

## Application details and outcomes

### 1.1. Permit application details

Permit number:	10297/1
Permit type:	Purpose Permit
Applicant name:	BHP Nickel West Pty Ltd
Application received:	8 August 2023
Application area:	300 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Leases 53/35, 53/36, 53/55, 53/238, 53/239, 53/240, 53/241, 53/242, 53/949, 53/1114 Miscellaneous Licences 53/244, 53/247, 53/276
Location (LGA area/s):	Shire of Wiluna
Colloquial name:	Wedgetail Stage 1

### 1.2. Description of clearing activities

BHP Nickel West Pty Ltd proposes to clear up to 300 hectares of native vegetation within a boundary of approximately 5,554.5 hectares, for the purpose of mining related infrastructure (BHP, 2023). The project is located approximately 80 kilometres south of Wiluna, within the Shire of Wiluna (GIS Database).

The application is to allow for the development of mining and related infrastructure for the Wedgetail project including mine development, infrastructure, roads and tracks, service corridors, bores and related mining services (BHP, 2023).

### 1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	26 March 2024
Decision area:	300 hectares of native vegetation

### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) (now Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)) on 8 August 2023. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix E), supporting information provided by the applicant including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 0), relevant planning instruments and any other matters considered relevant to the assessment (Section 0).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- impacts to conservation significant flora; and
- impacts to conservation significant fauna and fauna habitat.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to long-term adverse impacts on environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;

- undertake slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity which will minimise impact to individuals;
- maintain surface water flow and avoid clearing riparian vegetation;
- a flora management condition where the clearing of *Sida picklesiana* individuals is limited to three individuals; and
- a flora management condition where the clearing of *Tribulus adelacanthus* individuals is limited to three individuals.

### 1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.

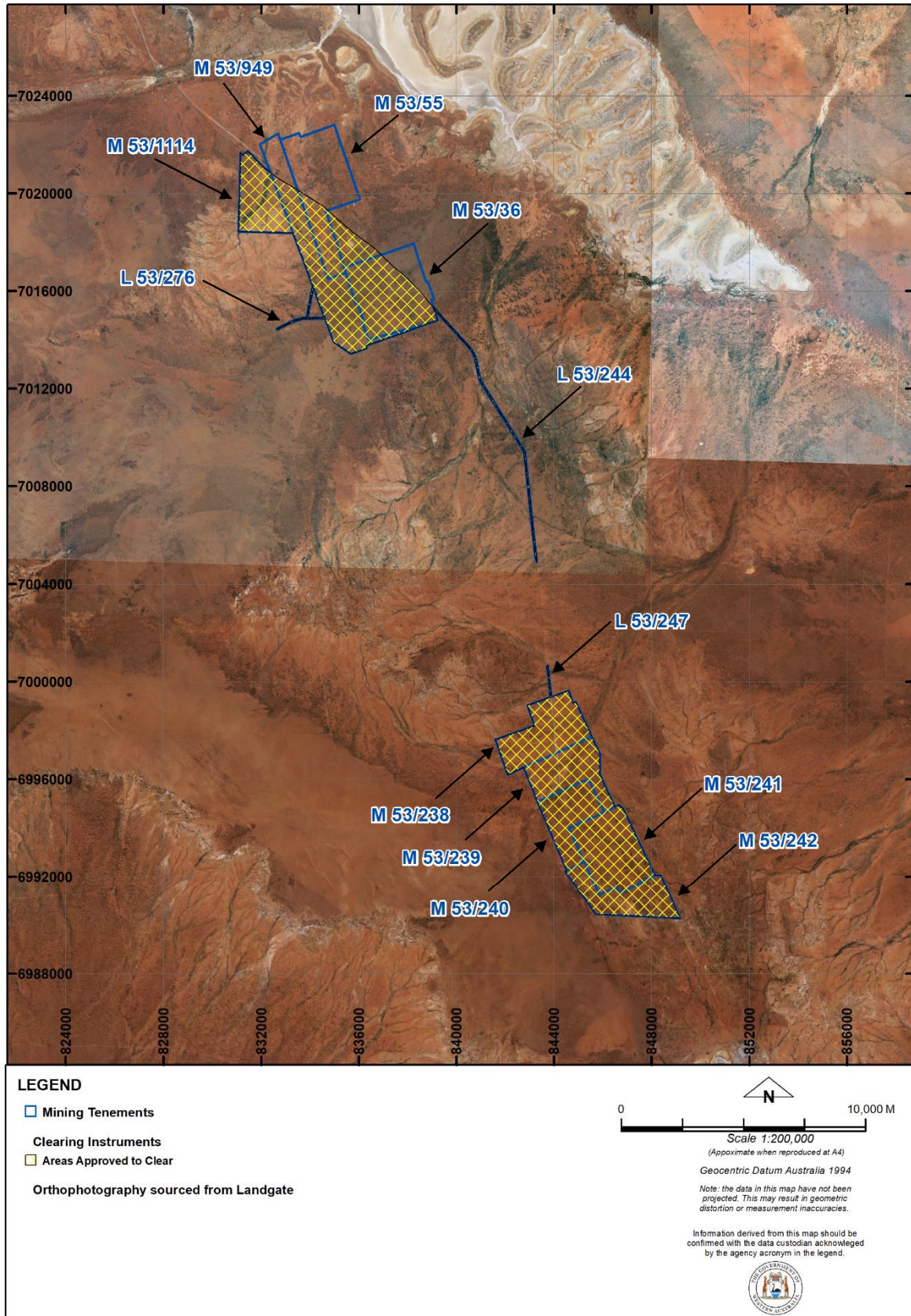


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

## Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

## Detailed assessment of application

### Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that avoidance and mitigation measures such as those listed below will be utilised:

- clearing will be kept to a minimum;
- previously disturbed areas will be utilised where possible; and
- BHP Nickel West has an Environmental Management System (EMS) that aims to achieve effective environmental management across its operations through the implementation of its EMS framework (BHP, 2023).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

### Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (fauna and flora). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

#### *Biological values (flora) - Clearing Principle (a)*

##### Assessment

Flora and vegetation surveys have been undertaken over the entire application area and surrounding environments (Biologic, 2024; Botanica, 2020; Ecoscape, 2021). The following five conservation significant flora species have been recorded within the application area (Biologic, 2024; Botanica, 2020; Ecoscape, 2021; GIS Database):

*Eremophila pungens*, Priority 4, is an erect, viscid shrub that inhabits sandy loam and clayey sand over laterite on plains, ridges and breakaways (Western Australian Herbarium, 1998-). This species has been recorded and submitted to the WA Herbarium from 45 locations within the Gascoyne, Great Victoria Desert and Murchison Interim Biogeographic Regionalisation for Australia (IBRA) regions (Western Australian Herbarium, 1998-; GIS Database). The flora survey by Botanica Consulting (2020) identified 1,302 individuals within the survey area, with one of these individuals recorded within the permit area. The clearing of one individual is not considered to significantly impact this species or change the conservation status of this species.

*Sida picklesiana*, Priority 3, can be found inhabiting red/brown sands on flats (Western Australian Herbarium, 1998-). This species has been recorded and submitted to the WA Herbarium from 31 locations within the Gascoyne and Murchison IBRA regions (Western Australian Herbarium, 1998-). The flora survey by Ecoscape (2021) recorded 50 individuals from one location within the survey area, with all 50 individuals located within the area proposed to be cleared. The clearing of 50 individuals would result in a 100 percent impact to this species at a local scale which is considered a significant impact. Impacts to this species may be managed by a flora management condition limiting the number of *Sida picklesiana* individuals permitted to be cleared to three individuals (i.e., six percent of the local population).

*Thryptomene* sp. Leinster, Priority 3, can be found inhabiting red sandy loam over ironstone and quartz on flats and slope (Western Australian Herbarium, 1998-). This species has been recorded and submitted to the WA Herbarium from 25 locations within the Gascoyne and Murchison IBRA regions (Western Australian Herbarium, 1998-). The flora surveys by Biologic (2024) and Ecoscape (2021) identified 914 individuals from 44 locations within the survey area, with 74 of these individuals recorded within the permit area. The clearing of 74 individuals would result in an eight percent impact to this species at a local scale. However, as there are numerous records in the surrounding environment and similar habitat is available in the surrounding area, the impact of the clearing is not considered to significantly impact this species or change the conservation status of this species.

*Tribulus adelacanthus*, Priority 3, is a prostrate herb that has been recorded inhabiting red/brown soils on rocky hills and hillslopes with rocky soils over granite or flats (Western Australian Herbarium, 1998-). This species has been recorded and submitted to the WA Herbarium from 18 locations within the Gascoyne and Murchison IBRA regions (Western Australian Herbarium, 1998-; GIS Database). The flora surveys by Biologic (2024) and Ecoscape (2021) identified 42 individuals within the survey area, six of these individuals were recorded within the permit area. The clearing of six individuals would result in 14 percent impact to this species at a local scale which is considered a significant impact. Impacts to this species may be managed by a flora management condition limiting the number of *Tribulus adelacanthus* individuals permitted to be cleared to three individuals (i.e., seven percent of the local population).

*Vittadinia pustulata*, Priority 3, is a low annual herb which can be found inhabiting drainage depressions in red sand plain (Western Australian Herbarium, 1998-). This species has been recorded and submitted to the WA Herbarium from 11 locations within the Central Ranges, Great Victoria Desert, Little Sandy Desert and Murchison IBRA regions (Western Australian Herbarium, 1998-). This species was not recorded during the flora and vegetation surveys (Biologic, 2024; Botanica Consulting, 2020; Ecoscape 2021), however, it has previously been recorded within the application area in 1992 (GIS Database). The flora and vegetation surveys (Biologic, 2024; Botanica Consulting, 2020; Ecoscape 2021) did not locate this record and no other records of this species were identified, this species is now considered unlikely to occur within the permit area.

The 12 conservation significant flora species identified in Section B.3 were not identified within the application area during the flora survey, however suitable habitat is present and these species are known to occur within the local area and therefore could potentially occur (Ecoscape 2021, GIS Database). As suitable habitat is available in the surrounding environment, the application area is not considered significant habitat for these priority species and the clearing will not likely lead to a significant impact.

#### Conclusion

Based on the above assessment, the proposed clearing may result in the removal of some priority flora. For the reasons set out above, it is considered that the impacts of the proposed clearing on flora can be managed by the mitigation and management strategies provided by the applicant.

#### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- a flora management condition where the clearing of *Sida picklesiana* individuals is limited to three individuals; and
- a flora management condition where the clearing of *Tribulus adelacanthus* individuals is limited to three individuals.

#### ***Biological values (fauna) - Clearing Principle (b)***

A basic fauna survey was undertaken in April 2021 by Ecoscape. Fifty-six vertebrate fauna species were recorded during the survey (Ecoscape, 2021). Eleven fauna habitats were identified within the survey area, four of these habitats intersected the permit area:

- Hillcrest/ Hillslope: Mulga Shrubland on Rocky Rise;
- Hillcrest/ Hillslope: Shrubland on Stony Rise;
- Mulga Woodland: Dense Mulga;
- Sand Plain: Sandplain of scattered Mulga shrubs over Spinifex hummocks; and
- Stony Plain: Shrubland of Mulga and mixed shrubs with sparse groundcover on clay soil with open areas of clay soil or stony plains

No conservation significant fauna were observed during the basic fauna survey (Ecoscape, 2021). Ecoscape carried out a targeted fauna survey from 3-11 November 2021 for the following species (Ecoscape, 2022):

- Malleefowl (*Leipoa ocellata*) – VU;
- Striated Grasswren (*Amytornis striatus striatus*) - P4; and
- Brush-tailed Mulgara (*Dasycercus blythi*) – P4.

A total of 39 fauna species were recorded during the targeted survey, comprising of five reptile, 28 bird, four native mammal and two introduced mammal species (Ecoscape, 2022). No conservation significant fauna species were recorded from the motion sensor cameras, audible recordings, targeted searches, habitat assessment sampling points, bird surveys or the opportunistic sampling (Ecoscape, 2022).

The following conservation significant fauna were not recorded during the survey, however they may potentially occur within the application area based on habitat availability.

Bilby (*Macrotis lagotis*), Vulnerable, is a medium-sized burrowing marsupial that has been recorded within 40 kilometres of the application area (DCCEEW, 2023; GIS Database). In Western Australia, the bilby has been recorded in the Gibson Desert, Little Sandy Desert, Great Sandy Desert and parts of the Pilbara and Southern Kimberley (DCCEEW, 2023). The species can be found inhabiting three main habitats: open tussock grassland on uplands and hills, *Acacia aneura* (mulga) woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (DCCEEW, 2023). Suitable habitat may occur within the application area, however, given the application area lies outside of the species current range and it has not been recorded nearby since 1970, it is likely the species is locally extinct in the area.

Black-flanked rock-wallaby (*Petrogale lateralis lateralis*), Endangered, are endemic to Western Australia and have been recorded within 10 kilometres of the application area (GIS Database). During the daytime they shelter under deep shade in rocky areas such as caves, cliffs, screes and rockpiles, and emerge at dusk to feed on grasses, forbs, shrubs and occasionally seeds and fruits (DCCEEW, 2023). No individuals were recorded during the survey, however this species has been recorded within 10 kilometres from the application area, suggesting that they may use the application area as part of a larger home range, however there is no suitable breeding habitat within the application area (Ecoscape, 2021; GIS Database).

Brush-tailed mulgara (*Dasyercus blythi*), Priority 4, inhabit sand dunes with a sparse cover of Sandhill Canegrass (*Zygochloa paradoxa*) or in areas around salt lakes with Nitre Bush (*Nitraria billardieri*) (DCCEEW, 2023). This species has previously been recorded within five kilometres of the application area and suitable habitat (Dense Mulga) is present within the application area (Ecoscape 2021; GIS Database). As it is unlikely that suitable shelter exists within the application area, however, the species may use the application area for foraging. Despite the targeted survey, no evidence of this species was recorded from the survey area (Ecoscape, 2021). It is likely that this species is present within the application area.

Malleefowl, *Leipoa ocellata* (Vulnerable), are found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DCCEEW, 2023b). This species requires a sandy substrate with an abundance of leaf litter for breeding (DCCEEW, 2023b). Malleefowl are known to occur in the region and may utilise the area for foraging, however the application area does not provide suitable breeding habitat and is not likely to support Malleefowl mounds (Ecoscape, 2021; 2022; GIS Database). No Malleefowl mounds or other evidence were observed during the fauna surveys (Ecoscape, 2021; 2022).

Moriarty's trapdoor spider (*Kwonkan moriartii*), Priority 2, is known from a single specimen collected in 1962 located within 40 kilometres of the application area (Main, 1983; GIS Database). Biologic undertook a short-range endemic invertebrate fauna survey across the application area in May/June/October 2022, no individuals of this species were observed (Biologic, 2023). No habitat information is available for this species and therefore it is possible for this species to occur within the application area.

Northern shield-backed trapdoor spider (*Idiosoma clypeatum*), Priority 3, has a widespread distribution in Western Australia's inland arid zone throughout the Yalgoo and Murchison bioregions (Rix et al., 2018). Suitable habitat for this species may include sheltered rocky habitats where levels of moisture tentation are high (e.g. within gullies and drainage lines on southern facing slopes) (Rix et al., 2018; Biologic, 2023). This species has been recorded within 40 kilometres of the application area (GIS Database). No individuals of this species were observed during the short-range endemic invertebrate survey (Biologic, 2023). As suitable habitat is present within the application area, this species may potentially occur.

Peregrine falcon (*Falco peregrinus*), Other Specially Protected Species, is one of the most widespread birds in the world and occurs across most of Australia (DCCEEW, 2023). The species inhabits cliffs, coastal habitats, rivers, wooded water courses, lakes and urban environments (DCCEEW, 2023). No individuals were recorded during the survey, however, this species has been recorded within 40 kilometres from the application area, suggesting that they may use the application area as part of a larger home range, however there is no suitable breeding habitat within the application area (Ecoscape, 2021; 2022; GIS Database).

Striated grasswren (sandplain) (*Amytornis striatus striatus*), Priority 4, are endemic to New South Wales and have been recorded within 40 kilometres of the application area (DCCEEW, 2023; GIS Database). This species is a habitat specialist, confined to mature spinifex *Triodia* spp. with an overstorey of mallee eucalypts (DCCEEW, 2023). Suitable habitat has been identified within the survey area, however it was not observed within the application area (Ecoscape, 2021). Despite the targeted survey, no evidence of this species was recorded from the survey area (Ecoscape, 2021). There is a high likelihood of this species occurring within the surrounding environment and may utilise the application area at times.

Twelve Migratory bird species have been previously recorded within 40 kilometres of the application area (GIS Database). The application area is not considered to be significant habitat for these species, suggesting that they may use the application area as part of a larger home range.

### Conclusion

Based on the above assessment, the proposed clearing may result in the removal of habitat for conservation significant fauna. For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna can be managed by the conditions listed below.

### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing; and
- slow direction clearing to allow fauna to move into adjacent habitat.

### **Relevant planning instruments and other matters**

The clearing permit application was advertised on 12 September 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (Tjiwarl and Tjiwarl #2) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court on behalf of the claimant group. 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 several registered Aboriginal Sites of Significance within the application area (DPLH, 2023). 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.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

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.

**End**

## Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
The application area was surveyed in 2023, this survey was provided during the assessment.	Findings from the survey will be used in the assessment of this application.

## Appendix B. Site characteristics

### B.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 80 kilometres south of Wiluna, within the Shire of Wiluna (GIS Database). The area is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). It is surrounded by similar vegetation and previous historical exploration activities (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The application area is not mapped within a conservation area, the nearest conservation area is the Wanjarri Nature Reserve (R 30897) which is located approximately 16 kilometres south east from the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <ul style="list-style-type: none"> <li>18: Low woodland, open low woodland or sparse woodland; and</li> <li>107: Shrub-steppe (GIS Database).</li> </ul> <p>A flora and vegetation survey was conducted over the application area by Biologic during June – September 2022 and May 2023. The following 11 vegetation associations were recorded within the application area (Biologic, 2024):</p> <ul style="list-style-type: none"> <li>GP Erfc Duf AteMi: <i>Eriachne flaccida</i> low open tussock grassland with <i>Duma florulenta</i> mid sparse shrubland with <i>Acacia tetragonophylla</i>, <i>Melaleuca interioris</i> tall isolated shrubs over isolated mixed low annual herbs and grasses on brown clay on freshwater ephemeral claypans;</li> <li>HP Aan ErsbErf ErerMop Tb: <i>Acacia aneura</i> spp. (<i>A. aneura</i>, <i>A. aptaneura</i>, <i>A. incurvaneura</i>) low woodland over <i>Eremophila spectabilis</i> subsp. <i>brevis</i>, <i>E. forrestii</i> mid to low sparse shrubland over <i>Eragrostis eriopoda</i>, <i>Monachather paradoxus</i> low sparse tussock grassland with <i>Triodia basedowii</i> low isolated clumps of hummock grasses on red sandy clay loam on hardpan plains, sand plains and stony plains;</li> <li>HS Aan SieSesm AteErgAq PtscPto: <i>Acacia aneura</i> spp. (<i>A. aptaneura</i>, <i>A. incurvaneura</i>), <i>A. pruinocarpa</i> low open woodland over <i>Sida ectogama</i>, <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid sparse shrubland with <i>A. tetragonophylla</i>, <i>Eremophila galeata</i>, <i>A. quadrimarginea</i> tall isolated shrubs over <i>Ptilotus schwartzii</i>, <i>P. obovatus</i> low isolated shrubs on orange clay loam on rocky (laterite/ironstone, quartz) low hillslopes (undulating low hills), breakaways, outcropping, rockpiles;</li> <li>HS AanAq ErjEpu Thsl ErmuNemu: <i>Acacia aneura</i> spp. (<i>A. aptaneura</i>, <i>A. mulganeura</i>), <i>A. quadrimarginea</i> low open woodland over <i>Eremophila jucunda</i> subsp. <i>jucunda</i>, <i>E. punctata</i> low sparse shrubland with <i>Thryptomene</i> sp. Leinster (B.J. Lepschi &amp; L.A. Craven 4362) (P3) tall isolated shrubs over <i>Eriachne mucronata</i>, <i>Neurachne munroi</i> low isolated tussock grasses on orange/brown silty clay loam on ironstone/laterite and sandstone/granite low hillslopes (hillcrests, slopes, lower slopes) and breakaways;</li> <li>HS Abu SeafSesm Ersn RrArc: <i>Acacia burkittii</i> tall sparse shrubland over <i>Senna artemisioides</i> subsp. <i>filifolia</i>, <i>S.</i> sp. Meekatharra (E. Bailey 1-26) mid sparse shrubland over <i>Eremophea spinosa</i> low sparse chenopod shrubland over <i>Roepora eichleri</i>, <i>Aristida contorta</i> mixed low isolated herbs and tussock grasses on orange sandy clay loam on calcrete/limestone hillslopes (low undulating hills, low rises) and stony plains;</li> <li>HS AprAan SesmScspPtro Mati Ers: <i>Acacia pruinocarpa</i>, <i>A. aneura</i> spp. (<i>A. incurvaneura</i>, <i>A. aptaneura</i>) low open woodland over <i>Senna</i> sp. Meekatharra (E. Bailey 1-26), <i>Scaevola spinescens</i>, <i>Ptilotus rotundifolius</i> mid sparse shrubland over <i>Maireana triptera</i> low isolated chenopod shrubs over <i>Eragrostis setifolia</i> low isolated tussock grasses on red silty clay loam on laterite/ironstone hillslopes (undulating low hills) and stony plains;</li> <li>MI Aan Elu ArcErkDib Bb Ate Abc: <i>Acacia aneura</i> spp. (<i>A. craspedocarpa</i>, <i>A. craspedocarpa</i> (hybrid), <i>A. pteraneura</i>) low woodland, with occasional <i>Eucalyptus lucasii</i> low isolated mallee trees, over <i>Aristida contorta</i>, <i>Eragrostis kennedyae</i>, <i>Digitaria</i></li> </ul>

Characteristic	Details
	<p><i>brownii</i> low open tussock grassland over *<i>Bidens bipinnata</i> low open herbland with <i>A. tetragonophylla</i> tall isolated shrubs over <i>Abutilon cryptopetalum</i> low isolated shrubs on brown clay loam on minor drainage lines and drainage areas/floodplains;</p> <ul style="list-style-type: none"> <li>SA Aan ErfolErfSol ErsMopErer: <i>Acacia aneura</i> spp. (<i>A. aptaneura</i>, <i>A. aneura</i>, <i>A. incurvaneura</i>) low open woodland over <i>Eremophila foliosissima</i>, <i>E. forrestii</i>, <i>Solanum lasiophyllum</i> low sparse shrubland over <i>Eragrostis setifolia</i>, <i>Monachather paradoxus</i>, <i>E. eriopoda</i> low sparse tussock grassland on orange sandy clay loam on sandy plains, stony plains and (sandy) hardpan plains;</li> <li>SA Tb Ek AeFFAay Erfo: <i>Triodia basedowii</i> low hummock grassland with <i>Eucalyptus kingsmillii</i> low isolated mallee trees over <i>Acacia effusifolia</i>, <i>A. ayersiana</i> low isolated clumps of trees over <i>Eremophila forrestii</i> mid to low isolated shrubs on sandy loam with clay on sand stony plains;</li> <li>SP AanApr Erg ErtSie Ptsc Ermu: <i>Acacia aneura</i> spp. (<i>A. aneura</i>, <i>A. incurvaneura</i>), <i>A. pruinocarpa</i> low open woodland over <i>Eremophila galeata</i> tall isolated shrubs over <i>E. latrobei</i>, <i>Sida ectogama</i> mid isolated shrubs over <i>Ptilotus schwartzii</i> low isolated shrubs over <i>Eriachne mucronata</i> low isolated tussock grasses on red/ orange clay loam on quartz and ironstone stony plains; and</li> <li>SP ErgErtSeah PtoPtscSol ErerErmuTrl: <i>Eremophila galeata</i>, <i>E. latrobei</i>, <i>Senna artemisioides</i> subsp. <i>helmsii</i> mid sparse shrubland over <i>Ptilotus obovatus</i> var. <i>obovatus</i>, <i>P. schwartzii</i>, <i>Solanum lasiophyllum</i> low sparse shrubland over <i>Eragrostis eriopoda</i>, <i>Eriachne mucronata</i>, <i>Tripogonella lolliformis</i> low isolated tussock grasses on orange sandy clay loam on quartz stony plains.</li> </ul>
Vegetation condition	<p>The vegetation survey indicate the vegetation within the proposed clearing area is in 'Completely Degraded' to 'Excellent' (Trudgen, 1991) condition, described as</p> <ul style="list-style-type: none"> <li>Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.</li> <li>Very good: Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.</li> <li>Good: More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.</li> <li>Completely Degraded: Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.</li> </ul> <p>The full Trudgen (1991) condition rating scale is provided in Appendix D.</p>
Climate and landform	<p>The application area is located within the Murchison bioregion and has an arid climate with an annual rainfall of approximately 261.0 millimetres (BoM, 2023).</p>
Soil description and land degradation risk	<p>The soils of the application area are broadly mapped as the following soil types:</p> <ul style="list-style-type: none"> <li>279Ar: Arakak system. Broad plains with mantles of ironstone gravel supporting mulga shrublands with wanderrie grasses;</li> <li>279Bu: Bullimore system. Gently undulating sandplain with occasional linear dunes and stripped surfaces supporting spinifex grasslands with mallees and acacia shrubs;</li> <li>279Fx: Felix system. Gently undulating plains with quartz mantles, supporting acacia-eremophila shrublands locally with wanderrie grasses;</li> <li>279Ha; Hamilton system. Hardpan plains, stony plains and incised drainage lines supporting mulga tall shrublands;279Mn: Mindura system. Low hills, ridges and outcrops of granite, gneiss and quartz above convex, quartz-strewn interfluves and lower plains supporting sparse acacia shrublands becoming more dense in drainage floors;</li> <li>279Mt: Mitchell system. Sandplains, wanderrie banks and saltflats, supporting mulga and mallee shrublands with wanderrie grasses and spinifex, chenopod shrublands on saline plains;</li> <li>279Wi: Wiluna system. Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs; and</li> <li>279Yg: Yanganoo system. Almost flat hardpan wash plains, with or without small wanderrie banks and weak growing; supporting mulga shrublands and wanderrie grasses on banks (DPIRD, 2023a; 2023b).</li> </ul> <p>The rangeland survey information for the application area indicates that the land systems in the permit area have a low susceptibility to erosion if cleared of vegetation (DPIRD, 2023a; 2023b).</p>



Characteristic	Details
Waterbodies	There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Numerous seasonal creek lines pass through the application area and there are several floodplains also present (GIS Database). Lake Way (non-perennial salt lake system) is located approximately five kilometres north east of the application area (GIS Database).
Hydrogeography	The application area is not mapped within a proclaimed groundwater area (GIS Database). The proposed area is located within the East Murchison Groundwater Area (GIS Database).
Flora	No Threatened Flora species have been recorded within the application area (Ecoscape, 2021; GIS Database). Five Priority flora species has been previously recorded within the application area and 12 conservation significant flora species could potentially occur (Ecoscape, 2021; GIS Database).
Ecological communities	No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) have been recorded within the application area (Biologic, 2024; Ecoscape, 2021; GIS Database).
Fauna	<p>Ecoscape undertook the fauna survey from 21-25 April 2021, which was followed by a targeted vertebrate fauna survey from 3-11 November 2021 (Ecoscape, 2021; 2022). Eleven fauna habitats were identified within the survey area, four of these habitats intersected the permit area:</p> <ul style="list-style-type: none"> <li>• <b>Hillcrest/ Hillslope:</b> Mulga Shrubland on Rocky Rise. Stony areas with exposed rock and scattered shrubs. Rock slabs and dead wood may provide shelter for smaller vertebrate species, including the Long-tailed Dunnart.</li> <li>• <b>Hillcrest/ Hillslope:</b> Shrubland on Stony Rise. Areas of a gradual rise with scattered shrubs on stony substrate providing open habitat for reptile species. Where trees are present, they may provide elevation for predatory bird species.</li> <li>• <b>Mulga Woodland:</b> Dense Mulga. Dense Mulga woodland on clay soils generally associated with drainage lines. Suitable for perching bird species. Introduced predators may utilise these habitats for shelter and passage within the landscape.</li> <li>• <b>Sand Plain:</b> Sandplain of scattered Mulga shrubs over Spinifex hummocks. Suitable for fauna species utilising shelter provided by Spinifex habitats such as the Military Dragon and <i>Ctenotus</i> sp.; and</li> <li>• <b>Stony Plain:</b> Shrubland of Mulga and mixed shrubs with sparse groundcover on clay soil with open areas of clay soil or stony plains. It is likely to be suitable for grazing species such as Red Kangaroo, dragon species utilising open areas for foraging such as <i>Ctenophorus scutulatus</i> and nectivorous bird species such as White-Fronted Honeyeater particularly when shrubs of <i>Eremophila</i> are also present.</li> </ul> <p>No conservation significant fauna species were recorded during the fauna surveys (Ecoscape, 2021; 2022). Twenty-one conservation significant fauna species may potentially occur within the application area (Ecoscape, 2021; 2022; GIS Database).</p>

## B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion Murchison	28,120,586.77	28,044,823.42	99.73	2,185,987.96	7.77
Beard vegetation associations - State					
Veg Assoc No. 18	19,892,306.46	19,843,148.07	99.75	1,317,179.00	6.62
Veg Assoc No. 107	2,815,387.35	2,813,995.93	99.95	324,942.56	11.54
Beard vegetation associations - Bioregion					
Veg Assoc No. 18	12,403,172.30	12,363,252.47	99.68	614,964.13	4.96
Veg Assoc No. 107	2,792,383.45	2,790,992.03	99.95	324,017.26	11.60

Government of Western Australia (2019)

## B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
<i>Anacampseros</i> sp. Eremaean (F. Hort, J. Hort & J. Shanks 3248)	1	N	<40	8
<i>Atriplex yeelirrie</i>	T	N	<40	46
<i>Austroparmelina macrospora</i>	3	N	<40	53
<i>Bossiaea eremaea</i>	3	N	<40	18
<i>Calandrinia mirabilis</i>	1	N	<40	7
<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	3	Y	<5	17
<i>Eremophila arguta</i>	1	N	<40	7
<i>Eremophila congesta</i>	1	N	<5	18
<i>Eremophila pungens</i>	4	Y	0	45
<i>Eremophila regia</i>	1	N	<40	5
<i>Eremophila</i> sp. long pedicels (G. Cockerton 1975)	2	Y	<20	4
<i>Euryomyrtus inflata</i>	3	N	<20	11
<i>Frankenia confusa</i>	4	Y	<5	29
<i>Goodenia modesta</i>	3	Y	<40	27
<i>Grevillea inconspicua</i>	4	Y	<20	61
<i>Hemigenia exilis</i>	4	Y	<10	44
<i>Hibbertia</i> sp. Sherwood Breakaways (R.J. Cranfield 6771)	2	Y	<40	11
<i>Homalocalyx echinulatus</i>	3	N	<40	34
<i>Indigofera rotula</i>	3	N	<40	16
<i>Olearia arida</i>	4	N	<40	25
<i>Olearia mucronata</i>	3	N	<10	14
<i>Paspalidium distans</i>	4	Y	<5	3
<i>Pigea</i> sp. <i>Chloroxantha</i> (E. Bennett & D. Bright EUC 1810)	3	Y	<10	26
<i>Ptilotus luteolus</i>	3	N	<40	20
<i>Sida picklesiana</i>	3	Y	0	31
<i>Stackhousia clementii</i>	3	Y	<5	22
<i>Tecticornia cymbiformis</i>	3	N	<40	16
<i>Tecticornia enodis</i>	1	Y	<5	19
<i>Tecticornia</i> sp. Lake Way (P. Armstrong 05/961)	1	Y	<10	8
<i>Thryptomene</i> sp. Leinster (B.J. Lepschi & L.A. Craven 4362)	3	Y	0	25
<i>Tribulus adelacanthus</i>	3	Y	0	18
<i>Verticordia jamiesonii</i>	3	Y	<40	35
<i>Vittadinia pustulata</i>	3	Y	0	11
<i>Xanthoparmelia nashii</i>	3	N	<40	17

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

#### B.4. Fauna analysis table

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Actitis hypoleucos</i>	common sandpiper	MI	Y	<40
<i>Amytornis striatus striatus</i>	striated grasswren (sandplain)	P4	Y	<40

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Apus pacificus</i>	fork-tailed swift	MI	Y	<40
<i>Calidris acuminata</i>	sharp-tailed sandpiper	MI	Y	<40
<i>Calidris alba</i>	sanderling	MI	N	<40
<i>Calidris melanotos</i>	pectoral sandpiper	MI	Y	<40
<i>Calidris ruficollis</i>	red-necked stint	MI	Y	<40
<i>Calidris subminuta</i>	long-toed stint	MI	Y	<40
<i>Charadrius veredus</i>	oriental plover	MI	N	<40
<i>Dasycercus blythi</i>	brush-tailed mulgara	P4	Y	<5
<i>Dasycercus sp.</i>	Mulgara sp.	P4	Y	<40
<i>Falco peregrinus</i>	peregrine falcon	OS	Y	<40
<i>Gelochelidon nilotica</i>	gull-billed tern	MI	Y	<40
<i>Glareola maldivarum</i>	oriental pratincole	MI	Y	<40
<i>Idiosoma clypeatum</i>	northern shield-backed trapdoor spider	P3	Y	<20
<i>Kwonkan moriartii</i>	Moriarty's trapdoor spider	P2	Y	<40
<i>Leipoa ocellata</i>	malleefowl	VU	Y	<40
<i>Leporillus conditor</i>	greater stick-nest rat, wopilkara	OS	N	<40
<i>Liopholis kintorei</i>	great desert skink	VU	N	<40
<i>Macrotis lagotis</i>	bilby, dalgyte, ninu	VU	Y	<40
<i>Petrogale lateralis lateralis</i>	black-flanked rock-wallaby	EN	Y	<10
<i>Plegadis falcinellus</i>	glossy ibis	MI	Y	<40
<i>Pluvialis fulva</i>	Pacific golden plover	MI	Y	<40
<i>Polytelis alexandrae</i>	princess parrot	P4	N	<40
<i>Tringa glareola</i>	wood sandpiper	MI	Y	<40
<i>Tringa nebularia</i>	common greenshank	MI	Y	<40

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: Other Specially Protected, MI: Migratory

### Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The clearing permit area is located within the Eastern Murchison subregion of the Interim Biogeographic Regionalisation for Australia Bioregion (GIS Database). Several conservation significant species may occur within the application area (Ecoscape, 2021; 2022; GIS Database). The vegetation associations recorded within the application area are found extensively outside the application area.</p>	At variance	Yes  Refer to Section 3.2.1, above.
<p><u>Principle (b):</u> "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."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains foraging habitat for several conservation significant fauna (Ecoscape, 2021; 2022).</p>	May be at variance	Yes  Refer to Section 3.2.2, above.
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
There are no known records of Threatened flora within the application area (GIS Database). Flora surveys of the application area did not record any species of Threatened flora (Biologic, 2024; Botanica, 2020; Ecoscape, 2021; GIS Database).		
<p><b>Principle (d):</b> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>There are no known Threatened Ecological Communities (TECs) located within the application area and the flora and vegetation surveys did not identify any TECs (Biologic, 2024; Botanica, 2020; Ecoscape, 2021; GIS Database).</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><b>Principle (e):</b> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No
<p><b>Principle (h):</b> <i>“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></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas (GIS Database).</p>	Not likely to be at variance	No
<b>Environmental value: land and water resources</b>		
<p><b>Principle (f):</b> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given several ephemeral drainage lines transect the application area, the proposed clearing is likely to impact on- or off-site hydrology and water quality. This may be managed through a flora management condition which requires riparian vegetation to be avoided where possible and waterflow to be maintained.</p>	At variance	No
<p><b>Principle (g):</b> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The rangeland survey information for the application area indicates that the land systems in the permit area have a low susceptibility to erosion if cleared of vegetation (DPIRD, 2023).</p>	Not likely to be at variance	No
<p><b>Principle (i):</b> <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.”</i></p> <p><u>Assessment:</u></p> <p>Given several ephemeral drainage lines transect the application area, the proposed clearing is likely to impact surface of groundwater quality. This may be managed through a flora management condition which requires riparian vegetation to be avoided where possible and waterflow to be maintained.</p>	May be at variance	No
<p><b>Principle (j):</b> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>There are no permanent water courses or waterbodies within the application area, however several ephemeral drainage lines transect the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.		

## Appendix D. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

### Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

## Appendix E. Sources of information

### E.1. GIS databases

Publicly available GIS Databases used (sourced from [www.data.wa.gov.au](http://www.data.wa.gov.au)):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas

- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

## E.2. References

- BHP (2023) Clearing permit application form, CPS 10297/1, received 8 August 2023.
- Biologic (2023) Honeymoon Well Short-Range Endemic Invertebrate Fauna Survey. Report prepared for BHP Nickel West Pty Ltd, July 2023.
- Biologic (2024) Honeymoon Well Two-season Detailed Flora & Vegetation Survey. Report prepared for BHP Nickel West Pty Ltd, March 2024.
- Botanica Consulting (2020) Detailed Flora & Vegetation Survey Lake Way Potash Project Prepared For Salt Lake Potash Limited. Report prepared for Salt Lake Potash Limited, May 2020.
- Bureau of Meteorology (BoM) (2023) Bureau of Meteorology Website – Climate Data Online, Weather Station – Wiluna (013012). Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 27 September 2023).
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024) Species Profile and Threats Database (SPRAT). Available from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> (Accessed 26 October 2023).
- Department of Environment Regulation (DER) (2014) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf)
- Department of Planning, Lands and Heritage (DPLH) (2023) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 9 September 2023).
- Department of Primary Industries and Regional Development (DPIRD) (2023a) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://dpiird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f> (Accessed 9 September 2023).
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- Department of Water and Environmental Regulation (DWER) (2021) Procedure: Native vegetation clearing permits. Joondalup. Available from: [https://dwer.wa.gov.au/sites/default/files/Procedure\\_Native\\_vegetation\\_clearing\\_permits\\_v1.pdf](https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.pdf)
- Ecoscape (2021) Honeymoon Well Flora, Vegetation and Vertebrate Fauna Survey. Prepared for BHP Nickel West, August 2021.
- Ecoscape (2022) Honeymoon Well (Wedgetail) Targeted Vertebrae Fauna Survey. Prepared for BHP Nickel West, March 2022.
- Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: [http://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey\\_Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf)
- Environmental Protection Authority (EPA) (2020) Technical Guidance – Terrestrial Fauna Surveys. Available from: [https://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf](https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf)
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- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 26 October 2023).

## Glossary

### Acronyms:

**BC Act** *Biodiversity Conservation Act 2016, Western Australia*

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia (now DPLH)
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia (now DPIRD)
<b>DCCEEW</b>	Department of Climate Change, Energy, the Environment and Water, Australian Government
<b>DBCA</b>	Department of Biodiversity, Conservation and Attractions, Western Australia
<b>DER</b>	Department of Environment Regulation, Western Australia (now DWER)
<b>DMIRS</b>	Department of Mines, Industry Regulation and Safety, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia (now DMIRS)
<b>DoEE</b>	Department of the Environment and Energy (now DCCEEW)
<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<b>DPIRD</b>	Department of Primary Industries and Regional Development, Western Australia
<b>DPLH</b>	Department of Planning, Lands and Heritage, Western Australia
<b>DRF</b>	Declared Rare Flora (now known as Threatened Flora)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>TEC</b>	Threatened Ecological Community

### Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

#### **T** Threatened species:

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

**Threatened fauna** is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

**Threatened flora** is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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 in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

#### **EN** **Endangered species**

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

#### **VU** **Vulnerable species**

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

**Extinct Species:**

**EX**

**Extinct species**

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

**EW**

**Extinct in the wild species**

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

**Specially protected species:**

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

**MI**

**Migratory species**

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes 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 fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**CD**

**Species of special conservation interest (conservation dependent fauna)**

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**OS**

**Other specially protected species**

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

**P**

**Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species 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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened 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 the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.