Department of Mines, Petroleum and Exploration

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	8319/2
Permit type:	Purpose Permit
Applicant name:	Robe River Limited
Application received:	9 October 2024
Application area:	60 hectares
Purpose of clearing:	Mineral exploration, fauna/flora monitoring, groundwater/hydrogeological monitoring and access, infrastructure access and Aboriginal Heritage survey/access.
Method of clearing:	Mechanical Removal
Tenure:	*Iron Ore (Robe River) Agreement Act 1964*, Mineral Lease 248SA (AML 70/248)
Location (LGA area/s):	Shire of Ashburton
Colloquial name:	Puluru Project

1.2. Description of clearing activities

Robe River Limited proposes to clear up to 60 hectares of native vegetation within a boundary of approximately 192.78 hectares, for the purpose of mineral exploration, groundwater/hydrogeological monitoring and access, infrastructure access and Aboriginal Heritage survey/access (Robe River Limited, 2024). The project is located approximately 60 kilometres southeast of Pannawonica, within the Shire of Ashburton. No clearing has occurred under this permit to date (Rio Tinto, 2024).

Clearing permit CPS 8319/1 was granted by the Department of Mines, Industry Regulation and Safety (now the Department of Mines, Petroleum and Exploration) on 18 April 2019 and was valid from 18 May 2019 to 31 December 2029. The permit authorised the clearing of up to 110 hectares of native vegetation within a boundary of approximately 263.33 hectares, for the purpose of mineral exploration, hydrogeological investigations and associated activities.

On 9 October 2024, the permit holder applied to amend CPS 8319/2 to amend the purpose of the permit to include fauna/flora monitoring, groundwater/hydrogeological monitoring and access, infrastructure access and Aboriginal Heritage survey/access, extend the period in which clearing is authorised to 31 December 2029, and to extend the duration of the permit to 31 December 2034. Additionally, the permit boundary has been reduced by 70.55 hectares from 263.33 to 192.78 hectares and amount of clearing authorised has been reduced from by 50 hectares from 110 hectares to 60 hectares (Robe River Limited, 2025).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	3 July 2025
Decision area:	60 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51KA(1) and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) (now DMPE) advertised the application for a public comment for a period of 7 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix E), supporting information provided by the applicant, including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix B), 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 species; and
- impacts to conservation significant fauna and their associated habitat.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- avoid and minimise measures to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- vegetation management – avoid riparian vegetation and where a watercourse is to be impacted by clearing, the permit holder shall ensure that the existing surface flow is maintained;
- restricted clearing within Gorge and Gully (G1) vegetation, allowing only access tracks (Site map 1.5; Figure 1);
- no clearing within 10 metres of *Eremophila* sp. (aff. *latrobei*) and priority flora *Triodia basitricha,* unless first approved by the *CEO;*
- retain cleared vegetation and topsoil and respread this on a cleared area of equivalent size within the application area within 12 months of clearing to ensure vegetation and fauna habitat is not permanently lost.

The assessment has not changed since the assessment for CPS 8319/1. The Delegated Officer determined that the proposed updated purpose of the permit, extension of duration in which clearing is authorised and extension of permit duration is not likely to lead to an unacceptable risk to environmental values.

1.5. Site map

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

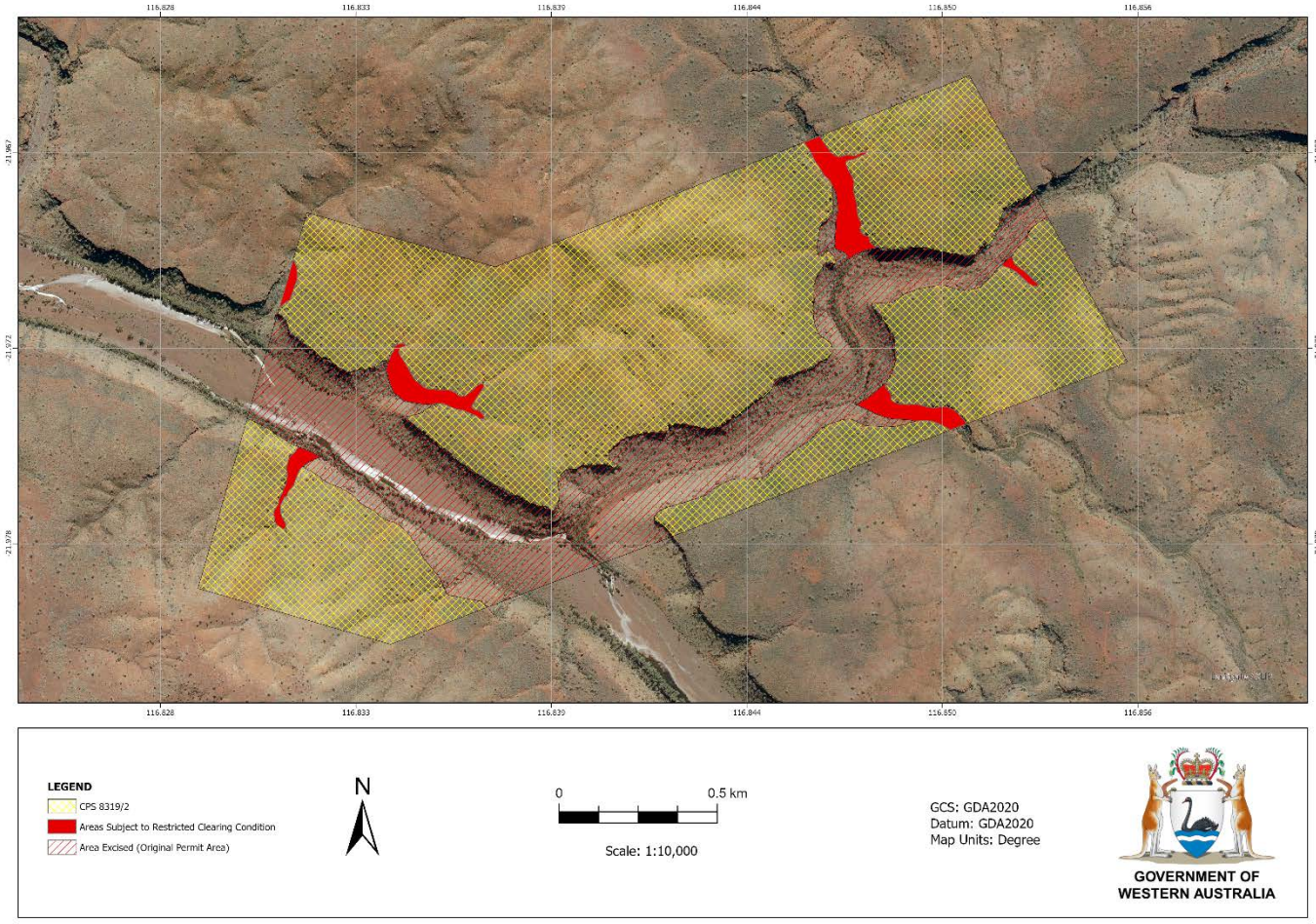


Figure 1. Map of the application area. The yellow cross-hatched area indicates the area within which conditional authorised clearing can occur under the granted clearing permit. The shaded red indicates areas subject to a restricted clearing condition. The red hatched represent areas excised from the original application.

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 (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)
- *Biosecurity and Agriculture Management Act 2007* (BAM Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Iron Ore (Robe River) Agreement Act 1964*

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

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, including a reduction in application area boundary and amount of authorised clearing (Robe River Limited, 2025). The applicant provided operational measures that includes (Robe River Limited, 2025):

- approval Request Co-coordination System;
- advice and sign off sought from Subject Matter Experts prior to an internal Approval Request permit being issued authorising works to occur;
- the internal Approvals Request permit ensures compliance with a number of conditions prior to commencing, during and/or at the conclusion of work; and
- locations of conservation significant taxa are uploaded to internal database and display a 20 meter restriction buffer, prior to authorising works, sites are reviewed by a biological Subject Matter Expert prior to authorising works.

3.2. Assessment of impacts on environmental values

A review of current environmental information (Appendix A) reveals that the assessment against the clearing principles has not changed significantly from the clearing permit decision report CPS 8319/1, however potential impacts have been reduced due to the reduction in application area boundary and amount of authorised clearing.

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

Assessment

A reconnaissance flora and vegetation survey was conducted over the application area by Biota (2018) during a field trip between 19 to 23 July 2018; the broader locality has not been extensively surveyed. Two vegetation associations that consist of groundwater dependent vegetation (R1 and R2) are considered to be of local significance (Biota, 2018), however both has been removed from the application area (Robe River Limited, 2025). Two vegetation associations (G1 and M3) are considered to hold local significance due to supporting populations of *Sida* sp. Hamersley Range (K. Newbey 10692) (Biota, 2018). Vegetation association M3 has been reduced from 34.02 hectares to approximately 0.26 hectares within the application. The remaining vegetation associations are well represented throughout the local area (Biota, 2018). A restricted clearing and flora management condition was previously implemented, however given the boundary of the application area has been reduced, impacts to priority flora have also been minimised. Four priority flora species and one potential novel species (species of interest) were recorded within the application area (Biota, 2018). The 'local population abundances' are individuals recorded within the survey area as mapped in Appendix D, Figure 4.

Local population abundance of priority flora within the application area:

- *Triodia basitricha* (P3) = 611 individuals at 5 locations not within the restricted clearing area
- *Indigofera rivularis* (P3) = two individuals at one location recorded in the restricted clearing area
- *Sida* sp. Hamersley Range (K. Newbey 10692) (P3) = 453 individuals at 26 locations (423 individuals at 24 locations within the restricted clearing area, and 140 individuals at four locations not within the restricted clearing area)
- *Rhynchosia bungarensis* (P4) = 58 individuals at two locations recorded in the restricted clearing area
- *Eremophila* sp. (aff. *latrobei*) (species of interest) = one individual at one location within the restricted clearing area

Local population abundance removed from the application area:

- *Indigofera rivularis* (P3) = 603 individuals at 61 locations

- *Sida* sp. Hamersley Range (K. Newbey 10692 (P3) = 760 individuals at 33 locations
- *Rhynchosia bungarensis* (P4) = 350 individuals at 45 locations

Potential impacts (excluding restricted clearing area):
- *Triodia basitricha* (P3) = 611/611 - 100% of the local population
- *Indigofera rivularis* (P3) = 0/605 – 0% of the local population
- *Sida* sp. Hamersley Range (K. Newbey 10692) = 140/1,323 = 10.6% of local population
- *Rhynchosia bungarensis* = 0/408 = 0% of local population
- *Eremophila* sp. (aff. *latrobei*) (species of interest) = 0 % of the local population

Six priority flora were identified to potentially occur within the application area, however, given the boundary of the application area has been reduced, habitat suitability and likelihood of occurrence for these species has been significantly reduced.

Several weed species have been recorded within the application area and adjacent area (Biota, 2018). None of the species are listed as Weeds of National Significance or declared pest plants in Western Australia under the *Biosecurity and Agriculture Management Act 2007*, however weeds have potential to outcompete native flora and reduce biodiversity of an area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by maintaining the weed management condition.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant flora can be managed by taking steps to minimise the risk of the introduction and spread of weeds, maintaining restricted clearing within locally significant vegetation and avoiding *Triodia basitricha* and *Eremophila* sp. (aff. *latrobei*).

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;
- restricted clearing within Gorge and Gully (G1) vegetation allowing only access tracks;
- no clearing within 10 metres of *Eremophila* sp. (aff. *latrobei*) and priority flora *Triodia basitricha,* unless first approved by the CEO*;* and
- retain cleared vegetation and topsoil and respread this on a cleared area of equivalent size within the application area within 12 months of clearing to ensure vegetation is not permanently lost.

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

Assessment

A basic and targeted threatened fauna survey (ie. northern quoll, ghost bat and Pilbara leaf-nose bat) was conducted over the application area by Biota (2018) during a field trip between 19 to 23 July 2018; the broader locality has not been extensively surveyed. Seasonally inundated pools and *Eucalyptus*/*Melaleuca* dominated drainages is known to support a number of conservation significant fauna species, however, has been removed from the application area. Two conservation significant species are considered likely to occur and eight conservation significant species potentially occur as listed in Appendix A.3 (Biota, 2018; GIS Database).

Pilbara leaf-nose bat and ghost bat
The Pilbara leaf-nose bat (PLNB) is a slightly divergent form of the orange leaf-nose bat that occurs only in the Pilbara region. The PLNB forages in a variety of habitats and roosts during the day in the dark areas of caves and underground mines with stable, warm and humid microclimates (Bat Call WA, 2021b). This species has been recorded by echolocation within the application area (Biota, 2018) and a known roost occurs within approximately 5 kilometres from the application area recorded in 2021 (GIS Database). It is likely this species will occur within the application area as a transient visitor and for foraging.

The ghost bat is a carnivorous species with patchy distribution of isolated populations within the semi-desert Pilbara region (Bat Call WA, 2021a). This species moves seasonally or as dictated by weather conditions between a number of roost sites in caves, rock crevices and disused mine adits (Bat Call WA, 2021a). The Pilbara populations forage on productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass on sand or stony ground and drainage lines along riparian corridors (Bat Call WA, 2021a; Cramer *et al*., 2022). This species was not recorded during the field survey (Biota, 2018), however potentially occurs within the application area as a transient visitor or for foraging.

Rocky gorge fauna habitat has been recorded within the application area and is considered core habitat for both PLNB and ghost bat, however no cave habitat suitable for roosting was recorded (Biota, 2018). Potential impacts to these species has been reduced with the reduction of the application area boundary and can be further minimised by maintaining the restricted clearing condition within rocky gorge habitat.

Northern quoll
The northern quoll can be found in a variety of habitats, with a preference to complex rocky areas in the Pilbara (DNREAS, 2010). Daytime den sites provide important shelter and protection from predators and weather, occurring in rocky outcrops, tree hollow, logs, termite mounds and goanna burrows (DNREAS, 2010). The National Recovery Plan for the Northern Quoll (DNREAS, 2010) states that habitat critical to survival is where the species is least exposed to threats, with this broadly being defined as rocky areas and offshore islands. Drainage habitat associated with flowlines is considered to be of high value as watercourses facilitate connectivity for dispersal and foraging (Cowan *et al*., 2022; Shaw *et al*., 2023). No primary or secondary signs of this species was identified during field survey, and no denning or breeding habitat was identified within the application area, however foraging habitat is present within the steep rocky hillslope area and gorge habitat (Biota, 2018).

Potential impacts to these species has been reduced with the reduction of the application area boundary and can be further minimised by maintaining the restricted clearing condition within rocky gorge habitat.

Small mammals
The Western pebble-mound mouse has a distribution through the non-coastal, central and eastern parts of the Pilbara, with large populations recorded in the major national parks of the region (Karijini, Rudall River, Millstream-Chichester and Collier Range) (Burbidge, 2016). This species is found in areas of rocky, hummock grassland with little or no soil and an overstory of *Acacia* (Burbidge, 2016). Individuals live in groups in burrows below mounds of pebbles, typically on low gravelly and stony rises (Burbidge, 2016). The long-tailed dunnart has a patchy occurrence, with low detection across the Pilbara region (GIS Database). Common habitat characteristics are described as elevated landforms such as hills, ridges, breakaways with sparse vegetation (Western Australian Museum, 2025).

Suitable habitat for both the Western pebble-mound mouse and long-tailed dunnart occurs within the application area in *Acacia* shrubland over *Triodia* (Biota, 2018). This habitat is widespread in the local surrounds and Pilbara region (Biota, 2018) and unlikely to significantly impact the conservation status of either species.

Reptiles
The Pilbara olive python is a subspecies of olive python that is endemic to the Pilbara and northern Gascoyne regions (Northover *et al*., 2023). Common habitat characteristics for this species is rocky gorges, gullies, and permanent waterholes (Northover *et al*., 2023). Core habitat for this species was mapped within the application area (Biota, 2018) and given they are cryptic in nature, the species is expected to occur.

Gane's blind snake is restricted to the Pilbara region, typically found between Newman and Pannawonica (Wilson and Swan, 2020). This species is generally associated with moist gullies and gorges (Wilson and Swan, 2020).

Potential impacts to these species have been reduced with the reduction of the application area boundary. Further mitigation measures can be implemented with a watercourse management condition and maintaining the restricted clearing condition within rocky gorge habitat.

Birds
There is potential for grey falcon, peregrine falcon, and fork-tailed swift to occur within the application area as a transient visitor, however given the application area boundary has been reduced, habitat likely to support these species has been significantly reduced.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant fauna species and their associated habitat can be managed through directional clearing, watercourse management, restricted clearing and rehabilitation.

Conditions

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

- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- water course management to avoid riparian vegetation;
- restricted clearing within Gorge and Gully (G1) vegetation, allowing only access tracks; and
- retain cleared vegetation and topsoil and respread this on a cleared area of equivalent size within the application area within 12 months of clearing to ensure vegetation and fauna habitat is not permanently lost.

3.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 29 November 2024 by the Department of Energy, Mines, Industry Regulation and Safety (now DMPE) inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WCD2016/006) over the area under application (DPLH, 2025). This claim has been determined by the Federal Court on behalf of the claimant group Kuruma Marthudunera (Part A). There is one Indigenous Land Use Agreement (WI2012/006) registered between Hamersley Iron Pty Ltd and Kuruma Marthudunera People, inclusive of Robe River Limited. 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 two registered Aboriginal Sites of Significance within the application area (DPLH, 2025). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on Pilbara leaf-nose bat, ghost bat, northern quoll and Pilbara olive python, which are a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Climate Change, Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate

Change, Energy, the Environment and Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

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

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). The predominant land use in the region is grazing of native pastures, Unallocated Crown Land and Crown reserves, conservation, mining activities and urban development (CALM, 2002).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The nearest conservation area is Millstream-Chichester National Park located approximately 47 kilometres northeast of the application area (GIS Database).
Vegetation description	The application area occurs within the Hamersley (PIL03) subregion of the Pilbara bioregion (GIS Database). The vegetation of the application area is broadly mapped as the following Beard vegetation association **Hamersley (82)** (detailed in decision report CPS 8319/1; GIS Database). Four vegetation associations were recorded within the application area (Biota, 2018; detailed in decision report CPS 8319/1). Vegetation associations R1, R2 and R3 no longer occur within the application area, except for potential ecotone region. Vegetation association M3 has reduced to approximately 1 hectare. Mapping of vegetation types is available in Appendix D.
Vegetation condition	The vegetation survey (Biota, 2018) and aerial imagery indicate the vegetation within the proposed clearing area is in Excellent (Trudgen, 1991) condition, described as • **Excellent**: pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. The full Trudgen (1991) condition rating scale is provided in Appendix C. Mapping of vegetation condition is available in Appendix D.
Climate and landform	The climate for the Pilbara region is semi-arid to tropical with an annual rainfall average of approximately 371.4 millimetres recorded at Yalleen (BoM, 2025; CALM, 2002). The application area is mapped within elevations of 350 to 440 meters Australian height datum (GIS Database).
Soil description and land degradation risk	The soil is mapped as part of the following land systems (Biota, 2018; DPIRD, 2025; Van Vreeswyk *et al*. 2004; GIS Database): • **Newman land system:** rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. This system covers roughly 109 hectares of the application area and is not documented to be susceptible to erosion. • **River land system:** active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands. This system covers roughly 0.28 hectares of the application area and is moderate to highly susceptible to erosion if vegetation cover is removed. • **Robe land system:** low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands. This system covers roughly 54.06 hectares of the application area and is not generally susceptible to degradation or erosion.
Waterbodies	The desktop assessment and aerial imagery indicated that there are no permanent watercourses or wetlands, however there are several ephemeral water courses that intersect the application area and semi-permanent water pools (Biota, 2018; GIS Database).
Hydrogeography	The nearest Public Drinking Water Source Area is Bungaroo Creek Water Reserve located approximately 11 kilometres southwest of the application area (GIS Database). The application area is located within the Pilbara Ground Water Area and Pilbara Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS Database). The application area intersects the Robe paleaeovalley (GIS Database). The nearest Wetland of National or International Importance is Millstream Pools located approximately 46 kilometres northeast of the application area (GIS Database). The application area occurs within the Upper Robe River (Priority 1) Wild River catchment which is classified as near pristine (Water and Rivers Commission, 1999; GIS Database).
Flora	Five conservation significant flora have been recorded within the application area and six may occur (Biota, 2018; Appendix A.2; GIS Database).
Ecological communities	There are no records of Threatened or Priority Ecological Communities within the application area (Biota, 2018; GIS Database). Eight PECs occur within the local surrounds (50 kilometres) (Appendix A.4; GIS Database).
Fauna	Two conservation significant species are considered likely to occur and eight conservation significant species potentially occur within the application area (Biota, 2018; Appendix A.3; GIS Database).
Fauna habitat	Three broad habitat types have been described within the application area (Biota, 2018; detailed in decision report CPS 8319/1). Seasonally inundated areas and *Eucalyptus*/ *Melaleuca* dominated drainage fauna habitat no longer occur within the application area, except for potential ecotone region. Steep rocky hillslopes habitat has been reduced from 34.8 hectares to approximate 1.87 hectares. Mapping of fauna habitat types is available in Appendix D.

A.2. Flora analysis table

Conservation significant flora species recorded within 40 kilometres of the application area and the likelihood of occurrence (Biota, 2018). *Eremophila* sp. Hamersley Range (K. Walker KW 136) is now *Eremophila naaykensii* (Priority 3); *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301) is now *Indigofera rivularis; Oldenlandia* sp. *Hamersley Station* (A.A. Mitchell PRP 1479) is now *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479); *Triodia* sp. Robe River (M.E. Trudgen et al. MET 12367) is now *Triodia pisoliticola;* and *Pleurocarpaea gracilis* is now *Cyanthillium gracilis* (Western Australian Herbarium, 1998-).

Hibiscus campanulatus, Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684), *Euphorbia inappendiculata* Domin var. *inappendiculata, Ipomoea racemigera, Oxalis* sp. Pilbara (M.E. Trudgen 12725), and *Pentalepis trichodesmoides* subsp. *hispida* are now listed as Priority 3, and *Sida* sp. Barlee Range (S. van Leeuwen 1642) is now listed as Priority 4 (Western Australian Herbarium, 1998-).

Species	Habit	Habitat	Database Searches			Previous Biological Surveys in the Locality (<40 km)	Distance to nearest record if <20 km	Likelihood of Occurrence Within the Study Area	
			NatureMap (40 km)	EPBC Act Protected Matters (40 km)	TPFL Database (40 km)			Initial Ranking Based on Desktop Review	Final Ranking Including Results of 2018 Field Survey
Threatened									
Thryptomene wittweri	Shrub.	Skeletal red stony soils, breakaways, stony creek beds at high elevation.			✓			Would not occur; no suitable habitat and no records from the locality.	Unlikely to occur.
Priority 1									
Bothriochloa decipiens subsp. *cloncurrensis*	Perennial grass	Seasonally damp-depressions, clay and colluvium.			✓			Unlikely to occur; some suitable habitat but no records from the locality.	Unlikely to occur.
Calotis squamigera	Annual daisy.	Pebbly loam.			✓			Unlikely to occur; some suitable habitat but no records from the locality.	Unlikely to occur.
Eremophila sp. Hamersley Range (K. Walker KW 136)	Shrub.	Hill crests, cliff tops, gorges.			✓			Unlikely to occur; no records from the locality.	Unlikely to occur.
Hibiscus campanulatus	Woody shrub.	Incised ironstone gullies, rocky creeklines, below breakaways.	✓					Unlikely to occur: mainly in southern central Hamersley Range near Paraburdoo; recorded infrequently from the locality.	Unlikely to occur.
Sida sp. Hamersley Range (K. Newby 10692)	Shrub.	Rocky cliff faces with skeletal soil over ironstone.	✓		✓			Likely to occur: suitable present in the study area and recorded from the locality (nearest record 26 km away).	Recorded.
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	Shrub.	Red sandy loam plains, low in the landscape.			✓			Unlikely to occur; no particularly suitable habitat and no records from the locality.	Unlikely to occur.
Priority 2									
Cladium procerum	Densely tufted perennial sedge.	Perennial pools in deeply sheltered gorges.			✓			May potentially occur; some suitable habitat but infrequently recorded; no records from the locality.	Unlikely to occur; not recorded during the field survey.
Euphorbia inappendiculata var. *inappendiculata*	Prostrate annual herb.	Silty cracking clay on floodplains, flat plains.			✓			Unlikely to occur; no suitable habitat and no records from the locality.	Unlikely to occur.
Euphorbia australis var. *glabra*	Prostrate annual herb.	Moderately drained, extensive sub-saline flats.			✓			Unlikely to occur: strongly linked to a specific habitat that is absent from the study area and no records from the locality.	Unlikely to occur.
Gompholobium karijini	Erect shrub.	Flat plains on red clay loam, sometimes in association with rocky breakaways or rubble near creeklines or drainage lines.	✓		✓			Unlikely to occur: minimal suitable habitat present and closest record >30 km away.	Unlikely to occur.
Ipomoea racemigera	Creeping annual herb.	Drainage lines, creek beds.			✓	✓		May potentially occur; suitable habitat present.	May potentially occur.
Oxalis sp. Pilbara (M.E. Trudgen 12725)	Small annual herb.	Red-brown loam. Hill slopes and gorges.	✓		✓			May potentially occur; suitable habitat present but no records in close proximity.	May potentially occur.
Paspalidium retiglume	Tufted annual grass.	Heavy cracking clay in tussock grasslands and herblands.			✓			Would not occur: strongly linked to a specific habitat that is absent from the study area and no records from the locality.	Would not occur.
Pentalepis trichodesmoides subsp. *hispida*	Erect small shrub.	Rocky hills, basalt hills, hill tops.			✓			Unlikely to occur; suitable habitat present but no records from the locality.	Unlikely to occur.
Teucrium pilbaranum	Low perennial herb or shrub.	Clay, floodplains, margins of calcrete.			✓			Would not occur: strongly linked to a specific habitat that is absent from the study area, and no records from the locality.	Would not occur.
Priority 3									
Acacia daweana	Spreading shrub.	Stony red loamy soils; on low rocky rises, particularly along drainage lines.			✓			Unlikely to occur: some suitable habitat may be present in the study area, but no records from the locality.	Unlikely to occur.
Aristida jerichoensis subsp. *subspinulifera*	Tufted perennial grass.	Hardpan plains.				✓		Unlikely to occur; no suitable habitat.	Unlikely to occur.

Eragrostis surreyana	Small grass.	Drainage lines, wetlands or soaks with permanently wet soil.	✓		✓	✓	10 km	Likely to occur: recorded in close proximity and strongly linked to a specific habitat that is likely present in the study area.	May potentially occur; not recorded during field survey but some suitable habitat present.
Eremophila magnifica subsp. *velutina*	Shrub.	Skeletal soils over ironstone on tall hills and breakaways.			✓			May potentially occur: suitable habitat present in the study area.	Unlikely to occur; not recorded during the field survey.
Fimbristylis sieberiana	Shortly rhizomatous tufted perennial sedge.	Mud and skeletal soil pockets at pool edges and on sandstone cliffs.	✓		✓			May potentially occur: some suitable habitat present.	May potentially occur.
Glycine falcata	Prostrate perennial herb.	Clay along drainage depressions in crabhole plains and on river floodplains.	✓		✓			Unlikely to occur: recorded from the locality but strongly linked to a specific habitat that is absent from the study area.	Unlikely to occur.
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	Annual or biennial herb.	Red-brown clay soil on low undulating plains, usually on calcrete.			✓			Unlikely to occur: strongly linked to a specific habitat that is absent from the study area and no records from the locality.	Would not occur.
Gymnanthera cunninghamii	Erect shrub.	Red brown sandy soils, usually along creeklines.	✓		✓		<20km	Unlikely to occur: some suitable habitat present but only one record from the locality (37 km away).	Unlikely to occur.
Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301)	Shrub.	Gullies and creeklines	✓		✓	✓	11 km	Likely to occur: recorded in close proximity and strongly linked to a specific habitat that is likely present in the study area.	Recorded.
Iotasperma sessilifolium	Erect annual herb.	Cracking clay on plains.			✓			Would not occur: strongly linked to a specific habitat that is absent from the study area and no records from the locality.	Would not occur.
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	Spreading annual herb.	Cracking clay on undulating plains, crab-holed plains.	✓		✓		11 km	Unlikely to occur; recorded in close proximity but strongly linked to a specific habitat that is absent from the study area.	Unlikely to occur.
Pleurocarpaea gracilis	Perennial herb.	Rocky hillcrests and slopes.	✓		✓			May potentially occur: suitable habitat present in the study area but nearest record >33 km away.	May potentially occur.
Ptilotus subspinescens	Compact shrub.	Screes, and bases of scree slopes; calcareous substrates.			✓			Would not occur; no suitable habitat and no records from the locality.	Would not occur.
Rostellularia adscendens var. *latifolia*	Annual or short-lived perennial herb.	Red-brown loam on ironstone; usually along drainage lines, occasionally on rocky hills.	✓		✓			May potentially occur: broad range of habitat preferences and recorded from the locality.	May potentially occur.
Sida sp. Barlee Range (S. van Leeuwen 1642)	Low spreading shrub.	Skeletal red-brown soil. Steep hillslopes, gullies.			✓			May potentially occur: suitable habitat may be present in the study area but no records from the locality.	Unlikely to occur; not recorded during the field survey.
Solanum albostellatum	Clonal perennial herb/sub-shrub.	Plain/floodplain with clay or clay-loam soil.			✓			Unlikely to occur: no particularly suitable habitat present and no records from the locality.	Unlikely to occur.
Solanum kentrocaule	Shrub.	Basalt scree, hillsides, hilltops, gorges (700-1,250 m).	✓		✓			Unlikely to occur: some suitable habitat present but infrequently recorded from the locality.	Unlikely to occur
Swainsona thompsoniana	Prostrate annual herb.	Cracking clay soils and open floodplains.	✓		✓			Would not occur: recorded from the locality but strongly linked to a specific habitat that is absent from the study area.	Would not occur.
Terminalia supranitifolia	Spreading, tangled shrub or tree.	Sand, among basalt rocks.			✓			Unlikely to occur: potentially suitable habitat present but no records from the locality.	Unlikely to occur.
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	Tussocky perennial grass.	Red cracking clay on clay plains.			✓			Would not occur: strongly linked to a specific habitat that is absent from the study area and no records from the locality.	Would not occur.
Triodia basitricha	Hummock grass.	Rocky hillcrests and slopes.	✓		✓			May potentially occur: suitable habitat present in the study area and recorded from the locality.	Recorded.
Triodia sp. Robe River (M.E. Trudgen et al. MET 12367)	Hummock grass.	Rocky hillcrests and slopes.	✓		✓			May potentially occur: some suitable habitat present and recorded from the locality.	Unlikely to occur; not recorded during the field survey.
Priority 4									
Acacia bromilowiana	Tree/shrub.	Banded ironstone, scree slopes, gorges, creek beds.	✓		✓			May potentially occur: suitable habitat may be present in the study area and recorded from the locality.	Unlikely to occur; not recorded during the field survey.
Eremophila magnifica subsp. *magnifica*	Shrub.	Skeletal soils over ironstone on rocky hillslopes.	✓		✓			May potentially occur: suitable habitat present in the study area and recorded from the locality.	Unlikely to occur; not recorded during the field survey.
Goodenia berringbinensis	Ascending annual herb.	Typically on clay soils along watercourses.	✓		✓		13 km	Unlikely to occur: no particularly suitable habitat in the study area.	Unlikely to occur.
Livistona alfredii	Tree-like monocot (palm).	Edges of permanent pools.	✓		✓			May potentially occur: restricted to edges of large permanent pools and rivers and known from the locality.	Unlikely to occur; not recorded during the field survey.
Rhynchosia bungarensis	Compact, viscous, prostrate perennial herb to low shrub.	Shingly coarse sand amongst boulders, typically along large creeks and associated floodplains; also lower valley slopes.	✓		✓			May potentially occur: some suitable habitat present and recorded from the locality.	Recorded.

Additionally, through a search of available databases, several species were identified to occur within 50 kilometres of the application area (Western Australian Herbarium, 1998-; GIS Database).

Species name	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)
Priority 1					
Aristida polyclados	N	N	N	<42 km	11
Solanum sp. W Hamersley Range (S. Colwill & B. Duncan LCR99-01)	N	Possible	N	<38 km	4
Triodia lutiteana	N	N	N	<43	19
Priority 2					
Dicladanthera glabra	N	N	Y	<29	22
Priority 3					
Goodenia obscurata	N	N	Y	<15	29
Grevillea saxicola	N	N	Y	<44	40
Neptunia longipila	N	N	N	<41	16
Owenia acidula	N	N	N	<46	14
Solanum sp. Red Hill (S. van Leeuwen et al. PBS 5415)	N	N	Y	<16	20

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

A.3. Fauna analysis table

Conservation significant fauna species recorded within 40 kilometres of the application area and the likelihood of occurrence (Biota, 2018).

Species	Common Name	Preferred Habitat	Conservation Status †		Source				Likelihood of Occurrence Within the Study Area	
			State	Federal	NatureMap	EPBC Act	Biota (2007)	Biota (2009)	Initial Ranking Based on Desktop Review (NR = distance to nearest record if less than 40 km)	Final Ranking Including Results of 2018 Field Survey
Mammals										
Dasyurus hallucatus	Northern Quoll	Primarily in rocky gorges, rocky free faces and hills; secondarily along drainage lines.	S2	En	✓	✓			May potentially occur, suitable habitat present but no records in close proximity (NR >30 km).	May potentially occur; no signs of dens or scats.
Macrotis lagotis	Greater Bilby	Spinifex grasslands and *Acacia* shrubland. Requires soft substrate for burrowing.	S3	Vu		✓			Would not occur: beyond the recently documented distribution and no suitable habitat present.	Would not occur.
Rhinonicteris aurantia	Pilbara Leaf-nosed Bat	Rocky areas and breakaways with suitable roosting caves. Roosts occur within 10 km of permanent water.	S3	Vu	✓	✓			Likely to occur: suitable habitat for foraging, and a record from the locality (NR 26 km); likely to occur as a transient visitor only.	Recorded from calls; no roosting caves found.
Macroderma gigas	Ghost Bat	Rocky areas with suitable roosting caves, often near drainage lines along which they can forage.	S3	Vu	✓	✓			May potentially occur: likely only for commuting or foraging (NR 30 km).	May potentially occur.
Leggadina lakedownensis	Short-tailed Mouse	Primary habitat of cracking clay and adjacent areas of open tussock and hummock grassland, *Acacia* shrubland and savannah woodland.	P4	-	✓				Would not occur: no suitable habitat present (NR 35 km).	Would not occur.
Dasycercus blythi	Brush-tailed Mulgara	Spinifex grasslands on sand plains and sandy swale between low dunes.	P4	-	✓				Unlikely to occur: no suitable core habitat present (NR 27 km).	Unlikely to occur.
Pseudomys chapmani	Western Pebble-mound Mouse	Scree slopes and stony plains.	P4	-	✓			✓	May potentially occur, suitable habitat may be present in raised plateaus (NR 26 km).	May potentially occur.
Sminthopsis longicaudata	Long-tailed Dunnart	Acacia, rocky screes with hummock grasses and shrubs.	P4	-	✓				May potentially occur; suitable habitat present but infrequently recorded from the locality (NR >33 km).	May potentially occur.
Birds										
Pezoporus occidentalis	Night Parrot	Dense low vegetation often associated with *Triodia* hummock grasslands and areas dominated by samphire.	S1	En		✓			Would not occur; no records from the locality and habitat likely to be unsuitable.	Would not occur.

Rostratula australis	Australian Painted Snipe	Wetlands.	S2	En		✓			Would not occur: no suitable habitat and no nearby records.	Would not occur.
Falco hypoleucos	Grey Falcon	Wide range of habitats, preferring cliffs, rocky outcrops and rocky coastal islands.	S3	-	✓				May potentially occur: species widespread and known from the locality, but rarely recorded; may occur periodically in the study area (NR 40 km).	May potentially occur.
Apus pacificus	Fork-tailed Swift	Almost exclusively aerial.	S5	-		✓			May potentially occur: may overfly the study area on occasion, but would not rely exclusively on the habitats present; no records from the locality.	May potentially occur.
Ardea ibis	Cattle Egret	Wetlands, woodlands and grasslands.	S5	-		✓			Unlikely to occur: some potentially suitable habitat present, but unlikely to rely on the habitats present; no records from the locality.	Unlikely to occur.
Calidris ferruginea	Curlew Sandpiper	Intertidal mudflats in coastal areas; inland lakes, dams and water holes.	S3; S5	Cr; M		✓			Unlikely to occur: no suitable habitat present, and recorded infrequently in the inland Pilbara; no records from the locality.	Unlikely to occur.
Hirundo rustica	Barn Swallow	Open plains, agricultural land and edge of wetlands.	S5	-		✓			Unlikely to occur: no suitable habitat and few records from the Pilbara; no records from the locality.	Unlikely to occur.
Tringa glareola	Wood Sandpiper	Well vegetated freshwater wetlands, inundated grasslands. Uses artificial wetlands, including water reservoirs.	S5	M, Ma			✓		Unlikely to occur: no suitable habitat present; no records from the locality.	Unlikely to occur.
Pandion cristatus	Eastern Osprey	Coastal habitats and terrestrial wetlands, occasionally along inland rivers.	S5	M		✓			Unlikely to occur: suitable habitat may be present, but infrequently recorded in the inland Pilbara; no records from the locality.	Unlikely to occur.
Falco peregrinus	Peregrine Falcon	Wide range of habitats, preferring cliffs, rocky outcrops and rocky coastal islands.	S7	-	✓				May potentially occur: species widespread and known from the locality, but not frequently recorded; may occur periodically in the study area (NR >33 km).	May potentially occur.
Haliaeetus leucogaster	White-bellied Sea-Eagle	Coastal habitats and around terrestrial wetlands.	-	Ma		✓			Unlikely to occur: no suitable habitat present and infrequently recorded in the inland Pilbara; no records from the locality.	Unlikely to occur.
Reptiles										
Liasis olivaceus barroni	Pilbara Olive Python	Rocky habitats near water, particularly rock pools.	S3	Vu	✓	✓			May potentially occur, rocky habitat and water pools may be present (NR 27 km).	Likely to occur; water pools present.
Notoscincus butleri	Lined Soil-crevice Skink	Stony spinifex-dominated areas near creek and river margins.	P4	-	✓				Unlikely to occur: some suitable habitat but infrequently recorded and no records in close proximity (NR >30 km)	Unlikely to occur.

Additionally, through a search of available databases, several species were identified to occur within 50 kilometres of the application area (GIS Database).

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
Birds					
common sandpiper (*Actitis hypoleucos*)	MI	N	N	<48	Y
whimbrel (*Numenius phaeopus*)	MI	N	N	<26	Y
Reptiles					
gane's blind snake (Pilbara) (*Anilios ganei*)	P1	Y	Y	<34	N
Fish					
fortescue grunter (*Leiopotherapon aheneus*)	P4	N	N/A	<38	N
Invertebrates					
a freshwater amphipod (*Nedsia hurlberti*)	VU	N	N/A	<21	N
a freshwater amphipod (*Nedsia sculptilis*)	VU	N	N/A	<35	N
Middle Robe draculoides (*Draculoides mesozeirus*)	VU	N	N/A	<43	N

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

A.4. Ecological community analysis table

Community name	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)
Priority 1					
Brockman Iron cracking clay communities of the Hamersley Range	N	N	N	42	135

Community name	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)
Four plant assemblages of the Wona Land System (previously 'Cracking clays of the Chichester and Mungaroona Range')	N	N	N	37	176
Stygofaunal Community of the Bungaroo Aquifer	N	N/A	N	12	1
Subterranean invertebrate communities of mesas in the Robe Valley region	Potential	N/A	Potential	42	8
Priority 3					
Kanjenjie Land System	N	N/A	N	30	14
Kumina Land System	N	N/A	N	2	22
Triodia pisoliticola (previously *Triodia* sp. Robe River) assemblages of mesas of the West Pilbara	N	N	Y	37	162
Priority 4					
Invertebrate assemblages (Nyeetberry Pool Type)	N	N/A	N	32	1

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

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 contains conservation significant flora.	At variance as per CPS 8319/1	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."* Assessment: The area proposed to be cleared contains breeding and foraging habitat for several conservation significant fauna species.	At variance as per CPS 8319/1	Yes *Refer to Section 3.2.2, above.*
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 flora species listed under the BC Act (Biota, 2018; GIS Database).	Not likely to be at variance as per CPS 8319/1	No
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: There are no records of Threatened Ecological Communities within the area proposed to be cleared or the local surrounds (50 kilometres) (Biota, 2018; GIS Database).	Not likely to be at variance as per CPS 8319/1	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 is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia,	Not at variance as per CPS 8319/1	No

Assessment against the clearing principles	Variance level	Is further consideration required?
2001). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area (Biota, 2018; GIS Database).		
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: Given the distance to the nearest conservation area (GIS Database), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not at variance as per CPS 8319/1	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 area is within the Upper Robe River (Priority 1) Wild River catchment which is classified as near pristine (DWER, 2019; Water and Rivers Commission, 1999). There are no permanent watercourses or wetlands, however there several non-perennial water courses that occur within the area proposed to clear (GIS Database). Vegetation associations R1 and R2 represent groundwater dependent vegetation (Biota, 2018), however have been removed from the application area. Impacts to vegetation associated with watercourses can be minimised by the implementation of a watercourse management condition.	At variance as per CPS 8319/1	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are not generally susceptible to erosion. Noting the extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance as per CPS 8319/1	No
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 application area boundary has been reduced and no permanent water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area (Biota, 2018; GIS Database), the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance changed from CPS 8319/1	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 no permanent water courses or wetlands are recorded within the application area (Biota, 2018; GIS Database), the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance as per CPS 8319/1	No

Appendix C. Vegetation condition rating scale

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

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

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

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.

Condition	Description
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Mapping of various features in the application area

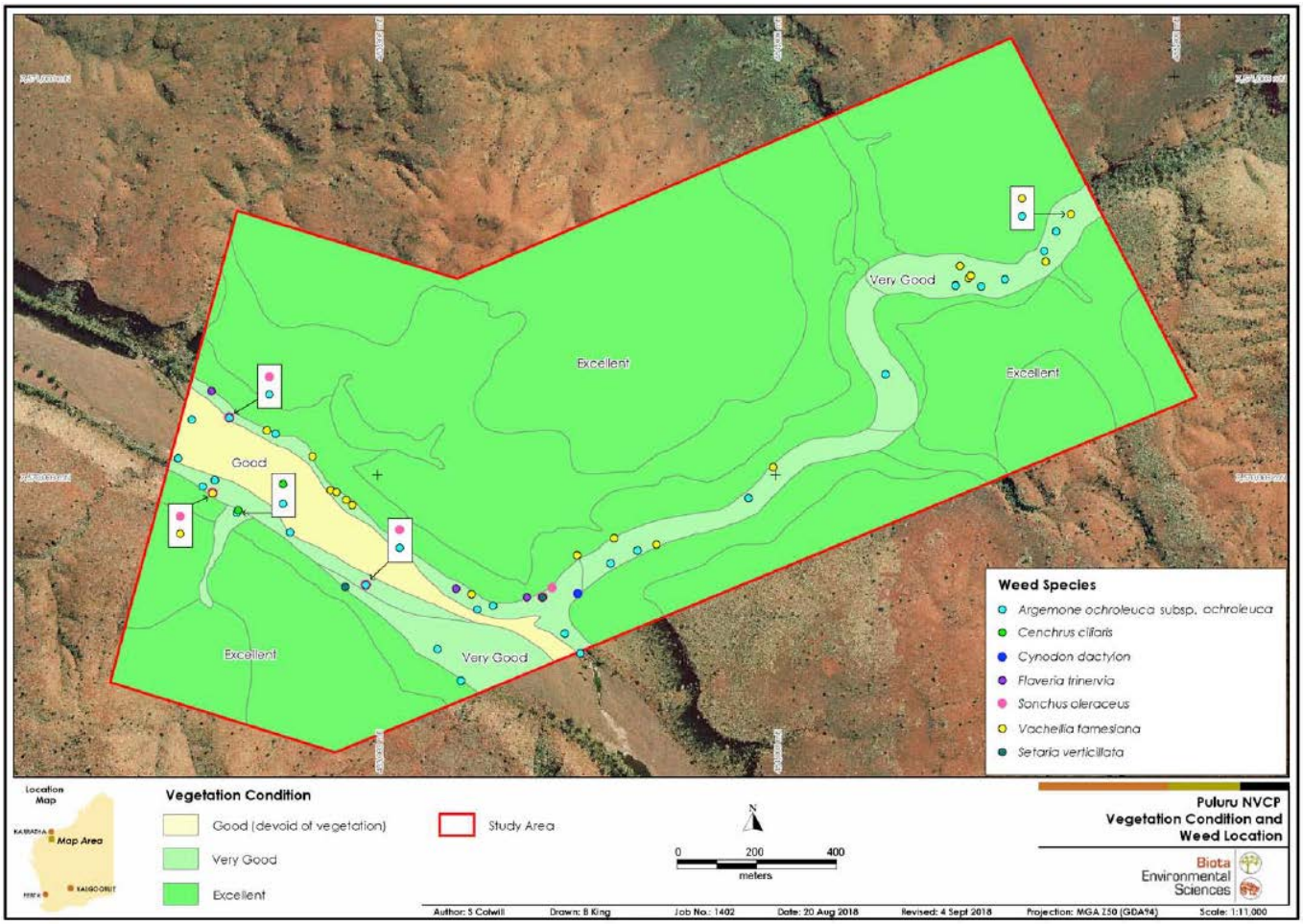
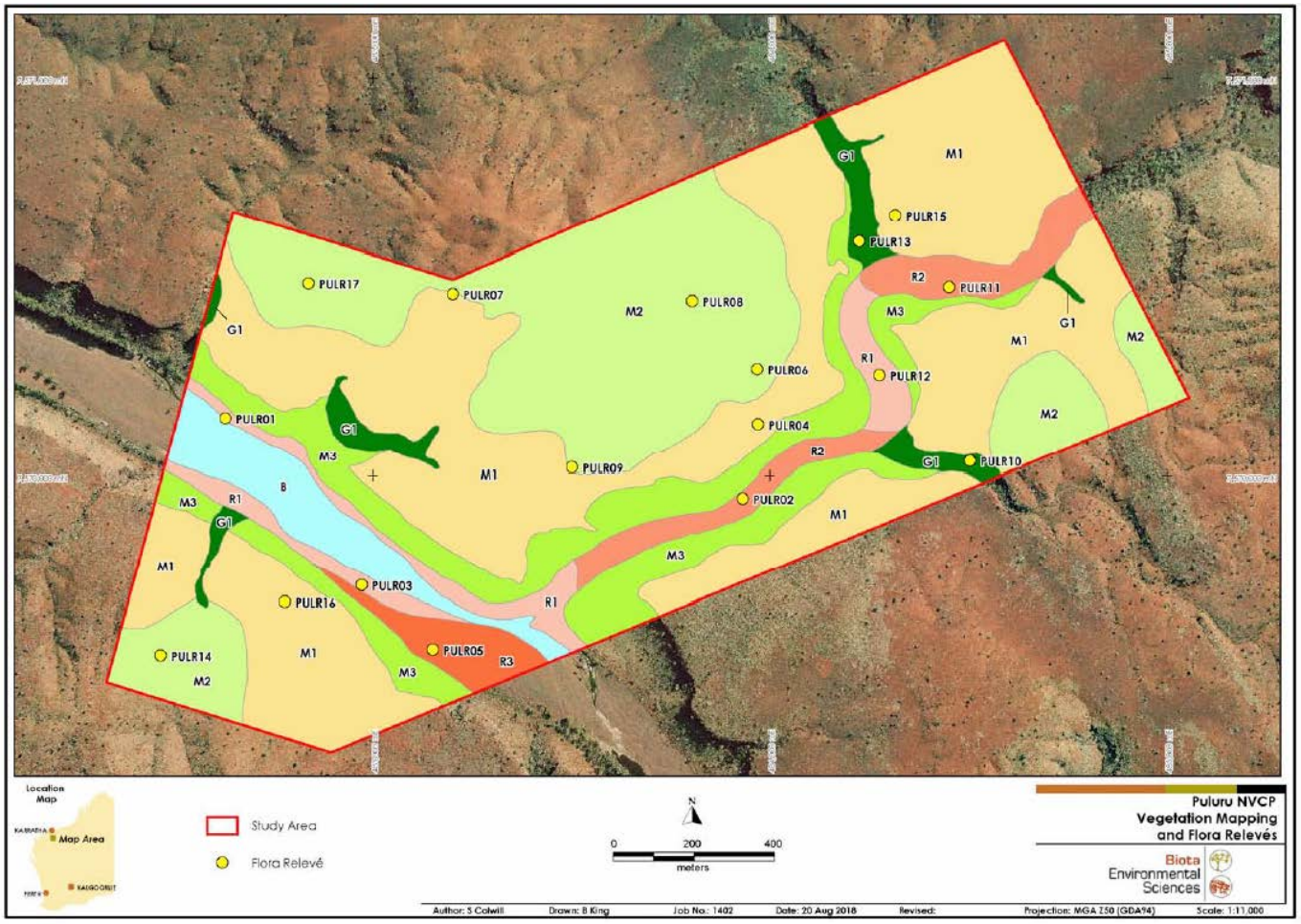


Figure 2. Map of vegetation condition and weed species (Biota, 2018).



Puluru NVCP Vegetation Mapping

R1 EcEvMaAfrCYPvCYa
Eucalyptus camaldulensis subsp. *refulgens*, *E. victrix*, *Melaleuca argentea* closed forest over *Acacia trachycarpa* tall open shrubland over *Cyperus vaginatus* open sedgeland and *Cymbopogon ambiguus* scattered tussock grasses

R2 EcEvMgAfrCYPvEUaTHfERflCYa
Eucalyptus camaldulensis subsp. *refulgens*, *E. victrix* woodland over *Melaleuca glomerata*, *Acacia trachycarpa* tall shrubland over *Cyperus vaginatus* very open sedgeland and *Eulalia aurea*, *Themeda triandra*, *Eriachne tenuiculmis*, *Cymbopogon ambiguus* very open tussock grassland.

R3 AfrERfl
Acacia trachycarpa tall shrubland over *Eriachne tenuiculmis* scattered tussock grasses.

G1 CfPHbTHf
Corymbia ferriticola low woodland over *Phyllanthus baccatus* scattered tall shrubs over *Themeda triandra* very open tussock grassland.

M1 El(Ch)AoTe
Eucalyptus leucophloia subsp. *leucophloia (Corymbia hamersleyana)* scattered low trees over *Acacia orthocarpa* shrubland to open heath over *Triodia epactia* open hummock grassland.

M2 El(Ch)AmTw
Eucalyptus leucophloia subsp. *leucophloia (Corymbia hamersleyana)* scattered low trees over *Acacia maitlandii* tall shrubland to tall open scrub over *Triodia wiseana* open hummock grassland.

M3 ElApTw
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees over *Acacia pruinocarpa* tall shrubland to tall open scrub over *Triodia wiseana* open hummock grassland.

B Bare Riverbed

Figure 3. Map of vegetation associations (Biota, 2018).

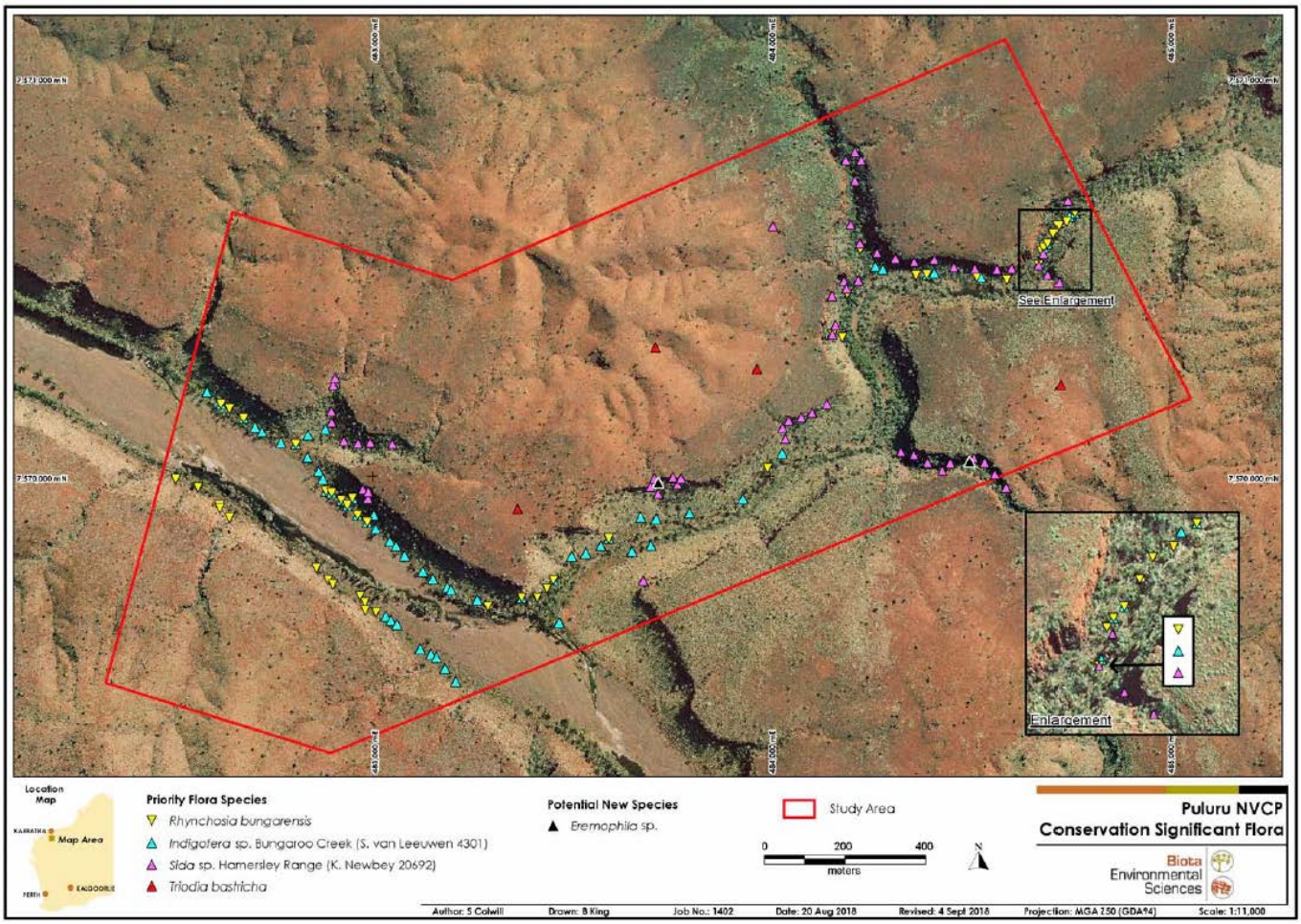


Figure 4. Map of priority flora species (Biota, 2018).

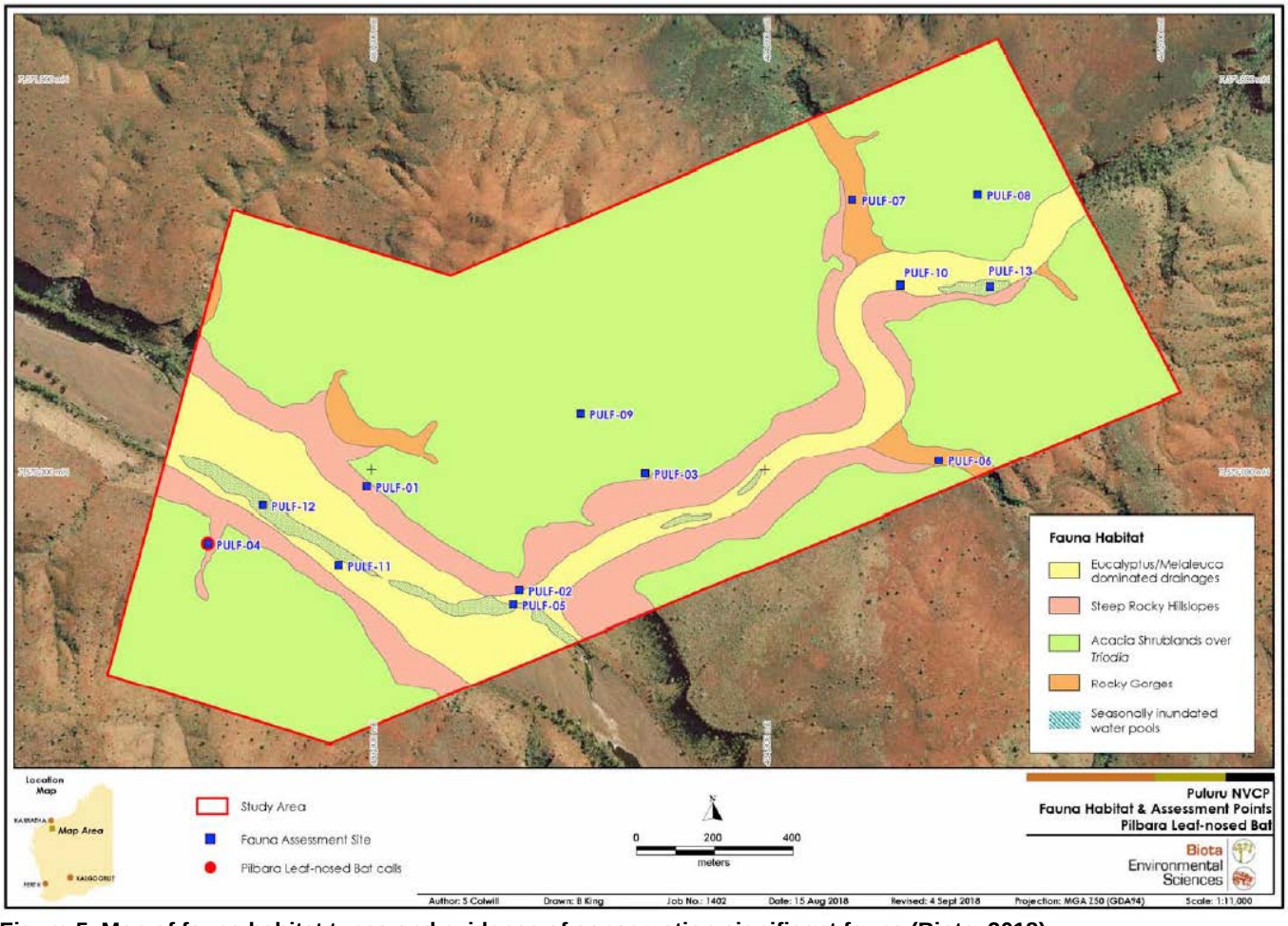


Figure 5. Map of fauna habitat types and evidence of conservation significant fauna (Biota, 2018).

Appendix E. Sources of information

E.1. GIS databases

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

- Clearing Regulations - Environmentally Sensitive Areas (DWER-046)
- Clearing Regulations - Schedule One Areas (DWER-057)
- DBCA - Lands of Interest (DBCA-012)
- DBCA - Legislated Lands and Waters (DBCA-011)
- DBCA Fire History (DBCA-060)
- Directory of Important Wetlands in Australia - Western Australia (DBCA-045)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments - Catchments (DWER-028)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- IBSA Survey Details (DWER-118)
- Local Government Area (LGA) Boundaries (LGATE-233)
- Localities (LGATE-234)
- Medium Scale Topo Contour (Line) (LGATE-015)
- Medium Scale Topo Water (Line) (LGATE-018)
- Native Title (Determination) (LGATE-066)
- Native Title (NNTT) (LGATE-004)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Reserves (LGATE-227)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping - Best Available (DPIRD-027)
- Townsites (LGATE-248)
- WA Now Aerial Imagery
- Wild Rivers (DWER-087)

Restricted GIS Databases used:

- Threatened and Priority Flora (TPFL)
- Threatened and Priority Flora (WAHerb)
- Threatened and Priority Fauna
- Threatened and Priority Ecological Communities
- Threatened and Priority Ecological Communities (Buffers)

E.2. References

Bat Call WA (2021a) A review of ghost bat ecology, threats and survey requirements. Report prepared for the Department of Agriculture, Water and the Environment, Canberra. Available from: https://www.dcceew.gov.au/sites/default/files/documents/review-ghostbat-ecology-threats.pdf.

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4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government

DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
DMPE	Department of Mines, Petroleum and Exploration
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (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	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

DBCA (2023) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia:

Threatened species

T 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 the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline Number 1 and Ministerial Guideline Number 2 that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria, and is based on the national distribution of the species.

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.

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.

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.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

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).

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.

Specially protected species

SP **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).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) or 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.

CD **Species of special conservation interest (conservation dependent fauna)**

Species of special conservation need that are 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).

Currently only fauna are listed as species of special conservation interest.

OS **Other specially protected species**

Species 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).

Currently only fauna are listed as species otherwise in need of special protection.

Priority species

P **Priority species**

Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department's website.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey 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 prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of priority status 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 – known from few locations, none on conservation lands**

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, for example, 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 for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species – known from few locations, some on conservation lands**

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, for example, 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 for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species – known from several locations**

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. These species need 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 a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

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.