

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	2552/9
Permit type:	Purpose Permit
Applicant name:	Robe River Limited
Application received:	18 May 2023
Application area:	150 hectares
Purpose of clearing:	Mineral exploration, hydrological drilling, geotechnical investigations, bore field and associated activities, hydrogeological monitoring, environmental surveys and monitoring, Aboriginal heritage surveys and access.
Method of clearing:	Mechanical Removal
Tenure:	<i>Iron Ore (Robe River) Agreement Act 1964</i> Mineral Lease 248SA (AML 70/248)
Location (LGA area/s):	Shire of Ashburton
Colloquial name:	Bungaroo Mineral and Hydrological Exploration

1.2. Description of clearing activities

Robe River Limited proposes to clear up to 150 hectares of native vegetation within a boundary of approximately 2,995 hectares, for the purpose of mineral exploration, hydrological drilling, geotechnical investigations, bore field and associated activities, hydrogeological monitoring, environmental surveys and monitoring, Aboriginal heritage surveys and access. The project is located approximately 130 kilometres east of Onslow, within the Shire of Ashburton.

Clearing permit CPS 2552/1 was granted by the Department of Mines, Industry Regulation and Safety (Department of Energy, Mines, Industry Regulation and Safety) on 21 August 2008 and was valid from 20 September 2008 to 31 July 2013. The permit authorised the clearing of up to 21 hectares of native vegetation within an area of approximately 178 hectares, for the purpose of mineral production and associated activities.

Amended permit CPS 2552/2 was granted on 11 March 2010 to extend the timeframe to complete rehabilitation from 6 months to 12 months following clearing.

The Department of Mines, Industry Regulation and Safety initiated an amendment (CPS 2552/3) to the permit on 30 October 2012 to correct an administrative error. The clearing area and permit boundary remained unchanged.

Amended permit CPS 2552/4 was granted on 23 October 2014, increasing the permit boundary from 178 hectares to approximately 2,307 hectares. The area of clearing authorised remained unchanged.

CPS 2552/5 was granted on 9 July 2015, increasing the authorised clearing from 21 hectares to 25 hectares, increasing the permit boundary from approximately 2,307 hectares to approximately 3,086 hectares, adding hydrological drilling, geotechnical investigations and associated activities to the purpose on the permit and extending the duration of the permit by an additional five years.

CPS 2552/5 was amended on 7 April 2016 to increase the area approved to clear from 25 hectares to 150 hectares, and to amend the annual reporting date from 31 July to 30 June each year. There was no change to the permit boundary.

CPS 2552/6 was amended 3 May 2018 to include bore field as a purpose of clearing. The amount of clearing authorised and the clearing boundary remained unchanged. On 3 March 2020, the Permit Holder applied to amend CPS 2552/7 to extend the period in which clearing is authorised and extend the permit duration.

On 18 May 2023, the Permit Holder has applied to amend clearing permit CPS 2552/8 to extend the period in which clearing is authorised by five years, adding hydrogeological monitoring, environmental surveys and monitoring, Aboriginal heritage surveys and access to the purpose on the permit. Subsequently the permit duration also had to be extended by five years to allow for the completion of the rehabilitation requirements.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	18 December 2023
Decision area:	150 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51KA(1) 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) on 18 May 2023. DMIRS advertised the application for public comment for a period of 7 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics, relevant datasets, supporting information provided by the applicant including the results of a flora and vegetation survey and fauna survey, the clearing principles set out in Schedule 5 of the EP Act, and any other matters considered relevant to the assessment. The assessment also identified a potential impact on significant fauna habitats which have been excised from the application area.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures, the Delegated Officer determined that extending the period in which clearing is authorised and the permit duration by a further five years is not likely to lead to an unacceptable risk to the environment. The Delegated Officer decided to grant a clearing permit with existing and new management conditions.

1.5. Site map

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

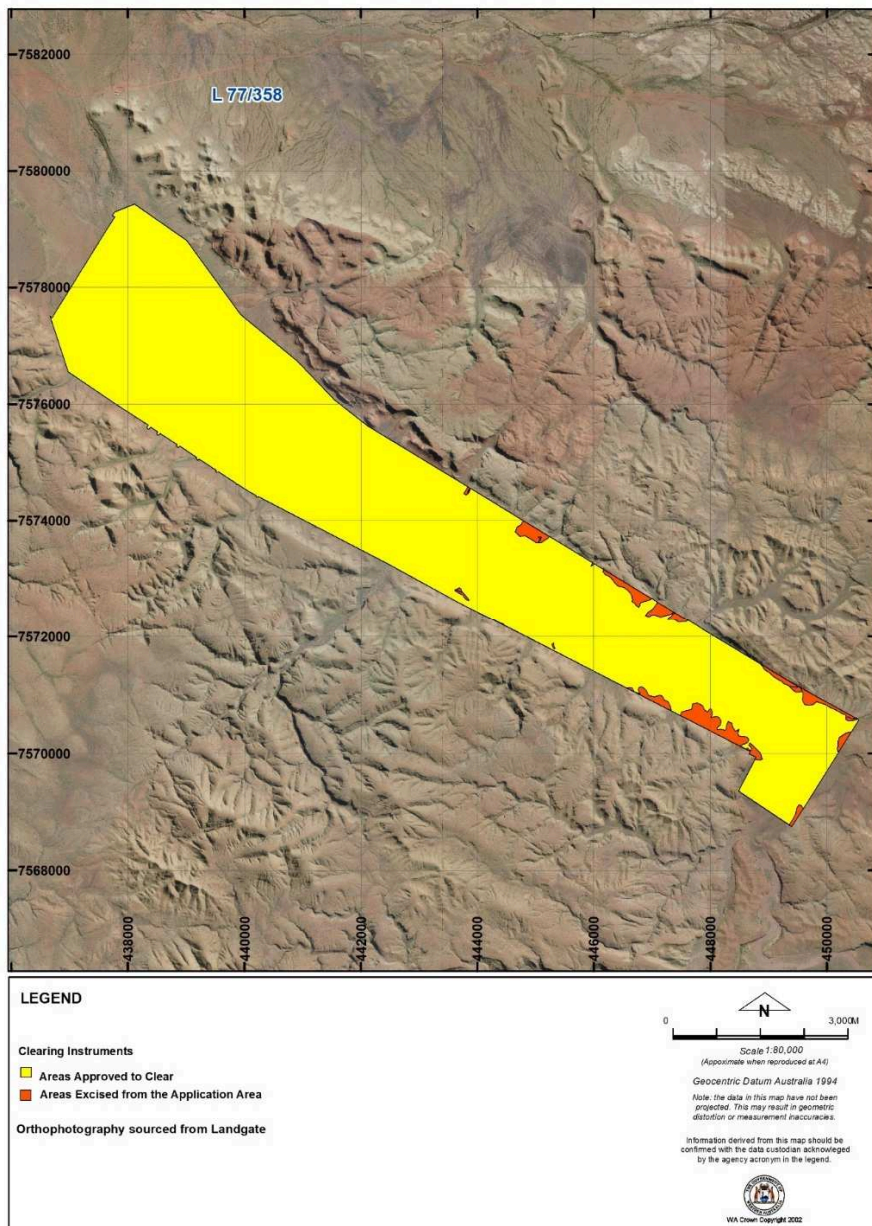


Figure 1. Map of the application area. The yellow area indicates the area approved to clear and the orange areas indicate the areas removed from the application area.

2. Assessment of application

2.1. Avoidance and mitigation measures

During the assessment, and following discussions with the department, the applicant reduced the permit boundary in order to exclude areas where habitats for conservation significant fauna occur, i.e. ghost bats, Pilbara leaf nose bats, Pilbara olive python, northern quoll and potential others.

Robe River Limited (2023a) has implemented the following avoidance and mitigation measures:

- Excluded high-value fauna habitats, i.e. gorges, breakaways, and rock hill zones from the application area;
- Excluded a few roosting sites/caves for ghost bat and Pilbara leaf-nosed bat and semi-permanent pools from the application area; and
- Reduced the application area by 91 hectares to a total of approximately 2,995 hectares (section 1.5 – Site Map).

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.

2.2. Assessment of impacts on environmental values

The proponent has reported that as of the 31 December 2021, 8.03 hectares has been cleared to date with 7.67 hectares rehabilitated pursuant to permit CPS 2552/8 (Robe River Limited, 2023b).

The environmental values of the application area are described in previous versions of the Decision Report, based on multiple biological surveys and desktop assessments.

To support this current administrative amendment, the proponent collated multiple biological surveys undertaken over the application area and its surroundings since the original approval and subsequent amendments. The amalgamated document 'pro-forma' serves as desktop assessment of existing biological data (Robe River Limited, 2023b). Therefore, the potential environmental impacts were revised and updated.

There are eight fauna habitats mapped within the application area, including breakaways, rocky hills, major drainage lines and minor drainages lines, which are suitable habitats for several vertebrate conservation significant fauna species, i.e. ghost bats, Pilbara leaf-nosed bat, northern quoll, Pilbara olive python and lined soil-crevice skink (Robe River Limited, 2023b; GIS Database). None of the fauna habitats are unique to the application area, nor are they restricted at the local or regional scale as they also occur outside of the application area (Robe River Limited, 2023b). However, these habitats provide moderate to high value habitat to these species (Robe River Limited, 2023b). The proponent has excised high value conservation significant fauna habitats from the application area, i.e. breakaways, gorges and rocky hill zones, and also excluded the roosting/caves sites and semi-permanent pools recorded within the application area identified by Astron (2015a) (Robe River Limited, 2023a).

Robe River Limited (2023b) advise that only two of the eight potential short range endemics (SRE) recorded during the survey were identified within the application area, i.e. *Buddelundia* '61' and *Buddelundiinae* sp.. Most of the potential short range endemic species have been collected from habitats that are widespread and well connected in the survey area, which extends beyond the application area (Astron, 2015a). Minor drainage line and gorge habitats often occur in close association and provide the most suitable habitat for short range endemic fauna (Astron, 2015a). This habitat may contain more tightly restricted species, but this habitat type covers only 0.8% of the survey area (Astron, 2015a). Nonetheless, the mapped gorge habitats have been removed from the application area, and therefore, potential impacts to this specific habitat are likely to be low.

Five vegetation types identified within the application area are considered locally significant due to their association with Priority flora species (Astron, 2015b; Robe River Limited, 2023b). One of these vegetation types (EICfAprEm) had multiple records of all Priority flora species recorded in the survey (Astron, 2015b; Robe River Limited, 2023b):

- *Indigofera rivularis* – P3 (previously known as *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301);
- *Rhynchosia bungarensis* – P4 (previously P3); and
- *Stylidium weeliwollii* – P3 (previously P2)

However, some of the species previously recorded are no longer listed as conservation significant (Astron, 2015b; Robe River Limited, 2023b):

- *Sida arsiniata* – previously P3 and known as *Sida* sp. Wittenoom (W.R. Barker 1962);
- *Abutilon* sp. Pilbara (W.R. Barker 2025 - previously P3 and known as *Abutilon trudgenii*; and
- *Vincetoxicum flexuosum* – previously P3 and known as *Cynanchum* sp. Hamersley (M. Trudgen 2302).

The EICfAprEm vegetation association is typically recorded in sheltered gullies and rocky walls within the survey area (Astron, 2015b). Some of the gullies within the survey area are likely to be of greater local significance than others, depending on the aspect, presence of semi-permanent water, floristic composition, Priority flora and fire history (Astron, 2015b). Considering that the proponent removed the mapped gorges/gullies, breakaways, rocky hills, and other high value habitats from the application

area, the proposed clearing activities are unlikely to impact the locally significant vegetation associations, including the EICfAprEm, and the Priority flora species associated within them.

There are no Threatened Ecological Communities (TEC) within the application area; however, it falls within the Priority 1 'Stygofaunal community of the Bungaroo Aquifer' Priority Ecological Community (PEC) (Biota, 2013 Robe River Limited, 2023b). This PEC is an aquatic subterranean fauna assemblage and only a small portion of vegetation is expected to be cleared (Rio Tinto, 2015). Thus, the removal of native vegetation on the surface is unlikely to impact this aquatic subterranean PEC fauna community or their conservation status (Rio Tinto, 2015). As the proposed amendment will not increase the area to be cleared, the proposed amendment is not likely to have a greater impact than what was approved under previous clearing permits.

The application area is located within the Bungaroo Creek Water Reserve which has been proclaimed as a Public Drinking Water Source Area (PDWSA) under the *Country Areas Water Supply (CAWS) Act 1947* (GIS Database). The Department of Water and Environmental Regulation (DWER) provided advice for previous amendments and identified that the clearing within the PDWSA was significant and that all activities within the water reserve should be conducted in accordance with Water Quality Protection Notes and Guidelines, to minimise potential impacts to water quality (DWER, 2016). Any groundwater extraction will be subject to a licence by the Department of Water and Environmental Regulation. Provided activities are carried out in accordance with best practice management and follow Water Quality Protection Notes and Guidelines, the proposed activities are not likely to have a significant impact on surface or ground water quality (DWER, 2018).

The amendment application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*. Environmental information has been reviewed, and the assessment of the proposed clearing against the clearing principles remains consistent with the assessment contained within previous versions of the decision report: principle (f) is at variance, principle (a) may be at variance, principles (b), (c), (d), (g), (h), (i) and (j) are not likely to be at variance, principles (e) is not at variance.

2.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 28 July 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 are two native title claims (WAD6090/1998 and WAD6090/1998) over the area under application (DPLH, 2023). These claims have been by the Federal Court on behalf of the claimant groups. 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 numerous 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 Programme of Work 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.

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 130 kilometres east of Onslow, within the Shire of Ashburton in the extensive land use zone (GIS Database). The predominant land use in the region is grazing of native pastures, conservation and mining activity.
Ecological linkage & Conservation areas	According to available databases, the application area does not contain any known or mapped ecological linkages, nor is it located within or in close proximity to any conservation areas (50 kilometres radius) (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations (GIS Database): 609: Mosaic: Hummock grasslands; open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifexes / Hummock grasslands, open low tree steppe; snappy gum over <i>Triodia wiseana</i> on a lateritic crust.

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

Biota Environmental Science and Rio Tinto conducted multiple flora and vegetation surveys over the application area since 2007. Astron undertook the latest vegetation and flora survey in August 2015, and the following vegetation associations were identified within the application area and its surroundings:

Hilltops, hillcrests and breakaways

AaAbTwTspR *Acacia ancistrocarpa*, *A. bivenosa* scattered shrubs to open shrubland over *Triodia wiseana* (*T. sp.* Robe River (M.E. Trudgen et al. MET 12367)) open hummock grassland.

AbTw *Acacia bivenosa* open shrubland over *Triodia wiseana* open hummock grassland.

AiAptTw *Acacia inaequilatera* scattered shrubs over *A. ptychophylla* low open shrubland over *Triodia wiseana* hummock grassland.

AiTw *Acacia inaequilatera* tall open shrubland over *Triodia wiseana* hummock grassland.

ChAtuAmoSsGOrTe *Corymbia hamersleyana* scattered low trees over *Acacia tumida* var. *pilbarensis*, *A. monticola*, *Stylobasium spathulatum*, *Gossypium robinsonii* tall open shrubland to tall shrubland over *Triodia epactia* open hummock grassland.

Grevillea wickhamii and/ or *Acacia maitlandii* may also be dominant or characteristic species in this vegetation.

ChAiTw *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over mixed scattered shrubs over *Triodia wiseana* open hummock grassland.

EIAbTw *Eucalyptus leucophloia* subsp. *leucophloia* scattered trees to low open woodland over *Acacia bivenosa* scattered low shrubs over *Triodia wiseana* hummock grassland.

EIAiAbTw *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia inaequilatera*, *A. bivenosa* scattered tall shrubs over *Triodia wiseana* hummock grassland.

EIAiTwTspR *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *Acacia inaequilatera* scattered tall shrubs to tall open shrubland over *Triodia wiseana* and *T. sp.* Robe River (M.E. Trudgen et al. MET 12367) hummock grassland.

EIAprTwTspR *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *Acacia pruinocarpa* tall open shrubland over *Triodia wiseana* (*T. sp.* Robe River (M.E. Trudgen et al. MET 12367)) open hummock grassland.

EICfAprEm *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia ferriticola*, *Acacia pruinocarpa* scattered low trees to low open woodland over *Triodia epactia* very open hummock grassland and *Eriachne mucronata*, *Themeda triandra*, *Cymbopogon ambiguus* very open tussock grassland.

EITw *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Triodia wiseana* open hummock grassland to hummock grassland.

Tw *Triodia wiseana* hummock grassland.

TwTspR *Triodia wiseana*, *T. sp.* Robe River (M.E. Trudgen et al. MET 12367).

Plains

AaTeTw *Acacia ancistrocarpa* tall open shrubland over *Triodia epactia* (*T. wiseana*) hummock grassland.

ChAcGOaCspp *Corymbia hamersleyana* scattered low trees over *Acacia coleii* var. *ileocarpa* tall open scrub over *Gossypium australe* scattered shrubs over **Cenchrus ciliaris*, **C. setiger* open tussock grassland.

AiAaAbTw *Acacia bivenosa*, *A. ancistrocarpa* (*A. inaequilatera*) open shrubland over *Triodia wiseana* open hummock grassland. *Corymbia hamersleyana* is often present as occasional to scattered low trees throughout this vegetation.

AiTe *Acacia inaequilatera* tall open shrubland over *Triodia epactia* hummock grassland.

AxTe *Acacia xiphophylla* tall open shrubland over *Triodia epactia* (*T. wiseana*) open hummock grassland.

ChAbTe *Corymbia hamersleyana* scattered low trees over *Acacia bivenosa* open shrubland over *Triodia epactia* hummock grassland.

ChAiTe *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera* scattered shrubs over *Triodia epactia* hummock grassland.

Floodplains

AcTe *Acacia colei* var. *ileocarpa* tall open shrubland over *Triodia epactia* hummock grassland.

ApyGOaGpyTeTw *Acacia pyrifolia*, *Gossypium australe*, *Grevillea pyramidalis* shrubland to tall shrubland over *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) low open shrubland over *Triodia epactia*, *T. wiseana* open hummock grassland.

ApyTeCspp *Acacia pyrifolia* scattered tall shrubs over *Triodia epactia* hummock grassland
**Cenchrus setiger*, **C. ciliaris* scattered tussock grasses.

Corymbia hamersleyana may form a scattered to low open woodland overstorey and *Grevillea pyramidalis* subsp. *leucadendron* may also be characteristic in the tall shrub stratum of this vegetation.

AscAsyCsppTe *Acacia sclerosperma*, *A. synchronica* scattered tall shrubs to tall open shrubland over **Cenchrus setiger*, **C. ciliaris* open tussock grassland and *Triodia epactia* very open hummock grassland.

AtTeCspp *Acacia trachycarpa* scattered tall shrubs to tall open shrubland over *Triodia epactia* open hummock grassland and **Cenchrus setiger*, **C. ciliaris* open tussock grassland.

ChGpTe *Corymbia hamersleyana* scattered low trees over *Grevillea pyramidalis* subsp. *leucadendron* scattered tall shrubs over *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) scattered low shrubs over *Triodia epactia* hummock grassland.

CsppTe **Cenchrus setiger*, **C. ciliaris* tussock grassland and *Triodia epactia* scattered hummock grasses to very open hummock grassland.

ExAscCsppTe *Eucalyptus xerothermica* open woodland over *Acacia sclerosperma* tall open shrubland over **Cenchrus setiger*, **C. ciliaris* open tussock grassland over *Triodia epactia* very open hummock grassland.

Minor and major drainage

CcTeTw *Corymbia candida* low woodland over *Triodia epactia* and/or *T. wiseana* open hummock grassland.

ChAiApyTe *Corymbia hamersleyana* open woodland over *Acacia inaequilatera*, *A. pyrifolia* tall open shrubland over *Triodia epactia* hummock grassland.

ChAtuGOOrAcTeCspp *Corymbia hamersleyana* scattered low trees to low open woodland over *Acacia tumida* var. *pilbarensis*, *Gossypium robinsonii*, *A. colei* var. *ileocarpa* tall open shrubland to tall shrubland over *Triodia epactia* very open hummock grassland and **Cenchrus setiger*, **C. ciliaris* open tussock grassland.

ChAsppTeTwCspp *Corymbia hamersleyana* scattered low trees over *Acacia* species tall shrubland over *Triodia epactia*, *T. wiseana* very open hummock grassland and **Cenchrus setiger*, **C. ciliaris* very open tussock grassland.

Acacia colei var. *ileocarpa* and/or *A. elachantha* and/or *A. tumida* var. *pilbarensis* and/or *A. inaequilatera* are the characteristic tall *Acacia* species in this vegetation. *Gossypium robinsonii* and *Grevillea wickhamii* are other commonly occurring tall shrubs species.

ChAtuTe *Corymbia hamersleyana* scattered low trees over *Acacia tumida* var. *pilbarensis* closed heath over *Triodia epactia* hummock grassland.

	<p>ChAtuTw <i>Corymbia hamersleyana</i> scattered low trees to low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> (<i>A. ancistrocarpa</i>) open shrubland to shrubland over <i>Triodia wiseana</i> open hummock grassland.</p> <p>EcAcGORCsppteCv <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> woodland over <i>Acacia coleii</i> var. <i>ileocarpa</i>, <i>Gossypium robinsonii</i> tall shrubland over *<i>Cenchrus setiger</i>, <i>Eulalia aurea</i>, *<i>C. ciliaris</i> tussock grassland, <i>Triodia epactia</i> very open hummock grassland and <i>Cyperus vaginatus</i> scattered sedges.</p> <p>EcEvApyAtrTeCspp <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> and/or <i>E. victrix</i> scattered low trees over <i>Acacia pyrifolia</i>, <i>A. trachycarpa</i> open shrubland over <i>Triodia epactia</i> open hummock grassland and *<i>Cenchrus setiger</i>, *<i>C. ciliaris</i> open tussock grassland.</p> <p>TspFCEs <i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186) scattered low shrubs to low shrubland over <i>Euphorbia schultzii</i>, <i>Cleome viscosa</i>, <i>Gomphrena cunninghamii</i> very open hermland.</p> <p>Disturbed - Areas previously cleared for mining activities.</p>
Vegetation condition	<p>The vegetation survey (Astron, 2015) indicates the vegetation within the proposed clearing area is in excellent to completely degraded condition (Trudgen, 1991), described as:</p> <ul style="list-style-type: none"> Excellent - Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. <p>to</p> <ul style="list-style-type: none"> 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. <p>Part of the application area has previously been cleared for mining activities (Rio Tinto, 2023).</p>
Climate and landform	<p>The application area is mapped within elevations of 260 – 360 meters AHD (GIS Database). The climate of the region is grassland, and the annual rainfall average of approximately 299.5 millimetres (BoM, 2023).</p>
Soil description & Land degradation risk	<p>The soil is mapped as part of the following soil systems (DPIRD, 2023):</p> <ul style="list-style-type: none"> Urandy system (285Uy): Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands. This land system comprises the majority of the application area. Boolgeeda system (285Bg): Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands. Newman system (285Ne): Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. <p>These systems are not susceptible to erosion (DPIRD, 2023; GIS Database).</p>
Waterbodies & Hydrogeography	<p>Three ephemeral drainage lines run across the application area (GIS Database). The application area is located within the Public Drinking Water Source Area (Bungaroo Creek Water Reserve) (GIS Database). The mapped groundwater salinity is 500 – 1,000 milligrams per litre total dissolved solids which is described as marginal (GIS Database).</p>
Flora	<p>There are three Priority flora species within application area but no records of Threatened flora species (Rio Tinto, 2023).</p>
Ecological communities	<p>There are no mapped Threatened Ecological Communities (TEC) within the application area; however, the application area lies within the Stygofaunal Community of the Bungaroo Aquifer Priority Ecological Community (PEC) – P1 (Rio Tinto, 2023; GIS Database).</p>
Fauna	<p>There are several records of conservation significant fauna species and eight fauna habitats identified within the application area (GIS Database).</p>

Appendix B. 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 C. Source of Information

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- 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)
- IBRA Vegetation Statistics
- Regional Parks (DBCA-026)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

2. References

- Astron (2015a) Bungaroo Iron Ore Mine and Infrastructure Project Level 2 Fauna Assessment. Prepared for Rio Tinto by Astron Environmental Services Pty Ltd, August 2015.
- Astron (2015b) Bungaroo Iron Ore Mine and Infrastructure Project Level 2 Vegetation and Flora Assessment. Prepared for Rio Tinto by Astron Environmental Services Pty Ltd, August 2015.

- Biota Environmental Sciences (2007) A Vegetation and Seasonal Flora Survey of the Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica, and Sampling of the Broader Bungaroo Valley. Prepared for Robe River Iron Associates.
- Biota Environmental Sciences (Biota) (2013) Bungaroo Coastal Waters Project Stygofauna Monitoring Baseline Survey.
- BoM (2023) Bureau of Meteorology Website – Climate Data Online, Yarraloola Homestead. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 13 September 2023).
- Department of Environment Regulation (DER) (2013) *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.
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3. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
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)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

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.