watercourse or wetland. One vegetation community was identified as growing in association with a minor drainage line at Mugs Luck (maT1) (APM, 2012b). Approximately 0.08 hectares of this community was mapped near the eastern boundary of the Mugs Luck application area (APM, 2013b; APM, 2012b).

Considering the above, it is unlikely the proposed clearing will have a significant impact on watercourses within the area.

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

**Methodology** APM (2012b)  
APM (2013b)  
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 may be at variance to this Principle**

The application area has been mapped as occurring on the following land systems (GIS Database) (Payne et al., 1998):

- The Graves land system comprises basalt and greenstone rises and low hills, supporting eucalypt woodlands



with prominent saltbush and bluebush understoreys. Alluvial plains are susceptible to water erosion where perennial shrub cover is substantially reduced or the soil surface is disturbed.

- The Moriarty land system comprises low greenstone rises and stony plains supporting halophytic and acacia shrublands with patchy eucalypt overstoreys. Slopes of low rises without protective stone mantles, alluvial plains and narrow drainage tracts are moderately susceptible to water erosion, particularly if perennial shrub cover is substantially reduced or the soil surface is disturbed.

- The Singleton land system comprises rugged greenstone ranges with dense casuarina and acacia shrublands. Stone mantles protect most of this land system against soil erosion.

Based on the above there is potential for erosion to occur on the Graves and Moriarty land systems. Potential impacts from erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

According to APM (2013b), groundwater occurs between approximately 23 and 35 metres below ground level at Southern Deposits and at approximately 68 metres below ground level at Mugs Luck. Additionally, the average annual evaporation rate is over 11 times the average annual rainfall, so recharge to the groundwater would be expected to be minimal (BoM, 2013; GIS Database). Based on this and the depth to groundwater, there is a low likelihood of raised saline water tables occurring as a result of the proposed clearing.

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

**Methodology** APM (2013b)  
BoM (2013)  
Payne et al. (1998)  
GIS Database:  
- Evaporation Isopleths  
- 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**

According to available databases, the Southern Deposits portion of the application area is located within a conservation area (GIS Database). This conservation area is the former Warriedar pastoral lease which has been purchased by the Department of Parks and Wildlife (DPaW) (GIS Database).

Advice from DPaW on the proposed clearing focused on Threatened and Priority Flora, the Malleefowl, Western Spiny-tailed Skink and Shield-backed Trapdoor Spider (DPaW, 2013). An assessment of these values is provided in Principles (a), (b) and (c). The proposed clearing may increase erosion and the spread and occurrence of weeds within the conservation area. Potential impacts 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 (2013)  
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 application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). However, there are two Water Reserves (Crown Reserves 16489 and 16485) within the Southern Deposits application area (GIS Database). According to APM (2013a), these reserves contain old water supply infrastructure. Correspondence provided by APM (2013a) indicates the Department of Water (DoW) has no objections to the proposal subject to Minjar completing an indemnification form for each reserve and submitting these forms to DoW prior to entry to both reserves.

There are no permanent waterbodies or watercourses within the application area, however, there are several minor, non-perennial watercourses within the application area (GIS Database). According to APM (2013b), watercourses in the area are scarce with surface water flow predominantly occurring as sheet flow.

The average annual rainfall for Yalgoo is 259.8 millimetres and the average annual evaporation rate for the application area is approximately 3,000 millimetres (BoM, 2013; GIS Database). Based on this, surface water is likely to evaporate quickly with surface sheet flow and higher sediment levels generally occurring during larger rainfall events. Therefore, during normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of watercourses within the application area.

According to available databases, groundwater salinity within the application area ranges between 3,000 and 14,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered brackish to saline. The proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

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

**Methodology** APM (2013a)  
APM (2013b)  
BoM (2013)  
GIS Database:  
- Evaporation Isopleths  
- Groundwater Salinity, Statewide  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSAs)  
- WRC Estate

**(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 (135.01 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.

With an average annual rainfall of 259.8 millimetres and an average annual evaporation rate of 3,000 millimetres there is likely to be little surface flow during normal seasonal rains (BoM, 2013; GIS Database). Whilst large rainfall events may result in flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

**Methodology** BoM (2013)  
GIS Database:  
- Evaporation Isopleths  
- Hydrographic Catchments - Catchments

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

**Comments**

There are two native title claims over the area under application: WC1996/098 and WC2012/005 (GIS Database). One claim has been filed at the Federal Court and the other registered with the Native Title Tribunal 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*.

According to available databases, there are no registered 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 through the clearing process.

The larger Minjar Gold Project was referred to the Environmental Protection Authority (EPA) and the Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC) (now Department of the Environment). DSEWPAC published a referral decision of 'not a controlled action if undertaken in a particular manner' on 3 April 2013. The manner in which the project must be undertaken is set out in the notification of referral decision document published on DSEWPAC's website. It is the proponent's responsibility to comply with DSEWPAC's decision.

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. Rehabilitation and closure are considered under the *Mining Act 1978* applications.

The Department of Parks and Wildlife (DPaW) (2013) has advised that where it is likely that impacts on threatened species cannot be avoided, a permit or licence to take must be obtained pursuant to the requirements of the *Wildlife Conservation Act 1950*.

It is the proponent's responsibility to liaise with the Department of Environment Regulation (formerly 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.

The clearing permit application was advertised on 30 September 2013 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

- Methodology** DPaW (2013)  
 GIS Database:  
 - Aboriginal Sites of Significance  
 - Native Title Claims – Filed at the Federal Court  
 - Native Title Claims – Registered with the NNTT

#### 4. References

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- APM (2013a) Further Information provided by Animal Plant Mineral on 6, 16 and 20 December 2013 and 7 January 2014.
- APM (2013b) Minjar Gold Pty Ltd Clearing Permit (Purpose Permit) Application Supporting Information Application for a Native Vegetation Clearing Permit (Purpose Permit) for the Minjar Gold Southern Deposits Expansion Project South Murchison Region, Western Australia Mugs Luck - M59/431, L59/133 and L59/135 Blackdog, Highland Chief / Bobby McGee, Trench and Camp - M59/425, M59/460 and L59/133. Unpublished report prepared by Animal Plant Mineral Pty Ltd for Minjar Gold Pty Ltd dated August 2013.
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- Woodman (2004) Flora and Vegetation Survey of the Keronima, Western Corridor, Austin, Mug's Luck, Bobby McGee, Apollo and Promises Project Areas Minjar Gold Project. Unpublished report prepared by Woodman Environmental Consulting Pty Ltd for Gindalbie Gold N.L. dated March 2004.

#### 5. Glossary

##### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), Western Australia
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DoE</b>	Department of Environment (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental Protection Act 1986, Western Australia
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	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
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:**

{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.