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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4369/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Crescent Gold Limited**

1.3. Property details

Property: Mining Lease 38/40
Mining Lease 38/48
Mining Lease 38/101
Mining Lease 38/143
Mining Lease 38/342
Mining Lease 38/535
Mining Lease 38/358
Mining Lease 38/693
Miscellaneous Licence 38/92
Local Government Area: Shire of Laverton
Colloquial name: Apollo Gold Mine

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 17 May 2012

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. One Beard vegetation association has been mapped within the application area (Shepherd, 2009; GIS Database):

Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*).

Onshore Environmental Consultants Pty Ltd (Brearley, 2001) conducted a flora survey of the application area and surrounding areas on 18 to 23 April 2001, and described the vegetation communities of the application area as follows:

1. **Chenepod Shrublands**
   - 1A. *Frankenia* and Chenepod Dwarf Scrub (D) in Drainage Foci;
2. **Acacia Shrublands**
   - 2A. *Acacia aneura* and *A. quadrimarginea* Open Scrub on Banded Iron (BIF) Ridge Tops;
   - 2B. *Acacia aneura* and *A. quadrimarginea* and *A. ramulosa* Open Scrub on Scree Slopes below Banded Iron (BIF) Ridges;
   - 2C. Mixed *Acacia* spp. Open Scrub over Greenstone Hills;
3. **Eremophila Shrublands**
   - 3A. *Eremophila margarethae* Dwarf Scrub (C) over *Eragrostis eriopoda* Low Grass on Sand;
   - 3B. *Eremophila margarethae* Dwarf Scrub (C) over Mixed Chenopod Dwarf Scrub (D) on Sand;
   - 3C. *Eremophila forrestii* Low Scrub B over *Eragrostis eriopoda* and *Monochather paradoxa* Low Grass (B) on Deep Sandy Banks;
   - 3D. *Eragrostis eriopoda* and *Monochaher paradoxa* Low Grass (B) on Deep Sandy Banks;
4. **Acacia Woodlands**
   - 4A. Mixed *Acacia* spp. Open Low Woodland (B) on Stony Plains;
   - 4B. Open Mulga Low Woodland (A) on Stony Ironstone Plains;
   - 4C. Mixed *Acacia* spp. Open Low Woodland (B) over *Eremophila fraseri* Low Scrub (B);
   - 4D. Mulga Open Low Woodland (A) over *Ptilotus obovatus* Dwarf Scrub (C);
5. **Casuarina Woodlands**
   - 5A. *Casuarina pauper* Low Woodland (A) along Minor Drainage Lines;
6. **Acacia Forest**
   - 6A. Mulga Low Forest (A) along Major Drainage Lines;

7. **Mosaic of Communities**
   Breakaway Landform Units
   - 7A. Summit Flats: Mulga Low Woodland B over *Olearia humilis* Open Dwarf Scrub (C);
   - 7B. Scree Slopes: *Eucalyptus celastroides* Low Woodland (B);
   - 7C. Colluvial Base: Dwarf Scrub (C); and
   - 7D. Drainage Channels: Low Forest (A).

Clearing Description

Crescent Gold Limited is proposing to clear up to 300 hectares of native vegetation for the Apollo Gold Mine, Emerald Gold Mine and Aurora Gold Mine projects (Crescent Gold Limited, 2011). The clearing of vegetation is required for the development of open pits, and associated waste dumps, run of mine (ROM) pads, haul roads, a dewatering pipeline and other associated infrastructure for mineral production.

The vegetation will be cleared using a rubber wheeled tractor. The vegetation and topsoil will be stockpiled separately for use in rehabilitation.

Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

To:

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The application area is located in the East Murchison subregion of Western Australia and is situated approximately four kilometres east of the Laverton town site (GIS Database).

The vegetation condition was derived from a vegetation survey conducted by Onshore Environmental Consultants Pty Ltd (Brearley, 2001).

Clearing permit CPS 4369/1 was granted on 14 July 2011, and is valid from 6 August 2011 to 6 August 2016. The clearing permit authorised the clearing of 180 hectares of native vegetation. An application for an amendment to clearing permit CPS 4369/1 was submitted by Crescent Gold Limited on 20 February 2012. The proponent has requested an increase in the amount of clearing authorised from 180 hectares to 300 hectares. There are no significant additional environmental impacts identified as a result of this amendment.

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the East Murchison (MUR1) subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by internal drainage and extensive areas of elevated red desert sandplains with minimal dune development. Salt lake systems are associated with the occluded paleodrainage system. Broad plains of red-brown soils and breakaway complexes as well as red sandplains are widespread. Vegetation is dominated by mulga woodlands and is often rich in ephemerals, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002).

A vegetation survey by Onshore Environmental Consultants Pty Ltd (Brearley, 2001) between 18 to 23 April 2001 of the application area and surrounding vegetation identified 150 species of flora taxa belonging to 68 Genera and 36 Families. Onshore Environmental Consultants Pty Ltd (Brearley, 2001) identified 16 vegetation communities within the application area using a primary vegetation survey of the application area by Botanica Consulting (2011b) and supporting flora surveys by Botanica Consulting (2011a). The condition of these vegetation types were classified from 'degraded' to 'very good' (Keighery, 1994; GIS Database).

The vegetation within the application area consists of Beard vegetation association 18, which is common and widespread throughout the Murchison bioregion with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed two Priority flora species which may potentially occur within a 20 kilometre radius of the application area (DEC, 2012). No Threatened flora species were identified (DEC, 2012). Onshore Environmental Consultants Pty Ltd (Brearley, 2001) identified no Threatened flora species and two Priority species within the application area; *Phylanthus baeckeoides* (P3) and *Calytrix praeciua* (P3). Crescent Gold Limited (2011) proposes that areas supporting Priority Flora will remain undisturbed by the mining activities. Within the mining leases, there will be no mining activity in this area in the crest of the Banded Iron (BIF) Ridges which supports *Phyllanthus baeckeoides*, and along the haul road route there are three locations of conservation significance; the immediate breakaway area (vegetation type 7A), a lateritic ridge supporting *Calytrix praecipua* and *Phyllanthus baeckeoides* (vegetation type 2C), and a small drainage foci in the south (vegetation type 1A). The final haul route will be diverted around each population with a minimum buffer zone of 100 meters, to prevent any adverse impacts on these populations Brearley (2001).

No Threatened Ecological Communities or Priority Ecological Communities were recorded or identified within the application area (GIS Database).

Five weed species were identified during the survey: Ruby Dock (*Rumex vesicariius*), Wards weed (*Carrichtera*

annua), Wild melon (Citrullus lanatus), Roly-Poly (*Salsola kali*) and Conan thistle (*Sonchus oleraceus*) (Brearley, 2001). None of these species are listed by the Western Australian Department of Agriculture and Food as Declared Plants. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The fauna habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to that found in similar habitat located elsewhere in the region (Botanica Consulting, 2011a; 2011b). Three habitat types are of high ecological significance, however, Crescent Gold Limited (2011) will be avoiding breakaways and ridges and avoiding drainage lines where possible. The clearing of native vegetation is unlikely to have a significant impact on the faunal diversity in a local and regional context.

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

Methodology

Botanica Consulting (2011a)
Botanica Consulting (2011b)
Brearley (2001)
CALM (2002)
Crescent Gold Limited (2011)
DEC (2012)
Keighery (1994)
Shepherd (2009)
GIS Database:
- Laverton 50cm Othomosaic - Landgate 2006
- Pre-European Vegetation
- IBRA WA (regions - subregions)
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

There were four broad fauna habitat types occurring within the survey area as recorded by Botanica Consulting (2011b);

1. Mulga Tall Open Shrubland/Open Shrubland: Mixed *Acacia* species (dominated by *Acacia aneura)* with variable density on a stony plane. Substrate consists of scattered rocky quartz boulders and ironstone pebbles in a hard orange brown loam. Coarse woody debris and leaf litter is totally absent in most areas. This area has been subject to varying amounts of disturbance including numerous tracks and scattered mine shafts;

2. *Casuarina pauper* Low Woodland along Drainage Lines: This unit forms the dominant unit along the major drainage line near the centre of the study area. *Casuarina pauper* and *Acacia aneura* were both dominant upperstorey species. A variety of other tall shrubs/trees are present in variable densities. Substrate consists of wisely scattered rocky quartz boulders and ironstone pebbles in a hard orange brown loam. Coarse woody debris and leaf litter are present in localised areas;

3. Mulga Low Open Woodland along Drainage Lines: Low open Mulga woodland was present along minor drainage lines in the southern section of the study area. Less distinct un-incised drainage lines also existed, however, vegetation composition at these points was typically similar to that of the surrounding landform/vegetation map-unit. Substrate consists of sparsely scattered rocky quartz boulders and ironstone pebbles in a hard orange brown loam. Coarse woody debris and leaf litter was present in some localised areas but was generally absent; and

4. Existing Mine Disturbed Areas/Decommissioned Pit: Existing disturbed areas including the main decommissioned open pit, overburden waste dumps and cleared areas used for plant and office infrastructure. Water has filled the base of the decommissioned mine and is most likely hypersaline.
The disturbed areas have been rehabilitated to varying degrees of success with native shrub species (endemic and non endemic). Disturbed areas make up about 7% of the study site (Botanica Consulting, 2011b).

Botanica Consulting (2011a; 2011b; GIS Database) identified the vegetation condition to be 'degraded' to ‘very good’ (Keighery, 1994). The landforms and habitat found within the application area are considered as being well represented in the Murchison bioregion (Botanica Consulting, 2011a). The application area does contain habitats or faunal assemblages that are ecologically significant, but Crescent Gold Limited (2011) has planned the mining infrastructure to avoid breakaways and ridges. It is unlikely that any species of conservation significance will be significantly impacted by the clearing of native vegetation in the application area. The native vegetation proposed for clearing along drainage lines is not likely to contain significant habitat for fauna.

There is approximately 100% of the pre-European vegetation remaining within the Murchison bioregion (Shepherd, 2009; GIS Database). Given the extent of the native vegetation remaining in the local area and

bioregion, the vegetation to be cleared does not represent a significant ecological link.

There are four conservation significant fauna species listed as either Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* or protected under Western Australian legislation (*Wildlife Conservation Act, 1950*), that may potentially occur within a 20 kilometre radius of the application area (DEC, 2012). These four species; the Peregrine Falcon (*Falco peregrinus*), Australian Bustard (*Ardeotis australis*), Rainbow Bee-eater (*Merops ornatus*) and Fork-tailed Swift (*Apus pacificus*) may use the application area for foraging as part of a larger territory area or as a seasonal visitor (Botanica Consulting. 2011a). The habitat present within the application area is not considered significant habitat for these species (Botanica Consulting 2011a; 2011b). Botanica Consulting (2011a; 2011b) conducted a level one fauna survey of the application area during December 2010 and recorded no species of conservation significance within the application area.

The proposed clearing of 300 hectares of native vegetation within a larger application area is not likely to impact critical feeding or breeding habitat for any conservation species. The conservation species listed above that could possibly utilise the application area based on habitats present are considered highly mobile and/or have a wide distribution and the proposed clearing is unlikely to significantly impact these species (Botanica Consulting 2011a; Crescent Gold Limited, 2011).

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

Methodology Botanica Consulting (2011a)
Botanica Consulting (2011b)
Crescent Gold Limited (2011)
DEC (2012)
Keighery (1994)
GIS Database:
- Laverton 50cm Orthomosaic - Landgate 2006
- Pre-European Vegetation

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases, there are no records of Threatened flora within the application area (GIS Database). A search of the Department of Environment and Conservation's NatureMap database identified no Threatened flora species as occurring within a 40 kilometre radius of the application area (DEC, 2012).

Onshore Environmental Consultants Pty Ltd (Brearley, 2001) conducted a vegetation and flora survey of the application area during 18 to 23 April 2001. No Threatened flora species were recorded within the survey area.

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

Methodology Brearley (2001)
DEC (2011)
GIS Database:
- Declared Rare and Priority Flora List

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

Comments **Proposal is not likely to be at variance to this Principle**
A search of the available databases shows that there are no Threatened Ecological Communities (TEC's) situated within 100 kilometres of the application area (GIS Database). The flora survey did not identify any TEC's (Brearley, 2001).

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

Methodology Brearley (2001)
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 Murchison IBRA bioregion (GIS Database). The vegetation within the application area is recorded as Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database; Shepherd, 2009).

According to Shepherd (2009), Beard vegetation association 18 retains approximately 100**%** of its pre-European extent. Therefore, the area proposed to be cleared is not a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,586.84	28,120,586.48	~100	Least Concern	1.06
Beard vegetation associations - State					
18	19,892,304.84	19,890,275.39	~99.99	Least Concern	2.13
Beard vegetation associations - Bioregion					
18	12,403,172.36	12,403,172.36	~100	Least Concern	0.37

* Shepherd (2009)
** 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 (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases there are several ephemeral drainage lines, and one ephemeral watercourse which intersect the application area (GIS Database). The drainage lines only flow after major rainfall events (Crescent Gold Limited, 2011). Based on vegetation mapping by Onshore Environmental Consultants Pty Ltd (Brearley, 2001), there are three dominant riparian vegetation types associated with the drainage lines and watercourse;

- 1A. *Frankenia* and Chenepod Dwarf Scrub (D) in Drainage Foci;
- 5A *Casuarina pauper* Low Woodland (A) along Minor Drainage Lines; and
- 6A. Mulga Low Forest (A) along Major Drainage Lines;

Crescent Gold Limited (2011) will limit any impact to the riparian vegetation where possible, with clearing only extending to any activities associated with diversion of watercourses or for intersection of proposed haul roads.

The condition of the riparian vegetation types are classified as ‘good’ to ‘degraded’ (Brearley, 2001; Keighery, 1994; GIS Database) and the clearing of some riparian vegetation is unlikely to result in any significant impact to vegetation growing in association with a watercourse or wetland.

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

Methodology Brearley (2001)
Crescent Gold Limited (2011)
Keighery (1994)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Laverton 50cm Orthomosaic - Landgate 2006

(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**
According to the available databases, the application area is primarily comprised of the Jundee land system (GIS Database).

The Jundee land system is comprised of hardpan wash plains with variable dark gravelly mantling and weak grooved vegetation. It contains minor sandy banks and supports scattered mulga shrublands. Concentrated drainage zones are mildly susceptible to accelerated erosion when degraded (Curry et al., 1994).

Based on the above the proposed clearing may be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Methodology Curry et al (1994)
GIS Database
- Rangeland Land System Mapping

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed application area is not located within any conservation areas (GIS Database). The nearest conservation area is De La Poer Range Nature Reserve, located approximately 130 kilometres north of the application area (GIS Database).

Given the distance of the application area from the De La Poer Range Nature Reserve, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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 may be at variance to this Principle

According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database). There are several ephemeral watercourses passing through the application area which only support surface water for short periods following significant rainfall events (GIS Database; Crescent Gold Limited, 2011).

Part of the Apollo Gold deposit lies under a medium sized ephemeral drainage line. Crescent Gold Limited (2011) intends on partly diverting this drainage line around the proposed Apollo Pit C. Crescent Gold Limited (2011) proposes to divert the channel around Apollo Pit 3 by widening the remaining section of the drainage line. The proposed disturbance to the ephemeral drainage line will entail a two metre high bund around the northern end of Apollo Pit C and construction of a channel 40 metres wide and approximately 350 metres long to be built to protect the pit from an extreme flood event. The drainage line catchment lies to the east and south east of the proposed pits and drains westward throughout the application area. Crescent Gold Limited (2011) state that it will be necessary to modify the existing braided channels to ensure that all floodwater enters the diversion. This will be achieved by clearing the area immediately upstream of the diversion and bulldozing the existing multiple braided channels into a single channel. The haul road section of the proposed Apollo Gold Mine project will cross five minor ephemeral drainage lines. An internal mine road will cross the medium sized drainage line to connect Apollo Pit A, and the ROM stockpile. The realignment of the Old Laverton Road will require a new crossing of a medium sized drainage line (Crescent Gold Limited, 2011).

The application area lies within a low rainfall zone and any surface water within the application area is likely to only remain for short periods following significant rainfall events as the annual evaporation rate (2,800 – 3,200 millimetres) exceeds rainfall (234.1 milimetres per year) (BoM, 2012). The proposed clearing is not likely to cause deterioration in the quality of any surface water within or outside of the application area.

Groundwater in the Apollo Gold Mine project area is 15 metres below surface prior to mining commencement. It will be necessary to lower the groundwater level at the Apollo gold deposit but at the cessation of mining the water levels will return to its pre-watering state and form a permanent pit lake (Crescent Gold Limited, 2011). The Apollo's pit voids will act as groundwater sinks and at least partially fill with water. It is likely that the water quality within the open pit will become more saline over time due to saline inflows and concentration of salts via evaporation (Crescent Gold Limited, 2011). Crescent Gold Limited (2011) has advised that dewatering of the Apollo's open pits will be necessary and the water will be pumped to an abandoned Gladiator open pit for disposal. No Apollo groundwater will be released into the surrounding environment (Crescent Gold Limited, 2011).

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

Methodology BoM (2012)
Crescent Gold Limited (2011)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Public Drinking Water Source Areas

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences an arid climate with a mainly winter rainfall, and an annual average of approximately 234.1 millimetres per year (CALM, 2002; BoM, 2012). Based on an average annual evaporation rate of 2,800 - 3,200 millimetres (BoM, 2012), any surface water resulting from rainfall events is likely to be relatively short lived.

The clearing size of 300 hectares in comparison to the size of the Lake Carey catchment area (11,378,213 hectares) (GIS Database) is not likely to lead to an appreciable increase in run off, and subsequently cause or exacerbate 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 (2012)
CALM (2002)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

There are no Native Title claims over the area under application. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Site of Significance within the application area (Site ID: 15633) (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.

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.

The clearing permit application was advertised on 12 March 2012 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Clearing permit CPS 4369/1 was granted on 14 July 2011, and is valid from 6 August 2011 to 6 August 2016. The clearing permit authorised the clearing of 180 hectares of native vegetation. An application for an amendment to clearing permit CPS 4369/1 was submitted by Crescent Gold Limited on 20 February 2012. The proponent has requested an increase in the amount of clearing authorised from 180 hectares to 300 hectares. There are no significant additional environmental impacts identified as a result of this amendment.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

BoM (2012) Climate Statistics for Australian Locations. A Search for Climate Statistics for Laverton, Australian Government Bureau of Meteorology, viewed 23 April 2012, <http://reg.bom.gov.au/climate/averages/tables/cw_ 012045.shtml>.

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Botanica Consulting (2011b) Terrestrial Fauna Survey (Level 1) of the proposed Apollo Mine Area (M38/535). Prepared for Crescent Gold Limited by Botanica Consulting, February 2011.

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Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), 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 (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
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.