Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7689/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Western Areas Ltd

1.3. Property details

Property: Exploration Licence 77/1581
Exploration Licence 77/1734
Local Government Area: Shire of Yilgarn
Colloquial name: North East Parker Dome Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 21 September 2017

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:

511 Medium woodland; salmon gum & morrel;
519 Shrublands; mallee scrub, *Eucalyptus eremophila*; and
1413 Shrublands; acacia, casuarina & melaleuca thicket.

A Level 1 flora and vegetation survey of the application area was undertaken by PEK Enviro (2016) during the period 17 – 23 September 2016 (PEK Enviro, 2016). An additional targeted flora survey was also undertaken by Botanica Consulting (Botanica, 2017) during the period 15- 16 May 2017 (Botanica, 2017). A total of 17 vegetation types were identified within the application area:

<u>Granite exposure:</u>

1. *Acacia lasiocalyx* tall open shrubland;
2. *Allocasuarina huegeliana* low open forest; and
3. *Borya contricta* and *Actinobole uliginosum* low open forbland;

<u>Sandplain:</u>

4. *Eucalyptus burracoppinensis* low open mallee shrubland with *Grevillea excelsior* tall open heathland;
5. Mixed shrubland;
6. *Acacia yorkrakinensis* subsp. *acrita* mid heathland;
7. *Eucalyptus eremophila* subsp. *eremophila* and *E. calycogona* subsp. *calycogona* low tree mallee; and
8. Mixed Acacia and Melaleuca low shrubland;

<u>Granite breakaway:</u>

9. *Eucalyptus capillosa* subsp. *polyclada* low tree mallee;
10. *Acacia lasiocalyx* tall open shrubland with *Eucalyptus burracoppinensis* low open mallee shrubland; and
11. *Allocasuarina acutivalvis* subsp. *acutivalvis* mid sparse heathland with *Eucalyptus burracoppinensis* low sparse mallee shrubland;

<u>Broad valley:</u>

12. *Eucalyptus olivina* low mallee shrubland;
13. *Eucalyptus longicornis* mid woodland;
14. *Eucalyptus salmonophloia* mid woodland;
15. *Eucalyptus ?transcontinentalis* low open forest with *Eucalyptus* sp. regrowth mid mallee shrubland;
16. *Eucalyptus flocktoniae* subsp. *flocktoniae* low woodland; and
17. *Eucalyptus horistes* low open mallee shrubland.

Clearing Description

North East Parker Dome Project.
Western Areas Ltd (Western Areas) proposes to clear up to 10.26 hectares within an application area of approximately 9,864.73 hectares for the purpose of mineral exploration. The project is located approximately 80 kilometres east of Hyden within the Shire of Yilgarn.

Vegetation Condition	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 (PEK Enviro, 2016). Vegetation affected by fire is now actively regrowing except in some patches of taller woodland that have remained unburnt (PEK Enviro 2016). Many of the historic exploration grid lines and access tracks are now largely overgrown (PEK, 2016). No weeds were noted during the flora and vegetation survey (PEK Enviro, 2016). Previously disturbed tracks/gridlines will be used (where possible) (PEK Enviro, 2016).

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 application area is located within the Southern Cross sub-region of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database; PEK Enviro, 2016). The Southern Cross subregion consists of diverse Eucalyptus woodlands (*Eucalyptus salmonophloia*, *E. salubris*, *E. transcontinentalis*, *E. longicomis*) and is rich in endemic eucalypts which occur around salt lakes, on low greenstone hills, valley alluvials and broad plains of calcareous earths (CALM, 2002).

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 processes at a regional scale (DotEE, 2017). 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 (DotEE, 2017; PEK Enviro, 2016). 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 (DotEE, 2017).

The application area and surrounding area have been impacted by fire events in 2001, 2005 and 2008. Vegetation affected by fire is now actively regrowing except in some areas of taller woodland which have remained unburnt (PEK Enviro, 2016). No weeds were noted during the flora and vegetation survey (PEK Enviro, 2016).

The flora and vegetation survey undertaken by PEK Enviro (2016), identified no Threatened Ecological Communities (TEC's) or Priority Ecological Communities (PEC's) occurring within the application area (PEK Enviro, 2016; GIS Database). The flora and vegetation survey identified 17 vegetation types within the application area (PEK Enviro, 2016). A total of 259 species (including subspecies and varieties) from 113 genera and 44 families were recorded during the flora survey (PEK Enviro, 2016). No species of threatened flora were recorded during the flora survey (PEK Enviro, 2016). A targeted search of conservation significant flora species was recently undertaken by Botanica (Botanica, 2017). Eight Priority flora species were recorded within the application area during the flora survey (Botanica, 2017). The targeted flora survey covered a larger area (305.2 hectares) than the application area (10.26 hectares) (Botanica, 2017). The flora survey also included a 20 metre buffer either side of the exploration access tracks (Botanica, 2017; PEK, 2016).

The Priority flora species recorded along the proposed route includes: *Acacia asepala* (P2) (98 individuals recorded), *Acacia dissona* var. *indoloria* (P3) (two individuals recorded), *Banksia xylothemelia* (P3) (567 individuals recorded), *Bossiaea celata* (P3) (611 individuals recorded), *Caesia viscida* (P2) (147 individuals recorded), *Chorizema circinale* (P1) (94 individuals recorded), *Microcorys* sp. Forrestania (V. English 2004) (P4) (138 individuals recorded) and *Microcybe* sp. Windy Hill (G.F. Craig 6583) (P3) (500 individuals recorded) (Botanica, 2017). Western Areas (2017a) are committed to avoiding Priority flora where possible and not all of these species will be cleared as part of the proposal (Western Areas, 2017a).

The Conservation Management Plan (CMP) prepared for the proposal and approved by the Department of Biodiversity, Conservation and Attractions (DBCA) outlines the necessary management strategies to be implemented in order to minimise impacts to Priority flora. Some of these strategies include avoidance of Priority flora species and their buffer areas, demarcation of approved disturbance areas and supervision of clearing areas (Western Areas, 2017b). Western Areas have committed to obtain written consent from DBCA prior to disturbance or taking Priority flora and will keep records of all Priority flora species cleared as part of the proposal.

A desktop fauna survey identified 360 fauna species potentially occurring, indicating the area is highly diverse (AES, 2016). However, the on-site fauna survey located a small number of reptile species, (two species), a large number of bird species (46 species), a small number of mammal species (three species and three introduced species were also identified) and no short range endemic (SRE) species were located in the application area (AES, 2016).

Breeding and foraging habitat for Malleefowl were identified in the application area (AES, 2016). However, no active Malleefowl mounds were recorded during the fauna survey. The fauna survey confirmed a very small amount of breeding and feeding habitat may be impacted if tree and shrubland vegetation is removed (AES, 2016). It is unlikely that the small amount of clearing needed for the proposal would have a significant impact on Malleefowl individuals or habitat as a large amount of similar habitat is located nearby and in surrounding areas (AES, 2016).

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. The proposed clearing is therefore not likely to be at variance to this Principle.

Methodology

AES (2016)
Botanica (2017)
CALM (2002)
DotEE (2017)
PEK Enviro (2016)
Western Areas (2017a)
Western Areas (2017b)

GIS Database:
- Threatened Fauna
- Threatened and Priority Flora
- Flora – WAHerb
- Flora – TPFL

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

Comments

Proposal is not likely to be at variance to this Principle.
A Level 1 fauna survey was undertaken over the application area (AES, 2016). Based on the results of this survey the following eleven broad fauna habitats have been identified within the application area (AES, 2016):

1. Shrubland;
2. *Eucalyptus* woodland over mallee or small mallee, over shrubland;
3. Shrub mallee or low mallee over shrubland;
4. Regenerating *Eucalyptus;*
5. Melaleuca forest with herbage underneath;
6. Salmon Gum and mallee over very sparse shrubland;
7. Salmon Gum over low shrubland and dwarf shrubland ;
8. Sparse Eucalyptus woodland over dense mallee woodland;
9. Areas of exposed flat rock and open clay patches with dwarf shrubland;
10. Mallee and mallee over rocky habitat; and
11. Rock Sheoak (*Allocasuarina huegeliana*) woodland.

A desktop survey of fauna species potentially occurring in the region was undertaken prior to the on-site fauna survey (AES, 2016). The desktop survey identified 360 fauna species potentially occurring, indicating the area is highly diverse. The fauna survey located a small number of reptile species, (two species), a large number of bird species (46 species), a small number of mammal species (three species), a small number of introduced species (three species) and no short range endemic (SRE) species were located in the application area (AES, 2016).

Malleefowl (*Leipoa ocellata* – Vulnerable) individuals and breeding and foraging habitat for Malleefowl were identified in the application area (AES, 2016). Two inactive Malleefowl mounds were recorded during the fauna survey. A 50 metre buffer area will be maintained around the two inactive Malleefowl mounds and no clearing will be undertaken in this area (Western Areas, 2017a; Western Areas, 2017b). The fauna survey confirmed a very small amount of breeding and foraging habitat may be impacted if tree and shrubland vegetation is removed (AES, 2016). It is unlikely that the small amount of clearing needed for the proposal would have a significant impact on Malleefowl individuals or habitat. A large amount of similar habitat is also located nearby and in surrounding areas (AES, 2016).

Western Brush Wallaby (*Macropus irma* – Priority 4) were also 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. Open grassy woodlands are used for foraging and scrub habitat is used for resting (AES, 2016). 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 (AES, 2016).

Suitable feeding and breeding habitat for the Red-tailed Phascogale (*Phascogale calura* - Endangered) were identified in the application area. However, no Red-tailed Phascogale individuals were recorded during the fauna survey (AES, 2016). Fauna habitat type 2; *Eucalyptus* woodland over mallee or small mallee, over shrubland, fauna habitat type 9; areas of exposed flat rock and open clay patches with dwarf shrubland and fauna habitat 11; Rock Sheoak (*Allocasuarina huegeliana*) woodland which were recorded in the application area, are suitable for Red-tailed Phascogales (AES, 2016). AES (2016) confirmed that limited areas of these habitat types are located in the Jilbadji Nature Reserve. Western Areas (2017a) reported fauna habitats 2, 9 and 11 will be avoided and no clearing for the proposal will be undertaken in these areas.

None of the fauna habitat types present in the application area were assessed as being critical to any of the fauna species (AES, 2016). The small scale of clearing and the low impact nature of the proposed activities, it is unlikely that the proposed clearing will impact on conservation significant fauna species or their faunal

habitat.

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

Methodology AES (2016)
Western Areas (2017a)
Western Areas (2017b)

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 have been recorded in the application area (GIS Database). A Level 1 flora and vegetation survey was also undertaken by PEK Enviro (2016) which did not record species of Threatened flora in the application area.

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

Methodology PEK Enviro (2016)

GIS Database:
- Flora – TPFL
- Flora – WAHerb
- 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 (2016), identified no Threatened Ecological Communities (TEC's) occurring within the application area. PEK Enviro (2016) also completed a search of Commonwealth listed TECs. The search revealed that no Commonwealth listed TECs are located within the application area (PEK Enviro, 2016).

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

Methodology PEK Enviro (2016)

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 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 (GIS Database; Government of Western Australia, 2016). The vegetation within the application area is recorded as:

- 511: Medium woodland; salmon gum & morrel;
- 519: Shrublands; mallee scrub, *Eucalyptus eremophila*; and
- 1413: Shrublands; acacia, casuarina & melaleuca thicket.

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 (GIS Database). 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, 2016). 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). None of the vegetation associations have been extensively cleared in the Coolgardie bioregion as over 97% of all the mapped vegetation associations remain.

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

Methodology Government of Western Australia (2016)
PEK Enviro (2016)

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. One non-perennial lake is located to the west of the application area and the proposal will not impact this area (GIS Database). Several, minor and ephemeral watercourses are located within the application area (GIS Database). However, none of these watercourses will be impacted by the proposal. No riparian vegetation was identified within the application area as part of the flora and vegetation survey (PEK Enviro, 2016; Western Areas, 2017a). The flora survey report confirms the proposed clearing does not occur within these watercourse areas (PEK Enviro, 2016).

No vegetation is growing in, or in association with an environment associated with a watercourse. Therefore, the proposed clearing is not at variance to this Principle.

Methodology

PEK Enviro (2016)
Western Areas (2017a)

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 required for the purpose of exploration will impact the application area and cause soil or wind erosion. 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 (2016) 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 (PEK Enviro, 2016). Run-off only occurs over short distances following heavy and intense falls of rain (PEK Enviro, 2016). The small amount of clearing required is not likely to increase waterlogging or flooding.

Based on the above, the proposed native vegetation clearing will not cause appreciable land degradation. Therefore the proposal is not at variance to this Principle.

Methodology

PEK Enviro (2016)
Western Areas (2017a)

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 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, 2016; 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 (DotEE, 2017).

The Jilbadji Nature Reserve is an area of approximately 200,000 hectares and is a significant area in maintaining existing processes at a regional scale (GIS Database). 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 (DotEE, 2017; PEK Enviro, 2016). 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 (DotEE, 2017).

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, 2016, DotEE, 2017.) 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, 2016; DotEE, 2017).

The former Department of Parks and Wildlife (DPaW) (now DBCA) provided advice on a recent and adjacent clearing proposal within the Jilbadji Nature Reserve. DPaW confirmed the impacts associated with the proposal can be managed provided the actions listed in the DBCA approved CMP and risk management protocols are implemented (DPaW, 2015, Western Areas, 2017b). These management strategies include marking the occurrence of all Priority flora in the clearing area, avoiding Priority flora species during the clearing phase and seeking advice from DBCA if clearing impacts to Priority flora are unavoidable. The proponent shall rehabilitate and revegetate any disturbed areas according to completion criteria for success as agreed in the CMP.

Although the proposed clearing occurs in the Jilbadji Nature Reserve, 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, grid lines and previously disturbed areas (PEK Enviro, 2016; Western Areas 2017a). The approved CMP will be implemented to manage potential and actual impacts to the Jilbadji Nature Reserve (Western Areas, 2017b).

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

Methodology

DPaW (2015)
DotEE (2017)
PEK Enviro (2016)
Western Areas (2017a)
Western Areas (2017a)

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 (PEK Enviro, 2016; GIS Database). Several, minor, ephemeral watercourses occur within the application area (GIS Database). The small amount of linear clearing 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 10.26 hectares within a permit boundary of 9,864.73 hectares would adversely alter salinity levels within the application or surrounding area. Due to the small amount of clearing required within a large application area, no changes to pH are expected. Additionally, the proposed clearing is not likely to have an impact on the quality of groundwater either on-site or outside of the application area.

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

Methodology

PEK Enviro (2016)

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 flora survey report prepared by PEK Enviro (2016) 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 (PEK Enviro, 2016). Areas of sandplain high in the landscape 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, 2016). Annual mean rainfall for the nearest weather station located at Southern Cross Airfield weather station recorded low, mean, annual rainfall of 305.5 millimetres (PEK Enviro, 2016).

It is unlikely the small amount of native vegetation clearing (10.26 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. Previously disturbed areas (old gridlines) will be utilised where possible to minimise impacts to good quality native vegetation (Western Areas, 2017a). The proposal area is located in the well vegetated Jilbadji Nature Reserve, further reducing the likelihood of, or intensity of flooding.

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

Methodology

PEK Enviro (2016)
Western Areas (2017a)

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 (DPLAH, 2017). 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 (DPLAH, 2017). 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 Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions 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 application was advertised on 31 July 2017 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. There were no submissions received.

Methodology

DPLAH (2017)

4. References

AES (2016) Level 1 Fauna Survey, Proposed Clearing Envelopes, NE Parker Dome, Jilbadji Nature Reserve. Report prepared for Western Areas Ltd by Australasian Ecological Services, November 2016.

Botanica (2017) Targeted Search for Flora of Conservation Significance - Jilbadji Nature Reserve. Report prepared for Western Areas Ltd by Botanica Consulting, Boulder, Western Australia, July 2017.

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.

DPLAH (2017) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. https://maps.daa.wa.gov.au/ahis/ (Accessed 8 September 2017).

DotEE (2017) Department of the Environment and Energy, Australian Heritage Places Inventory, Jilbadji Nature Reserve. https://dmzapp17p.ris.environment.gov.au/ahpi/action/search/heritage-search/record/RNE9790 (Accessed 8 September 2017).

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 (2016) 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2016. WA 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 (2016) Forrestania Nickel Project, Regional Exploration Program. Level 1 Vegetation and Flora Survey, Parker Dome Project in the Jilbadji Nature Reserve. Report prepared for Western Areas Ltd by PEK Enviro, Gelorup, Western Australia, November 2016.

Western Areas (2017a) Clearing Permit Application Supporting Document – North East Parker Dome Exploration Works in the Jilbadji Nature Reserve. Western Areas Limited, Perth, Western Australia, July 2017.

Western Areas (2017b) Forrestania Nickel Operations, Jilbadji Nature Reserve Conservation Management Plan (Rev. No. 4)

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLAH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DBCA	Department of Biodiversity Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBOTANICAA and DWER)
DotEE	Department of the Environment and Energy, Australian Government
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLAH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DotEE	Department of the Environment and Energy, Australian Government
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBOTANICAA)
DWER	Department of Water and Environmental Regulation, Western Australia
EPA	Environmental Protection Authority, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (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	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2017) 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.

Principles for clearing native vegetation:

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

(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.

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

(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.

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

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

(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.

(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.

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