Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10226/1
Permit type:	Purpose permit
Applicant name:	Marine Farms Pty Ltd
Application received:	5 June 2023
Application area:	0.334 ha
Purpose of clearing:	Access Track
Method of clearing:	Mechanical clearing
Property:	Lot 299 on Deposited Plan 37003 Minilya-Exmouth Road reserve (PIN 11742626)
Location (LGA area/s):	Shire of Exmouth
Localities (suburb/s):	Exmouth

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous clearing footprint of 0.334 hectares consisting of a 10 metre wide and approximately 335 metre corridor (see Figure 1, Section 1.5). The corridor is proposed to be cleared for the construction of an access track along an existing gazetted easement over Lot 299 on Deposited Plan (DP) 37003 (Crown reserve 36475) to access Lot 296 on DP 37003. Some clearing will also occur over Minilya-Exmouth Road reserve.

Currently, access to the site is through an existing road that has been in use for over 70 years. However, this road is over an adjoining lot, and the Shire of Exmouth has requested that the applicant use the gazetted easement for accessing the site, as conditioned on the Development Approval for the farm.

Clearing activities will include mechanical means (i.e. bulldozing) followed by subgrade preparation for the construction of the proposed access track.

1.3. Decision on application

Decision:	Granted
Decision date:	20 October 2023
Decision area:	0.334 hectares of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), and the findings of a vegetation survey (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing to construct a new lawful access track within the site boundaries as required under the applicants Development Approval for the farm.

The assessment identified that the proposed clearing:

- may impact priority flora species potentially present within the application area, however these impacts are not likely to be significant;
- may impact individual fauna if present at the time of clearing;
- is not likely to impact values of the Cape Range Sub-terranean Waterways wetland system, including subterranean threatened and priority fauna species associated with this wetland; and
- may introduce and spread weeds into adjacent vegetation on the Crown reserve, which could impact the quality of the adjacent vegetation and its habitat values.

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 appreciable land degradation and can be minimised and managed to unlikely lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures.

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

- Avoid, minimise to reduce the impacts and extent of clearing;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

1.5. Site map

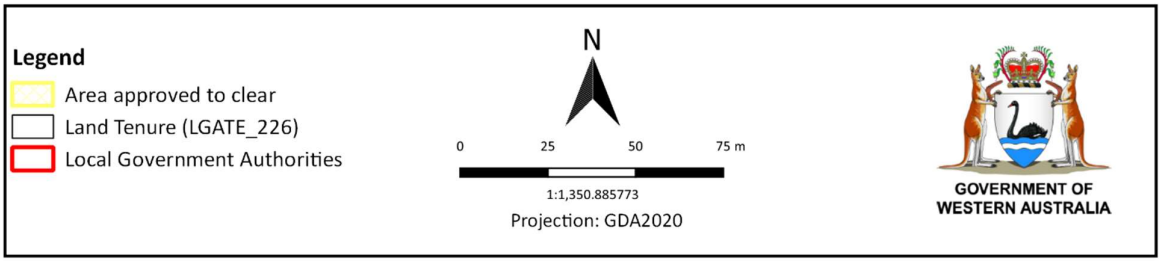

Figure 1 Map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant advised the following avoidance and mitigation measures were applied when considering the application area:

- Vegetation clearing will be minimised where possible. While the application area was proposed to be 10 metres wide it is likely only a six metre width will be required, enabling the exact location of the track to be manipulated within the application area to avoid and minimise species of significance.
- The area to be cleared will be surveyed and flagged on the ground prior to the commencement of works, ensuring adjacent vegetation is not disturbed or damaged.
- Movement of machinery and vehicles will be restricted to the area to be cleared and on existing established roads and tracks.

To minimise and prevent the introduction and spread of weeds:

- All machinery involved in clearing works will be cleaned prior to entering the application area,
- No known weed affected soil, fill or other material will be brought into the application area.

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 (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna, and flora), and water resources. 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 (biodiversity and flora) - Clearing Principles (a)

No threatened flora species are mapped within the local area. Given the mapped soil, vegetation types and topography the following priority flora species are likely to occur within the application area (see Appendix C.A.3 for the flora analysis table):

- *Abutilon* sp. Quobba *(P2)*
- *Acacia alexandri* (P2)
- *Acacia startii (P3)*

- *Acanthocarpus rupestris (P3)*
- *Corchorus congener (P3)*

A site survey of the proposed access track was conducted on 22 September 2022, which included a flora, fauna and vegetation assessment. All survey activities were observational only, no plant material was removed from site, and trapping methods were not used (Astrebla, 2022).

While habitat and surrounding vegetation features indicate *Abutilon* sp. Quobba*, Acacia startii, Acacia alexandri* and *Acanthocarpus rupestris* are likely to occur within the application area, with records mapped less than five kilometres away, they were not observed during the survey (Astrebla, 2022). While the survey timing was not ideal for the Eremaean botanical province, the above species of concern could have been identified if present within the application area, due to comparable flowering times and other distinct features.

Corchorus congener (P3) was the only priority species recorded within the application area during the survey (Astrebla, 2022). It was a relatively common component of the ground layer in the western half of the proposed clearing area. The proposed clearing will remove approximately 3200 square meters of habitat for *Corchorus congener* (Astrebla, 2022). There are large swathes of habitat identical to that located within the proposed clearing area present across the coastal plain of the Exmouth peninsula (Astrebla, 2022).

Corchorus congener is a spreading shrub to 0.6 meters, associated with shrubland over grassland, with a preferred habitat of red to brown sandy loam, with its distribution extending from Exmouth to Karratha. There are 28 known records of the species, including from Barrow Island (Western Australian Herbarium,1998-). Noting it is widespread within the application area and the availability of suitable habitat adjacent to the application area and in the local area, the clearing of some individuals within the application area is not likely to result in a significant impact to the conservation status of the species. It is anticipated that the species will be still well represented within the identified population adjacent to the application area.

As the site survey occurred outside of the ideal timing for Ermaean botanical province, it is possible two species; *Tephrosia* sp. North West Cape (P2) and *Crinum flaccidum* (P3) could not be identified during the survey through the presence of flowers.

The application area does not consist of habitat features suitable for *C. flacciduma* and the nearest mapped record is over nine kilometres from the proposed clearing. If this species were present within the application area it can be identified through other distinct features.

The vegetation within the application area is not consistent with the vegetation associated with *T.sp North West Cape.* The species typically flowers between May to July, and given this is unlikely to be identified during the survey however, only one record is mapped of this species which is located 47 kilometres, therefore it is unlikely to occur within the application area.

Conclusion:

Based on the above assessment, the proposed clearing will result in the removal of several individuals of *Corchorus congener* (P3), however is not likely to significantly impact the conservation status of the species. The proposed clearing is not likely to impact any other conservation significant flora species.

Conditions:

No flora management conditions required.

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

Assessment:

The desktop assessment identified 77 conservation significant fauna species recorded in the local area; including 41 avian species, 16 mammal, 11 invertebrates, six reptiles, three fish. Of which, 40 of these species are migratory avian species associated with coastal habitats, not represented within the application area and an additional six species are only found in marine environments. A further 11 mammal species are considered extinct or were fossil specimens and are therefore excluded from the analysis.

Based on the analysis on suitability on habitat, distance of closest mapped records and the number of known records in the local area, eight terrestrial fauna species and 13 subterranean fauna species, possibly occur within the application area (See A.4 for fauna analysis table).

Terrestrial species

Eight terrestrial species include:

- *Petrogale lateralis lateralis* (Black-flanked rock-wallaby) (EN)
- *Falco peregrinus* (Peregrine falcon) (OS)
- *Anilios splendidus* (Splendid blind snake - North West Cape) (P2)
- *Diplodactylus capensis* (Cape range stone gecko) (P2)
- *Aprasia rostrata* (Ningaloo worm lizard) (P3)
- *Lerista allochira* (Cape Range slider) (P3)
- *Pseudomys chapmani* (Western pebble-mound mouse) (P4)

Petrogale lateralis lateralis

Petrogale lateralis lateralis (black-flanked rock-wallaby) is considered endangered as its once widespread range is now restricted to parts of Cape Range, Kalbarri National Park, Calvert Range, Barrow and Salisbury Islands and a sub-population in the Wheatbelt (DBCA, 2023b). The black-flanked rock-wallaby inhabit semi-arid to arid zones in areas of rocky habitat, with caves and crevices. Due to the extensive gorge systems of the Cape Range National Park and the adjoining crown and defence land, the region supports the largest and most stable population of the species. There has been more than 300 records mapped within the local area for the species, with the closest record approximately four kilometres from the application area. The species management plan has raised concern about the spread of the weed species of Buffel grass (*Cenchrus ciliaris),* as it out competes native grasses, foraged for by this species. Given the application area is widely dominated by *C. ciliaris* and there is no suitable refuge habitat (rocky gullies and cave systems) it is unlikely the clearing with have an impact to the habitat of this endangered wallaby species.

Falco peregrinus

The *Falco peregrinus* (Peregrine falcon) is listed as other specially protected species, found Australia wide in a range of habitats including woodlands, grasslands and coastal cliffs, usually near watercourses (DAWE, 2020). Roosting habitat for the peregrine falcon include; granite outcrops and coastal cliffs, and in the absence of these habitats, the species has been known to utilise the nests of other bird species or tree hollows for breeding. The habitat within the application area is considered suitable foraging grounds for the peregrine falcon, however noting the species large home range and mobility, it is unlikely the proposed small scale clearing will significantly impact the habitat of this species.

Anilios splendidus

Anilios splendidus (Splendid blind snake - North West Cape) (P2), is only known from two records, with the nearest record located approximately 20 kilometres from the application area. Little is known about its habitat preferences, given that it was found in an area with a similar vegetation type to the proposed clearing, it is considered possible that the application area may also provide suitable habitat for this species.

Diplodactylus capensis

Diplodactylus capensis (Cape range stone gecko) (P2) is endemic to Australia with a distributions particularly associated with the local landscape of Cape Range (ALA, 2008). 58 records of this species are recorded within the local area, with the closest record approximately 2.7 kilometres from the application area. Habitat for this species is not widely known, however considering the habitat of previous records within the Cape Range area, it is likely the application area consists of suitable habitat, however given the small extent of the clearing it is unlikely to impact the gecko.

Aprasia rostrata

Aprasia rostrata (Ningaloo worm lizard) (P3) is endemic to Australia and occupies sandy habitats such as white sand dunes on the coast and red Triodia covered sand dunes inland (Maryan et al, 2013). While only 5 records have been mapped within the local area and the closest mapped record is 12 kilometres away, the application area does support

habitat suitable for the lizard. Given the size of the application area and the distance to known records, the proposed clearing is unlikely to significantly impact the habitat of the species.

Lerista allochira

Lerista allochira (Cape Range slider) (P3), is a burrowing species found in loose soil or sand, beneath logs, stones or leaf litter, situated on limestone plateaus sparsely vegetated with Triodia and shrubs, which is consistent habitat with the application area (Cogger, 2014). 63 records have been mapped within the local area, with the nearest record located 16.5 kilometres away. Given there are no records of this species located on the east coast plain of Exmouth and the small size of the application area the slider is unlikely to be significantly impacted by the clearing.

Pseudomys chapmani

Pseudomys chapmani (Western pebble-mound mouse) is a P4 native rodent species endemic to Western Australia. This species' known distribution was reported to be restricted to the non-coastal, central and eastern part of the Pilbara region (Start, 1996). The status of this species in Cape Range is unclear and known only from historical evidence with only one record of this species mapped in the local area approximately 40 km away from the application area (GIS database). A recent clearing application located three kilometres from the application area, did however indicate active and no active mounds located within the clearing (DWER, 2023). The survey concluded that the application area does contain habitat suitable for the western pebble mouse (Astrebla, 2022). The survey did not indicate the presence of mounds within the application area. Considering the size of the application area it is unlikely to significantly impact the species.

Noting the above, there is a likelihood for impacts to individual ground dwelling fauna to occur, if they are present at the time of the clearing.

Subterranean species

the following subterranean threatened and priority species have been recorded within the local area:

- *Bamazomus subsolanus* (Eastern Cape Range bamazomus) (T);
- *Bamazomus vespertinus* (Western Cape Range bamazomus) (T);
- *Draculoides brooksi* (Northern Cape Range draculoides) (T);
- *Draculoides julianneae* (Western Cape Range draculoides) (T);
- *Indohya damocles* (Cameron's Cave pseudoscorpion) (T);
- *Milyeringa veritas* (Cave gudgeon, blind gudgeon) (T);
- *Ophisternon candidum* (Blind cave eel) (T);
- *Stygiocaris lancifera* (Lance-beaked cave shrimp) (T);
- *Stygiochiropus isolatus* (a stygiochiropus millipede (Cape Range)) (T);
- *Stygiochiropus peculiaris* (Cameron's Cave millipede) (T);
- *Stygiochiropus sympatricus* (a stygiochiropus millipede (Cape Range)) (T).
- *Nocticola flabella* (Cape Range blind cockroach, Cape Range delicate cockroach) (P4) and;
- *Stygiocaris stylifera* (Spear-beaked cave shrimp) (P4)

These species are known to be associated with the Cape Range Sub-terranean Waterways wetland system mapped within the application area. The closest recorded subterranean species mapped within the local area are the *Milyeringa veritas*, *Ophisternon candidum and Stygiocaris lancifera,* all mapped approximately 200 metres from the application area. There is no habitat above ground for these species, where the proposed clearing will occur, and no in-depth drilling is proposed for the construction of the access track.

It is noted that two of the above fauna species, Cameron's Cave Millipede and Cameron's Cave pseudoscorpion, as well as a unique assemblage of other fauna species, are endemic to Cameron's Cave and the threatened ecological community; Cameron's Cave Troglobitic Community (DBCA, 2023a). The Cameron's Cave Troglobitic Community is reliant on the humid conditions in Cameron's Cave, which are created through contact with the water table and specific surface conditions (DBCA, 2023a). Given that Cameron's Cave is approximately 1.5 kilometres north of the application area, the proposed clearing is considered unlikely to significantly impact groundwater quality values within Cameron's Cave and therefore unlikely to impact the fauna species from the Cameron's Cave Troglobitic Community (DWER, 2020).

Conclusion

Based on the above assessment, the proposed clearing is not likely to significantly impact conservation significant fauna species, however, may impacts individuals if present during the time of the clearing.

Condition

The following management measures will be required as a condition on the clearing permit:

Slow progressive clearing in one direction to allow fauna individuals to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals.

3.2.3. Land and water resources - Clearing Principles (f) and (i)

Assessment:

The application area is situated above the Cape Range Subterranean Waterways wetland system, which is listed in the Directory of Important Wetlands in Australia. It is known that some extensive inland sinkholes within the wetland system are connected to the ocean and experience tidal movement (DBCA, 2020). This tidal movement across the wetland system, indicates channels connecting inland karst features and the ocean, have the potential to be present beneath the application area. It is to be noted a previous application to clear 1.48 hectares (CPS 9103/1) within the Cape Range Subterranean Waterways wetland system, sought advice from the DBCA, concluding the size of the clearing is very small compared to the estimated area of the mapped wetland, therefore is unlikely to pose significant threat to water quality of any potential underlying cave features.

Given the DBCA advice for the other application, the proposed clearing of 0.334 hectares under this application is also very small compared to the estimated area of the mapped wetland system; therefore it is unlikely to pose significant threat to water quality entering the groundwater or impact any cavern features.

There is no specific information available on the presence of cave entrances within the application area, shallow depressions that approximate gullies have been located across the proposed clearing, however, are unlikely to present as cavern entrances and are unlikely to impact the underlying karst features.

The vegetation to be cleared predominately comprises of shallow rooted species therefore the proposed clearing is also considered unlikely to otherwise impact any underlying karst features, should they be present.

Growth of Buffel grass is considered to be a potential contributor to the addition of nutrients to the Cape Range Subterranean Waterways (Astrebla, 2022). Given the absence of cavern entrances in the proposed clearing, it is unlikely for Buffel grass to increase nutrification of the Cape Range Subterranean Waterways.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to significantly impact the subterranean waterways.

Conditions: None

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include Development Approval under the *Planning and Development Act 2005* (issued by the Shire of Exmouth).

The Shire of Exmouth advised DWER that local government approvals are required, the proposed clearing is consistent with the Shire's Local Planning Scheme, and the development approval (DA15/22) issued is still valid (Shire of Exmouth, 2023). The Shire is supportive of the proposed clearing, subject to complying with any relevant state and federal laws and legislation.

The application area is mapped within the Warnangura (Cape Range) Cultural Precinct. It is the permit holder's responsibility to comply with any relevant legislation and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is a 0.334-hectare isolated patch of native vegetation associated with the Exmouth coastline in the extensive land use zone of Western Australia. It is situated 500 metres west of the Exmouth coastline, surrounded by native vegetation, joining Minilya- Exmouth Road to the west and an existing access track to the east. Several discontinuous, shallow depressions are located across the application area. Aerial imagery indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains over 90 per cent of the original native vegetation cover.
Ecological linkage	The application area is not within any mapped ecological linkages. The application area is mapped as an Environmentally Sensitive Area associated with the Cape Range Subterranean Waterways (directory of important wetlands) and the Register of National Estates.
Conservation areas	The application area lies within an unmanaged reserve for Government requirements and is situated 6 km east of Cape Range National Park, 10.7 km from Cape Range Conservation Park and 11 km from Ningaloo Marine Park.
Vegetation description	The vegetation survey (Astrebla, 2022) indicates the vegetation within the proposed clearing area consists of sparse to open shrubland consisting of three layers: Groundcovers: • *Cenchrus ciliaris* (Buffel grass; weed) and • *Triodia spp.* Shrubland up to two metres tall, • *Exocarpos aphyllus,* • *Acacia bivenosa,* • *Acacia stellaticeps,* • *Acacia pyrifolia,* • *Acacia. tetragonaphylla,* • *Gossypium robinsonii,* • *Eremophila longifolia,* • *Senna artemisioides subsp. oliophylla,* • *Senna glutinosa subsp. glutinosa,* • *Melaleuca cardiophylla and* • *Scaevola pulchella.* Four to five metre tall emergent • *Corymbia hamersleyana,* • *Eucalyptus xerothermica,* • *Acacia coricea,* • *Acacia sericophylla*. Survey descriptions and photographs of the vegetation are available in Appendix D. This is consistent with the mapped vegetation type: • Beard 633, which is described as Hummock grasslands, shrub steppe; waterwood over soft spinifex (Shepherd et al, 2001) *The mapped vegetation type retains approximately 89 per cent of the original extent (Government of Western Australia, 2019).*

Characteristic	Details
Vegetation condition	Vegetation survey (Astrebla, 2022) indicate the vegetation within the proposed clearing area is in good (Trudgen, 1991) condition, described as: • 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. The survey (Astrebla, 2022) also noted outside of the proposed clearing area (50 metres south of the most eastern end) has previously been heavily disturbed and therefore the condition of the vegetation in this area is considered poor, due to the absence of native shrubs and tree cover, which is replaced with the exotic grass; *cenchrus ciliaris*. The full Trudgen (1991) condition rating scale is provided in Appendix C. Survey descriptions and photographs of the vegetation are available in Appendix D.
Climate and landform	The climate of the application area is classified as hot semi-arid climate with hot dry summers and warm winters. Mean maximum temperatures of 38 degrees occur in January and mean minimum temperatures of 11.4 degrees occur in July. Rainfall is highest in June with a mean of 43.5 millimetres (BOM 2023). The application area is relatively flat approximately 10 metres AHD and is situated on a depositional landform of sediments (Astrebla, 2022).
Soil description	The soil is mapped as 204Le, described as sandy outwash plains marginal to the Cape Range, supporting mainly soft spinifex hummock grasslands with scattered acacia shrubs (DPIRD, 2019).
Land degradation risk	The land is described as very low land degradation risk due to acidification, salinity, and erosion (DPIRD, 2022).
Waterbodies	The desktop assessment and aerial imagery indicated the application area lies within the Cape Range Subterranean Waterways, a subterranean wetland listed in the Directory of Important Wetlands in Australia and is mapped over 90,022 ha of the peninsula. A perennial waterbody is located approximately 300 metres north of the application area and the Exmouth Gulf is located approximately 550 metres to the east.
Hydrogeography	The application area lies within the Pilbara Surface Water Area and Gascoyne Ground Water Area, proclaimed under the RIWI Act. Located 0.96 kilometres west of the application area is the Priority 1 area for the Exmouth Water reserve. Mapped groundwater salinity: 500 – 1000 mg/L TDS.
Flora	The available databases indicate the presence of 27 priority flora species and no threatened species mapped within the local area. *Corchorus congerner* was recorded within the proposed clearing site during the survey (Astrebla, 2022) and the closest mapped record of the P2 *Acanthocarpus rupestris* species is located 1.7 kilometres southwest.
Ecological communities	There is one threatened critically endangered ecological community, Cameron's Cave Troglobitic Community, recorded within the local area, approximately 1.5 kilometres north west of the application area.
Fauna	Available databases identified 77 threatened or priority fauna species recorded in the local area. Of these, six species are marine species, 37 area migratory avian species and three are extinct. 14 species are cave dwelling invertebrate, fish and one bat species, while seven species records are fossil or specimen records of mammals. One species is listed as endangered with the nearest record approximately 4 kilometres from the application area, one species is listed as vulnerable, one species of conservation interest, two are priority 2 (P2) species, two P3 and three P4.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Carnarvon	8,382,890.35	8,360,801.46	99.74	1,020,434.08	12.20
Vegetation complex					
Beard vegetation association 663 *	29,068.26	25,866.32	88.98	7414.33	28.66
Local area					
50km radius	782,121.43	176,691.06	96.37	-	-

*Government of Western Australia (2019a)

A.3. Flora analysis table

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

Species name	Conservation status	Suitable habitat features ? [Y/N]	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]
Acacia alexandri	2	Y	Y	Y	17.13	3	Yes
Acacia ryaniana	2	Y	Y	Y	1.72	5	Yes
Acacia startii	2	Y	N	Y	14.70	5	Yes
Brachychiton obtusilobus	2	Y	N	Y	5.59	2	Yes
Calandrinia sp. Cape Range (F. Obbens FO 10/18)	2	N	Y	Y	3.26	4	Yes
Corchorus congener	2	N	Y	Y	3.11	7	Yes
Corynotheca flexuosissima	3	Y	Y	N	3.27	31	Yes
Crinum flaccidum	3	Y	Y	N	9.31	1	No
Cucumis sp. Barrow Island (D.W. Goodall 1264)	3	Y	Y	Y	4.39	9	Yes
Eremophila forrestii subsp. capensis	3	Y	N	Y	15.27	5	Yes
Grevillea calcicola	3	N	Y	Y	10.26	18	Yes
Lysiandra fuernrohrii	3	N	Y	Y	9.64	19	N/A
Stackhousia umbellata	3	Y	N	Y	10.55	5	Yes
Tephrosia sp. North West Cape (G. Marsh 81)	3	N	Y	Y	8.19	18	No
Tinospora esiangkara	4	N	Y	Y	5.07	15	Yes

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

A.4. 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]
Terrestrial					
Petrogale lateralis lateralis (Black-flanked rock-wallaby)	EN	Y	3.98	350	N/A
Falco peregrinus (Peregrine falcon)	OS	Y	4.93	3	N/A
*Anilios splendidus (*Splendid blind snake - North West Cape)	P2	Limited knowledge of habitat	19.5	2	N/A
Diplodactylus capensis (Cape range stone gecko)	P2	Y	2.75	58	N/A
Aprasia rostrata (Ningaloo worm lizard)	P3	Limited knowledge of habitat	12.06	5	N/A
Lerista allochira (Cape Range slider)	P3	Limited knowledge of habitat	16.63	63	N/A
Pseudomys chapmani (Western pebble-mound mouse)	P4	Y	3	1	N/A
Sub terranean					
Indohya damocles (Cameron's Cave pseudoscorpion)	CR	If subterranean waterways/ caves/sinkholes/ fissures present	1.45	27	N/A
Stygiochiropus peculiaris (Cameron's Cave millipede)	CR		1.45	15	N/A
Bamazomus subsolanuseastern (Cape Range bamazomus)	EN		3.79	55	N/A
Draculoides brooksinorthern (Cape Range draculoides)	EN		1.45	47	N/A
Milyeringa veritas (Cave gudgeon, blind gudgeon)	VU		0.18	102	N/A
Ophisternon candidumblind (cave eel)	VU		0.18	29	N/A
Stygiocaris lancifera (lance-beaked cave shrimp)	VU		0.20	12	N/A
*Stygiochiropus isolatus*a (stygiochiropus millipede - Cape Range)	VU		5.13	6	N/A
Stygiocaris stylifera (spear-beaked cave shrimp)	P4		1.39	5	N/A

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared may contain regionally significant flora, fauna, habitats, assemblages of plants. In particular, the proposed clearing will impact several individuals of the P3 species *Corchorus congener,* however will not result in a significant impact to its conservation status.	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (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."*	May be at variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Assessment: The area proposed to be cleared is likely to contain significant habitat for conservation significant fauna.		
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for Threatened flora species listed under the BC Act.	Not likely to be at variance	No *Refer to Section 3.2.1, above*
Principle (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."* Assessment: The area proposed to be cleared is not likely to contain flora or fauna species indicative of a threatened ecological community or necessary for the maintenance of nearby threatened ecological communities.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (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."* Assessment: The application area is situated within an unmanaged reserve for Government requirement and the Cape Range National Park is the nearest conservation area located approximately 6.5 kilometres west of the application area. Given the distance to the Cape Range National Park, and the small scale of the clearing within the mapped reserve, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas. Noting the presence of an unmanaged reserve, the proposed clearing is likely to increase the risk of spreading weeds into adjacent vegetation within this reserve. A weed management condition on the permit will mitigate any potential impacts.	May be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The proposed clearing is within the mapped boundary of the 'Directory of Important Wetlands in Australia 'Cape Range Subterranean Waterways.	At variance	Yes *Refer to Section 3.2.3, above.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the mapped soil type, the extent and the linear nature of the application area the proposed clearing is not likely to have an appreciable impact on land degradation	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: Given the extent of the clearing and that the 'Cape Range Subterranean Waterways' is a subterranean system; the proposed clearing is unlikely to impact water quality within the wetland system. Given the distance to nearby surface water receptors, the proposed clearing is unlikely to impact surface water quality.	Not likely to be at variance	No
Principle (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."* Assessment: Given the mapped soil type, distance to surface waterbodies, extent of the clearing area and the topography, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding or waterlogging.	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 (1991).

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

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

Appendix D. Biological survey excerpts and photographs of the vegetation

Figure D - 1: Photograph of vegetation at the proposed access track entrance at Minilya-Exmouth Rd, from the opposite side of the road. Vegetation is sparse to open shrubland, with maximum canopy height of approximately 4 metres, interspersed with areas of open hummock grassland (Astrebla, 2022).

Figure D - 2: Vegetation near the centre of the proposed access track. Sparse shrubland dominated by *Acacia bivenosa* and *A. inaequilatera* with emergent *Corymbia hammersleyana* and *Eucalyptus xerothermica*, and patches of *Triodia epactica* open hummock grassland (Astrebla, 2022).

Figure D - 3: Vegetation to the west at the most easterly end of the proposed clearing (where it joins an existing track). Low open woodland associated with a number of closed depressions in the vicinity of the proposed access track, dominated by *Eucalyptus xerothermica* and *Corymbia ammersleyana* with *Acacia sericophylla* (Astrebla, 2022).

Figure D - 4: Closed depression forming a discontinuous line across the proposed track access – approximately three to four metres deep and vegetated with low open woodland dominated by *Eucalyptus xerothermica*, *Corymbia hammersleyana* and *Acacia sericophylla* (Astrebla, 2022).

Figure D - 5: Proposed clearing footprint, from the south-east looking to the north-west (Astrebla, 2022).

Appendix E. Sources of information

E.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)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- 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 Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)

- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

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

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