



1. Application details

1.1. Permit application details

Permit application No.: 2357/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Giralia Resources NL

1.3. Property details

Property: Exploration Licence 69/1897
Local Government Area: Shire of Wiluna
Colloquial name: Earahedy Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.1		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 area applied to clear has been broadly mapped at a scale of 1:250,000 as: Beard Vegetation Association 29: Sparse low woodland; Mulga, discontinuous in scattered groups, Beard Vegetation Association 95: Hummock grasslands, shrub steppe; Acacia and Grevillea over <i>Triodia basedowii</i> and Beard Vegetation Association 178: Hummock grasslands, grass steppe, hard spinifex, <i>Triodia basedowii</i> (GIS Database).	This clearing permit application is for a Purpose Permit to clear up to 3.1 hectares of native vegetation within a boundary of approximately 243 hectares. The proposed clearing will allow Giralia Resources to undertake iron ore exploration activities on Exploration Licence 69/1897 which forms part of Giralia Resources' Miss Fairbairn Hills project area, located approximately 35 kilometres north-west of Carnarvon Range (Ecologia Environment, 2008a).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994).	The vegetation condition rating is based on a desktop biological survey of the Miss Fairbairn Hills project area, undertaken by Ecologia Environment (2008a). Photographs of the proposed clearing area were also provided by the proponent which were used in assessing the vegetation condition.

No fine scale studies of the vegetation and flora of the proposed clearing area have been undertaken to date (Ecologia Environment, 2008a).

The proposed clearing will consist of 39 drill pads (each approximately 100 square metres) and 9 kilometres of access track, approximately 3 metres wide.

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 proposed clearing area falls within the boundaries of the Trainor subregion of the Little Sandy Desert bioregion and the Carnegie subregion of the of the Gascoyne bioregion, according to the Interim Biogeographic Regionalisation for Australia (GIS Database).

The Trainor subregion is underlain by the Officer Basin and is characterised by shrub steppe of Acacias, *Aluta maisonneuvei* and Grevilleas over *Triodia schinzii* on sandy surfaces, sparse shrub steppe over *Triodia basedowii* on stony hills, with Eucalypt communities and bunch grasslands on alluvial deposits and drainage lines associated with ranges (CALM, 2002a). The subregion is rich in arid zone reptiles, particularly the genera Ctenotus and Lerista. Floristically, the subregion displays high diversity in the Acacia and Goodenia genera (CALM, 2002a). Refugia of the subregion include numerous rockholes, springs and soaks in range country.

The Carnegie subregion is underlain by the Earahedy Basin and is characterised by sedimentary and granite ranges divided by broad flat valleys. Shallow earthy loams over hardpan occur on the plains and shallow stony loams are associated with the ranges. Low Mulga communities occur on hills and plains, whilst ranges are dominated by mulga scrub and Eremophila shrublands (CALM, 2002b). At the time of publication, CALM

(2002b) reported that no Declared Rare Flora (DRF) or Priority Flora had been recorded from the Carnegie subregion. This may be a reflection of inadequate detailed flora survey work for the area, although the largely homogenous landscape is unlikely to support many endemic or restricted flora species (CALM, 2002b). Similarly, there are no identified endemic fauna taxa for the subregion, no known Threatened Ecological Communities (TEC's) or no wetlands of subregional significance (CALM, 2002b).

The proposed clearing area is located within the Carnarvon Range proposed reserve. This area is listed on the Register of the National Estate for its botanical and Aboriginal heritage values (Department of the Environment, Water, Heritage and the Arts, 2008). The Carnarvon Range proposed reserve supports outlying populations of flora species known only from the Hamersley Ranges and areas further north. The area is characterised by peaks of the Range (for example, Mount Essendon at 950 metres), gorges containing permanent and semi-permanent waterholes and plains surrounding the range which are dominated by Spinifex associations with some areas of Mulga (Department of the Environment, Water, Heritage and the Arts, 2008).

The desktop study undertaken by Ecologia Environment (2008a) identified a number of weed species, including two Declared Plants, which could potentially occur in the proposed clearing area based on known distributions: Mexican Poppy (*Argemone ochroleuca*), Native Thornapple (*Datura leichhardtii*) (both Declared Plants), Bipinnate Beggartick (*Bidens bipinnata*), Whorled Pigeon Grass (*Setaria verticillata*) and Kapok Bush (*Aerva javanica*). Weeds pose a threat to native flora and have the potential to severely impact upon local biodiversity if not adequately managed. Should a clearing permit be granted, it is recommended conditions be imposed to ensure the proposed clearing operations do not spread or introduce weed species to non-infested areas.

It is acknowledged that no on-ground flora or fauna surveys have been conducted in the proposed clearing area and little biological information is available for the local area in general. Until further survey work is undertaken, the value of the proposed clearing area in terms of its biological diversity value cannot be fully understood. For this reason, the clearing permit application assessment is largely based upon desktop study. It is also necessary to consider the proposed clearing in context:

The proposed clearing is non-contiguous and will consist of 39 discrete drill pads (no larger than 100 square metres per pad) and 9 kilometres of access tracks (approximately 3 metres in width). A majority of the vegetation clearing will occur on sandy alluvial Spinifex plains and low rolling hills. No exploration drilling will occur on hillsides (J. Goldsworthy - Exploration Manager - Giralia Resources, 25/03/08, pers comm). As per tenement conditions for Exploration Licence 69/1897, Giralia Resources are required to rehabilitate all disturbances to the surface of the land (including drill pads and access tracks) within 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR. This condition is likely to ensure that vegetation and habitat loss associated with this clearing proposal is only temporary. In this context, it is unlikely that the proposed clearing will significantly impact upon the biodiversity values at the local, regional or bioregional level.

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

Methodology CALM (2002a).
CALM (2002b).
Department of the Environment, Water, Heritage and the Arts (2008).
GIS Database:
- Interim Biogeographic Regionalisation for Australia (Subregions).

(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**

No vertebrate or invertebrate fauna surveys have been conducted over the proposed clearing area. Ecologia Environment (2008a) undertook a desktop fauna study of the Miss Fairbairn Hills project area on behalf of Giralia Resources to determine the likely fauna values of the proposed clearing area and to recommend management strategies aimed at minimising the risk to fauna when undertaking native vegetation clearing and subsequent mineral exploration activity.

The desktop fauna study involved the following methods:

- studying fauna survey results obtained by the Department of Environment and Conservation (DEC) during a survey of the south-western region of the Little Sandy Desert. In addition, fauna survey results obtained on a Landscape expedition to the Carnarvon Range were also examined by Ecologia Environment to assist in compiling an expected species inventory for the Miss Fairbairn Hills project area;
- The vegetation types and faunal habitats in the Miss Fairbairn Hills project area (largely Acacia shrub steppe or woodland over hummock grassland of *Triodia*) are similar to those found in the Pilbara bioregion. For this reason, Ecologia Environment (2008a) used the results of a number of Pilbara fauna surveys to generate a potential species list for the Miss Fairbairn Hills project area. Those species endemic to the Pilbara bioregion were not included on the list;

- Searches were conducted of the following databases:
 1. Western Australian Museum's 'FaunaBase';
 2. DEC Rare and Priority Fauna Database;
 3. Department of Environment, Water, Heritage and the Arts Database; and
 4. Birds Australia Birddata Database.

Based on the desktop fauna study, Ecologia Environment (2008a) determined that 42 native mammal species, 154 bird species, 125 reptile species, 10 amphibian species and 8 introduced fauna species could potentially occur within the Miss Fairbairn Hills project area (totalling 339 species).

Broad scale vegetation mapping suggests that the vegetation within the proposed clearing area is well represented at the local, regional and bioregional scale (GIS Database; Shepherd et al, 2001). The proposed clearing is non-contiguous and will consist of discrete drill pads and access tracks. The loss of 3.1 hectares of native vegetation is not likely to result in a loss of significant habitat for fauna species indigenous to Western Australia when considered in this context.

Notwithstanding this, Ecologia Environment (2008a) notes that there is little biological information available for the study area. Conservation values of the Miss Fairbairn Hills project area may be significant with regards to fauna. The fauna values of the area cannot be fully understood until on-ground fauna surveys are conducted at the site.

Whilst all native fauna species are protected under current legislation, species of special conservation significance are afforded additional protection under international, federal and state law. Three of these species were identified as potentially occurring within the Miss Fairbairn project area based on the desktop study results:

1. Greater Bilby (*Macrotis lagotis*);
2. Malleefowl (*Leipoa ocellata*); and
3. Peregrine Falcon (*Falco peregrinus*)

A number of other species of conservation significance which are listed on the DEC's Priority Fauna list may also potentially occur:

- Western Pebble-mound Mouse (*Pseudomys chapmani*);
- Long-tailed Dunnart (*Sminthopsis longicaudata*);
- Brush-Tailed Mulgara (*Dasyercus blythi*);
- Grey Falcon (*Falco hypoleucos*);
- Masked Owl (*Tyto novaehollandiae*);
- Bush Stone-curlew (*Burhinus grallarius*);
- Australian Bustard (*Ardeotis australis*); and
- Skink (*Lerista macropisthopus remota*).

Whilst there are a range of conservation significant fauna species which may potentially occur within the proposed clearing area, the small area proposed for disturbance is unlikely to result in a loss of significant habitat given the homogenous landscape in which clearing is proposed. To minimise the potential impact of clearing on native fauna species, it is recommended that a suitably qualified zoologist search those areas proposed for disturbance for the presence of mounds and/or burrows of conservation significant species. If located, these areas should be clearly flagged and avoided.

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

Methodology Ecologia Environment (2008a).
Shepherd et al (2001).
GIS Database:
- 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 may be at variance to this Principle

No botanical surveys have been conducted over the proposed clearing area (Ecologia Environment, 2008a). The Department of Environment and Conservation (DEC) have surveyed and documented the flora of the Carnarvon Range and south-western Little Sandy Desert. These studies are relevant in considering the flora values of the proposed clearing area given their proximity, and formed the basis of a desktop study which was undertaken by Ecologia Environment (2008a) to produce a potential Declared Rare Flora (DRF) and Priority Flora species inventory for the proposed clearing area.

Based on Western Australian Herbarium collections and DEC databases, one DRF and 18 Priority Flora species are known to occur within a 50 kilometre radius of the Miss Fairbairn Hills project area:

Thryptomene wittweri (R)
Eremophila anomala (P1)

Eremophila ostrina (P1)
Halosarcia sp. Yanneri Lake (P1)
Ptilotus chrysocomus (P1)
Tecticornia sp. Blue Hill (P1)
Tetratheca chapmanii (P1)
Dampiera atriplicina (P2)
Gonocarpus ephemerus (P2)
Calytrix praecipua (P3)
Daviesia arthropoda (P3)
Eremophila arachnoides (P3)
Eremophila caespitosa (P3)
Frankenia glomerata (P3)
Gonocarpus pycnostachus (P3)
Maireana prosthocochaeta (P3)
Microcorys macredieana (P3)
Mimulus repens (P3)
Comersperma viscidulum (P4)

Ecologia Environment (2008a) analysed the habitat preferences of the above listed species and determined that 8 of the 19 species could potentially occur in the Miss Fairbairn Hills project area. These species include:

1. *Ptilotus chrysocomus*
2. *Tecticornia sp. Blue Hill*
3. *Dampiera atriplicina*
4. *Daviesia arthropoda*
5. *Eremophila arachnoides*
6. *Eremophila caespitosa*
7. *Frankenia glomerata*
8. *Comersperma viscidulum*

Ecologia Environment (2008a) concluded that given the scarcity of information available, the flora conservation values of the Miss Fairbairn Hills project area may be significant. Without some on-ground botanical survey effort these values will remain unknown. Should a clearing permit be granted, it is recommended that conditions be imposed on the permit to ensure targeted searches for DRF and Priority Flora are undertaken prior to clearing. Special attention should be paid in searching for those species identified as most likely to occur in the area by Ecologia Environment (2008a). Should DRF species be located, the proponent must not clear these plants without written Ministerial approval in accordance with Section 23F of the *Wildlife Conservation Act 1950*. Should Priority Flora be located, these species should be clearly flagged and not cleared. It is expected that the results of pre-clearance flora surveys be conveyed to DoIR in the form of a report.

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

Methodology Ecologia Environment (2008a).

(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 known Threatened Ecological Communities (TECs) in the vicinity of the proposed clearing area (GIS Database). The nearest recorded TEC is the Ethel Gorge aquifer stygobiont community, located approximately 210 kilometres north of the clearing permit application area (GIS Database). The proposed clearing will not impact this community.

Similarly, no state-listed Priority Ecological Communities (PECs) occur within or near the proposed clearing area (Ecologia Environment, 2008a).

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

Methodology Ecologia Environment (2008a).
 GIS Database:
 - Threatened Ecological Communities.

(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 proposed clearing area is within the Interim Biogeographic Regionalisation for Australia (IBRA) Gascoyne and Little Sandy Desert bioregions (GIS Database). According to Shepherd et al (2001) there is approximately 100% of the pre-European vegetation remaining in the Gascoyne and Little Sandy Desert bioregions (see table overleaf). The vegetation of the proposed clearing area is classified as Beard Vegetation Association 29: Sparse low woodland; Mulga, discontinuous in scattered groups, Beard Vegetation Association 95: Hummock

grasslands, shrub steppe; Acacia and Grevillea over *Triodia basedowii* and Beard Vegetation Association 178: Hummock grasslands, grass steppe, hard spinifex, *Triodia basedowii* (GIS Database). There is approximately 100% of the pre-European vegetation remaining of Beard Vegetation Associations 29, 95 and 178 at the bioregional level (Shepherd et al, 2001). Whilst Beard Vegetation Associations 29 and 95 and 178 are poorly represented in conservation reserves, the proposed clearing area does not represent a significant remnant of vegetation in the wider regional area. The proposed clearing will not reduce the extent of Beard Vegetation Associations 29, 95 or 178 below current recognised threshold levels.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Gascoyne	18,075,253	18,075,253	~100	least concern	1.9
IBRA Bioregion – Little Sandy Desert	11,089,900	11,089,900	~100	least concern	4.6
Beard veg assoc. – State					
29	7,904,064	7,904,064	~100	least concern	0.3
95	1,224,652	1,223,665	~99.9	least concern	1.5
178	578,162	578,162	~100	least concern	0.3
Beard veg assoc. - Gascoyne					
29	3,802,497	3,802,497	~100	least concern	0
178	33,052	33,052	~100	least concern	0
Beard veg assoc. - Little Sandy Desert					
95	152,646	152,646	~100	least concern	0
178	493,341	493,341	~100	least concern	0

* Shepherd et al. (2001) updated 2005.

** 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 et al (2001).
GIS Databases:
- Interim Biogeographic Regionalisation of Australia.
- 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 at variance to this Principle

There are no permanent watercourses or wetlands in the proposed clearing area (GIS Database). A number of minor ephemeral watercourses intercept the proposed clearing area (GIS Database). Given that watercourses are present, the proposed clearing is deemed at variance to this Principle. However, the proposed clearing must be considered in context:

Giralia Resources have designed the proposed exploration programme to minimise impacts upon drainage lines. No drilling will take place within drainage lines, and it is estimated that there will be more than 100 metres between drainage lines and drill pads (J. Goldsworthy - Exploration Manager, pers comm. 25/03/08). The proposed clearing will involve one minor drainage line crossing. This area was selected for the crossing as it is flat, not incised and contains limited vegetation (J. Goldsworthy, Exploration Manager - Giralia Resources, pers comm. 20/06/08). When crossing the drainage line, "blade-up" clearing techniques will be used to preserve root stock, minimise soil disturbance and erosion. No windrows, cutting in or filling in of the drainage line will be required (J. Goldsworthy - Exploration Manager, pers comm. 20/06/08). It is relevant to note that CALM (2002b) state that the Carnegie subregion has no vegetation which can be described as riparian given the episodic inundation of drainage lines within the region.

Provided that adequate management measures are employed, the proposed clearing is not likely to have a significant impact upon any watercourses or wetlands. Should a clearing permit be granted, it is recommended conditions be imposed on the permit to enforce drainage management measures outlined by the proponent.

Methodology CALM (2002b).
GIS Database:
- Hydrography, linear.

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

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

The proposed clearing area is located approximately 200 kilometres south of Newman in flat Proterozoic stratigraphy of the Earraheedy Basin (M. Joyce - Giralia Resources, 14/02/08, pers comm). The local flora is dominated by Spinifex, as depicted in photographs of the area supplied to the Assessing Officer, DoIR, by Giralia Resources. Low rolling hills occur in the local area, whilst higher Peaks such as Mount Essendon (950 metres) and Mount Methwin (~900 metres) occur approximately 18 kilometres north-east and 31 kilometres east/north-east of the proposed clearing area respectively (GIS Database).

Pirajno et al, (2004), as cited in Ecologia Environment (2008a) has mapped and described the geology around the Miss Fairbairn Hills area in detail. Extensive areas of Giralia Resources' tenements in the Miss Fairbairn Hills project area are sheetwash, composed of silt, sand and gravel deposited on low gradient slopes. Drainage lines are not clearly defined (Ecologia Environment, 2008a).

Erosion risks associated with vegetation clearing will be minimised by the implementation of the following management strategies, as outlined in the Exploration Environmental Management Plan (Ecologia Environment (2008b):

- vehicles will use only designated tracks;
- previously disturbed areas will be used wherever possible;
- raised blade clearing procedures should be used wherever possible to preserve root stock and minimise disturbance to topsoil. Where clearing is conducted using 'blade down' methods, topsoil will be stripped and stockpiled for use in rehabilitation;
- erosion and sedimentation will be minimised by the construction of erosion control berms;
- mature trees and large shrubs will be avoided where possible; and
- all clearing activities will be scheduled to minimise the time between initial clearing and rehabilitation.

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

Methodology Ecologia Environment (2008a).
Ecologia Environment (2008b).
GIS Database:
- Natmap 250K series 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 clearing area is located within the Carnarvon Range proposed reserve (GIS Database). This area is listed on the Register of the National Estate for its botanical and Aboriginal heritage values (Department of the Environment, Water, Heritage and the Arts, 2008).

The Carnarvon Range proposed reserve was first registered in 1978 and covers an area of approximately 258,000 hectares some 150 kilometres north of Wiluna (Department of the Environment, Water, Heritage and the Arts, 2008). The area is formally declared an Environmentally Sensitive Area (ESA) in accordance with Regulation 6 (1) (b) of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* for the Purposes of Part V, Division 2 of the *Environmental Protection Act 1986*. Clearing exemptions for the purposes of mineral exploration do not apply in ESA's.

The Carnarvon Range proposed reserve supports outlying populations of flora species known only from the Hamersley Ranges and areas further north. The area is characterised by peaks of the Range (for example, Mount Essendon at 950 metres), gorges containing permanent and semi-permanent waterholes and plains surrounding the range which are dominated by Spinifex associations with some areas of Mulga (Department of the Environment, Water, Heritage and the Arts, 2008).

The proposed clearing (3.1 hectares) represents less than 0.01 % of the Register of the National Estate area (~258,000 hectares). Giralia Resources have an Exploration Environmental Management Plan in place that will ensure that environmental impacts associated with this proposal are minimised.

As a precaution, should a clearing permit be granted, conditions are recommended to manage aspects of the proposal which may pose a risk to the conservation values of the Carnarvon Range proposed reserve. For instance, weeds have the potential to impact upon the local biodiversity if introduced or spread by the proposed clearing operations. Adverse impacts associated with weed invasion include an increased fire risk and loss of species diversity as weeds out compete native taxa. Appropriate weed management conditions are recommended, should a clearing permit be granted.

In addition, it is recommended that on-ground flora and fauna surveys be undertaken to improve biodiversity knowledge of the area and assist in the formulation of mitigation and management strategies associated with this clearing proposal.

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

Methodology Department of the Environment, Water, Heritage and the Arts (2008).
GIS Database:
- Register of the National Estate.

(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 area is not located within a Public Drinking Water Source Area (GIS Database). There are no permanent watercourses or wetlands in the proposed clearing area, however some minor ephemeral drainage lines are present. No exploration drilling will occur within 100 metres of drainage lines (J. Goldsworthy, Exploration Manager - Giralia Resources, 25/03/08, pers comm). Access tracks may cross drainage lines, however these will be constructed under dry soil conditions (Ecologia Environment, 2008b). Any run-off from cleared areas will be directed away from drainage lines and into surrounding vegetation (Ecologia Environment, 2008b). It is unlikely that the proposed vegetation clearing will deteriorate the quality of surface water in the area.

The proposed vegetation clearing will be non-contiguous and will consist of discrete drill pads (approximately 100 square metres per pad) and access tracks (approximately 3 metres width). The total area proposed for clearing is relatively small and is not expected to have any significant impacts upon groundwater levels or quality.

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

Methodology Ecologia Environment (2008b).
GIS Database:
- Hydrography, linear.
- Public Drinking Water Source Areas (PDWSAs).

(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 average annual rainfall of the proposed clearing area is approximately 235 millimetres (Ecologia Environment, 2008a). Average annual evaporation is approximately 3,800 millimetres (GIS Database). The peak rainfall period is between January and March (cyclone season), although considerable variation is noted for the region. Light rainfall is associated with thunderstorm activity, and it is not uncommon for the region to experience 12 dry months in a calendar year. Typically, rainfall occurs on 30 days spread throughout the year (Ecologia Environment, 2008a). Natural flood events may very rarely occur following cyclonic events.

The proposed clearing area forms part of Giralia Resources' Miss Fairbairn Hills project area, which is characterised by low hills, gentle slopes and alluvial plains (Ecologia Environment, 2008a). The topography of the proposed clearing area is not likely to encourage the pooling of surface water.

The proposed clearing of 3.1 hectares of native vegetation for access tracks and drill pads is not expected to increase the incidence or intensity of natural flood events given the small area to be cleared (3.1 hectares) in relation to the size of the Lake Carnegie catchment area (6,867,525 hectares; GIS Database).

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

Methodology Ecologia Environment (2008a).
GIS Database:
- Evaporation Isopleths.
- Hydrographic Catchments - Catchments.

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

Comments

The clearing permit application was advertised by DoIR, inviting submissions from the public. One public submission was received by a direct interest party acting on behalf of the Native Title claimant group. The submission acknowledged that Giralia Resources and the claimant group have an agreement in relation to the protection of heritage that relates to Exploration Licence 69/1897. Given that vegetation clearing is a ground disturbing activity under the terms of this heritage agreement, the direct interest party will act on behalf of the claimant group to liaise with Giralia Resources in relation to the mitigation of the effects of this proposed activity on Native Title rights and interests.

There is one native title claim over the area under application (GIS Database). This claim (WC03/002) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the

nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Sites of Aboriginal Significance within the area applied to clear (GIS Database). 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.

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.

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

4. Assessor's comments

Comment

The Clearing Principles have been addressed and the proposed clearing is deemed at variance to Principle (f), may be at variance to Principle (c), not likely to be at variance to Principles (a), (b), (d), (g), (h), (i) or (j) and not at variance to Principle (e).

Should a clearing permit be granted, it is recommended that conditions be imposed with respect to the management of flora, fauna and drainage, weed control, rehabilitation, record keeping and permit reporting.

5. References

- CALM (2002a) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions (Trainor subregion).
CALM (2002b) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions (Carnegie subregion).
Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
Department of the Environment, Water, Heritage and the Arts (2008) Carnarvon Range Proposed Reserve, Wiluna, WA Australia. Available: <http://www.environment.gov.au/cgi-bin/ahdb/search.pl>. Accessed 10 March 2008.
Ecologia Environment (2008a) Giralia Resources NL. Miss Fairbairn Hills Project Area: E69/1897, E69/2072, E69/1768 and ELA69/2289: Desktop Biological Survey. West Perth.
Ecologia Environment (2008b) Giralia Resources NL. Exploration Environmental Management Plan. Revision 1 (27 May 2008). West Perth.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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 (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.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World

RIWI	Conservation Union
s.17	Rights in Water and Irrigation Act 1914, Western Australia.
TECs	Section 17 of the Environment Protection Act 1986, Western Australia. 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.