



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6833/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Western Areas Nickel Pty Ltd

1.3. Property details

Property: Prospecting Licence 77/3836
Prospecting Licence 77/3837
Prospecting Licence 77/3838
Prospecting Licence 77/3839
Prospecting Licence 77/3840
Prospecting Licence 77/3846
Prospecting Licence 77/3847
Prospecting Licence 77/4067

Local Government Area: Shire of Yilgarn.

Colloquial name: Northern Estates Exploration Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 14 January 2016

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The application area has been mapped as the following three Beard vegetation associations:

8: Medium woodland: salmon gum & gimlet

511: Medium woodland: salmon gum & morrel

519: Shrublands: mallee scrub, *Eucalyptus eremophila*

A Level 1 flora and vegetation survey of the application area was undertaken by PEK Enviro (2014) during the period 14 – 25 September 2012. The vegetation survey identified the following vegetation groups in unburnt (eight vegetation groups) and burnt areas (five vegetation groups) of the application area:

Unburnt Remnant Vegetation:

Sandplain upper slope and crest

SUesm3 - *Eucalyptus eremophila* subsp. *eremophila* and *E. calycogona* subsp. *calycogona* Open Shrub Mallee. Open Shrub Mallee of *Eucalyptus eremophila* subsp. *eremophila* and *Eucalyptus calycogona* subsp. *calycogona* over Low Scrub A dominated by *Melaleuca lateriflora* over Dwarf scrub C to Dwarf Scrub D dominated by *Acacia evenulosa*. Other common low scrub species included *Santalum acuminatum*, *Daviesia argillacea* and *Melaleuca acuminata* subsp. *acuminata*. Other common dwarf scrub species included *Melaleuca laxiflora*, *Melaleuca cordata* and *Grevillea acuaria*.

SUesm4 - *Eucalyptus capillosa* subsp. *polyclada* Very Open Shrub Mallee. Very Open Shrub Mallee of *Eucalyptus capillosa* subsp. *polyclada* over Heath A dominated by *Acacia beauverdiana*, *Acacia yorkkrinensis* subsp. *acrita* and *Allocasuarina corniculata* over Low Heath C to Low Heath D dominated by *Melaleuca cordata*. Other common heath species included *Hakea erecta*, *Hakea multilineata* and *Callitris ?preissii*.

Alluvial valley

VUew1 - *Eucalyptus salmonophloia* Open Woodland. Open Woodland dominated generally by *Eucalyptus salmonophloia* over Low Woodland B of mixed *Eucalyptus* mallee species including *E. sheathiana*, *E. horistes*, *E. myriadena* and *E. cylindrocarpa* over Heath A to Low Scrub A often dominated by *Melaleuca acuminata* subsp. *acuminata* over Open Dwarf Scrub C to Open Dwarf Scrub D dominated often by *Acacia hemiteles*, *Scaevola spinescens* and *Grevillea acuaria*.

VUelw1 - *Eucalyptus transcontinentalis* Open Low Woodland. Open Low Woodland A of *Eucalyptus transcontinentalis* with Very Open Tree Mallee of *E. sheathiana* over Scrub to Low Heath D of mixed

Melaleuca species including *Melaleuca lateriflora*, *M. acuminata* subsp. *acuminata*, *M. eleuterostachya*, *M. laxiflora*, *Melaleuca hamata* and *Melaleuca brophyi*. Common low heath species included *Micromyrtus erichsenii*, *Phebalium megaphyllum*, *Melaleuca laxiflora*, *Daviesia argillacea* and *Microcybe multiflora* subsp. *multiflora*.

VUelw2 - *Eucalyptus salubris* Low Woodland. Low Woodland A dominated by *Eucalyptus salubris* with Open Shrub Mallee dominated by *Eucalyptus calycogona* subsp. *calycogona* and *Eucalyptus flocktoniae* subsp. *flocktoniae* over Heath to Low Heath dominated by *Daviesia argillacea*, *Exocarpos aphyllus* and *Melaleuca pauperiflora* subsp. *pauperiflora*.

VUesm1 - *Eucalyptus pileata* and *E. flocktoniae* subsp. *flocktoniae* Very Open Shrub Mallee. Very Open Shrub Mallee dominated by *E. pileata*, *E. flocktoniae* subsp. *flocktoniae* and *E. rigidula* over Low Scrub A dominated by *Acacia beauverdiana*, *Acacia assimilis* subsp. *assimilis* and *Melaleuca hamata* over Low Heath C to Low Heath D dominated by *Thryptomene kochii*, *Melaleuca hamata* and *Phebalium filifolium*.

VUesm2 - *Eucalyptus cylindriflora* Open Shrub Mallee. Open Shrub Mallee dominated by *Eucalyptus cylindriflora* with mixed Scrub to Low Scrub of *Allocasuarina acutivalvis*, *Santalum acuminatum*, *Melaleuca hamata* and *Acacia yorkrakinensis* subsp. *acrita* over Dwarf Scrub C to Dwarf Scrub D dominated by *Phebalium filifolium*.

VUmls1 - *Melaleuca acuminata* subsp. *acuminata* Low Scrub. Low Scrub A dominated by *Melaleuca acuminata* subsp. *acuminata*, *Melaleuca eleuterostachya* and *Melaleuca brophyi* over Low Heath C to Low Heath D dominated by *Melaleuca brophyi*.

Burnt Vegetation:

Sandplain mid slope

SBesm6 - *Eucalyptus* spp. Very Open Regrowth Scrub. Very Open Shrub Mallee dominated by *Eucalyptus* spp. (sterile) regrowth over Open Dwarf Scrub C to Open Dwarf Scrub D dominated by *Daviesia argillacea* and *Acacia evenulosa*. Other common dwarf scrub species included *Melaleuca lateriflora* and *Daviesia benthamii* subsp. *acanthoclona*.

Sandplain lower slope and valley

SBesm7 - *Eucalyptus* spp. Very Open Shrub Mallee. Very Open Shrub Mallee of *Eucalyptus* sp. (sterile) over Low Heath to Dwarf Scrub often dominated by a variable mixture of *Grevillea dissecta* (P4), *Melaleuca hamata*, *Grevillea ?excelsior* (sterile), *Acacia yorkrakinensis* subsp. *acrita*, *Hakea multilineata*, *Santalum acuminatum*, *Hakea erecta* or *Acacia assimilis* subsp. *assimilis*.

Alluvial valley

VBelw1 - *Eucalyptus salmonophloia* Open Woodland to Open Low Woodland. Open Low woodland of fire impacted *Eucalyptus salmonophloia* over Very Open Shrub Mallee of *Eucalyptus eremophila* subsp. *eremophila* and *Eucalyptus* spp. (sterile) over Low Heath to Dwarf Scrub of *Acacia hemiteles*, *Scaevola spinescens*, *Acacia merrallii*, *Microcybe multiflora* subsp. *multiflora* and *Daviesia argillacea*.

VBes1 - *Eucalyptus. ?salubris* Open Regrowth Scrub. Open Scrub of *E. ?salubris* (sterile) regrowth over Low Heath C to Low Heath D dominated by *Eremophila densiflora* subsp. *pubiflora*, *Dodonaea stenozyga* and *Daviesia argillacea*. Other common low heath species included *Templetonia sulcata*, *Daviesia benthamii* subsp. *acanthoclona* and *Microcybe multiflora* subsp. *multiflora*.

VBesm1 - *Eucalyptus flocktoniae* subsp. *flocktoniae* Very Open Shrub Mallee. Very Open Shrub Mallee often dominated by *Eucalyptus flocktoniae* subsp. *flocktoniae* and/or *Eucalyptus* spp. (sterile) over Open Low Scrub dominated by *Santalum acuminatum*, *Melaleuca leuterostachya* and *Melaleuca hamata* over Open Dwarf Scrub C to Open Dwarf Scrub D dominated by *Melaleuca hamata* and *Santalum acuminatum*.

Clearing Description

Northern Estates Exploration Project. Western Areas Nickel Pty Ltd (Western Areas) proposes to clear up to 10 hectares within an application area of approximately 1,552 hectares for the purpose of mineral exploration. The project is located approximately 80 kilometres east of Hyden within the Shire of Yilgarn.

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

to

Pristine: No obvious signs of disturbance (Keighery, 1994).

to

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

Comment

The application area and surrounding area have been impacted by fire events in 2001, 2005 and 2008. Remnant, unburnt areas of vegetation were considered to be in excellent to pristine condition according to Keighery (1994). Areas affected by past fire events were considered to be in very good condition. No weeds were noted during the flora and vegetation survey (PEK Enviro, 2014). The application area is also subjected to existing and historical exploration activities (PEK Enviro, 2014). Where possible, low impact clearing methods such as raised blade clearing will be used (ie. For access tracks and drill sites). Previously disturbed tracks/gridlines will be used (where possible) and clearing will be restricted to dry periods where possible (PEK Enviro, 2014).

3. Assessment of application against clearing principles

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

Comments	<p>Proposal is not likely to be at variance to this Principle.</p> <p>The application area is located within the Southern Cross sub-region of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion and in the Coolgardie Botanical District (GIS Database; PEK Enviro, 2014). The Southern Cross subregion has subdued relief and consists of undulating uplands dissected by broad valleys with bands of low greenstone hills. Diverse Eucalyptus woodlands (<i>Eucalyptus salmonophloia</i>, <i>E. salubris</i>, <i>E. transcontinentalis</i>, <i>E. longicornis</i>) rich in endemic eucalypts occur around salt lakes, on low greenstone hills, valley alluvials and broad plains of calcareous earths (CALM, 2002).</p> <p>The proposal is located wholly within the Jilbadji ('C' Class) Nature Reserve which is an area of approximately 200,000 hectares (GIS Database). The environmental values of the Jilbadji Nature Reserve include; large reserve size, importance as a fauna refugia site, high diversity of fauna species and flora species endemism. The Jilbadji Nature Reserve is a significant area in maintaining existing ecological processes at a regional scale. It is substantially larger than the average reserve area in the Wheatbelt of 114 hectares and therefore is a potentially important refugium for many species, including invertebrates and smaller vertebrates (Department of the Environment, 2013; PEK Enviro, 2014). The Nature Reserve also supports a very high diversity of reptiles, with 38 species, and a high diversity of native mammal species, with 15 species (Department of the Environment, 2013).</p> <p>The application area and surrounding area have been impacted by fire events in 2001, 2005 and 2008. Remnant, unburnt areas of vegetation were considered to be in excellent to pristine condition according to Keighery (1994). Areas affected by fires were considered to be in very good condition. No weeds were noted during the flora and vegetation survey (PEK Enviro, 2014).</p> <p>The flora and vegetation survey undertaken by PEK Enviro (2014), identified no Threatened Ecological Communities (TEC's) occurring within the application area. However, two Priority Ecological Communities (PEC's) were identified within a 10 kilometre search area of the application area. The Parker Range Vegetation Complexes PEC (Priority 3) are located outside of the application area and will not be impacted by the proposal. The buffer and boundary of the northern part of the Ironcap Hills Vegetation Complexes PEC (Priority 3) intersects the application area (GIS Database). However, further assessment of this PEC identified that it is likely that the vegetation complexes associated with the PEC are located further south of the application area (PEK Enviro, 2014).</p> <p>The flora and vegetation survey identified eight vegetation groups (unburnt areas) and five vegetation groups (burnt areas) within the application area (PEK Enviro, 2014). A total of 251 species (including subspecies and varieties) from 86 genera and 36 families were recorded during the flora survey. No species of threatened flora were recorded during the flora survey. However, three priority flora species were recorded during the survey. These include: <i>Calamphoreus inflatus</i> (P4) (11 individuals recorded), <i>Grevillea neodissecta</i> (formerly <i>dissecta</i>, P4) (17 individuals recorded) and <i>Microcorys</i> sp. Forrestania (P4) (66 individuals recorded) (PEK Enviro, 2014). The Conservation Management Plan (CMP) prepared for the proposal outlines the necessary management strategies to be implemented in order to minimise impacts to Priority Flora. Some of these strategies include demarcation and avoidance of Priority Flora populations (Western Areas, 2014).</p> <p>A desktop fauna survey identified 365 fauna species potentially occurring within the application area, indicating the area is highly diverse. However, the on-site fauna survey located a small number of reptile species, (five species), a large number of bird species (35 species), a small number of mammal species (three species, four introduced species were also identified) and no short range endemic (SRE) species were located in the application area (Australasian Ecological Services, 2015).</p> <p>Breeding and foraging habitat was identified in the application area for Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i> – Endangered). Although, no Carnaby's Cockatoo individuals were confirmed during the fauna survey, suitable potential, nesting habitat and suitable foraging habitat for the species was located in the application area. A number of large eucalypts with trunk diameters at breast height (DBH) of at least 500 millimetres were seen mainly in the south and centre of the application area. Many of these trees were Salmon Gums which are potential nesting trees for Carnaby's Cockatoos. The survey identified the possible loss of breeding habitat if large trees are cleared and the minor loss of foraging habitat if woodland and shrublands are cleared (Australasian Ecological Services, 2015).</p> <p>However, it is unlikely the proposed clearing would have a significant impact on the species as large amounts of similar habitat are located nearby. The CMP prepared for the proposal outlines the necessary management strategies to be implemented in order to minimise impacts to threatened fauna. Some of these strategies include avoiding disturbance to large habitat trees (Western Areas, 2014).</p> <p>Malleefowl (<i>Leipoa ocellata</i> – Vulnerable) were identified in the application area, with one Malleefowl individual recorded in Salmon Gum woodland. The fauna report confirmed not a lot of dense vegetation was located in this area due to past fire events, however the remaining dense vegetation may be important breeding habitat for Malleefowl located in the area. The dense vegetation in the application area and surrounds is therefore likely to be important for the local Malleefowl population that have remained, or recolonised, after the fires.</p> <p>The fauna report confirms the loss of dense tree and shrubland fauna habitats may affect breeding for Malleefowl in the area. Although a large amount of similar habitat is located nearby, the proposed clearing may</p>
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impact on habitat required for the local Malleefowl population (Australasian Ecological Services, 2015). The CMP prepared for the proposal outlines the management strategies to be implemented in order to minimise impacts to threatened fauna. Some of these strategies include avoidance of important habitat types including Malleefowl mounds and provision for 50 metre buffer zones around Malleefowl mounds (Western Areas, 2014).

Due to the small size and temporary nature of the proposed clearing, and the fact the vegetation proposed to be cleared is well represented in the surrounding area, it is unlikely the proposal will result in the clearing of native vegetation that has higher biodiversity values than the surrounding, undisturbed vegetation.

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

Methodology Australasian Ecological Services (2015)
CALM (2002)
DotE (2013)
PEK Enviro (2014)
Western Areas (2014)
Government of Western Australia (2015)
GIS Database:
- Threatened Fauna
- Threatened and Priority Flora
- TEC/PEC – Buffer
- TEC/PEC – Boundaries

(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 may be at variance to this Principle.**

A Level 1 fauna survey was undertaken over the application area. Based on the results of this survey the following ten fauna habitats have been identified within the application area (Australasian Ecological Services, 2015):

1. Open shrub mallee over low heath to dwarf shrub on sand;
2. Open mallee shrubland on sand;
3. Open Salmon Gum woodland on red clay/loam soils;
4. Open woodland of fire impacted Salmon Gum on clay soils;
5. Very open shrub mallee on mixture of clay and clay-loam soils;
6. Open shrub mallee impacted by fire on a mixture of sandy loam and clay;
7. Open shrub mallee on red clay loam soils;
8. Open shrub mallee on clay loam soil;
9. Very open shrub mallee of *Eucalyptus capillosa* on clay loam soil; and
10. Open low mallee woodland on clay loam soils.

The ten basic fauna habitats range from open dwarf shrublands to tall Salmon Gum (*Eucalyptus salmonophloia*) woodlands. These fauna habitats also vary according to how they have been impacted by fire and the level of recovery (Australasian Ecological Services, 2015).

A desktop survey of fauna species potentially occurring in the region was undertaken prior to the on-site fauna survey (Australasian Ecological Services, 2015). The desktop survey identified 365 fauna species potentially occurring, indicating the area is highly diverse. The fauna survey located a small number of reptile species, (five species), a large number of bird species (35 species), a small number of mammal species (three species, four introduced species were also identified) and no short range endemic (SRE) species were located in the application area (Australasian Ecological Services, 2015).

Breeding and foraging habitat was identified in the application area for Carnaby's Cockatoo (*Calyptorhynchus latirostris* – Endangered). Although, no Carnaby's Cockatoo individuals were confirmed during the fauna survey, suitable habitat for the species was located in the application area. The application area may contain nesting sites in large trees, especially in the south and centre of the application area where a number of large eucalypts with trunk diameters at breast height (DBH) of at least 500 millimetres were located. Many of these trees were Salmon Gums which are potential nesting trees for Carnaby's Cockatoos. Suitable foraging habitat was also identified in the application area (woodlands and shrublands) containing Banksia, Eucalyptus and Proteaceae shrub species (Australasian Ecological Services, 2015).

The fauna report determines a medium to low probability of the presence of Cockatoo individuals and feeding habitat in the application area. The fauna report also confirms a low probability of breeding habitat occurring in the application area (Australasian Ecological Services, 2015). The fauna survey identified the possible loss of breeding habitat if large trees are cleared and the minor loss of foraging habitat if woodland and shrublands are cleared (Australasian Ecological Services, 2015). However, it is unlikely the proposed clearing would have a significant impact on the species as large amounts of similar habitat are located nearby (Australasian Ecological Services, 2015). Potential impacts to Carnaby's Cockatoos may be minimised by the implementation of a habitat tree condition.

Malleefowl (*Leipoa ocellata* – Vulnerable) were identified in the application area, with one Malleefowl individual recorded in Salmon Gum woodland. The survey confirmed not a lot of dense vegetation was located in this

area due to past fire events, however the remaining dense vegetation may be important breeding habitat for Malleefowl located in the area. As dense vegetation is required for Malleefowl to build their mounds, the dense vegetation in the application area and surrounds is likely to be important for the local Malleefowl population that have remained, or recolonised, after the fires. The fauna report confirms the loss of dense tree and shrubland fauna habitats may affect breeding for Malleefowl utilising the area. Although a large amount of similar habitat is located nearby, the proposed clearing may impact on habitat required for the local Malleefowl population (Australasian Ecological Services, 2015).

Western Brush Wallaby (*Macropus irma* – Priority 4) were identified in the application area and sightings also occurred south of the application area. There is the potential for minor habitat loss if shrublands or grassy woodlands are cleared. Large amounts of similar habitat are located nearby; therefore, the proposed clearing is not expected to have a significant impact on fauna habitat for the Western Brush Wallaby (Australasian Ecological Services, 2015).

Western Rosella (inland) (*Platycercus icterotis* subsp. *xanthogenys* – Priority 4) individuals as well as suitable habitat were identified in the application area during the fauna survey. The potential impact on Western Rosella includes a small loss of breeding habitat if medium to large trees are to be cleared. There is also the potential for minor loss of foraging habitat if woodlands are cleared. However, this species is highly mobile, large amounts of similar habitat are located nearby and this habitat is not critical for the Western Rosella's survival (Australasian Ecological Services, 2015). For these reasons, the proposed clearing is not likely to impact this species (Australian Ecological Services, 2015).

Rainbow Bee-eater (*Merops ornatus* – Schedule 5; Migratory) were identified in the application area. Suitable habitat for foraging (shrublands and woodlands) and possibly breeding (sandy areas) were located in the application area. There is the potential for the minor loss of foraging habitat if shrublands and woodlands are cleared and the possibility of loss of breeding habitat as a result of the proposed clearing. However, the clearing of native vegetation is not likely to impact Rainbow Bee-eaters as large amounts of similar habitat are located nearby. The species are highly mobile and unlikely to rely on the application area (Australian Ecological Services, 2015).

Although, none of the habitat types present in the application area were assessed as being critical to any of the fauna species (Western Areas Ltd, 2015), the proposed clearing may impact on Malleefowl habitat.

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

Methodology Australasian Ecological Services (2015)
Western Areas (2015)
GIS Database:
- Threatened Fauna

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

Comments **Proposal is not likely to be at variance to this Principle.**
A search of available biological databases was undertaken and no threatened flora were located in the application area (GIS Database). A Level 1 flora and vegetation survey was also undertaken by PEK Enviro (2014) which identified eight vegetation groups (unburnt areas) and five vegetation groups (burnt areas) of the application area. No species of threatened flora were recorded from sampling points or from opportunistic sampling (PEK Enviro, 2014, Western Areas, 2015). Three Priority Flora species were recorded during the survey and one additional species was recorded that was of interest to the Western Australian Herbarium (PEK Enviro, 2014).

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

Methodology PEK Enviro (2014)
Western Areas (2015)
GIS Database:
- Threatened and Priority Flora

(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.

The flora and vegetation survey undertaken by PEK Enviro (2014), identified no Threatened Ecological Communities (TEC's) occurring within the application area. PEK Enviro (2014) also completed a search of Commonwealth listed TECs. The search revealed that no Commonwealth listed TECs are located within the application area (PEK Enviro, 2014).

However, two Priority Ecological Communities (PEC's) were identified within a 10 kilometre search area of the application area. The Parker Range Vegetation Complexes PEC (Priority 3) are located outside of the application area and will not be impacted by the proposal (GIS Database). The buffer and boundary of the northern part of the Ironcap Hills Vegetation Complexes PEC (Priority 3) intersects the application area. However, the flora survey report confirms the vegetation groups recorded during the survey, did not correspond to indicator species described by Gibson (2004) for restricted vegetation groups of the Ironcaps Vegetation Complexes PEC (PEK Enviro, 2014).

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

Methodology PEK Enviro (2014)
GIS Database:
- TEC/PEC - Buffers
- TEC/PEC - Boundaries.

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

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

The application area falls within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 97.96% of the pre-European vegetation remains in Western Australia (refer table below) (GIS Database; Government of Western Australia, 2015).

The native vegetation located in the application area has been mapped as Beard vegetation associations 8, 511 and 519 (GIS Database). The majority of these vegetation associations have not been extensively cleared as over 61% remains at the State level and over 93% remains at the bioregional level (refer table) (Government of Western Australia, 2015), with the exception of vegetation association 8 (Medium woodland; salmon gum and gimlet) which has 49.89% remaining at the State level and is considered to be depleted. However, none of the vegetation associations have been extensively cleared in the Coolgardie bioregion as over 93% of all the mapped vegetation associations remain.

Large areas of vegetation have been cleared in the broader Wheatbelt region. However, in the north-eastern Wheatbelt and the area surrounding this proposal there are large areas of intact native vegetation. The vegetation within the application area is located wholly within the Jilbadji Nature Reserve. The Jilbadji Nature Reserve is an area of approximately 200,000 hectares and is substantially larger than the average reserve area in the Wheatbelt of 114 hectares (PEK Enviro, 2014). The application area is therefore located within an area of remnant native vegetation. However, the area proposed to be cleared is not considered to be significant as a remnant in an area that has been extensively cleared (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in All DPaW Managed Land
IBRA Bioregion – Coolgardie	12,912,204	12,648,491	~ 97.96	Least Concern	15.89
Beard veg assoc. – State					
8	694,638	346,569	~49.89	Depleted	6.84
511	700,692	520,624	~74.30	Least Concern	15.37
519	2,333,413	1,440,066	~61.72	Least Concern	10.54
Beard veg assoc. – Bioregion					
8	280,248	275,589	~ 98.34	Least Concern	9.72
511	464,423	435,177	~ 93.70	Least Concern	19.35
519	147,579	146,943	~ 99.57	Least Concern	10.67

* Government of Western Australia (2015).

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

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2015)
PEK Enviro (2014)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

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

Comments **Proposal is not at variance to this Principle.**
There are no permanent watercourses or water bodies mapped within the application area (GIS Database). One watercourse (significant stream) is located to the south-west of the application area and the nearest watercourse (minor, ephemeral) is located 2.3 kilometres to the west of the application area. None of these watercourses will be impacted by the proposal. The flora survey prepared by PEK Enviro (2014) identified ephemeral watercourses in the survey area. However, no riparian vegetation was identified within the application area as part of the flora and vegetation survey (PEK Enviro, 2014; Western Areas, 2015).

No vegetation is growing in, or in association with an environment associated with a watercourse.

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

Methodology PEK Enviro (2014)
Western Areas (2015)
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 at variance to this Principle.**
The proposal is located in the Jilbadji ('C' Class) Nature Reserve. This reserve is well vegetated and the vegetation within the reserve is contiguous. It is unlikely that the small amount of native vegetation clearing (10 hectares) required for the purpose of exploration will impact the application area and cause soil or wind erosion. In addition, Western Areas (2015) has stated that the raised blade clearing method will be used for the proposal. This method minimises impacts to the existing vegetation and promotes rapid regrowth (Western Areas, 2015).

As the proposal requires minimal disturbance (linear clearing) and a small amount of native vegetation clearing, it is unlikely the proposal will change salinity levels, impact nutrient export or soil acidification. Further to this, the flora survey report prepared by PEK Enviro (2014) confirms the application area is dominated by the Sandplain landform unit. Sandplain slopes rarely exceeded 2 degrees and the soil profiles are thick and laterized. Areas of Sandplain high in the landscape are the result of in situ weathering and consist of gravelly sands or shallow sands. Sandplains low in the landscape (Deep Sands) have a thicker A-horizon with a colluvial component derived from areas up-slope. Run-off only occurs over short distances following heavy and intense falls of rain (PEK Enviro, 2014). In addition, no watercourses or wetlands are located in the vicinity of the application area (GIS Database). Therefore, the proposal is not likely to increase waterlogging or flooding.

The proposed clearing of 10 hectares within an application area of approximately 1,552 hectares will not cause appreciable land degradation.

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

Methodology PEK Enviro (2014)
Western Areas (2015)
GIS Database:
- Hydrography, linear

(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 proposal is located wholly within the Jilbadji ('C' Class) Nature Reserve. The reserve is also a listed Environmentally Sensitive Area (ESA) (PEK, Enviro, 2014). The environmental values of the Jilbadji Nature Reserve include; large reserve size, importance as a fauna refugia site, high diversity of fauna species and flora species endemism (DotE, 2013).

The Jilbadji Nature Reserve is an area of approximately 200,000 hectares (GIS Database) and is a significant area in maintaining ecological processes at a regional scale. It is substantially larger than the average reserve area in the Wheatbelt of 114 hectares and therefore is a potentially important refugium for many species, including invertebrates and smaller vertebrates (DotE, 2013; PEK Enviro, 2014). The Nature Reserve also

supports a very high diversity of reptiles, with 38 species, and a high diversity of native mammal species, with 15 species (DotE, 2013).

A number of species present at Jilbadji have strong Gondwanan associations including the Western Pygmy-possum (*Cercartetus concinnus*), the Malleefowl (*Leipoa ocellata*) and the Bush Thick-knee (*Burhinus grallarius*) (PEK Enviro, 2014, DotE, 2013.) Jilbadji Nature Reserve is located in the north-eastern part of the Wheatbelt region which is rich in endemic species at a national scale. There are 20 fauna species that are endemic either to the south-west region, or to Western Australia at Jilbadji Nature Reserve. There are 12 endemic reptile species, including three geckos: the Reticulated Velvet Gecko (*Oedura reticulata*) and two other gecko species including *Diplocdactylus maini* and *D. assimilis*. Seven species of endemic skink also occur in the reserve. There are also 26 plant species endemic either to the Wheatbelt or to Western Australia, including 20 Eucalypt species located at Jilbadji Nature Reserve (PEK Enviro, 2014; DotE, 2013).

Advice received from the Department of Parks and Wildlife (DPaW) on 10 December 2015 confirms impacts associated with the proposal can be managed provided the actions listed in the DPaW approved CMP and risk management protocols are implemented (DPaW, 2015, Western Areas, 2014). These management strategies include marking the occurrence of all Priority flora identified during the 2014 flora survey in the clearing area and avoiding the species during the clearing phase and rehabilitation and revegetation of disturbed areas according to short, mid and long term criteria for success as agreed in the CMP. DPaW has advised that the clearing of 10 hectares of native vegetation was a low risk of adversely impacting on any known high value conservation values in the Jilbadji Nature Reserve (DPaW, 2015).

The proposed clearing occurs in the Jilbadji Nature Reserve. However, it is unlikely the clearing will significantly impact on the environmental values of the nature reserve, given the small amount of clearing proposed, the clearing method used and the large size of the existing nature reserve (approximately 200, 000 hectares). The application area has also been used historically for the purpose of mineral exploration activities and has therefore been subjected to minor disturbance. New disturbance will be minimised wherever possible by using existing access tracks (PEK Enviro, 2014). The approved CMP will be implemented to manage potential and actual impacts to the Jilbadji Nature Reserve (Western Areas, 2014).

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

Methodology PEK Enviro (2014)
Department of the Environment (2013)
DPaW (2015)
Western Areas (2014)
GIS Database:
- DPaW 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 at variance to this Principle.

No Public Drinking Water Source Areas (PDWSA's) are located within or in the vicinity of the application area (GIS Database). There are no permanent watercourses or wetlands located within the application area (GIS Database, PEK Enviro, 2014). The nearest watercourse (minor, ephemeral) is located 2.3 kilometres to the west of the application area. Therefore, the clearing of native vegetation required for the proposal will not cause deterioration in the quality of surface water, including sedimentation, erosion, turbidity or eutrophication of water bodies on-site or off-site.

The groundwater within the application area is between 14,000 – 35,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). It is not expected that the proposed clearing of 10 hectares within a permit boundary of 1,552 hectares would adversely alter salinity levels within the application or surrounding area. Additionally, the proposed clearing is not likely to have an impact on the quality of groundwater either on-site or off-site of the application area.

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

Methodology PEK Enviro (2014)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas

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

Comments Proposal is not at variance to this Principle.

The low impact method of raised blade clearing will be used for the proposal. This method minimises impacts to the existing vegetation and promotes rapid regrowth (Western Areas, 2015). As this method of clearing does not expose large areas of soil and retains the roots of vegetation, it is highly unlikely that the clearing associated with the proposal will cause, or exacerbate the incidence or intensity of flooding. The proposal area

is located in the well vegetated Jilbadji Nature Reserve, further reducing the likelihood of or intensity of flooding.

The flora survey report prepared by PEK Enviro (2014) also confirms the application area is dominated by the sandplain landform unit. Sandplain slopes rarely exceeded 2 degrees and the soil profiles are thick and laterized. Run-off only occurs over short distances following heavy and intense falls of rain (PEK Enviro, 2014). The application area receives low annual rainfall (annual mean rainfall is 330.6 millimetres at Mulgara weather station) (PEK Enviro, 2014). In addition, no watercourses or wetlands are located in the vicinity of the application area (GIS Database).

It is unlikely the small amount of native vegetation clearing (10 hectares) and minimal disturbance (linear clearing) required for the purposes of exploration will impact the application area and cause, or exacerbate the incidence or intensity of flooding.

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

Methodology PEK Enviro (2014)
Western Areas (2015)
GIS Database:
- Hydrography, linear

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

Comments There are no Native Title claims over the area under application (DAA, 2015). 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 sites of significance within the application area (DAA, 2015). 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, Department of Parks and Wildlife 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 16 November 2015 by the Department of Mines and Petroleum inviting submissions from the public. One submission letter was received advising no objections to the proposed clearing application.

Methodology DAA (2015)

4. References

- Australasian Ecological Services (2015) Level 1 Fauna Survey, Southern Tenements, Jilbadji Nature Reserve for Proposed Mineral Exploration Program. Unpublished report prepared for Western Areas Ltd, March 2015.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie2 (COO2 – Southern Cross subregion) Department of Conservation and Land Management, Perth, Western Australia.
- DAA (2015) Department of Aboriginal Affairs, Aboriginal Heritage Inquiry System. Retrieved 10 December 2015 from: <http://maps.dia.wa.gov.au/AHIS2>
- DotE (2013) Department of the Environment, Australian Heritage Places Inventory, Jilbadji Nature Reserve. Retrieved 7 December 2015 from: <https://dmzapp17p.ris.environment.gov.au/ahpi/action/search/heritage-search/record/RNE9790>
- 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.
- DPaW (2015) Department of Parks and Wildlife Advice Regarding Clearing Permit CPS 6833/1 – Western Areas Nickel Pty Ltd, Exploration Program. Correspondence dated 10 December 2015, Environmental Management Branch, Perth, Western Australia.
- Government of Western Australia (2015) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. Western Australian Department of Parks and Wildlife, Perth, Western Australia.
- Keighery B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of Western Australia (Inc.). Nedlands, Western Australia.
- PEK Enviro (2014) Forrestania Nickel Project, Regional Exploration Program. Level 1 Vegetation and Flora Survey for exploration and prospecting licences within the Jilbadji Nature Reserve. Unpublished report prepared for Western Areas Ltd (WAL).
- Western Areas (2014) Conservation Management Plan, Jilbadji Nature Reserve (Parker Dome) Exploration Area (Rev. 2) December 2014. Western Areas Nickel Pty Ltd, Perth, Western Australia.
- Western Areas (2015) Clearing Permit Application Supporting Document – Northern Estates Exploration Project, Prospecting Leases P77/4067, P77/3836, P77/3837, P77/3838, P77/3839, P77/3840, P77/3846, P77/3847. Western Areas Nickel Pty Ltd, Perth, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2015) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia):-

T

Threatened species:

Published as Specially Protected under the *Wildlife Conservation Act 1950*, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR

Critically endangered species

Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN

Endangered species

Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU

Vulnerable species

Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX

Presumed extinct species

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

- IA Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- CD Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- OS Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3 Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.