



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10176/1
Permit type:	Purpose Permit
Applicant name:	North West Quarries
Application received:	3 May 2023
Application area:	72.6 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 45/258
Location (LGA area):	Town of Port Hedland
Colloquial name:	Pippingarra Quarry

1.2. Description of clearing activities

North West Quarries Pty Ltd proposes to clear up to 72.6 hectares of native vegetation within a boundary of approximately 72.6 hectares, for the purpose of mining related infrastructure. The project is located approximately 32 kilometres southeast of Port Hedland, within the Town of Port Hedland.

The application is to allow for mineral production and associated activities including; a granite quarry, a borrow pit, a permanent camp site, a magazine site and associated roads and support infrastructure (Northwest Quarries, 2023).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	12 September 2023
Decision area:	72.6 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) on 3 May 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 D), 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 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

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; and
- pre-clearance survey for *Dasyurus hallucatus*.

1.5. Site map

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

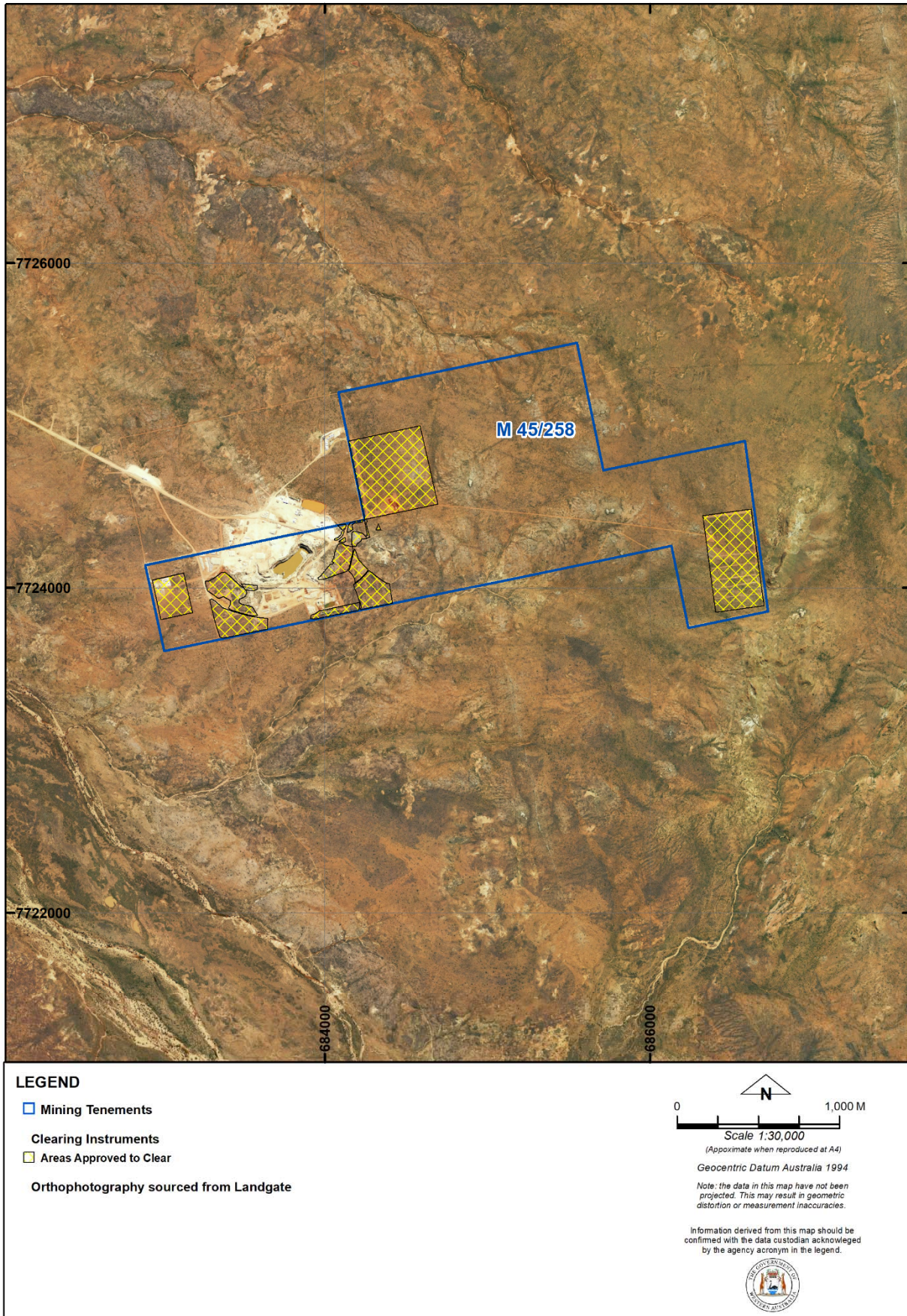


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

2. 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)
- *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)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

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

- other mineral extraction opportunities such as underground extraction were considered to minimise the amount of vegetation required to be cleared but was found not feasible;
- efforts have been made to minimise ground disturbance; and
- pre-existing tracks will be used where possible (Northwest Quarries, 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.

3.2. 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.

3.2.1. Biological values (flora) - Clearing Principle (a)

Assessment

A flora and vegetation survey was undertaken over the application area, in July 2011 by botanists from Ecoscape. A total of 39 species, from 15 families and 25 genera were recorded within the survey area (Ecoscape, 2011). One conservation significant flora species was recorded within the application area, *Euploca mutica* (previously named *Heliotropium muticum*). Ecoscape carried out a targeted flora survey for *Euploca mutica* in June 2012 by botanists from Ecoscape in order to delineate the identified population.

Euploca mutica, Priority 3, is an ascending to spreading perennial herb which can be found inhabiting flat plains with red silty sand, red brown sandy loam or calcareous soils (Western Australian Herbarium, 1998-). The species is known from 76 locations from the WA Herbarium from the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region (Western Australian Herbarium, 1998-). The targeted flora survey identified 212 individuals of this species within the local area, with 16 individuals located within the application area, impacting 7% of the local population. The proposed clearing is unlikely to significantly impact the regional population (Ecoscape 2011; 2012). Impacts to this species can be managed through the avoid and minimise condition.

The following nine conservation significant flora species were not identified during past surveys, however suitable habitat is present and these species are known to occur within the local area and therefore could potentially occur within the application area (Ecoscape 2011; 2012, GIS Database). As suitable habitat is available in the surrounding environment, the application area is not considered significant habitat for the below priority species and the clearing will not likely lead to a significant impact.

Abutilon sp. *Pritzelianum*, Priority 3, is a shrub which has been previously found inhabiting sandplains (Western Australian Herbarium, 1998-). The species is known from 50 locations from the WA Herbarium from the Carnarvon, Murchison and Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) regions (Western Australian

Herbarium, 1998-). The species has been recorded within 20 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Atriplex eremitis, Priority 1, is a perennial, erect and open shrub that has previously only been recorded from a localised population occurring in an area of semi-saline soil on the pastoral property (Western Australian Herbarium, 1998-). The species is known from seven locations from the WA Herbarium from the Dampierland, Great Sandy Desert and Pilbara IBRA regions (Western Australian Herbarium, 1998-). The species has been recorded within 50 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Bulbostylis burbridgeae, Priority 4, is a tufted, erect to spreading annual, grass-like or herb which can be found inhabiting granitic soils on granite outcrops or cliff bases (Western Australian Herbarium, 1998-). The species is known from 35 locations from the WA Herbarium from the Pilbara IBRA region (Western Australian Herbarium, 1998-). The species has been recorded within 20 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Euphorbia clementii, Priority 3, is an erect herb growing 0.6 metres high and can be found inhabiting gravelly hillsides and stony grounds (Western Australian Herbarium, 1998-). The species is known from 31 locations from the WA Herbarium from the Pilbara IBRA region (Western Australian Herbarium, 1998-). The species has been recorded within 20 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Gomphrena leptophylla, Priority 3, is a prostrate or erect to spreading annual herb growing to 0.15 metres high and can be found inhabiting sand, sandy to clayey loam, granite and quartzite soils on open flats, sandy creek beds, edges salt pans, marshes and stony hillsides (Western Australian Herbarium, 1998-). The species is known from eight locations from the WA Herbarium from the Dampierland, Ord Victoria Plain, Pilbara and Tanami IBRA regions (Western Australian Herbarium, 1998-). The species has been recorded within 50 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Gymnanthera cunninghamii, Priority 3, is an erect shrub growing 1-2 metres high and can be found inhabiting sandy soils (Western Australian Herbarium, 1998-). The species is known from 40 locations from the WA Herbarium from the Carnarvon, Gascoyne, Great Sandy Desert and Pilbara IBRA regions (Western Australian Herbarium, 1998-). The species has been recorded within 10 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Ptilotus mollis, Priority 4, is a compact, perennial shrub growing to 0.5 metres high and can be found inhabiting stony hills and screes (Western Australian Herbarium, 1998-). The species is known from 43 locations from the WA Herbarium from the Little Sandy Desert and Pilbara IBRA regions (Western Australian Herbarium, 1998-). The species has been recorded within 50 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Rothia indica subsp. australis, Priority 3, is a prostrate annual herb growing to 0.3 metres high and can be found inhabiting sandy soils on sandhills and sandy flats (Western Australian Herbarium, 1998-). The species is known from 21 locations from the WA Herbarium from the Dampierland, Great Sandy Desert, Pilbara and Victoria Bonaparte IBRA regions (Western Australian Herbarium, 1998-). The species has been recorded within 20 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

Triodia chichesterensis, Priority 3, is a hummock grass which can be found inhabiting rocky basalt slopes (Western Australian Herbarium, 1998-). The species is known from 42 locations from the WA Herbarium from the Pilbara IBRA region (Western Australian Herbarium, 1998-). The species has been recorded within 20 kilometres of the application area, however it was not recorded during the flora and vegetation survey (Ecoscape 2011; 2012, GIS Database).

The habitat surrounding the application area provides suitable habitat for the above listed conservation significant flora species. The application area surrounds the existing mine and consists of previously disturbed areas, suggesting higher quality habitat is available outside of the application area. The application area is therefore not considered significant to these flora species as suitable habitat is available outside the area proposed to be cleared.

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; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

3.2.2. Biological values (fauna) - Clearing Principle (b)

A reconnaissance fauna survey was undertaken over the application area in July 2011 by Bamford Consulting Ecologists. The desktop fauna review identified 221 species of vertebrate fauna that are expected to occur within the local area (BCE, 2012).

The site reconnaissance survey recorded 58 vertebrate species including one conservation significant species, the Northern Quoll (*Dasyurus hallucatus* – Endangered) (BCE, 2012).

Directly east of the application area lies a large granite outcrop that is approximately 700 metres in length and 200 metres in width, this outcrop is one of a chain of outcrops that extends north of the lease area (BCE, 2011). The western side of this outcrop, which directly borders part of the application area, contains large granite boulders and crevices, small overhangs and is dominated by *Triodia* spp. (BCE, 2011). The eastern side of the granite outcrop is generally steep with little vegetation (generally *Triodia* spp.), including two small caves (approximately six metres deep) (BCE, 2011). This outcrop provides critical habitat for conservation significant fauna, including the Northern Quoll (*Dasyurus hallucatus*). The habitat surrounding this outcrop consists of sandy/loam soils dominated by mixed *Acacia* spp. over *Triodia* spp. (BCE, 2011).

Bamford Consulting Ecologists carried out a targeted survey for the Northern Quoll from 23-25 April 2012 (BCE, 2012). Evidence of *Dasyurus hallucatus* scats were found throughout the rocky hills where granite occurred and at the juxtaposition of granite and quartz, where small caverns and abundant crevices were present (BCE, 2012). The application area is located west of this denning habitat and therefore is unlikely important for dispersal, however, the application area lies within two kilometres of denning habitat, and is therefore potentially foraging habitat for this species (BCE, 2012). Extensive foraging habitat is present to the north and east of the application area and the impacts from the proposed clearing on the foraging habitat is not considered significant. Any impacts to this species may be managed by a fauna management condition requiring pre-clearance surveys to be undertaken prior to any clearing and slow directional clearing to allow fauna to move into adjacent habitat.

Western pebble-mound mouse, *Pseudomys chapmani*, (Priority 4) mounds (some active) were identified on the gravelly slopes on the hills located approximately 300 metres east of the application area (BCE, 2012). The species is endemic to the Pilbara region of Western Australia (DCCEEW, 2023). The species is patchily distributed on gentle colluvial slopes of rocky, hummock grasslands with little or no soil and a sparse shrub layer (DCCEEW, 2023). Given there is extensive suitable habitat outside the application area, and this species is highly mobile, the proposed clearing is unlikely to impact this species on a local or regional level. Any impacts to this species may be managed by slow directional clearing to allow fauna to move into adjacent habitat.

Mulgara (species uncertain), Priority 4, were recorded approximately 250 metres east of the application area on the plains where there was spinifex in sandy to sandy-loam soil (BCE, 2012). Suitable habitat was recorded within the application area, however no burrows were recorded (BCE, 2012). As suitable habitat is available outside of the application area, impacts to this species may be managed by a fauna management condition requiring slow directional clearing to allow fauna to move into adjacent habitat.

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

Fork-tailed swift (*Apus pacificus*), Migratory, are widespread in coastal and subcoastal areas, including some on nearshore and offshore and are found in the north and north-west Gascoyne Region islands (DCCEEW, 2023). The species is almost exclusively aerial and has been recorded across a range of habitats (DCCEEW, 2023). This species has been recorded within 50 kilometres of the application area and suitable habitat is present, however the habitat within the application area is not considered significant to the species and the clearing is not likely to lead to a significant impact.

Grey falcon (*Falco hypoleucos*), Vulnerable, is a medium-sized raptor species endemic to mainland Australia (DCCEEW, 2023). The species occurs in arid and semi-arid Australia and is mainly found where annual rainfall is less than 500 millimetres (DCCEEW, 2023). *Falco hypoleucos* occurs in a variety of habitat and frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses, the species has been observed hunting in treeless areas and frequents tussock grassland and open woodland (DCCEEW, 2023). This species may intermittently overfly the application area or utilise the habitat whilst foraging 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.

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 50 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 (BCE, 2012; GIS Database).

Barn swallow (*Hirundo rustica*), Migratory, usually occurs in northern Australia, on Cocos-Keeling Island, Christmas Island, Ashmore Reef, and patchily along the north coast of the mainland from the Pilbara region, Western Australia, to Fraser Island in Queensland (DCCEEW, 2023). This species inhabits open country in coastal lowlands, often near water, towns and cities, they are often recorded perched on overhead wires and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland (DCCEEW, 2023). The application area contains suitable habitat, however it is not considered significant as similar habitat is available in the surrounding area and therefore the clearing is not likely to significantly impact this species.

Pilbara olive python (*Liasis olivaceus barroni*), Vulnerable, is restricted to ranges within the Pilbara region, north-western Western Australia, such as the Hamesley Range, and the Dampier Archipelago and is only known from 17 locations within the Pilbara (DCCEEW, 2023). The species inhabits escarpments, gorges and water holes in the ranges of the Pilbara region usually in close proximity to water and shelters in logs, flood debris, caves, tree hollows and tick vegetation close to water and rock outcrops (DCCEEW, 2023, Rio Tinto, 2018). As rocky habitat exists east of the application area, there is potential for the species to be present, however due to the lack of permanent water

sources within or near the application area, it is unlikely that the small scale of clearing will significantly impact the species at a local or regional level. Impacts to this species may be managed by implementing slow directional clearing to allow fauna to move into the adjacent habitat.

Bilby (*Macrotis lagotis*), Vulnerable, is a medium-sized burrowing marsupial that has been recorded within 50 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.

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;
- pre-clearance inspections for *Dasyurus hallucatus* and *Mulgara* species and;
- slow direction clearing to allow fauna to move into adjacent habitat.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 30 May 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 (Kariyarra – Pipingarraover (WC2009/003) and Nyamal People #1 (WAD20/2019)) within the area under application (DPLH, 2023). These claims have been determined 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 no registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Cultural Heritage Act 2021* 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.

It is noted that the proposed clearing may impact on Northern Quoll (*Dasyurus hallucatus*), which are a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Agriculture, Water and the Environment for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Agriculture, Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 32 kilometres southeast of Port Hedland, within the Town of Port Hedland (GIS Database). The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). The surrounding land use includes exploration, mining and pastoral grazing (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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is the Leslie (Port Hedland) Saltfields System (Nationally Important Wetland), which is located approximately 28 kilometres northeast of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association: 39: Hummock grasslands, shrub steppe kanji over soft spinifex (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Ecoscape during July, 2011. The following vegetation associations were recorded within the application area (Ecoscape , 2011):</p> <p>Temporary Camp With Kitchen and Ablution Blocks (G-Lease)</p> <ul style="list-style-type: none"> • <i>Acacia tumida</i> var. <i>pilbarensis</i> and <i>A. ancistrocarpa</i> tall open shrubland over <i>Triodia</i> sp. 1 hummock grassland. <p>Weighbridge, Office and Car Park Site (G-Lease)</p> <ul style="list-style-type: none"> • <i>Acacia ancistrocarpa</i> open shrubland over <i>A. stellaticeps</i> low open shrubland over <i>Triodia epactia</i> hummock grassland. <p>Workshop and Fuel Farm Site (G-Lease)</p> <ul style="list-style-type: none"> • <i>Acacia ancistrocarpa</i> shrubland over <i>A. stellaticeps</i> low open shrubland over <i>Poaceae</i> sp. tussock grassland. <p>Accommodation Camp</p> <ul style="list-style-type: none"> • <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia ancistrocarpa</i>, <i>Acacia tumida</i> var. <i>pilbarensis</i>, <i>A. bivenosa</i> open shrubland over <i>Indigofera monophylla</i> scattered low shrubs over <i>Triodia</i> sp.1 and <i>T. epactia</i> hummock grassland and <i>Aristida holathera</i> tussock grassland • <i>Acacia inaequilatera</i> and <i>A. sphaerostachya</i> scattered shrubs over <i>Bonamia media</i> scattered low shrubs over <i>Triodia</i> sp. 1 hummock grassland. <p>Quarry Site</p> <ul style="list-style-type: none"> • <i>Acacia ancistrocarpa</i> shrubland over <i>Triodia</i> sp. 1 mid-dense hummock grassland. <p>Explosives Magazine</p> <ul style="list-style-type: none"> • <i>Acacia ancistrocarpa</i>, <i>A. stellaticeps</i> and <i>Tephrosia</i> sp. Bungaroo Creek scattered low shrubs over <i>Triodia</i> sp.1 hummock grassland and <i>Goodenia</i> sp. scattered herbs. <p>Pre-Strip/Borrow Pit Site</p> <ul style="list-style-type: none"> • <i>Acacia bivenosa</i>, <i>Acacia tumida</i> var. <i>pilbarensis</i> shrubland over <i>Indigofera monophylla</i> scattered low shrubs over <i>Triodia</i> sp.1 hummock grassland. <p>Haul Road</p> <ul style="list-style-type: none"> • <i>Acacia ancistrocarpa</i> open shrubland over <i>A. stellaticeps</i> low open shrubland over <i>Triodia epactia</i> hummock grassland • <i>Acacia orthocarpa</i> and <i>A. inaequilatera</i> tall open shrubland over <i>A. stellaticeps</i> low open shrubland over <i>Triodia epactia</i> hummock grassland • <i>Melaleuca ? lasiandra</i> tall shrubland over <i>A. stellaticeps</i> low open shrubland over <i>Cenchrus ciliaris</i> and <i>Chloris pumilio</i> tussock grassland.
Vegetation condition	<p>The aerial imagery indicate the vegetation within the proposed clearing area is in 'Completely Degraded' to 'Very Good' (Trudgen, 1991) condition, described as:</p> <ul style="list-style-type: none"> • 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.

Characteristic	Details
	<ul style="list-style-type: none"> 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. <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>
Climate and landform	Rainfall in this region is generally low and highly variable, typically resulting from cyclone events and localised thunderstorms (Van Vreeswyk et al., 2004). The average annual rainfall is 316.5 millimetres with an annual evaporation rate of ~3400 millimetres (BOM, 2023). Whilst temporary localised flooding may occur briefly following heavy rainfall events, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.
Soil description	<p>The soils of the application area are broadly mapped as the following soil types:</p> <ul style="list-style-type: none"> 281Mc: Macroy system. Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands; 281Bo: Boolaloo system. Granite hills, domes, tor fields and sandy plains supporting spinifex grasslands with scattered shrubs (DPIRD, 2023a). <p>Soils previously disturbed generally consist of waste materials (granite, quartz, sand and clays) originating from previous mining activity, whereas undisturbed areas, the soils generally consist of coarse sand over loam, mixed with quartz stones (Northwest Quarries, 2023).</p>
Land degradation risk	The Boolaloo and Macroy land systems are generally not susceptible to erosion (Van Vreeswyk et al., 2004). The application area is relatively flat so there is not likely to be significant erosion caused by increased runoff (GIS Database).
Waterbodies	There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Surface water within the application area is likely to occur as sheet flow following heavy rains. With an annual evaporation rate over ten times the average annual rainfall, any surface water is likely to evaporate quickly (BOM, 2023).
Hydrogeography	The application area is not mapped within a proclaimed groundwater area (GIS Database). The proposed area is located within the Pilbara Groundwater Area (GIS Database).
Flora	One conservation significant flora species was recorded within the application area, <i>Euploca mutica</i> (previously named <i>Heliotropium muticum</i>), Priority 3 (Ecoscape 2011; 2012, GIS Database).
Ecological communities	There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database). A flora and vegetation survey of the application area did not identify any TECs (Ecoscape, 2011).
Fauna	There are no records of conservation significant fauna within the application area, however 10 conservation significant fauna may occur (BCE, 2012; GIS Database).

A.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 Pilbara	17,808,657.04	17,731,764.88	99.57	1,801,714.98	10.12
Beard vegetation associations - State					
Veg Assoc No. 93	3,044,309.52	3,040,640.98	99.88	59,536.96	1.96
Beard vegetation associations - Bioregion					
Veg Assoc No. 93	3,042,114.27	3,038,471.67	99.88	59,536.96	1.96

Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.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>Abutilon</i> sp. <i>Pritzelianum</i> (S. van Leeuwen 5095)	P3	Y	<20	50
<i>Atriplex eremitis</i>	P1	Y	<50	7
<i>Bulbostylis burbridgeae</i>	P4	Y	<20	35
<i>Eragrostis crateriformis</i>	P3	N	<20	53
<i>Euphorbia clementii</i>	P3	Y	<20	31
<i>Euploca mutica</i>	P3	Y	0	76
<i>Gomphrena leptophylla</i>	P3	Y	<50	8
<i>Gomphrena pusilla</i>	P2	N	<50	15
<i>Gymnanthera cunninghamii</i>	P3	Y	<10	40
<i>Ptilotus mollis</i>	P4	Y	<50	43
<i>Rothia indica</i> subsp. <i>australis</i>	P3	Y	<20	21
<i>Stylidium weeliwollii</i>	P3	N	<50	29
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114)	P1	N	<50	44
<i>Triodia chichesterensis</i>	P3	Y	<20	42

A.1. Fauna analysis table

Species name	Common Name	Conservation status	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]
<i>Actitis hypoleucos</i>	common sandpiper	MI	<50	N
<i>Apus pacificus</i>	fork-tailed swift	MI	<50	Y
<i>Arenaria interpres</i>	ruddy turnstone	MI	<50	N
<i>Calidris acuminata</i>	sharp-tailed sandpiper	MI	<50	N
<i>Calidris alba</i>	sanderling	MI	<20	N
<i>Calidris canutus</i>	red knot	EN	<50	N
<i>Calidris ferruginea</i>	curlew sandpiper	CR	<50	N
<i>Calidris melanotos</i>	pectoral sandpiper	MI	<50	N
<i>Calidris ruficollis</i>	red-necked stint	MI	<50	N
<i>Calidris subminuta</i>	long-toed Stint	MI	<20	N
<i>Calidris tenuirostris</i>	great knot	CR	<50	N
<i>Charadrius leschenaultii</i>	greater sand plover	VU	<50	N
<i>Charadrius mongolus</i>	lesser sand plover	EN	<50	N
<i>Charadrius veredus</i>	oriental plover	MI	<50	N
<i>Chlidonias leucopterus</i>	white-winged black tern	MI	<50	N
<i>Ctenotus angusticeps</i>	Airlie Island Ctenotus, Northwestern coastal Ctenotus	P3	<50	N
<i>Dasyercus blythi</i>	brush-tailed mulgara	P4	<10	Y
<i>Dasyercus cristicauda</i>	crest-tailed mulgara	P4	<50	Y

Species name	Common Name	Conservation status	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]
<i>Dasyurus hallucatus</i>	northern quoll	EN	<1	Y
<i>Falco hypoleucos</i>	grey falcon	VU	<20	Y
<i>Falco peregrinus</i>	peregrine falcon	OS	<50	Y
<i>Fregata ariel</i>	lesser frigatebird	MI	<50	N
<i>Gallinago stenura</i>	pin-tailed snipe	MI	<50	N
<i>Gelochelidon nilotica</i>	gull-billed tern	MI	<50	N
<i>Glareola maldivarum</i>	oriental pratincole	MI	<20	N
<i>Hirundo rustica</i>	barn swallow	MI	<50	Y
<i>Hydroprogne caspia</i>	caspian tern	MI	<50	N
<i>Liasis olivaceus barroni</i>	Pilbara olive python	VU	<50	Y
<i>Limicola falcinellus</i>	broad-billed sandpiper	MI	<50	N
<i>Limnodromus semipalmatus</i>	Asian dowitcher	MI	<50	N
<i>Limosa lapponica</i>	bar-tailed godwit	MI	<50	N
<i>Limosa lapponica menzbieri</i>	bar-tailed godwit (Northern Siberian)	CR	<50	N
<i>Limosa limosa</i>	black-tailed godwit	MI	<50	N
<i>Macroderma gigas</i>	ghost bat	VU	<20	N
<i>Macrotis lagotis</i>	bilby, dalgyte, ninu	VU	<20	Y
<i>Mormopterus cobourgianus</i>	North-western free-tailed bat	P1	<50	N
<i>Motacilla flava</i>	yellow wagtail	MI	<50	N
<i>Numenius madagascariensis</i>	eastern curlew	CR	<50	N
<i>Numenius minutus</i>	little curlew, little whimbrel	MI	<50	N
<i>Numenius phaeopus</i>	whimbrel	MI	<50	N
<i>Oceanites oceanicus</i>	Wilson's storm-petrel	MI	<50	N
<i>Onychoprion anaethetus</i>	bridled tern	MI	<50	N
<i>Pandion cristatus</i>	osprey, eastern osprey	MI	<50	N
<i>Phalaropus lobatus</i>	red-necked phalarope	MI	<20	N
<i>Philomachus pugnax</i>	ruff (reeve)	MI	<50	N
<i>Plegadis falcinellus</i>	glossy ibis	MI	<50	N
<i>Pluvialis fulva</i>	Pacific golden plover	MI	<50	N
<i>Pluvialis squatarola</i>	grey plover	MI	<50	N
<i>Pseudomys chapmani</i>	western pebble-mound mouse, ngadji	P4	<1	Y
<i>Rhinonicteris aurantia</i> (Pilbara)	Pilbara leaf-nosed bat	VU	<20	N
<i>Sterna hirundo</i>	common tern	MI	<50	N
<i>Sternula albifrons</i>	little tern	MI	<50	N
<i>Sternula nereis nereis</i>	fairy tern	VU	<50	N
<i>Sula leucogaster</i>	brown booby	MI	<50	N
<i>Thalasseus bergii</i>	crested tern	MI	<50	N
<i>Tringa brevipes</i>	grey-tailed tattler	P4	<20	N
<i>Tringa glareola</i>	wood sandpiper	MI	<20	N
<i>Tringa nebularia</i>	common greenshank	MI	<20	N
<i>Tringa stagnatilis</i>	marsh sandpiper	MI	<20	N

Species name	Common Name	Conservation status	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]
<i>Xenus cinereus</i>	terek sandpiper	MI	<50	N

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<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 vegetation associations, fauna habitats and landform types present within the application area are well represented in the surrounding environment (BCE, 2011; 2012; GIS Database). Much of the surrounding area has been impacted by previous and current mining activities (BCE, 2011; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.</p>	Not likely to be 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.</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> <p>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 (Ecoscape 2011; 2012; GIS Database).</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> "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."</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 survey did not identify any TECs (Ecoscape 2011; 2012; GIS Database).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</p> <p><u>Assessment:</u></p> <p>The application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Coolgardie Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation association 93 (GIS Database). Approximately 99% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared and is not at variance to this principle.</p>	Not at variance	No
<p><u>Principle (h):</u> "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."</p> <p><u>Assessment:</u></p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
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.		
Environmental value: land and water resources		
<p><u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."</p> <p><u>Assessment:</u></p> <p>There are no permanent watercourses or wetlands within the area proposed to be cleared (GIS Database).</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</p> <p><u>Assessment:</u></p> <p>The application area is mapped within the Boolaloo and Macroy land systems which are generally not susceptible to erosion (DPIRD, 2023b; Van Vreeswyk et al., 2004) and therefore the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> "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."</p> <p><u>Assessment:</u></p> <p>Given no water courses / wetlands / Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</p> <p><u>Assessment:</u></p> <p>There are no permanent water courses or waterbodies within 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 proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.</p>	Not likely to be at variance	No

Appendix C. 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.

Condition	Description
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 D. Sources of information

D.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- 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 (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

- Northwest Quarries (2023) Clearing permit application form, CPS 10176/1, received 3 March 2023.
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- Bamford Consulting Ecologists (BCE) (2012) Regional Survey for the Northern Quoll *Dasyurus hallucatus* around North West Quarries' Pippingarra Quarry. Prepared for Northwest Quarries Pty Ltd, May 2012.
- BOM (2023) Bureau of Meteorology Website – Climate Statistics for Australian locations, Summary statistics Port Hedland Airport. http://www.bom.gov.au/climate/averages/tables/cw_004032.shtml (Accessed 24 July 2023).
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023) Species Profile and Threats Database (SPRAT). Available from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> (Accessed 5 September 2023).
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- 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 24 July 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 24 July 2023).

- Department of Primary Industries and Regional Development (DPIRD) (2023b) Advice received in relation to Clearing Permit Application CPS 10176/1. Office of the Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, May 2023.
- 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
- Ecoscape (2011) Pippingarra Quarry Vascular Flora and Vegetation Survey. Bamford Consulting Ecologist, August 2011.
- Ecoscape (2012) Pippingarra Quarry Priority Flora Survey and Delimitation. Prepared for Northwest Quarries, July 2012.
- 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
- 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
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Norwest Quarries (2023) Pippingarra Quarry – M45/258. Clearing Permit (Purpose Permit) Application 2023.
- 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.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 31 August 2023).
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4. 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)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, 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 DCCEEW)
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:

{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.