



1. Application details

1.1. Permit application details

Permit application No.: 1264/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Farno Pty Ltd (Resubmitted as Farno P/L)

1.3. Property details

Property: E69/1564
Local Government Area: Shire Of Ngaanyatjaraku
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.15		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
<p>Beard vegetation association 18: Low woodland; <i>Mulga (Acacia aneura)</i>.</p> <p>(Hopkins et al. 2001; Shepherd et al. 2001).</p> <p>Low Ecological Services (2006) conducted a targeted flora survey from the 17th-18th January 2006, with a follow-up survey of areas previously not assessed conducted on 11th April 2006 (Low Ecological Services, 2006a). The flora studies were carried out within three proposed drilling locations within a 6 x 7 km area known as the Gross Area Box (GAB). The three locations within the GAB that will require the clearing of native vegetation are: Mag Drill Site, RC Drill Site 1 and RC Drill Site 2. The exact location of RC Drill Sites 1 and 2 was uncertain during the January survey, thus only preliminary surveying was done in RC Drill Site 2. No flora sites were examined in RC Drill Site 1, whilst the Mag Drill Site was thoroughly surveyed. The vegetation previously not assessed within RC Drill Site 1 was later surveyed as part of the April flora study, with a more detailed assessment of RC Drill Site 2 also conducted at this time.</p>	<p>The proposal is for the clearing of up to 2.15 hectares of native vegetation within, or across any of three proposed drilling locations. The three locations, referred to as the project area, comprise of approximately 491 hectares of native vegetation within which 2.15 hectares is proposed to be cleared for future exploration drilling and related infrastructure (Low Ecological Services, 2006).</p> <p>The project area is currently on the Register of National Estate for natural values and is therefore declared to be an Environmentally Sensitive Area (ESA) in accordance with the <i>Environmental Protection Act 1986</i> (GIS Database). Currently, an exemption on clearing under item 25 of the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i> does not apply within ESA's, hence the proposal must be assessed in accordance with the provisions of the <i>Environmental Protection Act 1986</i>.</p> <p>GIS Database: - Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05.</p>	<p>Pristine: No obvious signs of disturbance (Keighery 1994)</p>	<p>The survey area contains pristine vegetation communities that have not experienced disturbance from human activities, apart from nomadic occupation by indigenous peoples for thousands of years and the presence of the Blackstone-Warburton Road (Low Ecological Services, 2006). Hunting from vehicles over recent years has also resulted in increased disturbance throughout the project area.</p> <p>There have been several small fires within the area over the last five years (interpreted from Satellite Imagery on GeoScience Australia website http://www.ga.gov.au), all of which are no longer visible on recent satellite images due to good vegetation recovery (Low Ecological Services, 2006).</p> <p>Low Ecological Services (2006) advise that grazing pressure by large mammals (mainly camels) was present, however, overall grazing pressure on the land has had a minor impact on vegetation condition.</p>

During the flora survey, five main vegetation types were identified

within the survey area and these are described as follows: (Low Ecological Services, 2006; 2006a).

a. Low Woodlands: Mulga (*Acacia aneura*) with Woollybutt (*Eragrostis eriopoda*) open grassland understorey;

b. Low Open Woodlands: Mulga (*Acacia aneura*) on rock rises with Wanderrie Grass (*Eriachne mucronata*) understorey;

c. Open Shrublands: Sparsely dispersed Acacia and Hakea trees over Senna shrubs and Aristida grasses;

d. Hummock Grasslands: Shrub steppe, Acacia and Grevillea over *Triodia basedowii*;

e. Dune Shrublands: Eremophila and Grevillea shrubs over Aristida grasses;

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 proposal is for the clearing of up to 2.15 hectares of native vegetation within a project area of approximately 491 hectares. A biological assessment of the project area was conducted by Low Ecological Services in January 2006, during which a flora survey of the Gross Area Box was conducted (Low Ecological Services, 2006). A desktop assessment of fauna of conservation significance that may occur within the project area was also conducted, with an opportunistic assessment for those species undertaken in the field. A follow-up flora survey was conducted in April 2006 across areas previously not assessed during the January survey (Low Ecological Services, 2006a).

No Declared Rare or Priority flora species are known to occur within the area under application (GIS Database), and Low Ecological Services (2006; 2006a) advise that no species of conservation significance were recorded from within the areas proposed to be cleared during either the January or April flora survey. The project area had received significant rainfall prior to these flora surveys being conducted, hence the timing was considered to be suitable for the purposes of these studies.

Low Ecological Services (2006) advise that no fauna species of conservation significance were observed during the survey, although a desktop review of the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* and the CALM website identified four bird, four mammal and one reptile species of conservation significance which may occur within the area under application.

CALM (2006) advise that It would appear unlikely that this proposal would be seriously at variance to any of the relevant biodiversity principles given that the area to be cleared is relatively small and the proponent states that no trees will need to be cleared, and existing access tracks will be used.

Habitats and vegetation types within the Gross Area Box frequently occur throughout the surrounding region (Low Ecological Services 2006; GIS Database), and it is unlikely that the biodiversity at the site of this proposal would be considered outstanding, or of a higher diversity than in the Central Ranges bioregion, the Shire of Ngaanyatjarraku or the local area.

In consideration of the above, the proposal is judged to not likely be at variance to this principle.

Methodology CALM (2006).
Low Ecological Services (2006).
Low Ecological Services (2006a).

GIS Databases:

- Declared Rare and Priority Flora List - CALM 01/07/05.
- Pre-European Vegetation - DA 01/01.

(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

According to the available CALM datasets, no fauna species of conservation significance are known to occur within the area under application (GIS Database).

Trapping for fauna species of conservation significance was not conducted for this proposal, however, incidental sightings of animals and/or their signs (i.e. tracks, scats, burrows etc.) were recorded opportunistically, and discussion with traditional owners and Ngaanyatajarra Land Management staff provided local knowledge of the fauna (Low Ecological Services, 2006).

In addition, a desktop review of the *EPBC Act (1999)* and the CALM website identified four bird, four mammal and one reptile species of conservation significance which may occur within the Gross Area Box (Low Ecological Services, 2006). Fauna Species listed in the *EPBC Act 1999* that may occur within the project area are: Slender-billed Thornbill {western} (*Acanthiza iredalei iredalei*); Mulgara (*Dasyercus cristicauda*); Greater Bilby (*Macrotis lagotis*); Northern Marsupial Mole (*Notoryctes caurinus*); Black-footed Rock-wallaby {MacDonnell Ranges race} (*Petrogale lateralis*); Great Desert Skink (*Egernia kintorei*); Oriental Dotterel (*Charadrius veredus*); Great Egret (*Ardea alba*); Rainbow Bee-eater (*Merops ornatus*). All species are considered common and widespread throughout the Central Ranges Region (Low Ecological Services, 2006).

Low Ecological Services (2006) advise that no fauna species of conservation significance were observed during the survey. A population of Greater Bilbies has been surveyed over the last couple of years 30 to 50 km north of Warburton by Ngaanyatajarra Land Management surveys (R.Edwards, pers. comm., Jan. 2006 as cited in Low Ecological Services 2006), however, the Land Management officer was not aware of any Greater Bilby populations existing in the country along Blackstone road.

CALM (2006) advise that It would appear unlikely that this proposal would be seriously at variance to any of the relevant biodiversity principles given that the area to be cleared is relatively small and the proponent states on the application form that no trees will need to be cleared and existing access tracks will be used. Habitats and vegetation types within the Gross Area Box are noted as frequently occurring throughout the surrounding region, and from the information provided it appears unlikely that the proposed clearing will disturb any fauna habitats of significance (CALM, 2006).

In consideration of the above, it is not likely that the proposed clearing associated with this proposal is at variance to this principle.

Methodology CALM (2006).
Low Ecological Services (2006).
GIS databases:
- Threatened Fauna - CALM 30/9/05.

(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 the available CALM datasets, no Priority or Declared Rare Flora (DRF) species are known to occur within the area under application (GIS Database).

Low Ecological Services (2006) were commissioned from 17th-18th January 2006 to undertake a flora survey of three proposed drilling locations within the GAB. A survey of the Mag Drill Site and RC Drill Site 2 was conducted, however, RC Drill Site 1 was not assessed due to uncertainty at the time regarding its exact location. There was approximately 180 mm of rainfall during the 4 weeks preceding the field survey, resulting in many newly emerged forbs and grasses (Low Ecological Services, 2006). A follow-up survey of vegetation within RC Drill Site 1 was conducted on 11th April 2006, as this was previously not assessed. More detailed studies of RC Drill Site 2 were also conducted during the April flora survey.

Prior to the field survey, a search for Declared Rare and Priority flora species previously recorded or likely to occur within the vicinity of the project area was undertaken using the CALM database; FloraBase (Low Ecological Services, 2006). Species lists from the Wildlife Conservation (Rare Flora) Notice (2005) and the *EPBC Act 1999* were also compared to the flora species recorded during the survey. Plant species collected in the field for which identifications were uncertain, were collected as voucher specimens and identified in consultation with botanist Des Nelson and the Alice Springs Herbarium.

The results of the database search for Declared Rare and Priority flora species indicated that 17 Priority flora species may possibly occur within, or near the vicinity of the study area (Low Ecological Services, 2006). Of

these, it is considered that one species had a high possibility of occurring within the lease (*Microcorys macredieana* - Priority 3), 10 species had a moderate chance, and six species had a low to very low chance of occurring within the survey area due to known habitat and landscape requirements.

During the April flora survey, *Microcorys macredieana* was found to occur within the sand dunes 300 metres east of RC Drill Site 1 (Low Ecological Services, 2006a). One population containing approximately 20 individuals was identified during the survey and will not be affected by the proposed exploration drilling operations as it falls outside the proposed drilling zone.

No other species of conservation significance were recorded from within the project area during either the January or April flora surveys, and all flora species recorded are common throughout the Central Ranges Region and surrounding regions (Low Ecological Services, 2006; 2006a). The habitats and vegetation types within the GAB frequently occur throughout the surrounding region. This suggests it is unlikely that species of conservation significance will specifically occur within the GAB and not in surrounding habitats.

CALM (2006) advise that the proposal is not likely to be at variance to this principle, however, if the P3 species *Microcorys macredieana* is found to occur within the low sand dunes within RC Drill site 1, the proponent should notify CALM Goldfields Region and it should be avoided if at all possible.

In consideration of the above, the clearing of vegetation associated with this proposal is not likely to be at variance to this principle.

Methodology CALM (2006).
 Low Ecological Services (2006).
 Low Ecological Services (2006a).
 GIS Database:
 - Declared Rare and Priority Flora List - CALM 01/07/05.

(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 have been no known Threatened Ecological Communities (TECs) identified within the E69/1564 lease area (GIS Database). Graham & Cowan (2001) advise that no known TECs are listed in the Central Ranges 1 - Mann-Musgrave Block IBRA subregion.
 The nearest known TEC is approximately 760 km south-west of the area under application (GIS Database).

Methodology Graham & Cowan (2001).
 GIS Databases:
 - Threatened Ecological Community Database - CALM 12/4/05.

(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 Mann-Musgrave Block IBRA Subregion (CR1) and the Shire of Ngaanyatjaraku (GIS Database). Shepherd et al. (2001; 2001a) report that approximately 100% of the pre-European vegetation exists in the Mann-Musgrave Block IBRA Subregion, which is well above the 30% threshold identified by the EPA in Position Statement No. 2, below which species loss appears to accelerate exponentially at the ecosystem level (EPA, 2000).
 The vegetation in the application area is recorded as Beard vegetation association 18: Low woodland; Mulga (*Acacia aneura*). According to Shepherd et al. (2001a), approximately 100% of this vegetation type remains within the Mann-Musgrave Block IBRA Subregion, with 0% held in reserves. The benchmark of 15% representation in conservation reserves has not been met for Beard vegetation association 18 (JANIS Forests Criteria, 1997), however, the area proposed to clear does not represent a significant remnant of native vegetation due to the widespread nature of this vegetation type both on a local and regional scale.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in reserves/CALM-managed land*
IBRA Subregion –					
Mann-Musgrave Block (CR1)	4,701,518	4,700,202	~100%	Least concern	0%
Shire of Ngaanyatjaraku	No information available				
Beard vegetation associations –					
Mann-Musgrave Block (CR1)					
- 18	1,075,927	1,075,161	~100%	Least concern	0%

* Shepherd et al. (2001; 2001a).

** Department of Natural Resources and Environment (2002).

Methodology Department of Natural Resources and Environment (2002).
EPA (2000).
Hopkins et al. (2001).
JANIS Forests Criteria (1997).
Shepherd et al. (2001).
Shepherd et al. (2001a).
GIS Databases:
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Local Government Authorities - DLI 8/07/04
- Pre-European Vegetation - DA 01/01.

(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 at variance to this Principle

There are no watercourses or wetlands present within the proposed clearing area (GIS Database). Several minor, non-perennial watercourses are situated in close proximity to the area under application, however, these are upslope of the project area and will not be impacted upon by any clearing associated with this proposal.

Low Ecological Services (2006) further advise that surface hydrology is poorly formed within the survey area, and that no major creeklines are present. Small-scale ephemeral watercourses have cut drainage gullies from the elevated rocky slopes, however, none of these watercourses extend far into the alluvial pediment nor intersect proposed drill sites.

In consideration of the above factors, the proposal is judged to not be at variance to this principle.

Methodology Low Ecological Services (2006).
GIS Databases:
- Hydrography, linear - DOE 01/02/04.
- Lakes 250K - GA.
- NATMAP 250K Series Mapping - GA 08/03.

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

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

The project area is located on the south-western extent of the Musgrave Complex and consists of flat sand plain country with rocky ridges and hills protruding out of the landscape (Low Ecological Services, 2006).

Low Ecological Services (2006) advise that the soils encountered during the survey included red sandy loams on the flat plains, hardpan clayey sands in depressions where Mulga often dominated, and mostly rocky habitat (skeletal soils) on the ridges and slopes. The land targeted for exploration is predominantly situated on flat sand plain with low potential for erosion development.

Given the topography across the project area and the dominant soil types which exist within it, the small amount of clearing associated with this proposal is unlikely to increase the incidence of soil erosion.

Low Ecological Services (2006) advise that the project area is outside Phytosphthora dieback areas, and there is no potential for dieback occurrence due to drilling exploration.

No weeds were recorded during either of the flora surveys conducted in January 2006 and April 2006 respectively (Low Ecological Services, 2006; 2006a). Primary Resources Ltd have made a commitment to weed management within their exploration management plan that states "to minimise the introduction of weeds into the area, the company will ensure that any vehicle or machinery that is proposed to be used at the exploration site will be cleaned of potentially contaminated soil or plant matter prior to entering or leaving the site" (C. Izzillo, Consultant, Primary Resources Ltd, pers. comm. 29th June 2006).

Primary Resources Ltd have made a commitment within their exploration management plan to rehabilitate any areas where vegetation has been cleared for the purposes of exploration. Low Ecological Services (2006) advise that "within six months from the cessation of the exploration activities for each work site, the vegetation, topsoil and subsoil shall be redistributed evenly over the disturbed areas to aid and promote natural regeneration of the disturbed areas and shall be re-spread in the following order: subsoil first, topsoil second, vegetation last".

In consideration of the above, it is unlikely that the scale of clearing proposed will increase the incidence of land degradation across the project area and the proposal is therefore not likely to be at variance to this principle.

Methodology Low Ecological Services (2006).
Low Ecological Services (2006a).

(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 at variance to this Principle

The Gibson Desert Nature Reserve, located approximately 123 km north-west of the area proposed to be cleared, is the nearest CALM managed conservation area to the proposal (GIS Database). It is not considered that the vegetation within the project area would provide a significant ecological linkage to this conservation area.

Based on the separating distance between the project area and the nearest CALM managed reserve, the proposed clearing is not considered to be at variance to this principle.

Methodology GIS Databases:
- CALM Managed Lands and Water - CALM 1/07/05.

(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 area to be cleared does not fall within a Public Drinking Water Source Area (GIS Database).

There are no watercourses or wetlands present within the proposed clearing area (GIS Database). Low Ecological Services (2006) advise that surface hydrology is poorly formed within the survey area and no major creeklines are present. Small-scale ephemeral watercourses have cut drainage gullies from the elevated rocky slopes, however, none of these watercourses extend far into the alluvial pediment nor intersect proposed drill sites.

Several minor, non-perennial watercourses are situated in close proximity to the area under application (GIS Database), however, these are upslope of the project area and will not be impacted upon by any clearing associated with this proposal.

Primary Resources Ltd have confirmed that all access roads will be kept out of drainage lines, and that claypan and salt lake areas will be avoided so as to minimise the potential impacts on surface water quality (Low Ecological Services, 2006). As a result, the clearing of vegetation will not increase sedimentation, erosion, turbidity or eutrophication of these watercourses, either on or off-site.

Groundwater salinity across the project area ranges between 1,000mg/L to 3,000mg/L of Total Dissolved Solids (GIS Database). The small amount of clearing associated with this proposal will not impact on the watertable and increase salinity risk across the project area. Furthermore, the area of native vegetation to be cleared is unlikely to have an impact on regional groundwater levels considering the magnitude of the regional Musgrave groundwater province (>32,400 sq km) and the extent of native vegetation remaining in the Mann-Musgrave Block IBRA Subregion, which is approximately 100% (Shepherd et al. 2001).

In view of the above, the proposal is considered not likely to be at variance to this principle.

Methodology Low Ecological Services (2006).
Shepherd et al. (2001).
GIS Databases:
- Groundwater Provinces - WRC 98.
- Hydrography, linear - DOE 01/02/04.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Lakes 250K - GA.
- NATMAP 250K Series Mapping - GA 08/03.
- Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06.

(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 project area is located in the Musgrave Ranges in central eastern Western Australia, approximately 80 km east of Warburton (Low Ecological Services, 2006). The landscape throughout the project area is predominantly an extensive red sand plain that supports sparse open woodland and open shrublands.

The average rainfall for the area is typically 200 mm per annum, however, some years may only have 35 mm

and others can receive 650 mm (BOM web site as cited in Low Ecological Services, 2006). It could be reasonably expected that the broad plains which dominate the project area would spread and disperse floodwaters during heavy rainfall events.

Based on the above information and the fact that the scale of clearing involved will not create a catchment area large enough to increase the incidence of flooding, it is considered unlikely that the proposal is at variance to this principle.

Methodology Low Ecological Services (2006).

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

Comments

There is one native title claim over the area under application; WC04/003. This claim has been registered with the National Native Title Tribunal on behalf of the Ngaanyatjarra Lands claimant group. However, the mining tenements have been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. 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 are two Aboriginal sites of significance (ID 2949 & 2950) within the area under application. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no sites of Aboriginal significance are damaged through the clearing process.

The proponent does not have a current EP Licence or works approval for this project (DoE, 2006).

The proponent does not hold an inforce water licence for the project (DoE, 2006).

Methodology DoE (2006).

GIS Databases:

- Aboriginal Sites of Significance - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Exploration	Mechanical Removal	2.15	Grant	<p>An assessment of the application has been completed, and it has been determined that the proposal is not at variance to principles e, f and h. It is considered unlikely that the proposed clearing associated with this proposal is at variance to principles a, b, c, d, g, i or j. The assessing officer therefore recommends that the permit be granted subject to the following conditions:</p> <ol style="list-style-type: none"> 1. For each instance of clearing done under this permit, the Permit Holder must record: a) the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system; b) the size of the areas cleared in hectares; and c) the dates on which the area was cleared. 2. The Permit Holder shall provide a report to the Director, Environment Division, of the Department of Industry and Resources by 31 March 2007 and each subsequent year for the life of this permit, setting out the records required under condition 1 of this permit in relation to the clearing activities.

5. References

- CALM (2006) Land clearing proposal advice. Advice to Program Manager, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Conservation and Land Management, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- DoE (2006) Water allocation/licence advice. Department of Environment, Western Australia.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Graham & Cowan (2001) Central Ranges 1 (CR1 - Mann-Musgrave subregion) in 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'. Report published by the Department of Conservation and Land Management, Perth, Western Australia.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of

WA (Inc). Nedlands, Western Australia.

Low Ecological Services (2006) Baseline Vegetation Survey of Exploration Drill Sites in EL69/1564 - Central Ranges Region, W.A. Consultants report to Primary Resources Limited. March 2006.

Low Ecological Services (2006a) Addendum for the Vegetation Survey of Proposed Exploration Drill Sites in EL69/1564 - Central Ranges Region, W.A. Consultants report to Primary Resources Limited. May 2006.

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.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

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.