



1. Application details and outcomes

1.1. Permit application details

Permit number:	8436/2
Permit type:	Purpose Permit
Applicant name:	Kimberley Quarry Pty Ltd
Application received:	10 April 2024
Application area:	46.89 hectares
Purpose of clearing:	Quarry and associated activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 47/1496
Location (LGA area/s):	City of Karratha
Colloquial name:	Maitland Quarry Project

1.2. Description of clearing activities

Kimberley Quarry Pty Ltd proposes to clear up to 46.89 hectares of native vegetation within a boundary of approximately 70.351 hectares, for the purpose of a quarry and associated activities. The project is located approximately 11 kilometres southwest of Karratha, within the City of Karratha.

Clearing permit CPS 8436/1 was granted by the Department of Mines, Industry Regulation and Safety (now the Department of Energy, Mines, Industry Regulation and Safety) on 16 May 2019 and was valid from 8 June 2019 to 7 June 2024. The permit authorised the clearing of up to 46.89 hectares of native vegetation within a boundary of approximately 70.351 hectares, for the purpose of a quarry and associated activities.

On 10 April 2024, the Permit Holder applied to amend CPS 8436/1 to extend the permit duration by five years to 7 June 2029 (Kimberley Quarry, 2024). Clearing has not commenced under the permit (Kimberley Quarry, 2024).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	16 May 2024
Decision area:	46.89 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 Energy, Mines, Industry Regulation and Safety (DEMIRS) on 10 April 2024. DEMIRS advertised the application for a 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 (Appendix A), relevant datasets (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), supporting information including the results of a flora, vegetation and fauna assessment (MMWC, 2015), 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;
- the loss of individual *Dasyurus hallucatus* (northern quoll) and native vegetation that is suitable habitat for the species; and
- the potential impact to vegetation growing in association with watercourses.

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 can be minimised and managed to be unlikely to lead to an unacceptable risk to 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, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- a fauna management condition to conduct clearance surveys for *Dasyurus hallucatus* (northern quoll), to avoid impacting critical denning habitat; and
- avoid the clearing of vegetation growing in association with watercourses where possible and maintain waterflows.

The assessment has not changed since the assessment for CPS 8436/1, except in the case of principle (a) and (b), both changed from not likely at variance to may be at variance due to potential presence of northern quoll individuals, and their habitat being impacted by clearing. *Dasyurus hallucatus* (northern quoll) is considered further under Principle (b) in this assessment. The Delegated Officer determined that the proposed extension of permit duration of five years is not likely to lead to an unacceptable risk to environmental values.

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

Relevant agreements (treatys) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

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

Purpose permit application assessment of clearing principles (BES, 2019) states that the proponent is committed to implementing the following mitigation measures:

- Peg the areas to be cleared with survey pegs and flagging tape such that the area to be cleared is clearly marked;
- Inspect earthworks equipment to ensure they are free of weed seeds, pieces of vegetation and caked mud or earth and are not allowed to operate until it is thoroughly cleaned.
- All disturbed areas will be rehabilitated at the completion of operations, or progressively throughout operation where it is practical to do so;
- installation of sediment control structures at locations where high sediment loads are anticipated or observed to reduce water erosion;
- flood protection infrastructure has been designed based on analysis of sub-catchment characteristics to ensure appropriately sized structures are built.

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

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (flora and fauna). 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.

A review of current environmental information (Appendix A) reveals that the assessment against the clearing principles has not changed significantly from the Clearing Permit Decision Report CPS 8436/1, except for Clearing Principles (a) and (b).

3.2.1. Biological values (flora and fauna)- Clearing Principles (a) and (b)

Assessment

Flora

A total of 20 conservation significant flora species were recorded within 50 kilometres of the application area (see Appendix A.1.). Six of these species were considered to have potential to occur within the application area due to suitable habitat (MMWC, 2015; Western Australian Herbarium, 1998-; GIS Database). Of these six species, four are perennial and would have been present at the time of the survey: *Gymnanthera cunninghamii* (P3), *Terminalia supranitifolia* (P3), *Vigna* sp. rockpiles (R. Butcher et al. RB 1400) (P3) and *Rhynchosia bungarensis* (P4) (MMWC, 2015; Western Australian Herbarium, 1998-). As they were not recorded, it is considered unlikely these species occur in the survey area as the survey was conducted at the appropriate time of year to identify these species (MMWC, 2015). The remaining two species are annuals: *Gomphrena cucullata* (P3) and *Gomphrena leptophylla* (P3). It is likely both species would have been present and identifiable at the time of survey due to the recent high rainfall in the Karratha area and as they were not recorded, it is considered unlikely these species occur in the survey area (MMWC, 2015). Furthermore, due to the widespread nature of the vegetation and soil types within the application area throughout the surrounding region, it is unlikely that the area proposed to be cleared would form significant habitat for any of the flora species listed above (GIS Database).

Seven introduced flora species were recorded within the application area however none of these species are listed as Declared Plants under the *Biosecurity and Agriculture Management Act 2013* (MMWC 2015).

Fauna

A total of 70 conservation significant fauna species were recorded within 50 kilometres of the application area, of which 14 species were considered to have potential to occur within the application area (GIS Database). Other records not considered included marine species, migratory shore birds and species in which the application area was well outside their known range, with no suitable habitat (ALA, 2024; GIS Database).

Dasyurus hallucatus (northern quoll) can be found in a variety of habitats but show a preference for complex rocky areas, such as ranges, breakaways and boulder fields, that when in close proximity to permanent water is considered critical habitat (Department of the Environment, 2016; MMWC, 2015; Northover et al., 2023). Whilst the habitat types suitable for the northern quoll are widespread throughout the region, rocky habitats such as the rock piles and rock ridges habitat types recorded in the application area may provide suitable denning habitat for the northern quoll (MMWC, 2015). Watercourses such as the drainage lines within the application area also provide connectivity for dispersal and foraging (Northover et al., 2023). During the survey conducted by MMWC (2015), no northern quolls were recorded by motion cameras set up in the rock pile habitat type. However, due to the age of the survey and the proximity of multiple nearby records (within two kilometres), it is possible that northern quolls utilise these suitable habitat types within the application area (MMWC, 2015; GIS Database).

The following bird species, *Apus pacificus* (fork-tailed swift), *Falco hypoleucos* (grey falcon), *Falco peregrinus* (peregrine falcon) and *Hirundo rustica* (barn swallow) all potentially utilise the area for foraging habitat (MMWC, 2015). However due to the mobility and range of these species and the widespread nature of the habitat types found within the application area, the proposed impacts are unlikely to have a significant impact (MMWC, 2015; GIS Database).

Lagorchestes conspicillatus leichardti (mainland spectacled hare-wallaby) inhabits open forests, woodlands, shrublands, and hummock grasslands, preferring areas where there is a mosaic of vegetation due to differences in fire history (DAWE, 2008a). Whilst hummock grasslands do cover the majority of the application area, this vegetation and fauna habitat is widespread throughout the region and the proposed clearing is unlikely to significantly impact the species (MMWC, 2015; GIS Database).

Pseudomys chapmani (western pebble-mound mouse, ngadji) is found in areas of rocky, hummock grassland with little or no soil and an overstorey of Acacia, which occurs only in the rock ridge area of the application (Ford and Johnson, 2007; MMWC, 2015). Due to the greater extent of suitable habitat in the surrounding region, it is unlikely that the proposed clearing will have a significant impact on the species (GIS Database). *Leggadina lakedownensis* (Lakeland Downs mouse) is known to occur on sandy soils and cracking clays in Western Australia (DBCA, 2013). The application contains minimal amounts of the species preferred soil types, and the species is therefore unlikely to occur within the application area (MMWC, 2015; GIS Database).

For the three bat species, *Macroderma gigas* (ghost bat), *Ozimops cobourgianus* (northern coastal free-tailed bat) and *Rhinonicteris aurantia* (Pilbara form) (Pilbara leaf-nosed bat), the application area could provide foraging habitat, such as along drainage lines. However, due to the lack of suitable roosting habitat, such as caves, it is unlikely that the proposed clearing will significantly impact these species (BES, 2019; GIS Database).

Notoscincus butleri (lined soil-crevice skink) is restricted to coastal areas around Karratha with a preferred habitat of spinifex dominated stony plains near creeks and rivers (Cogger, 2014). The spinifex dominated vegetation of the low hill and stony plain habitats, particularly surrounding drainage lines, provide suitable habitat for the lined soil-crevice skink. Determining suitable habitat due to the lack of information on *Lerista quadrivincula* (four-lined slider (Karratha)) becomes difficult. Using genus preferences, which includes burrowing into loose sandy soils beneath stones and logs, the species can occur very minimally in the application area due to the dominant soil types of stony soils and loamy earth (Cogger, 2014) Due to the extent of similar, more suitable, habitat types for both species in the surrounding region the proposed clearing is unlikely to impact significant habitat (GIS Database).

Liasis olivaceus barroni (Pilbara Olive Python), occurs in rocky ranges throughout the Pilbara, typically near fresh water sources (MMWC, 2015). It can potentially occur within the application area along drainage lines, rock piles and rock ridges, especially when water is present (MMWC, 2015; Northover et al., 2023). However, due to the widespread nature of these habitat types, the distance to a permanent waterbody from the application area and the presence of water occurring only intermittently along

minor drainage lines within the application area, it is unlikely that the Pilbara olive python utilises the area (MMWC, 2015; DAWE, 2008b).

Conclusion

Based on the above assessment, the proposed clearing may result in significant impacts to *Dasyurus hallucatus* (northern quoll). For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant flora and fauna can be managed by taking steps to minimise the risk of the introduction and spread of weeds, slow directional clearing to allow fauna such as northern quoll to move into adjacent vegetation.

The applicant may have notification responsibilities under the EPBC Act for impacts to northern quoll and their habitats, as set out in the *EPBC Act referral guideline for the northern quoll* (Department of Environment, 2016). The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- avoid and minimise to reduce the impacts and extent of clearing;
- slow one-directional clearing to allow northern quoll and other terrestrial fauna species to move into adjacent vegetation ahead of the clearing activity, minimising the impact to individuals; and
- conducting clearance fauna surveys for *Dasyurus hallucatus* (northern quoll) across the application area, to avoid impacting dens and the surrounding area.

3.3. Relevant planning instruments and other matters

The amendment application was advertised on 16 April 2024 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim over the area under application (DPLH, 2024). This claim has/have been registered with the National Native Title Tribunal 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 is one registered Aboriginal Site of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on *Dasyurus hallucatus*, (northern quoll), which is 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 Climate Change, Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate Change, Energy, the Environment and Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

Other relevant authorisations required for the proposed land use include:

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

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by remnant vegetation and landforms characteristic of the Roebourne subregion, such as grasses and <i>Acacia</i> spp., scattered with mining developments (BES, 2019; GIS Database). The proposed clearing area is part of a large expanse of vegetation. The dominant land uses in the subregion are mining, mineral exploration, pastoralism and crown land (BES, 2019; GIS Database)
Ecological linkage	The proposed clearing does not form part of any known ecological linkages and using satellite imagery, does not represent a significant remnant of native vegetation in an area that has been extensively cleared, and is therefore unlikely to provide an ecological linkage to the surrounding area (GIS Database).
Conservation areas	The application area does not fall within any mapped conservation areas (GIS Database). The closest mapped conservation area is the former Karratha Station Pastoral Lease, approximately nine kilometres west of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>157: Hummock grasslands, grass steppe; hard spinifex, <i>Triodia wiseana</i>; and</p> <p>589: Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex (GIS Database)</p> <p>A flora and vegetation survey was conducted over the application area by MMWC Environmental during June 2015. The following vegetation associations were recorded within the application area (MMWC, 2015):</p> <p>CtlTw: Scattered tall shrubs of <i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i> over scattered hummock grasses of <i>Triodia wiseana</i>.</p> <p>TcEsAccPoAfEm: High open shrubland of <i>Terminalia canescens</i> and <i>Ehretia saligna</i> over scattered shrubs of <i>Acacia coriacea</i> subsp. <i>coriacea</i> over scattered low shrubs of <i>Ptilotus obovatus</i> and <i>Abutilon fraseri</i> over scattered tussock grasses of <i>Eriachne mucronata</i>.</p> <p>TcTw: Low open woodland of <i>Terminalia canescens</i> over hummock grassland of <i>Triodia wiseana</i>.</p> <p>TcChAccAbTeTw*Cc: Low open woodland of <i>Terminalia canescens</i> and <i>Corymbia hamersleyana</i> over high open shrubland of <i>Acacia coriacea</i> subsp. <i>coriacea</i> over scattered low shrubs of <i>Acacia bivenosa</i> over open hummock grassland of <i>Triodia epactia</i> and <i>Triodia wiseana</i> over scattered tussock grasses of <i>*Cenchrus ciliaris</i>.</p>
Vegetation condition	<p>The vegetation survey (MMWC, 2015) and aerial imagery indicate the vegetation within the proposed clearing area is in 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. <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>
Climate and landform	The application area is located in an arid zone with an average annual rainfall (Karratha Aero station) of approximately 294 millimetres and an annual evaporation of approximately 3,400 millimetres (BoM, 2024). The area is primarily composed of basalt hills, plateaux, lower slopes and minor stony plains (DPIRD, 2024).
Soil description	<p>The soil is mapped as land systems 281Bg and 281Rk, primarily consisting of the latter (DPIRD, 2024).</p> <p>281Bg: Dominant soils are described as red loamy earths; and</p> <p>281Rk: Dominant soils are described as stony soils with red shallow loams and calcareous shallow loams.</p>
Land degradation risk	<p>The application area falls within the Boolgeeda and Rocklea land systems (GIS Database). These land systems are described by Van Vreeswyk et al. (2004) as:</p> <p>Boolgeeda: Predominantly depositional surfaces; very gently inclined stony slopes and plains below hill systems becoming almost level further downslope; closely spaced, dendritic and sub-parallel drainage lines. Vegetation is generally not prone to degradation and the system is not susceptible to erosion.</p> <p>Rocklea: Erosional surfaces; hills, ridges and plateaux remnants on basalt with steep stony slopes, restricted lower slopes, stony interfluves and minor gilgai plains; moderately spaced</p>

Characteristic	Details
	tributary drainage patterns of small channels in shallow valleys in upper parts becoming broader floors and channels downslope. The system has very low erosion hazard.
Waterbodies	The desktop assessment and aerial imagery indicated that several minor, non-perennial watercourses transect the area proposed to be cleared (GIS Database).
Hydrogeography	The application area is located within the Pilbara Groundwater Area which is legislated by the <i>RIWI Act 1914</i> (GIS Database). The mapped groundwater salinity of the application area is 1,000 – 3,000 milligrams per litre total dissolved solids which is described as brackish (GIS Database).
Flora	No Priority or Threatened flora were recorded within the application area (MMWC, 2015; GIS Database). No Threatened flora were recorded within the local area (50 kilometre radius), however, 20 Priority flora species were. (GIS Database). Further consideration of these species is required (see section B.2).
Ecological communities	There are no mapped Priority or Threatened Ecological Communities located within the application area (GIS Database). Within the local area (50 kilometre radius) there are five Priority Ecological Communities (PECs) (GIS Database). These are: <ul style="list-style-type: none"> • Roebourne Plains gilgai grasslands (P1) • Roebourne chenopod association (P1) • Horseflat Land System (P3) • Burrup Peninsula rock pile communities (P1) • Wona Land System (P1) The closest of these is the Roebourne Plains gilgai grasslands which is approximately 4.8 kilometres from the application area (GIS Database).
Fauna	No conservation significant fauna are recorded within the application area (MMWC, 2015; GIS Database). 70 different conservation significant fauna species are recorded within the local area (50 kilometre radius), of these many are marine species, migratory shorebirds or species with no suitable habitat in the area proposed to be cleared (GIS Database). 14 fauna species require further consideration (see section B.3).
Fauna habitat	Five fauna habitats were defined across the application area during the survey conducted by MMWC (2015), they are as follows: Rock Pile: No soil, just rockpile. Scattered tall shrubs of <i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i> over scattered hummock grasses of <i>Triodia wiseana</i> . Rock Ridge: Rocky, no real soil. High open shrubland of <i>Terminalia canescens</i> and <i>Ehretia saligna</i> over scattered shrubs of <i>Acacia coriacea</i> subsp. <i>coriacea</i> over scattered low shrubs of <i>Ptilotus obovatus</i> and <i>Abutilon fraseri</i> over scattered tussock grasses of <i>Eriachne mucronata</i> Low Hill: Red brown loam. Low open woodland of <i>Terminalia canescens</i> over hummock grassland of <i>Triodia wiseana</i> . Stony Plain: Red brown shallow loam. Low open woodland of <i>Terminalia canescens</i> over hummock grassland of <i>Triodia wiseana</i> . Minor Drainage Line: Red brown sandy loam. Low open woodland of <i>Terminalia canescens</i> and <i>Corymbia hamersleyana</i> over high open shrubland of <i>Acacia coriacea</i> subsp. <i>coriacea</i> over scattered low shrubs of <i>Acacia bivenosa</i> over open hummock grassland of <i>Triodia epactia</i> and <i>Triodia wiseana</i> .

A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information (MMWC, 2015; Western Australian Herbarium, 1998-), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Atriplex lindleyi</i> subsp. <i>Conduplicate</i>	P3	N	N	N	16.0	5	Y
<i>Dolichocarpa</i> sp. <i>Hamersley Station</i> (A.A. Mitchell PRP 1479)	P3	N	N	Y	5.0	38	Y
<i>Eragrostis crateriformis</i>	P3	N	N	N	25.9	51	Y
<i>Eragrostis surreyana</i>	P3	N	N	N	30.2	10	Y

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Eriochloa fatmensis</i>	P3	N	N	N	43.5	3	Y
<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	P2	Y	N	N	36.5	16	Y
<i>Glycine falcata</i>	P3	N	N	N	22.2	14	Y
<i>Gomphrena axillaris</i>	P1	N	N	N	6.8	2	Y
<i>Gomphrena cucullata</i>	P3	Y	Y	Y	13.1	13	Y
<i>Gomphrena leptophylla</i>	P3	Y	Y	Y	13.0	8	Y
<i>Goodenia pallida</i>	P1	N	N	N	21.3	2	Y
<i>Gymnanthera cunninghamii</i>	P3	Y	Y	Y	27.6	42	Y
<i>Rhynchosia bungarensis</i>	P4	Y	Y	Y	6.6	87	Y
<i>Solanum albotellatum</i>	P3	N	Y	N	22.0	13	Y
<i>Stackhousia clementii</i>	P3	N	N	N	11.4	22	Y
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114)	P1	N	N	N	43.8	44	Y
<i>Terminalia supranitifolia</i>	P3	Y	Y	Y	6.6	53	Y
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	P3	N	Y	N	11.2	60	Y
<i>Trianthema</i> sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)	P2	N	N	Y	18.8	9	Y
<i>Vigna triodiophila</i>	P3	Y	Y	Y	19.6	21	Y

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

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information (MMWC, 2015), impacts to the following conservation significant fauna required further consideration.

A.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Apus pacificus</i> (fork-tailed swift)	MI	Y	10.9	424	Y
<i>Dasyurus hallucatus</i> (northern quoll)	EN	Y	1.8	12,709	N
<i>Falco hypoleucos</i> (grey falcon)	VU	Y	23.2	198	Y
<i>Falco peregrinus</i> (peregrine falcon)	OS	Y	10.1	1786	Y
<i>Hirundo rustica</i> (barn swallow)	MI	Y	6.8	271	Y
<i>Lagorchestes conspicillatus leichardti</i> (spectacled hare-wallaby (mainland))	P4	Y	36.9	615	N
<i>Leggadina lakedownensis</i> (northern short-tailed mouse, Lakeland Downs mouse, kerakenga)	P4	Y	6.0	764	N
<i>Lerista quadrivincula</i> (four-lined slider (Karratha))	P1	Y	22.1	2	N
<i>Liasis olivaceus barroni</i> (Pilbara olive python)	VU	Y	17.2	302	N
<i>Macroderma gigas</i> (ghost bat)	VU	N	18.2	2,315	Y
<i>Notoscincus butleri</i> (lined soil-crevice skink (Dampier))	P4	Y	10.7	169	N
<i>Ozimops cobourgianus</i> (northern coastal free-tailed bat)	P1	N	34.3	63	Y

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Pseudomys chapmani</i> (western pebble-mound mouse, ngadji)	P4	Y	18.8	2,028	N
<i>Rhinonictis aurantia</i> (Pilbara form) (Pilbara leaf-nosed bat)	VU	N	6.9	3,887	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, MI: specially protected migratory, OS: other specially protected

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> The application area may conservation significant fauna and flora species (MMWC, 2015; GIS Database). No Priority Ecological Communities (PECs) are found within the application area (GIS Database). The closest PEC (Roebourne Plains gilgai grasslands) is 4.8 kilometres from the application area and is unlikely to be impacted by the proposed clearing (BES, 2019).</p>	<p>May be at variance</p> <p>(changed from CPS 8436/1)</p>	<p>Yes</p> <p>Refer to Section 3.2.1, above.</p>
<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> The area proposed to be cleared contains potential foraging and denning habitat for conservation significant fauna (MMWC, 2015; GIS Database). These fauna habitats however are widespread in the local area and extend well beyond the application area (MMWC, 2015).</p>	<p>May be at variance</p> <p>(changed from CPS 8436/1)</p>	<p>Yes</p> <p>Refer to Section 3.2.1, above.</p>
<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> There are no known records of Threatened flora within the application area or within the local area (50 kilometre radius) (MMWC, 2015; GIS Database). The vegetation associations within the application area are common and widespread throughout the region (MMWC, 2015; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora.</p>	<p>Not likely to be at variance</p> <p>(as per CPS 8436/1)</p>	<p>No</p>
<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> There are no known or mapped Threatened Ecological Communities within or within the local area (50 kilometres) of the area proposed to be cleared (GIS Database). Surveys also did not identify any TECs within the application area (MMWC, 2015).</p>	<p>Not likely to be at variance</p> <p>(as per CPS 8436/1)</p>	<p>No</p>
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> The application area falls within the Pilbara bioregion of the Interim of Biogeographic Regionalisation of Australia (IBRA) (GIS Database). Approximately 99.57 percent of pre-European vegetation still exists in the Pilbara bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 157 and 589 (GIS Database). These vegetation associations have not been extensively cleared as over 99 percent of the pre-European extent of these vegetation associations remain uncleared at the bioregional and state levels (Government of Western Australia, 2019).</p>	<p>Not at variance</p> <p>(as per CPS 8436/1)</p>	<p>No</p>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>Principle (h): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p>Assessment: There are no conservation areas within the application area (GIS Database). Given the distance to the nearest conservation area (approximately nine kilometres), the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas (GIS Database).</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p>Principle (f): <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p>Assessment: There are no permanent watercourses or wetlands within the application area (BES, 2019; GIS Database). Several minor non-perennial drainage lines intersect the application area (MMWC, 2015; GIS Database). The proposed clearing is likely to impact the vegetation growing in association with these drainage lines. These impacts can be managed through a vegetation management condition on the clearing permit to avoid clearing of riparian vegetation where possible and maintain water flows.</p>	At variance	No
<p>Principle (g): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p>Assessment: The mapped soils are not susceptible to wind or water erosion (refer to Appendix A). Noting the location and extent of the application area the proposed clearing is not likely to have an appreciable impact on land degradation (GIS Database).</p>	Not likely to be at variance <i>(as per CPS 8436/1)</i>	No
<p>Principle (i): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p>Assessment: There are no permanent watercourses, wetlands or Public Drinking Water Source Areas recorded within the application area (GIS Database). There are Saline Coastal Flats within approximately five kilometres north of the application area, however, the proposed clearing is unlikely to impact the water body (GIS Database). Several minor non-perennial drainage lines occur within the area proposed to clear, however in the region they are dry for most of the year, only flowing briefly immediately following significant rainfall (GIS Database).</p> <p>The proposed clearing is unlikely to impact the quality of surface or underground water.</p>	Not likely to be at variance	No
<p>Principle (j): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p>Assessment: There are no permanent watercourses or wetlands within the application area (GIS Database). Whilst the area proposed to be cleared topographically is composed of basalt hills, plateaux, lower slopes and minor stony plains, it is expected most rainfall will rapidly infiltrate the soil (DPIRD, 2024; GIS Database). Due to this and the sporadic and low rainfall within the region it is unlikely that the proposed clearing will increase the incidence or intensity of flooding (BES, 2019; GIS Database).</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 of Australia (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.

Condition	Description
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 D. Sources of information

D.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Contours (DPIRD-073)
- 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)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- 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

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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
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
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

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.