



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 5794/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Silver Lake Resources Limited

### 1.3. Property details

Property: Mining Lease 21/106  
Mining Lease 21/107  
Miscellaneous Licence L21/18  
Local Government Area: Shire of Cue  
Colloquial name: Moyagee Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
70		Mechanical Removal	Mineral Production and Associated Activities

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 31 October 2013

## 2. Site Information

### 2.1. Existing environment and information

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

**Vegetation Description** Beard vegetation associations have been mapped for the whole of Western Australia. Three Beard vegetation associations are located within the application area (GIS Database):

**Beard vegetation association 240:** Succulent steppe with open scrub; scattered *Acacia sclerosperma* & *bowgada* over saltbush & bluebush;

**Beard vegetation association 313:** Succulent steppe with open scrub; scattered *Acacia sclerosperma* & *A. victoriae* over bluebush; and

**Beard vegetation association 1127:** Mosaic: Saltbush & bluebush/samphire (Government of Western Australia, 2013; GIS Database).

A flora and vegetation survey conducted by Coffey (2013a) during 17 to 24 April 2012 and 27 August to 4 September 2012 identified 21 vegetation communities within the application area:

#### AS – Acacia Shrubland

Scattered tall shrubs dominated by *Acacia eremaea* over scattered shrubs dominated by *Maireana pyramidata* over low open heath dominated by *Atriplex nana* and *Frankenia laxiflora* over very open grassland dominated by *Aristida contorta* on red, fine-grained, clayey loam;

#### AS1 – Acacia Shrubland 1

Scattered tall shrubs dominated by *Acacia eremaea*, *A. craspedocarpa* x *aneura* and *A. fuscaneura* over scattered shrubs dominated by *A. grasbyi* and *A. tetragonophylla* over open shrubland of *Eremophila galeata* and *E. latrobei* subsp. *latrobei sens. lat.* over scattered low shrubs of *Maireana triptera*, *Ptilotus obovatus* and *Sclerolaena eriacantha* very open grassland dominated by *Aristida contorta* on red, fine-grained, clayey loam;

#### AS2 – Acacia Shrubland 2

Scattered low trees dominated by *Acacia kalgoorliensis* over scattered tall shrubs dominated by *A. burkittii* and *A. oswaldii* (variant) over shrubland to open shrubland dominated by *Senna glutinosa* subsp. *chatelainiana* and *Senna* sp. Meekatharra (E. Baily, 1-26) over scattered grasses dominated by *Aristida contorta* on stony, red/pink, fine-grained, loamy clay;

#### BIF – Banded Ironstone Formation

Tall open shrubland dominated by *Acacia* ? *aptaneura* and members of the *Grevillea* and *Eremophila* (*E. platycalyx* subsp. *platycalyx*) genera over shrubland dominated by *E. latrobei* subsp. *latrobei sens. lat.* and *E. clarkei* over low open shrubland dominated by *Sclerolaena eriacantha*, *Philotheca brucei* subsp. *brucei* and *Ptilotus obovatus* on red, skeletal loam with large ironstone outcropping;

#### CH – Chenopod Heathland

Open chenopod heathland dominated by *Maireana* species (*Maireana pyramidata*, *M. triptera* and *M. trichoptera*) on red/pink, fine-grained, clayey loam with rocky, quartz surface;

**CS – Chenopod Shrubland**

Scattered tall shrubs dominated by *Acacia sclerosperma* subsp. *sclerosperma*, *Eremophila miniata* and *Acacia synchronicia* over open shrubland dominated by *Maireana pyramidata*, *Lycium austral* and *Senna artemisioides* subsp. *filifolia* over low open shrubland dominated by *Maireana trichoptera* and *Salsola australis* over open grassland dominated by *Aristida contorta*, *Eragrostis pergracilis* and *Enneapogon caeruleus* on red/pink, fine-grained, loamy clay;

**GR – Gypsum Rise**

A gypsum rise consisting of a tall open shrubland dominated by *Grevillea sarissa* subsp. *bicolor* and *Eremophila oldfieldii* subsp. *angustifolia* with occasional patches of *Eucalyptus striatocalyx* over low open shrubland dominated by *Frankenia laxiflora*, *Sclerolaena fimbriolata* and *Atriplex nana* over very open grassland dominated by *Eragrostis falcata*, *Aristida contorta* and *Enneapogon caeruleus* on gypseous soils;

**HG – Herb and Grassland**

Low open shrubland dominated *Tecticornia* sp. aff. *Auriculata*, *Frankenia laxiflora* and *Atriplex nana* over grassland dominated by *Eragrostis falcata* and *Eragrostis pergracilis* on red/pink sandy clay;

**HS – Hakea Shrubland**

Scattered tall shrubs of *Hakea preissii* over low shrubland to low open shrubland dominated by *Tecticornia disarticulate*, *Atriplex codonocarpa* and *Maireana pyramidata* on stony, red, fine-grained loam;

**LB – Lake Bed**

Salt-lake bed, devoid of vegetation;

**LB/SM – Lake Bed and Samphire Mosaic**

A mosaic of lake bed and Samphire Mosaic vegetation types;

**MD – Mulga Drainage Line**

Low woodland dominated by *Acacia craspedocarpa*, *A. pteraneura* and *A. craspedocarpa* x *aneura* over open shrubland dominated by *Abutilon cryptopetalum* over open grassland dominated by *Aristida contorta*, *Monachather paradoxus* and *Enneapogon caeruleus* on red, loamy, clay sands;

**MS – Melaleuca Shrubland**

Shrubland of *Melaleuca stereophloia* over low shrubland dominated by *Atriplex amnicola* and *Tecticornia bidens* subsp. *bidens* on red crusted, hard-setting, sandy clay;

**MW1 – Mulga Woodland 1**

Low open woodland dominated by members of the *Acacia aneura* complex (*A. incurvaneura*, *A. pteraneura* and *A. ? fuscaneura*) over open shrubland to scattered shrubs dominated by *Eremophila latrobei* subsp. *latrobei sens. lat.*, *Senna artemisioides* subsp. *oligophylla* x *helmsii* and *Eremophila forrestii* subsp. *hastieana* over scattered low shrubs dominated by *Maireana triptera* and *Ptilotus obovatus* over open grassland dominated by *Aristida contorta* on red, skeletal/stony, fine-grained loam;

**MW2 – Mulga Woodland 2**

Scattered low trees dominated by members of the *Acacia aneura* complex (*A. incurvaneura* and *A. fuscaneura*) over low open chenopod shrubland dominated by *Maireana triptera*, *Sclerolaena cuneata* and *Ptilotus obovatus* over grassland dominated by *Aristida contorta* and *Enneapogon caeruleus* on stony, red, fine-grained loamy clay;

**MW3 – Mulga Woodland 3**

Low woodland dominated by members of the *Acacia aneura* complex (*A. incurvaneura*, *A. craspedocarpa* and *A. fuscaneura*) over open shrubland to scattered shrubs dominated by *Eucalyptus galeata* over low shrubland to scattered low shrubs dominated by *Maireana triptera* and *Ptilotus obovatus* over open grassland dominated by *Aristida contorta* on red, stony, fine-grained loam;

**MW4 – Mulga Woodland 4**

Low open woodland dominated by *Acacia ? caesaneura*, *A. ramulosa* var. *ramulosa* and *A. pruinocarpa* on red, stony loam with scattered quartz and lateritic stony surface;

**MW5 – Mulga Woodland 5**

Woodland to open woodland dominated by *Acacia craspedocarpa* and other members of the *A. aneura* complex over scattered shrubs of *Eremophila latrobei* subsp. *latrobei sens. lat.* and *Senna artemisioides* subsp. *filifolia* over open grassland dominated by *Aristida contorta* on red, stony, fine-grained, loamy clay;

**MW6 – Mulga Woodland 6**

Scattered low trees dominated by members of the *Acacia aneura* complex over shrubland dominated by *Maireana pyramidata* over grassland dominated by *Aristida contorta* and *Eragrostis dielsii* on hard setting, red, clay loam with sandy patches;

**SD – Sand Dune**

Tall open shrubland to scattered tall shrubs dominated by *Acacia grasbyi*, *Grevillea eriostachya* and *Eremophila miniata* over shrubland to open shrubland dominated by *Alyogyne pinoniana* var. *pinoniana* over grassland to open grassland dominated by *Eriachne helmsii*, *Aristida contorta* and *Aristida holathera* var. *holathera* on deep, red, fine-grained loamy sand; and

**SM – Samphire Marsh**

A mosaic of *Tecticornia* species recorded in varying cover densities and diversities on salt lake soils.

**Clearing Description**

Moyagee Project. Silver Lake Resources Limited proposes to clear up to 70 hectares of native vegetation within a total boundary of approximately 134.9 hectares for the purposes mineral production and associated activities. The project is located approximately 28 kilometres south of Cue, in the Shire of Cue.

<b>Vegetation Condition</b>	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994);  To:  Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).
<b>Comment</b>	The vegetation condition was assessed during a survey undertaken by Coffey (2012a).  Vegetation clearing will be undertaken by mechanical means.

### 3. Assessment of application against clearing principles

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

<b>Comments</b>	<p><b>Proposal is not likely to be at variance to this Principle</b></p> <p>The application area occurs within the East Murchison subregion of the Murchison Interim Biogeographical Regionalisation for Australia (IBRA) bioregion (GIS Database). The East Murchison subregion is characterised by its internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development. The salt lake systems are associated with the occluded Paleodrainage system. There are broad plains of red-brown soils and breakaway complexes as well as red sandplains. Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and <i>Halosarcia</i> shrublands (CALM, 2002).</p> <p>Coffey (2012a) conducted a level 2 flora and vegetation survey over the application area during 17 to 24 April 2012 and 27 August to 4 September 2012. The flora and vegetation survey identified 21 vegetation communities within the application area. The area proposed to be cleared is not considered to be remnant vegetation and areas have been disturbed by historical mining activities and current low intensity exploration activities (Coffey, 2012a). The condition of the vegetation types are classified from 'degraded' to 'excellent' (Keighery, 1994; Coffey, 2012a). The flora survey identified a total of 218 vascular plant taxa from 39 families and 97 genera within the application area. Species composition and vegetation communities are typical of the area and not considered to be unusually diverse (Coffey, 2012a). Coffey (2012a) identified no Threatened Flora species and four Priority Flora species within the application area; <i>Rhodanthe collina</i> (Priority 1), <i>Gunniopsis propinqua</i> (Priority 3), <i>Hibiscus krichauffianus</i> (Priority 3) and <i>Grevillea inconspicua</i> (Priority 4). A single plant of the <i>Gunniopsis propinqua</i> (P3) was identified within the application area and cannot be avoided as it is within the disturbance footprint (Coffey, 2012a). The clearing of one individual of this species is not likely to significantly impact the conservation significance of <i>Gunniopsis propinqua</i> (P3) (Coffey, 2012a; DEC, 2013). A single plant of both the <i>Rhodanthe collina</i> (P1) and <i>Hibiscus krichauffianus</i> (P3) were recorded within the application area. The known locations of the two priority species will not be disturbed. Potential impacts to these Priority Flora species may be minimised through the implementation of a flora management condition. Coffey (2012a) recorded approximately 125 individuals of <i>Grevillea inconspicua</i> (P4) in a population along the eastern boundary of the application area. This population will not be affected by the proposed clearing and is common in the East Murchison subregion (Coffey, 2012a).</p> <p>The vegetation recorded on the Banded Ironstone Formations (BIF) within the application area is considered to be the Lake Austin BIF Priority Ecological Community (PEC) (Priority 1). There is 1.4 hectares of the BIF mapped within the application area (Silver Lake Resources Limited, 2013). The BIF ranges are of very significant biodiversity value in regards to fauna and flora conservation values (DEC, 2007). Silver Lake Resources Limited (2013) state that only 0.3 hectares of the BIF will be impacted by the proposed clearing. Potential impacts to this PEC may be minimised through the implementation of a condition that restricts the amount of clearing of this PEC.</p> <p>No Threatened Ecological Communities were recorded within the application area (GIS Database).</p> <p>There were four weed species identified during the survey; Pimpernel (<i>Lysimachia arvensis</i>), Buffel Grass (<i>Cenchrus ciliaris</i>), Common Sowthistle (<i>Sonchus oleraceus</i>) and <i>Pentameris airoides</i> subsp. <i>airoides</i> (Coffey, 2012a). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> <p>There were four fauna habitat types recorded within the application by Coffey (2012b). All faunal habitats but the BIF habitat type within the application area are considered to be common and widespread within the subregion (GIS Database). The clearing of 70 hectares of native vegetation within the 134.9 hectare application area is unlikely to have a significant impact on faunal diversity in a regional and local context.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
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<b>Methodology</b>	CALM (2002) Coffey (2012a) Coffey (2012b) DEC (2007)
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Keighery (1994)  
Silver Lake Resources (2013)  
GIS Database:  
- IBRA WA (Regions - Subregions)  
- Pre-European vegetation  
- Threatened Ecological Sites Buffered

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

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

There were four fauna habitat types recorded within the application area based on a level two fauna survey by Coffey (2013b) between 23 March and 1 April 2012;

-Mulga Woodland with sandy substrate;  
-Mulga Woodland with rocky substrate;  
-Ephemeral Salt Lake (Lake Austin) that is fringed by and contains islands of Samphire vegetation or gypsum rises dominated by *Acacia* species, *Eremophila* species, *Grevillea* species and scattered *Eucalyptus* species; and  
-Banded Ironstone Formations.

The faunal assemblages that occur within the application area are typical of that of the broader region (Coffey, 2012b). The application area does contain a faunal assemblage that is ecologically significant – The Banded Ironstone Formations (BIF) (Coffey, 2012b; GIS Database). BIF's form a relatively small proportion of the total land area of the region and act as unique habitat for fauna that are confined to these slopes and ironstone ridges where they breed, forage and obtain shelter. The ranges also support short-range endemic fauna (primarily invertebrate fauna with a highly restricted distribution) (DEC, 2007). Silver Lake Resources Limited (2013) has stated that of the 1.4 hectares of mapped BIF within the application area, only 0.3 hectares of native vegetation within the BIF will be cleared. Potential impacts to this faunal habitat may be minimised through the implementation of condition that restricts the amount of clearing of this faunal habitat.

Coffey (2012b) conducted a level two fauna survey of the application area where there were three species of conservation significance recorded;

- Common Greenshank (*Tringa nebularia*) (EPBC Act – Migratory; DEC – Schedule 3);  
- Red-necked Stint (*Calidris reficollis*) (EPBC Act – Migratory; DEC – Schedule 3); and  
- Crested Bellbird (*Oreoica gutturalis* ssp. *gutturalis*) (DEC – Priority 4).

The Common Greenshank and Red-necked Stint are seasonally widespread. These birds could potentially use the application area and the adjoining Lake Austin for foraging, roosting and possibly breeding (Coffey, 2012b). The Crested Bellbird is a highly mobile species and may use the application area for foraging as part of a larger territory (Coffey, 2012b). The proposed clearing of 70 hectares of native vegetation is not likely to impact critical feeding or breeding habitat for any conservation significant fauna species.

The BIF was identified as habitat suitable for Short Range Endemic species within the application area, in particular the Shield-backed Trapdoor Spider (DEC – Schedule 1) (Coffey, 2012b). Potential impacts to this faunal habitat may be minimised through the implementation of condition that restricts the amount of clearing of this faunal habitat.

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

**Methodology** Coffey (2012a)  
DEC (2007)  
Keighery (1994)  
Silver Lake Resources Limited (2013)  
GIS Database:  
- Austin 30cm Orthomosaic - Landgate 2005

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

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

According to available databases, there are no records of Threatened Flora within the application area (GIS Database). A search of the Department of Environment and Conservation's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 10 kilometre radius of the application area (DEC, 2013).

Coffey (2013a) conducted a level 2 flora and vegetation survey of the application area and surrounding region from 17 to 24 April 2012 and 27 August to 4 September 2012. No Threatened Flora was recorded within the survey area.

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

**Methodology** Coffey (2013)  
DEC (2013)  
GIS Database:  
- Threatened and Priority Flora List

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

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

A search of the available databases showed that there are no known Threatened Ecological Communities situated within 200 kilometres of the application area (GIS Database).

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

**Methodology** GIS Database:  
- Threatened Ecological Sites Buffered

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

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

The application area falls within the Murchison IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:

**Beard vegetation association 240:** Succulent steppe with open scrub; scattered *Acacia sclerosperma* & bowgada over saltbush & bluebush;

**Beard vegetation association 313:** Succulent steppe with open scrub; scattered *Acacia sclerosperma* & *A. victoriae* over bluebush; and

**Beard vegetation association 1127:** Mosaic: Saltbush & bluebush/samphire (Government of Western Australia, 2013; GIS Database).

Beard vegetation associations 240, 313 and 1127 retain more than 90% of their pre-European extent within the bioregion (Government of Western Australia, 2013). The area proposed to be cleared is not a significant remnant of native vegetation.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,587	28,044,823	~99.73	Least Concern	1.05
<b>Beard vegetation associations - State</b>					
240	119,108	119,108	~100	Least Concern	-
313	68,844	65,261	~94.80	Least Concern	-
1127	69,078	69,078	~100	Least Concern	-
<b>Beard vegetation associations - Bioregion</b>					
240	106,950	106,950	~100	Least Concern	-
313	68,844	65,261	~94.80	Least Concern	-
1127	69,078	69,078	~100	Least Concern	-

\* Government of Western Australia (2013)

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

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

**Methodology** Department of Natural Resources and Environment (2002)  
Government of Western Australia (2013)

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

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

**Comments Proposal is at variance to this Principle**

Based on the vegetation mapping by Coffey (2012a), there are four riparian vegetation types mapped within the application area:

**LB/SM – Lake Bed and Samphire Mosaic**

A mosaic of lake bed and Samphire Mosaic vegetation types;

**MD – Mulga Drainage Line**

Low woodland dominated by *Acacia craspedocarpa*, *A. pteraneura* and *A. craspedocarpa x aneura* over open shrubland dominated by *Abutilon cryptopetalum* over open grassland dominated by *Aristida contorta*, *Monachather paradoxus* and *Enneapogon caeruleascens* on red, loamy, clay sands;

**MS – Melaleuca Shrubland**

Shrubland of *Melaleuca stereophloia* over low shrubland dominated by *Atriplex amnicola* and *Tecticornia bidens* subsp. *bidens* on red crusted, hard-setting, sandy clay; and

**SM – Samphire Marsh**

A mosaic of *Tecticornia* species recorded in varying cover densities and diversities on salt lake soils.

The condition of the vegetation types are classified as 'degraded' to 'excellent' (Keighery, 1994; Coffey, 2012a). Of the vegetation types listed, only vegetation types MD and MS will be impacted by the proposed clearing. Coffey (2012a) estimates that 1.48 hectares of the 84.16 hectares of the vegetation type MD and 3.84 hectares of the 14.96 hectares of the vegetation type MS mapped within the application area will be impacted by the proposed clearing. These vegetation types are likely to provide important habitat for fauna, especially avifauna utilising Lake Austin (Coffey, 2012a; 2012b; GIS Database). The proposed clearing is likely to have some impact to the riparian vegetation and Silver Lake Resources Limited will minimise disturbance where possible (Coffey, 2012a).

According to the available databases, the application area sits partially within Lake Austin which is subject to inundation (GIS Database). As the small section of the application area within the ephemeral lake is only likely to inundate following significant rainfall or cyclonic events, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland provided disturbance to riparian habitats is avoided or minimised where possible, and strict weed hygiene procedures are followed. Potential impacts to riparian vegetation may be minimised through the implementation of a vegetation management condition

Surface drainage in the application area is through several ephemeral drainage lines (GIS Database). The vegetation type associated with the drainage lines is considered to be common and widespread within the subregion (Coffey, 2012a). Clearing of areas which contain riparian vegetation have the potential to cause localised erosion to the creek habitat, however the proposed clearing of 5.32 hectares of riparian vegetation within an application area of 134.9 hectares is unlikely to significantly impact the hydrological functions of the drainage systems within the application area (GIS Database).

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

**Methodology** Coffey (2012a)  
Coffey (2012b)  
Keighery (1994)  
GIS Database:  
- Geodata, Lakes  
- Hydrography, Linear

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

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

The application area intercepts the Austin, Carnegie and Gabanintha land systems (GIS Database).

The Austin land system is characterised by saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga which occurs mainly adjacent to lakes Austin and Annean, below greenstone hill systems. Large areas of bluebush and stony snakewood shrub lands and palatable saline perennials of moderate quantity provide the bulk of the forage on the larger units. This land system has a low susceptibility to erosion (Pringle et al., 1994).

The Carnegie land system is characterised by salt lakes with fringing saline alluvial plains, kopi dunes and sandy banks, supporting halophytic shrublands. Lack of slope renders most of this system not susceptible to water erosion. Minor areas receiving concentrated run-on are susceptible to rilling when shrub cover is substantially reduced or run-on is accelerated due to increased run-off from degraded areas upslope. Wind erosion of lake margins may be exacerbated by loss of stabilising perennial shrubs (Pringle et al., 1994).

The Gabanintha land system is characterised by greenstone ridges and hills supporting sparse acacia shrublands. Stone mantles afford protection against soil erosion, the exception being narrow drainage tracts which are mildly susceptible to water erosion (Pringle et al., 1994).

Due to the large area of native vegetation proposed to be cleared (70 hectares) potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

**Methodology** Pringle et al. (1994)  
GIS Database:  
- Rangeland Land System Mapping

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

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

The application area is not located within any conservation area (GIS Database). The nearest conservation area is the former leasehold 'ex Lakeside' which is an area proposed for conservation by the Department of Parks and Wildlife, located approximately 6 kilometres north-west of the application area (GIS Database).

Given the distance of the application area from the former leasehold 'ex Lakeside', the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

**Methodology** GIS Database:  
- DEC Tenure

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

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

The application area is not located within a Public Drinking Water Source Area (GIS Database). The application area is located within the proclaimed East Murchison groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

The application area is partially situated within Lake Austin which is subject to inundation and several drainage tracts transect the application areas (GIS Database). The drainage patterns in the surrounding area have been impacted by previous disturbance and infrastructure (GIS Database). These drainage tracts are dry for most of the year and only flow and hold surface water for short durations following significant rainfall events (CALM, 2002). The proposed clearing of 70 hectares of the native vegetation associated with riparian vegetation is unlikely to result in any significant impact to any watercourse or wetland provided disturbance to riparian habitats is avoided or minimised where possible.

The application area has a groundwater salinity that is hypersaline (>35,000 milligrams/Litre Total Dissolved solids (TDS)) (GIS Database). With high annual evaporation rates and low annual rainfall, there is little recharge into regional groundwater (BoM, 2013). The proposed clearing of 70 hectares of native vegetation is unlikely to further deteriorate the quality of underground water (GIS Database).

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

**Methodology** BoM (2013)  
CALM (2002)  
GIS Database:  
- Geodata, Lakes  
- Groundwater Salinity, Statewide  
- Hydrography, Linear  
- Public Drinking Water Source Areas  
- RIWI Act, Groundwater Areas

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

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

The application area experiences an arid climate with mainly winter rainfall, with an annual average rainfall of approximately 233.1 millimetres per year (CALM, 2002; BoM, 2013). Based on an average annual evaporation rate of 2,800 - 3,200 millimetres (BoM, 2013), any surface water resulting from rainfall events is likely to be relatively short lived.

Given the size of the area to be cleared (70 hectares) compared to the size of the Murchison River catchment area (10,380,649 hectares) (GIS Database) it is not likely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

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

**Methodology** BoM (2013)  
CALM (2002)  
GIS Database:  
- Hydrographic Catchments - Catchments

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

**Comments**

There is one Native Title claim over the area under application. The claim WC1996/098 was registered with the National Native Title Tribunal on 4 October 1996. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Site of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation (formerly the Department of Environment and Conservation) and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 23 September 2013 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received to the proposed clearing.

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

**4. References**

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## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), Western Australia
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DoE</b>	Department of Environment (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental Protection Act 1986, Western Australia
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI Act</b>	Rights in Water and Irrigation Act 1914, Western Australia
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia
<b>TEC</b>	Threatened Ecological Community

### Definitions:

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

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

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

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

special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

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

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

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

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