



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9541/1
Permit type:	Purpose Permit
Applicant name:	Pilbara Energy (Generation) Pty Ltd
Application received:	22 December 2021
Application area:	353.2 hectares
Purpose of clearing:	Solar farm and associated infrastructure
Method of clearing:	Mechanical Removal
Tenure:	Miscellaneous Licence 45/515 Miscellaneous Licence 45/589
Location (LGA area/s):	Town of Port Hedland
Colloquial name:	North Star Junction Solar Project

1.2. Description of clearing activities

Pilbara Energy (Generation) Pty Ltd proposes to clear up to 353.2 hectares of native vegetation within a boundary of approximately 371.68 hectares, for the purpose of a solar farm and associated infrastructure. The project is located approximately 91 kilometres south of Port Hedland, within the Town of Port Hedland.

The application is to allow for the construction and operation of a solar farm to support the North Star iron ore mine.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	24 June 2022
Decision area:	353.2 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 22 December 2021. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix C), relevant datasets (Appendix G), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix D), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- impacts to conservation significant flora;
- the loss of native vegetation that is suitable habitat for the Bilby, Brush-tailed Mulgara and Western Pebble-mound Mouse;
- the loss of vegetation growing in association with a watercourse;
- potential land degradation in the form of wind erosion.

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 managed by conditions and is not likely 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;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- avoid clearing watercourses where possible, and ensure the surface flow of any disturbed watercourses is maintained;
- undertake an inspection of areas to be cleared ahead of clearing activities to ensure that no Bilby or Mulgara individuals are present within any burrow during clearing activities.

1.5. Site map

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

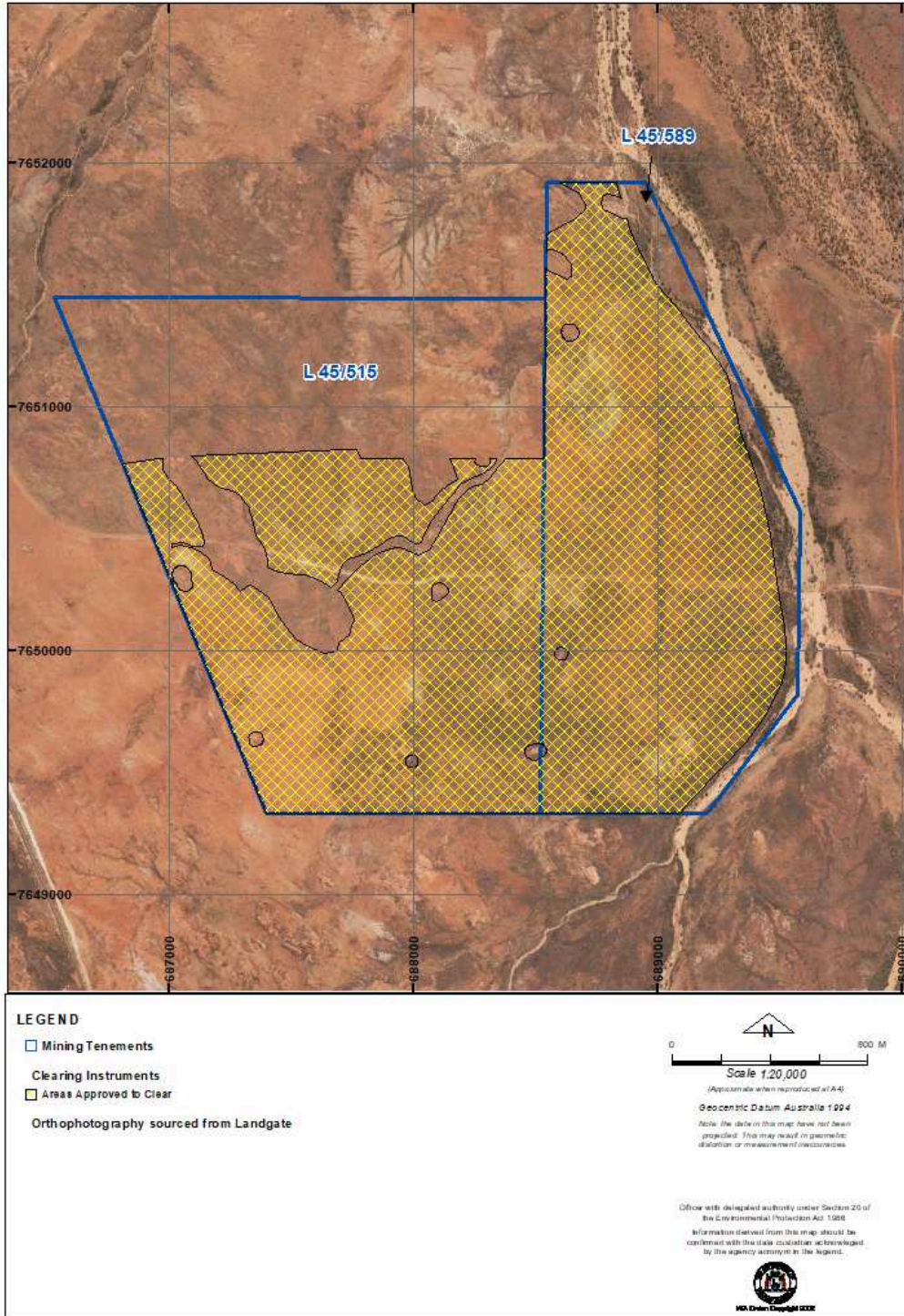


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

2. Legislative context

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

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

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

Other legislation of relevance for this assessment includes:

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

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *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, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

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. The application area was reduced to avoid significant areas or riparian vegetation and granite outcrops which are likely to provide habitat for conservation significant flora and fauna species. Where possible, clearing activities will be undertaken by hand felling or directional pruning.

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (Priority flora, conservation significant fauna), land 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 (flora) - Clearing Principle (a)

Assessment

Based on known records, the vegetation present within the application area and findings from flora surveys, the following Priority flora species are considered likely to be found within the application area (Ecoscape, 2021):

- *Abutilon* sp. Pritzelianum (Priority 3)
- *Bulbostylis burbridgeae* (Priority 4)
- *Euphorbia clementii* (Priority 3)
- *Euploca mutica* (Priority 3)
- *Gomphrena leptophylla* (Priority 3)
- *Goodenia nuda* (Priority 4)
- *Gymnanthera cunninghamii* (Priority 3)
- *Nicotiana umbratica* (Priority 3)
- *Phyllanthus hebecarpus* (Priority 3)
- *Rothia indica* subsp. *australis* (Priority 3)
- *Triodia chichesterensis* (Priority 3)

The flora survey undertaken by Ecoscape (2021) over the application and adjacent area recorded nine species of Priority flora, two of which were recorded in the application area; *Goodenia nuda* and *Triodia chichesterensis*.

Triodia chichesterensis was recorded from one location within the application area associated with the T1 vegetation unit (Ecoscape, 2021). There was an estimated 200 plants recorded at this location (Ecoscape, 2021). The flora survey found an additional 9 records of this species outside of the application area with an estimated population of 3,600 plants (Ecoscape, 2021). This species is known from 33 records and has a distribution south of Port Hedland of approximately 130 kilometres (Western Australian Herbarium, 1998-). There is suitable habitat present for this species in the local area and the proposed clearing of the one population within the application area is not likely to have a significant impact on this species.

There are two locations of *Goodenia nuda* within the application area (FMG, 2021). *Goodenia nuda* is known from numerous records across a wide distribution of the Pilbara (Western Australian Herbarium, 1998-). There is suitable habitat present

throughout the local area (surrounding 20 kilometres) and the proposed clearing is not expected to have a significant impact on this species at a local or regional scale.

Nicotiana umbratica, *Phyllanthus hebecarpus* and *Bulbostylis burbridgeae* were all recorded within one kilometre of the application area (Ecoscape, 2021). These species are usually found in areas of granite outcrops or boulders (Western Australian Herbarium, 1998-). Areas of granite outcrops and boulder piles have been excluded from the application area so the proposed clearing is not likely to have a significant impact on habitat for these species in the local area.

Gymnanthera cunninghamii was recorded outside the application area growing along drainage lines (Ecoscape, 2021). The majority of riparian vegetation has been excluded from the application area (see Figure 2 in Appendix F). This species is widespread and is found in the Carnarvon, Gascoyne, Great Sandy Desert and Pilbara bioregions (Western Australian Herbarium, 1998-). Given the distribution of this species and the limited amount of preferred habitat within the application area, the proposed clearing is not likely to have a significant impact on this species.

Euploca mutica, *Gomphrena leptophylla* and *Rothia indica* subsp. *australis* have been recorded within 3 kilometres of the application area and suitable habitat is present (Ecoscape, 2021). *Abutilon* sp. *Pritzelianum* and *Euphorbia clementii* were not recorded during the flora survey, however they are considered possible to be present in the application area (Ecoscape, 2021). However, suitable habitat for these species is present in the local area and they all have distributions over 250 kilometres (Western Australian Herbarium, 1998-). The proposed clearing is not likely to have a significant impact on these species.

There were three species of weed recorded within the application area; *Cenchrus ciliaris* (Buffel Grass), *Flaveria trinervia* (Speedy Weed) and *Portulaca pilosa* (Djanggarra) (Ecoscape, 2021). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area, therefore hygiene measures are needed to ensure clearing activities don't introduce or spread weeds into non-infested areas.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on habitat for Priority flora is not likely to be significant. There is potential for weeds being present within the application area and the proposed clearing has the potential to exacerbate the spread of weeds.

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.

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

Assessment

A basic fauna survey was undertaken over the application area and adjacent area in May 2021 (Ecoscape, 2021). The survey identified three broad fauna habitats:

- Hummock grasslands
- Creeklines
- Granite outcrops

The application area is almost entirely comprised of the hummock grassland habitat as the majority of the granite outcrops and creekline habitats have been excluded from the application area (FMG, 2021).

The following conservation significant fauna species (state listing shown below) have been identified as potentially occurring within the application area:

- Fork-tailed Swift (*Apus pacificus*) (Migratory)
- Northern Quoll (*Dasyurus hallucatus*) (Endangered)
- Grey Falcon (*Falco hypoleucos*) (Vulnerable)
- Peregrine Falcon (*Falco peregrinus*) (Other specially protected fauna)
- Spectacled Hare-wallaby (mainland) (*Lagorchestes conspicillatus leichardti*) (Priority 4)
- Ghost Bat (*Macroderma gigas*) (Vulnerable)
- Greater Bilby (*Macrotis lagotis*) (Vulnerable)
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4)
- Pilbara Leaf-nosed Bat (*Rhinonictis auratia*) (Vulnerable)

Diggings attributed to the Greater Bilby were recorded in an area of hummock grassland approximately 50 metres north of the application area (Ecoscape, 2021). Brush-tailed Mulgara burrows were also recorded from the same area as the Bilby diggings (Ecoscape, 2021). Given similar habitat is present over the majority of the application area, it is likely that the Bilby and Brush-tailed Mulgara will also utilise the vegetation within the application area. The proposed clearing of 353.2 hectares will result in the reduction of habitat for these species. However, this habitat is common and widespread in the bioregion. The proposed clearing is not likely to have a significant impact on these species at a regional scale. However, the clearing may directly impact individual fauna, and at a local scale by reduction of appropriate habitat.

There were two mounds of the Western Pebble-mound Mouse recorded during the fauna survey approximately one kilometre north of the application area (Ecoscape, 2021). The mounds were recorded in the hummock grassland habitat in close proximity to areas of creekline habitat (Ecoscape, 2021). This habitat is present within the application area and it is assumed that this species will also utilise habitat within the application area. This habitat is common in the local area and whilst the proposed clearing will remove habitat for this species, it is not likely to have a significant impact on this species.

No habitat suitable for roosting for the Ghost Bat or Pilbara Leaf-nosed Bat is present within the application area (Ecoscape, 2021). These bat species are likely to forage through the area, in particular within the creekline habitat (Ecoscape, 2021). The majority of the creekline habitat has been removed from the application area, with one area of creekline habitat associated with a minor drainage line present in the northern section of the application area (Ecoscape, 2021). Whilst the proposed clearing will impact on foraging habitat for these bats, the vegetation within the application area is not likely to be significant habitat.

The Northern Quoll is known from the North Star project area approximately 20 kilometres to the east and at various locations across Fortescue Metals Group's mail line rail (FMG, 2021). The Northern Quoll is a habitat generalist and is likely to utilise all of the habitats within the application area (Ecoscape, 2021). Northern Quolls are known to occupy daytime shelters such as rocky outcrops, tree hollows, hollow logs, termite mounds and goanna burrows (Hill & Ward, 2010). These habitat features are more common within the granite outcrop and creekline habitats (Ecoscape, 2021). The granite outcrop habitat may also contain sites suitable for dens (Ecoscape, 2021). These habitats have mostly been excluded from the application area with a relatively small area of habitat present in the north of the application area. Whilst the proposed clearing will remove some foraging habitat for this species, it is not likely to represent significant habitat in the local area.

The Fork-tailed Swift, Grey Falcon, Peregrine Falcon and Spectacled Hare-wallaby are all likely to utilise the application area as part of a larger home range. The majority of the vegetation within the application area is hummock grassland habitat which is well represented in the local area (Ecoscape, 2021). The proposed clearing is not likely to have a significant impact on these fauna species.

Conclusion

Based on the above, the proposed clearing will impact on habitat significant for conservation significant fauna species. The applicant has reduced the potential impact by removing significant amounts of granite outcrop and creekline habitat from the application prior to submission. Individuals may be impacted by the proposed clearing however, the impact to fauna will be minimised by the implementation of conditions on the permit.

Conditions

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

- Areas shall be inspected prior to clearing to ensure that no Bilbies or Mulgara are utilising burrows at the time of clearing.

3.2.3. Water and land resources - Clearing Principles (f) and (g)

Assessment

There are three ephemeral drainage lines which intersect the application area. There is also a significant creek which flows into the Turner River adjacent to the eastern boundary of the application area. The vegetation units ChAcTe and MaAtCc were both identified as being associated with drainage lines (Ecoscape, 2021). The vegetation unit MaAtCc is growing in association with the creek to the east. As this vegetation unit is dominated by *Melaleuca argentea* and *Eucalyptus camaldulensis* it is considered to represent a groundwater dependent vegetation (Ecoscape, 2021). The application area has been amended to exclude this vegetation unit. The application area was also amended to exclude a significant portion of the ChAcTe vegetation unit (see Figure 2 in Appendix F). Whilst the proposed clearing will impact on some riparian vegetation, it is not likely to have a significant impact on the surface water flow in the local area.

The application area has been mapped as occurring on the Macroy and River land systems. The application area is almost entirely comprised of the Macroy land system with only a small area (approximately 2.7 hectares) in the north of the application area mapped as the River land system. The Macroy land system has a low to very low erosion hazard (Van Vreeswyk et al., 2004). The River land system is highly susceptible if vegetation cover is removed. Whilst the majority of the application area has a low erosion risk, the clearing of 353.2 hectares can cause localised impacts from dust if left exposed for significant periods.

Conclusion

Based on the above assessment, the proposed clearing will result in the clearing of riparian vegetation and there is a small area which has a high risk of erosion. However, given the application has been amended to exclude the groundwater dependent vegetation it is not likely to have significant impact on watercourses in the local area and the impacts can be appropriately managed by the permit conditions.

Conditions

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

- A watercourse management condition which requires that riparian vegetation is avoided where possible and where watercourses are disturbed, the surface flow is maintained.
- A staged clearing condition which requires areas are utilised within 3 months of clearing being undertaken.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 21 January 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. One submission was received in relation to this application (see Appendix B).

There is one native title claim over the area under application (DPLH, 2022). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2022). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

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

It is noted that the proposed clearing may impact on the Greater Bilby, 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 Agriculture, Water and the Environment for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Agriculture, Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

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

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
The applicant provided an updated application area which reduced the proposed clearing permit boundary.	The clearing permit boundary was reduced to remove some areas significant for their environmental values (riparian vegetation, granite outcrops) and areas with heritage value.

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
<p>The Town of Port Hedland provided a submission stating no objection to the proposed clearing subject to a condition being imposed requiring the following:</p> <ol style="list-style-type: none"> 1. Riparian vegetation along Turner River is protected and not cleared; and 2. The land be rehabilitated and revegetated once the use has ceased 	<p>Riparian vegetation along the eastern boundary of the permit which is associated with a tributary of the Turner River was excluded from the application area during the assessment.</p> <p>A rehabilitation condition has not been placed on the permit. The application is located on <i>Mining Act 1978</i> tenure which requires the approval and adherence to a mine closure plan. Given the longer term nature of the proposed activities, it is considered appropriate that the rehabilitation and closure of the site is managed under approvals of the <i>Mining Act 1978</i>.</p>

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 91 kilometres south of Port Hedland. The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages.
Conservation areas	The closest conservation area is the Mungaroona Range Nature Reserve which is located approximately 55 kilometres southwest of the application area.
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association (GIS Database):</p> <p>93: Hummock grasslands; shrub steppe; kanji over soft spinifex.</p> <p>A flora and vegetation survey was conducted over the application area and adjacent areas by Ecoscape during May, 2021. The following vegetation associations were recorded within the survey area (Ecoscape, 2021):</p> <ul style="list-style-type: none"> - AiTw: <i>Acacia inaequilatera</i> and <i>A. bivenosa</i> tall sparse shrubland over <i>Triodia wiseana</i> and <i>T. chichesterensis</i> low hummock grassland; - AoTl: <i>Acacia orthocarpa</i> and <i>Grevillea wickhamii</i> tall open shrubland over <i>Triodia lanigera</i> and <i>Acacia stellaticeps</i> low hummock grassland/shrubland; - AtTE: <i>Acacia tumida</i> var. <i>pilbarensis</i> tall sparse shrubland over <i>Triodia epactia</i> mid open hummock grassland; - ChAcTe: <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia colei</i> var. <i>colei</i> tall sparse shrubland over <i>Triodia epactia</i>, <i>T. longiceps</i> and <i>Chrysopogon fallax</i> mid hummock/tussock grassland; - MaAtCc: <i>Melaleuca argentea</i> and <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> and <i>A. trachycarpa</i> tall open shrubland over <i>*Cenchrus ciliaris</i> and <i>Triodia epactia</i> low tussock/hummock grassland. - Tl: <i>Triodia longiceps</i> and <i>T. epactia</i> low hummock grassland; and - Ts: <i>Triodia secunda</i> low hummock grassland.
Vegetation condition	<p>The vegetation survey by Ecoscape (2021) indicates the vegetation within the proposed clearing area is in excellent to good (Trudgen, 1991) condition.</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix E.</p>

Characteristic	Details
Climate and landform	The application area is mapped within elevations of 170-190 metres AHD. The annual average rainfall (Marble Bar) is 391.8 millimetres (BoM, 2022).
Soil description	The soil is mapped as soil unit Oc62 which is described as very gently undulating pediplain with low granite outcrops and tors; occasional basic dykes occur as low elongate ridges: chief soils are hard alkaline red soils having coarse-textured A horizons up to 18 in. thick.
Land degradation risk	The application area has been mapped as the Macroy and River land systems (GIS Database).
Waterbodies	The desktop assessment and aerial imagery indicated that three minor, non-perennial watercourses transect the area proposed to be cleared.
Hydrogeography	The application area is not within any Public Drinking Water Source Area (PDWSA). The mapped groundwater salinity is 500-1,000 milligrams per litre total dissolved solids which is described as marginal.
Flora	There are records of one Threatened flora species and 19 species of priority flora within 20 kilometres, two of which have been recorded within the application area.
Ecological communities	There are no TECs or PECs recorded within the application area or within the local area (GIS Database).
Fauna	According to available datasets and fauna surveys in the area, there are records of six conservation listed fauna species within the local area. A likelihood of analysis identified nine species that may occur within the application area based on habitat suitability, as presented in section C.3. below.

C.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G.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)	Are surveys adequate to identify? [Y, N, N/A]
<i>Acacia leeuweniana</i>	Priority 1	Y	Y	Y	<20	Y
<i>Abutilon sp. pritzelianum</i> (S. van Leeuwen 5095)	Priority 3	Y	Y	Y	<20	Y
<i>Acacia levata</i>	Priority 3	Y	Y	Y	<20	Y
<i>Bulbostylis burbridgeae</i>	Priority 4	Y	Y	Y	<20	Y
<i>Eragrostis crateriformis</i>	Priority 3	Y	Y	N	<20	
<i>Euphorbia clementii</i>	Priority 3	Y	Y	Y	<20	Y
<i>Euploca mutica</i>	Priority 3	Y	Y	Y	<20	Y
<i>Fimbristylis sieberiana</i>	Priority 3	N	N	N	<20	Y
<i>Gomphrena leptophylla</i>	Priority 3	Y	Y	Y	<20	Y
<i>Goodenia nuda</i>	Priority 4	Y	Y	Y	0	Y
<i>Gymnanthera cunninghamii</i>	Priority 3	Y	Y	Y	<20	Y
<i>Nicotiana umbratica</i>	Priority 3	Y	Y	Y	<20	Y
<i>Phyllanthus hebecarpus</i>	Priority 3	Y	Y	Y	<20	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)	Are surveys adequate to identify? [Y, N, N/A]
<i>Ptilotus mollis</i>	Priority 4	Y	Y	Y	<20	Y
<i>Quoya zonalis</i>	Threatened	N	N	N	<20	Y
<i>Rothia indica</i> subsp. <i>australis</i>	Priority 3	Y	Y	Y	<20	Y
<i>Stylidium weeliwoilli</i>	Priority 3	N	N	N	<20	Y
<i>Terminalia supranitifolia</i>	Priority 3	N	N	N	<20	Y
<i>Triodia basitricha</i>	Priority 3	N	N	N	<20	Y
<i>Triodia chichesterensis</i>	Priority 3	Y	Y	Y	0	Y
<i>Vigna triodiophila</i>	Priority 3	Y	Y	Y	<20	Y

C.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Are surveys adequate to identify? [Y, N, N/A]
Northern Quoll	Endangered	Y	Y	Y
Ghost Bat	Vulnerable	Y	Y	Y
Western Pebble-mound Mouse	Priority 4	Y	Y	Y
Bilby	Vulnerable	Y	Y	Y
Brush-tailed Mulgara	Priority 4	Y	Y	Y
Spectacled Hare-wallaby (mainland)	Priority 3	Y	Y	Y
Grey Falcon	Vulnerable	Y	Y	Y
Peregrine Falcon	Other specially protected fauna	Y	Y	Y
Fork-tailed Swift	Migratory	Y	Y	Y

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

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains records of two species of Priority flora and is likely to contain habitat for several other species of Priority flora. There are no known TECs or PECs present within the application area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains foraging habitat for conservation significant fauna. Nearby records of Bilby, Mulgara and Western Pebble-mound Mouse indicate that these species will utilise habitat within the application area.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area does not contain species representative of a TEC listed under the BC Act or EPBC Act.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The extent of the mapped vegetation type is over 99% at both a state and bioregional level. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>There are three ephemeral drainage lines within the application area and the proposed clearing will impact on vegetation associated with a watercourse.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>There are some areas of the application area which have an inherently high risk of erosion. Leaving large areas of clearing open also increases the risk of land degradation.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Creek lines in the region are dry for</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water quality.</p> <p>The groundwater within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids. This is considered to be marginal water. It would not be expected that the proposed clearing would cause salinity levels within the application or surrounding area to alter.</p>		
<p>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.”</p> <p>Assessment:</p> <p>There are no permanent watercourses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.</p>	Not likely to be at variance	No

Appendix E. Vegetation condition rating scale

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

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

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

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

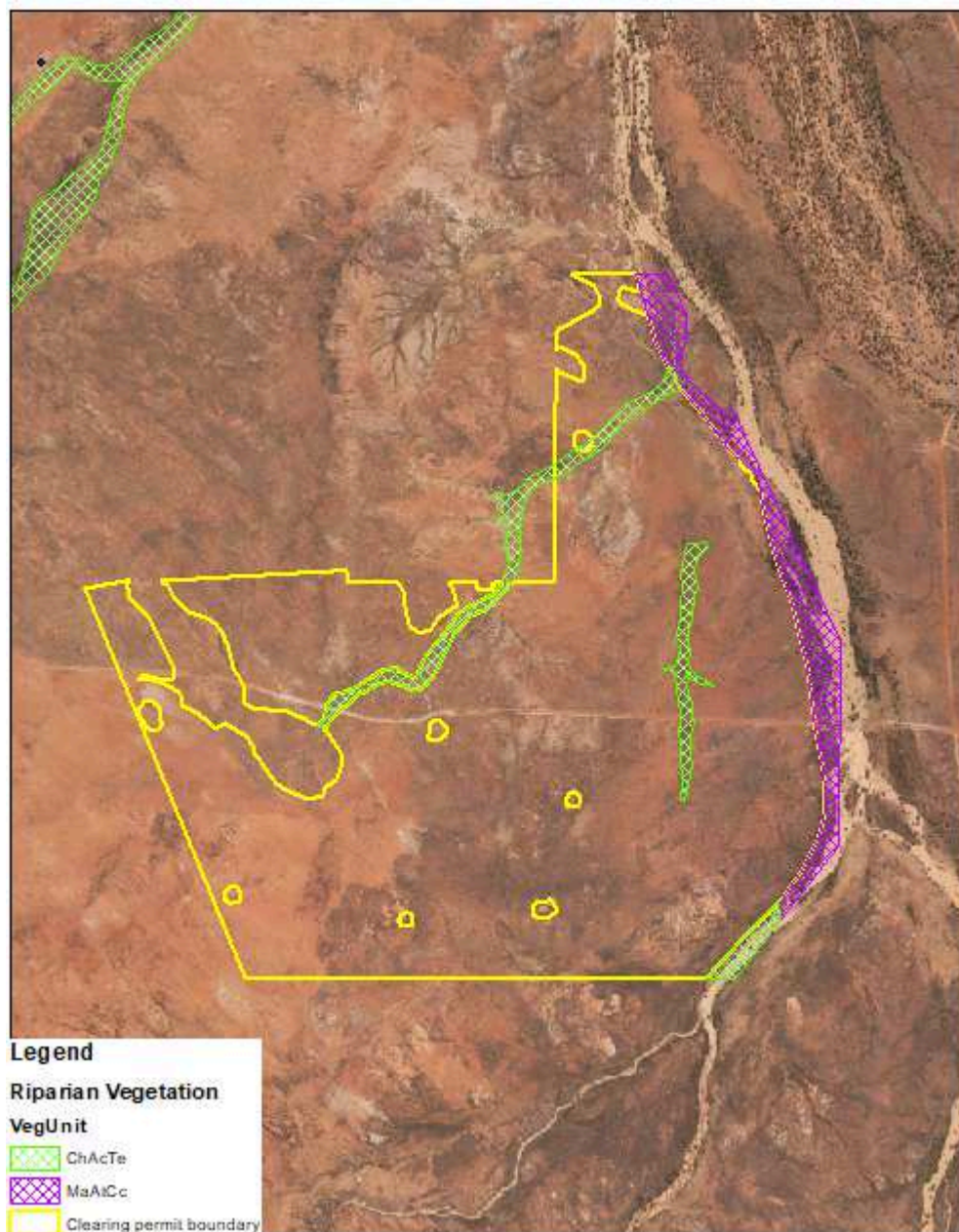


Figure 2. Map of the vegetation units associated with watercourses and drainage lines.

G.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)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines

- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- 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 (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)

G.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)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia

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

Definitions:

{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.