



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1317/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Western Areas NL

1.3. Property details

Property: M77/582
Local Government Area: Shire Of Kondinin
Colloquial name:

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The proposed clearing area has been mapped as Beard Vegetation Association 511 - Medium Woodland, Salmon Gum and Morrell (Shepherd et al, 2001).	The area under application comprises of 4.2 ha for the purpose of exploration. This involves clearing for drill pads and access tracks.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Western Areas intend to utilise previously cleared tracks. Approximately 3.7 ha (88%) of the clearing will be along previously disturbed gridlines.

Two vegetation groups were described by Jims Seeds, Weeds & Trees in a survey conducted in April 2006. These were Eucalyptus Mallee Woodland & Sandplain Heath.

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 area under application occurs within the Lake Cronin Red Book area which is listed on the National Estate Register for its high level of flora and fauna diversity and endemism. According to the National Heritage Estate database (2006) 16 fauna species that are endemic either to the south-west region or to Western Australia occur within the Lake Cronin area. The Lake Cronin area is also described as being an important refuge for rare species due to widespread clearing in the wheatbelt to the west. Rare species include fauna such as Malleefowl (*Leipoa ocellata*), Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and Chuditch (*Dasyurus geoffroyi*) and flora such as *Eucalyptus steedmanii*. The Lake Cronin area also represents the northern most limit of several fauna species distribution.

Beard Vegetation Associations 511 (Salmon Gum and Morrel medium woodland) remains at 93.8% of its pre-european extent. The area to be cleared lies within the Coolgardie IBRA Bioregion which remains 98.4% uncleared. Threats to biodiversity as listed within the Coolgardie IBRA Bioregion (CALM, 2002) include fragmentation, altered fire regimes, weeds, grazing, feral predators, mining and changed hydrology.

The vegetation to be cleared consists of Mallee woodland and sandplain heath (Jims Seeds, Weeds & Trees, 2006). Both these vegetation types are well represented within the region. It is not considered that the ecosystem and species diversity within the area to be cleared is higher than other native vegetation in the local area. Jims Seeds, Weeds & Trees (2006) reported the survey area as being weed free.

Regionally, 40% of the Coolgardie IBRA Bioregion's mammalian fauna species are extinct. 18 fauna species identified as being of conservation significance by Biota (2006) could be expected to be found within the clearing area. Biota determined that none of those species are likely to be affected by the clearing as these species are able to utilise other vegetation habitats within the region. As the result of the survey, Biota (2006) determined that the fauna assemblages in the local area were typical of what could be expected for the region.

DEC (2006) have advised that although the notified area is within the Lake Cronin Red Book area, known for its high level of flora and fauna diversity and endemism, information contained within supporting documentation provides insufficient evidence to conclude that the notified area comprises a higher level of biological diversity than surrounding areas.

Therefore, whilst the area to be cleared is within an area of high biodiversity, it is not likely that the proposal is at variance to this principle.

Methodology DEC (2006)
DEH (2006)
CALM (2002)
Jims Seeds, Weeds & Trees (2006)

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

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

A fauna survey was conducted during February-March 2005 and November 2005 by Biota Environmental Sciences for the Forrestania Project Area (Biota, 2006). The survey's were conducted according to the EPA's Position statement No. 3 "Terrestrial Biological Surveys as an Element of Biodiversity Protection" (2002) and Guidance Statement No. 56 "Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia" (2004).

During the two surveys, a total of 106 species were recorded, consisting of 60 bird species, 15 mammals, three introduced mammals and 28 reptile species. Of these, eight species are considered to be of conservation significance, that is, listed as specially protected or as priority fauna species under the Wildlife Conservation Act 1950. These are Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Western Quoll (Chuditch) (*Dasyurus geoffroii*), Western Rosella (*Platycercus icterotis xanthogenys*), Western Brush Wallaby (*Macropus irma*), Carpet Python (*Morelia spilota imbricata*), White-browed Babbler (*Pomatostomus superciliosus ashbyi*), Crested Bellbird (*Oreoica gutturalis*) and Shy Groundwren (*Hylacola cauta whitlocki*). A discussion on each of these species follows.

The occurrence of Carnaby's Cockatoo in the region is considered to be widespread on an occasional basis only, and the species would not utilise the habitat for nesting due to the absence of nesting hollows (Biota, 2006).

A single Chuditch was trapped during the November survey period. This single trapping record does not constitute a matter of environmental significance and does not require federal referral. The species is likely to be found throughout the area at very low densities in a wide variety of habitats. Western Areas has made a commitment to a feral animal baiting program in partnership with DEC (formally known as CALM) within its tenements and within Lake Cronin Nature Reserve. The aim is to improve the conservation status of the species at a local level.

The area appears to support a healthy population of the inland sub-species of Western Rosella. The species utilises eucalypt woodland and mallee woodland, which is widespread throughout the general area (Biota, 2006).

A South West Carpet Python was observed during a site inspection prior to the survey commencing. Carpet pythons utilise a wide variety of habitat types at low densities (Biota, 2006).

Shy Groundwrens are known to inhabit dense mallee woodland (Garnett et al, 2000). During the survey Shy Groundwrens were recorded in heath also. Garnett et al (2000) states that the conservation status of the species is more of a concern where it occurs within the intensive landuse zone. The extensive habitat remaining within the Southern Cross IBRA subregion should support healthy populations.

Crested Bellbirds live in the shrub-layer of eucalypt woodland, mallee, acacia shrubland, saltbush and heath (Garnett et al, 2000). Not all of these habitat types are found within the area surveyed, but can be found extensively throughout the Southern Cross IBRA sub-region (CALM, 2002). It can be concluded therefore that the species could be expected to be widespread throughout the area utilising a wide range of habitats.

Biota (2006) recorded White-browed Babbler's in salmon gum woodland and melaleuca shrubland. However there is no discussion of this species within the report. The White-browed Babbler utilises Eucalypt forest and woodlands within the wheatbelt and Southern Goldfields/Great Southern region. It has declined severely in the agricultural region but persists in the uncleared continuous habitat (Garnett et al, 2000). The habitat types

preferred by this species are found commonly within the Southern Cross IBRA sub region (CALM, 2002) and it could be expected that this species is found within the region at low densities. For instance, White-browed Babblers have been observed on Jaurdi Station over 150 km to the north (pers. obs. 2005).

A further nine fauna species of conservation significance that were identified in known database searches were not recorded within the survey area. These species are the Red Tailed Phascogale (*Phascogale calura*), Heath Mouse (*Pseudomys shortridgei*), Numbat (*Myrmecobius fasciatus*), Malleefowl (*Leipoa ocellata*), Peregrine Falcon (*Falco peregrinus*), Western Mouse (*Pseudomys occidentalis*), Australian Bustard (*Ardeotis australis*), Rufous Fieldwren (*Calamanthus campestris montanellus*) and Fork-tailed Swift (*Apus pacificus*).

DEC (2006) have advised that none of the fauna species of conservation significance recorded during a fauna habitat and fauna assemblage survey have restricted ranges and that the habitat types present appear to be well represented in the region. It is unlikely that the fauna habitat that is proposed to be cleared would be considered "significant". DEC advises that the six recommendations arising from the fauna survey should be set as conditions of the permit (Biota 2006 page 7). However, most of the recommendations made in Biota's report are not associated with vegetation clearing and such conditions could be considered *ultra vires*.

Although the habitat types to be cleared under this proposal do support populations of conservation significant species, these habitats are well represented in the region and the removal of 4.2 ha of vegetation is not likely to impact significantly on the conservation status of these species. Indeed, feral animal control within those tenements held by Western Areas may result in an improvement of the conservation status of some of those species. Therefore the proposal is considered not likely to be at variance to this principle.

Methodology Biota Environmental Services (2006)
DEC (2006)
EPA (2002)
EPA (2004)
Garnett et al (2000)

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

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

A flora survey was conducted by Jims Seeds, Weeds & Trees (2006) in accordance with EPA Guidance Statement 51 - Guidance for the Assessment of Environmental Factors - terrestrial flora and vegetation surveys for Environmental Impact Assessment in Western Australia (EPA, 2004). The survey did not locate any rare species of native flora. Five plants of the species *Verticordia mitodes*, a priority 3 species as listed by the Department of Environment and Conservation was located at one location within the survey area. Western Areas have adjusted the proposed purpose permit envelope to exclude the location of this population (Western Areas NL, 2006).

DEC (2006) advises that it is unlikely that any DRF species are likely to be impacted by the proposal. The proposed clearing covers a relatively small area and approximately 3.7ha will consist of clearing along previously disturbed gridlines. DEC also notes that the proponent has amended the clearing permit area to exclude the area where *Verticordia mitodes* was located.

Therefore, the proposed clearing is considered not likely to be at variance to this principle.

Methodology DEC (2006)
EPA (2004)
Jims Seeds, Weeds & Trees (2006)
Western Areas NL (2006)

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

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

There are no threatened ecological communities (TECs) identified in the area under proposal (GIS database).

A flora survey conducted by Jims Seeds, Weeds & Trees (2006) did not identify any TECs. The two vegetation types described are not significant ecological communities as listed in the Biodiversity Audit of Western Australia's 53 Biogeographical Subregions (CALM, 2002).

DEC (2006) has advised that no Threatened Ecological Communities are known to occur within the notified area.

Therefore, the proposed clearing is considered not likely to be at variance to this principle.

Methodology CALM (2002)
DEC (2006)

(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 likely to be at variance to this Principle

The proposed clearing area is mapped as Beard Vegetation Association 511, occurring within the Coolgardie IBRA Bioregion.

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion - Coolgardie	12,917,718	12,719,084	98.5	Least concern	9.7 (9.9)
Shire of Kondinin	736570	369365	50.1	Depleted	unknown
Beard veg assoc. (state) - 511	700414	493991	70.5	Least concern	14.1 (18.9)
Beard veg assoc. by Bioregion 511	464427	435795	93.8	Least concern	17.5 (18.6)

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered*	<10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

* or a combination of depletion, loss of quality, current threats and rarity gives a comparable status

Explanation:

The vegetation association as described by Beard (511) remains at 70.5% of its pre-european vegetation cover statewide and 93.8% of its pre-european vegetation cover within the Coolgardie IBRA Bioregion. According to the "Bioregional Conservation Status of Ecological Vegetation Classes" published by the Department of Natural Resources and Environment, 2002, these values give the vegetation type a Conservation Status of "Least Concern".

The proposed clearing area falls within the Kondinin Shire which remains at 50.1% of its pre-european vegetation extent. Kondinin Shire straddles the divide between the intensive land use zone and the largely uncleared extensive land use zone. Given that remaining vegetation within the intensive landuse zone can range from excellent to degraded as ranked by Keighery (1994), this value should be interpreted as "Depleted" Conservation Status as defined by the "Bioregional Conservation Status of Ecological Vegetation Classes" published by the Department of Natural Resources and Environment, 2002.

As vegetation has remained largely uncleared within the Coolgardie IBRA region, the percentage of vegetation within IUCN reserves has changed little since European settlement.

DEC (2006) notes that the native vegetation types present are well represented in the Region.

Therefore the area is not significant as a remnant of native vegetation and it is not likely that this proposal is at variance to this principle.

Methodology DEC (2006)
Department of Natural Resources and Environment (2002)
Keighery (1994)
Shepherd et al (2001) updated 2005.

(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

An interrogation of GIS databases reveals that there are no permanent watercourse or wetlands or drainage

channels within the proposed clearing area. This was also identified in supporting documentation provided by Western Areas NL (2006). Lake Cronin is located 6.3 km to the north east and whilst this proposal is within the Red Book Area surrounding Lake Cronin, the loss of 4.2 ha of vegetation, most of which has been previously disturbed, is not likely to impact on the lake at such a distance. The clearing is not likely to alter the groundwater level or quality. Therefore, the proposal is not likely to be at variance to this principle.

Methodology GIS database: Hydrography, linear - DOE 1/2/04.
Western Areas NL (2006).

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

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

Western Areas NL (2006) stated that the area under proposal experiences a gentle downward gradient of 1.6% to the east. The Bureau of Meteorology (BOM) website (2006) states that Hyden, 80 km to the east of the proposed clearing area, experiences approximately 344.5 mm rainfall per year. The area is also well vegetated. Western Areas NL (2006) have described the soil type as being pale grey to pale brown sandy soils. This soil type is has poor water holding capacity (free draining) and is unlikely to be subject to water erosion but is prone to wind erosion (Schoknecht, 2002). The relatively low rainfall combined with the gentle slope and free draining soils would suggest that the removal of 4.2 ha of vegetation will not cause significant erosion due to water. The surrounding vegetation cover will act as a buffer to wind erosion and therefore the clearing is not likely to lead to wind erosion. Western Areas are also committed to using scrub rolling techniques which will aid in erosion control.

There are no low points within the area under proposal where water may collect. Furthermore, the water table is situated at 60-85 m below ground level (Western Areas NL, 2006). The region also experiences evaporation rates of approximately 2000 mm per year (Luke et al, 1987). As a result there is little chance of water logging due to the removal of 4.2 ha of vegetation.

As the water table is 60-85 m below the surface, the removal of 4.2 ha of vegetation is not likely to cause salinisation.

Therefore, the proposal is not likely to be at variance to this principle.

Methodology BOM (2006).
Luke et al (1987).
Schoknecht (2002).
Western Areas NL (2006).

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

Comments Proposal may be at variance to this Principle

The proposed clearing area occurs within an ESA (red book area) which is a buffer zone surrounding Lake Cronin. At its closest point, the clearing is 6.3 km from Lake Cronin and 3.6 km from Lake Cronin Nature Reserve boundary.

A significant proportion of clearing to be undertaken (88%) will be done on pre-existing exploration tracks and gridlines that have experienced regrowth. The remainder will be for the installation of sumps in uncleared vegetation. Western Areas have committed to using low impact clearing methods such as scrub rolling and raised blade clearing. Topsoil and vegetation cleared for drill pad sumps will be stockpiled and used in rehabilitation of cleared areas upon completion of clearing (Western Areas NL, 2006). These techniques should not significantly impact on the environmental values of the 10 km buffer zone (red book area) surrounding Lake Cronin.

According to the Australian Heritage Database (2006) the Lake Cronin Nature Reserve is dominated by mallee and woodland associations. This is one of the two vegetation types described by Jims Seeds, Weeds & Trees in their 2006 vegetation survey, as occurring within the proposed clearing area. The habitat to be cleared is well represented within conservation estate. The other, sandplain heath, is very common in the Coolgardie bioregion.

Lake Cronin Nature Reserve is surrounded by extensive vegetation and the clearing of 4.2 ha of vegetation some 3.6 km from the reserve will not effect ecological linkage to the reserve.

DEC advises that Lake Cronin Nature Reserve is sufficiently distanced from the notified area that its conservation values are unlikely to be impacted by this work. Supporting documentation states that "WSA (Western Areas NL, sic) have set up permanent vegetation monitoring plots inside M77/582 to ensure that mining operations have no impacts on vegetation upstream of Lake Cronin" (DEC, 2006).

Therefore despite the area being on the Register of National Estate for natural values it is considered that the

clearing to take place is of a small scale and low impact. Therefore, whilst the proposal may be at variance to this principle (occurring within a buffer for conservation estate), it is considered that there will be no impact to the Lake Cronin Reserve or the Red Book area surrounds.

Methodology DEC (2006)
DEH (2006)
Western Areas NL (2006)

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

The proposed clearing straddles the Swan Avon/Lockhart and Swan Avon/Yilgarn catchments, neither of which are Public Drinking Water Source Areas. The area receives ~344.6 mL of rainfall per year (BOM, 2006) and experiences a pan evaporation rate of 2200 mm/y (Luke et al, 1987). Surface water flow is likely to be low during normal seasonal rains. Sedimentation or turbidity of waterbodies is not likely as there are no permanent water bodies in the clearing area or near vicinity. The water table in the area is effected by dewatering activities and is located some 60 - 85 m below (Western Areas, 2006). No vegetation is likely to be dependant on groundwater at such depths. Therefore, this proposal is not likely to be at variance to this principle.

Methodology BOM (2006).
Luke et al (1987).
Western Areas NL (2006).

(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

Low annual rainfall (344 mL/y) (BOM, 2006), high evaporation rates (2200 mm/y) (Luke et al, 2006), the absence of waterbodies or watercourses in the area (GIS Databases) and a gentle slope of 1.6% (Western Areas NL, 2006) would suggest that this area is not subject to flooding. Therefore this proposal is not likely to cause or exacerbate flooding and is not likely to be at variance with this principle.

Methodology BOM (2006)
GIS Database: Hydrography, Linear – DoE 1/2/04
Luke et al (1987)
Western Areas NL (2006)

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

Comments

According to the GIS database the area under proposal is not subject to native title claim (GIS Database: Native Title Claims – DLI 7/11/05).

Under a Memorandum of Understanding between DOIR and EPA, where a proposal for exploration falls within a red book area, advice should be sought from DoE as to whether a referral to EPA is required. Advice from the DoE was received to suggest that DEC were best situated to make such a determination. DEC has advised that there were no significant differences from a biodiversity point of view between this application and CPS 1249 (a proposal submitted by Western Areas NL to clear vegetation within the Lake Cronin Red Book area, level of assessment set by EPA as not assessed - managed under part V of Environmental Protection Act) and therefore it was DEC's view that referral to the EPA should not be necessary.

There are no Groundwater/Surface Water or Environmental License/Works Approvals current for these tenements.

Methodology GIS Database: Native Title Claims - DLI 7/11/05

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Exploration	Mechanical Removal	4.2	Grant	<p>The assessable criteria have been addressed, and the proposal may be a variance to Principle (h).</p> <p>Principle (h): Although the clearing is within a red book area, the proposed clearing area is small (4.2 ha) and linear (gridlines) and is sufficiently distanced from Lake Cronin Nature Reserve such that environmental values of the area will not be significantly impacted. A condition will be placed on the permit to the effect that the permit holder must utilise previously disturbed areas of vegetation within the area under application in preference to undisturbed areas of vegetation.</p> <p>Therefore the assessing officer recommends that the permit should be granted</p>

subject to the following conditions:

1. The Permit Holder shall record the following for each instance of clearing: a) the coordinates of areas cleared using Geocentric Datum Australia 1994; b) the size of the areas cleared in hectares; and c) the dates on which the area was cleared.
2. The Permit Holder shall record the following for each instance of clearing: a) the coordinates of areas rehabilitated using Geocentric Datum Australia 1994; b) the size of the areas rehabilitated in hectares; and c) the dates on which the area was rehabilitated.
3. The Permit Holder shall provide a report to the CEO Director, Environment Division, Department of Industry and Resources by 1 February each year for the life of this permit, setting out the records required under condition 1 and 3 of this permit in relation to clearing carried out between 1 January and 31 December of the previous year.
4. The permit holder shall utilise existing cleared or disturbed areas of vegetation in preference to previously undisturbed areas of vegetation within the area cross-hatched yellow on Plan 1336/1 for exploration activities.
5. The Permit Holder shall rehabilitate each area cleared under this permit within 6 months after the Permit Holder completes exploration activities on that area.
6. When undertaking any clearing, revegetation and rehabilitation, or other activity pursuant to this Permit, the permit holder must take the following steps to minimise the risk of introduction and spread of dieback:
 - (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (b) avoid the movement of soil in wet conditions;
 - (c) if movement of soil in wet conditions is necessary, the permit holder must prepare, implement and adhere to a dieback management plan developed in consultation with CALM for minimising the spread of dieback; and
 - (d) ensure that no dieback-affected road building materials, mulches or fill are brought into an area that is not affected by dieback.
7. When undertaking any clearing, revegetation and rehabilitation, or other activity pursuant to this Permit the permit holder must take the following steps to minimise the risk of the introduction and spread of weeds:
 - (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared; and
 - (b) ensure that no weed-affected road building materials, mulch, fill or other material is brought into the area to be cleared.

5. References

- Biota Environmental Sciences Pty Ltd (2006) Forrestania Fauna Survey, Fauna and Faunal Assemblages Report.
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- Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- Department of Environment and Heritage (2006). Australian Heritage Database <http://www.deh.gov.au/cgi-bin/ahdb/search.pl>
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- Garnett, S.T. & Crowley G.M. (2000). Action Plan for Australian Birds 2000. Environment Australia, Canberra.
- Jims Seeds, Weeds & Trees (2006) North Flying Fox Drill Lines Flora Survey (M77/582) For Western Areas NL, April 2006, Draft 1. Kalgoorlie, Western Australia.
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- Luke G.J, Burke K.L, O'Brien T.M. (1987) Evaporation Data for Western Australia. Department of Agriculture, Western Australia
- Schoknecht N, 2002. Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Department of Agriculture, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Western Areas NL (2006) Supporting Document for North Flying Fox Exploration Purpose Clearing Permit Application, Tenement M77/582. Unpublished report to the Department of Industry and Resources. Perth, Western Australia.

6. Glossary

Acronyms:

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

Definitions:

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

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

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

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

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

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

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