



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9815/1
Permit type:	Purpose Permit
Applicant name:	Mount Ridley Mines Limited
Application received:	20 July 2022
Application area:	100 hectares
Purpose of clearing:	Mineral Exploration and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Exploration Licences 63/1547, 63/1564, 63/2111, 63/2112, 63/2113 and 63/2125
Location (LGA area/s):	Shire of Esperance
Colloquial name:	Mt Ridley Rare Earth Elements Projects

1.2. Description of clearing activities

Mount Ridley Mines Limited proposes to clear up to 100 hectares of native vegetation within a boundary of approximately 1,943 hectares, for the purpose of mining related exploration activities. The project is located approximately 62 kilometres north-east of Esperance, within the Shire of Esperance.

The application is to allow for regional exploration and prospect identification which is typically undertaken by light vehicles and may include air core or rotary air blast rigs.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	29 September 2022
Decision area:	100 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 20 July 2022. 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 B), relevant datasets (Appendix E), 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 (Glossary), 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 malleefowl (*Leipoa ocellata*); and
- 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 and dieback;

- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- staged clearing to minimise wind erosion;
- identify active (in use) malleefowl mounds and avoid clearing within 50 metres of any mounds from September to January;
- no more than 300 individual plants of identified *Eucalyptus merrickiae* are cleared;
- no more than 29 individual plants of identified *Acacia euthyphylla* are cleared;
- no more than 18 individual plants of identified *Acacia glaucissima* are cleared;
- no more than 18 individual plants of identified *Adenanthos ileticos* are cleared;
- no more than 30 individual plants of identified *Darwinia polycephala* are cleared; and
- no more than 11 individual plants of identified *Persoonia cymbifolia* are cleared.

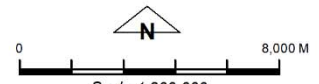
1.5. Site map

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



LEGEND

- Mining Tenements
- Clearing Instruments
- Areas Approved to Clear
- Orthophotography sourced from Landgate



Scale 1:200,000
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



WA Crown Copyright 2002

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

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS 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 2019)
- Technical guidance – *Flora and Vegetation 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, where practicable as outlined in the Exploration Environmental Management Plan such as:

- existing tracks will be used where possible;
- large trees will be avoided where possible and pruning considered before total removal;
- clearing of riparian vegetation will be avoided;
- vegetation clearing will be conducted where possible using a raised blade technique; and
- clearing is to be supervised by a qualified botanist and establishing marked exclusion zones surrounding conservation significant flora where possible (Botanica Consulting, 2022a).

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) 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 (conservation significant fauna and flora) and 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 Principles (a) and (c)

Assessment

A Level 2 flora and vegetation survey undertaken by Terratree in 2015 identified a total of 218 species, representing 120 genera from 52 families within the study area (Terratree, 2015a). The survey identified 11 vegetation communities within the study area and communities associated with the margins of salt lakes were found to have greater diversity than that of the other vegetation communities (Terratree, 2015a). Desktop reviews conducted by Terratree and Botanica Consulting have identified eight Threatened Flora and 124 Priority Flora as occurring within a 40 kilometre radius of the application area (Botanica Consulting, 2022a; 2022b; Terratree, 2015a).

Threatened and Priority flora species have been recorded within the application area. Mount Ridley Limited have provided several management strategies for flora which includes clearing to be supervised by a qualified botanist and establishing exclusion zones surrounding conservation significant flora (50 metre radius for Threatened Flora and 10 metre radius for Priority Flora) where possible (Botanica Consulting, 2022a). The application area has been designed to avoid conservation significant species, however, impacts to several conservation significant flora may be unavoidable (impacts may include removal of regrowth seedlings / re-sprouted plants from recent fires, trimming of overhanging branches of mature trees and removal of individuals).

The flora and vegetation surveys conducted by Terratree (2015a), Terratree (2015b) and Botanica Consulting (2022b) have identified one Threatened Flora species (*Eucalyptus merrickiae*) and five Priority Flora species comprised of three Priority 3 (P3)

– *Acacia euthyphylla* (P3), *Acacia glaucissima* (P3), and *Persoonia cymbifolia* (P3), and two Priority 4 (P4) – *Adenanthos ileticos* (P4) and *Darwinia polycephala* (P4) (Terratree, 2015a) within the application area.

The following Priority Flora species were identified by Botanica Consulting (2022b) as occurring within the application area:

- *Acacia euthyphylla* (Priority 3)
- *Acacia glaucissima* (Priority 3)
- *Adenanthos ileticos* (Priority 4)
- *Darwinia polycephala* (Priority 4)
- *Persoonia cymbifolia* (Priority 3)

Acacia euthyphylla is an erect shrub, 0.7 – 0.2 metres high. It is endemic to an area along the south coast of the Goldfields – Esperance region of Western Australia and can be found along the edges of salt lakes and marshes and seasonally wet swamp areas growing in sandy-clay-loam soil (Terratree, 2015a). *Acacia euthyphylla* has a total known record of 1,311 plants and 29 individuals are located within the application area (Botanica Consulting, 2022a; 2022c). The exploration activities have the potential to impact 2.2 per cent of this species population which does not pose a significant impact to this species (DBCA, 2022).

Acacia glaucissima is a dense, bushy shrub, 0.3 – 1.5 metres high. It is native to an area in the Goldfields – Esperance region of Western Australia and can be found inhabiting sand or clay soils in flat, low-lying area (Terratree, 2015a). *Acacia glaucissima* has a total record known of 320 plants, 82 individuals are located within the application area with 18 plants proposed to be impacted (Botanica Consulting, 2022a; 2022c). The exploration activities have the potential to impact 5.6 percent of this species population. Impacts to 5.6 percent is not considered to be significant at the species level (DBCA, 2022).

Adenanthos ileticos is a diffuse, lignotuberous shrub, 0.7 – 2 metres high. It is native to an area in the Goldfields – Esperance region of Western Australia and can be found local abundant growing in white yellow or brown sand within the Eastern Mallee subregion (Terratree, 2015a). *Adenanthos ileticos* has a total known record of 11,119 plants, 18 individuals are located within the application area and all 18 individuals are proposed to be impacted (Botanica Consulting 2022a; 2022c). The exploration activities have the potential to impact 0.2 per cent of this species population and is unlikely to be significant at the species level (DBCA, 2022).

Darwinia polycephala is a low, diffuse shrub, 0.1 – 0.5 metres high. It is native to the area in the southern Goldfields – Esperance region of Western Australia and can be found inhabiting sand or clay soils on flats and in proximity to salt lakes (Terratree, 2015a). *Darwinia polycephala* has a total known record of 2,296 plants, 32 individuals are located within the application area and 30 individuals are proposed to be impacted (Botanica Consulting 2022a; 2022c). The exploration activities have the potential to impact 1.3 per cent of this species population and is unlikely to be significant at the species level (DBCA, 2022).

Persoonia cymbifolia is an erect, spreading shrub, 0.2 – 0.6 metres high. It is native the an area across the Eastern Mallee, Recherche, Southern Cross and Western Mallee subregions and can be found in sandy soils and flats or in rock crevices (Terratree, 2015a). *Persoonia cymbifolia* has a total record of 637 plants, 11 individuals are located within the application area and all 11 individuals are proposed to be impacted (Botanica Consulting 2022a; 2022c). The exploration activities have the potential to impact 1.7 per cent of this species population.

One Threatened flora species, *Eucalyptus merrickiae*, has been recorded within the application area (Botanica Consulting 2022a; 2022b; 2022c; Terratree 2015a; 2015b). *Eucalyptus merrickiae* (listed as Threatened (VU) under the EPBC Act) is a mallee that grows in both mallee and non-mallee form, from 2 – 4 metres (Terratree, 2015a). It is typically found around ephemeral salt lakes on sandy clay or grey sand, near Mount Ridley in the Eastern Mallee IBRA sub-region within the Shire of Esperance, Western Australia. The targeted *Eucalyptus merrickiae* survey conducted by Terratree in 2015 identified seven new populations with a total of 4,629 individuals, the total species population has then increased to 18,130 individuals (Botanica Consulting 2022c). A total of 789 individuals are located within the application area and 300 of these individuals are proposed to be impacted (Botanica Consulting 2022c; Terratree, 2015b). The impact represents 1.7 per cent of all known *Eucalyptus merrickiae* trees and is unlikely to be considered significant at the species level (DBCA, 2022). A Section 40 authorisation to take or disturb any Threatened Flora will be required for the proposed impacts to up to 300 individuals of *Eucalyptus merrickiae*, this application

Ten species of introduced flora were identified within the study area (Terratree, 2015a). Several weed species were associated with disturbed areas such as historical exploration tracks and drilling pads (Terratree, 2015a). Weeds have the potential to out-compete native flora species and reduce the biodiversity of an area, therefore hygiene measures are needed to ensure clearing activities do not introduce or spread weeds into non-infested areas.

Conclusion

Based on the above assessment, the proposed clearing will result in the removal of threatened and priority flora. For the reasons set out above, it is considered that the impacts of the proposed clearing on flora can be managed by the mitigation and management strategies provided by the applicant and through flora management conditions.

Conditions

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- no more than 300 individual plants of identified *Eucalyptus merrickiae* are cleared;
- no more than 29 individual plants of identified *Acacia euthyphylla* are cleared;
- no more than 18 individual plants of identified *Acacia glaucissima* are cleared;
- no more than 18 individual plants of identified *Adenanthos ileticos* are cleared;

- no more than 30 individual plants of identified *Darwinia polycephala* are cleared; and
- no more than 11 individual plants of identified *Persoonia cymbifolia* are cleared.

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

Assessment

The desktop assessment conducted by Botanica Consulting identified a total of 271 vertebrate fauna taxa recorded within a 40 kilometre radius of the assessment area (Botanica Consulting 2022a). Based on the records of conservation significant fauna and the site characteristics within the application area, 12 conservation significant species were considered as potentially occurring (GIS Database):

- Curlew Sandpiper (*Calidris ferruginea*) - EPBC Act - Critically Endangered and Migratory, BC Act - Critically Endangered;
- Carnaby's cockatoo (*Zanda latirostris*) – EPBC Act – Endangered;
- Chuditch, western quoll (*Dasyurus geoffroii*) – EPBC Act – Vulnerable
- Malleefowl (*Leipoa ocellata*) – EPBC Act - Vulnerable
- Common sandpiper (*Actitis hypoleucos*) – EPBC Act – Migratory;
- Fork-tailed swift (*Apus pacificus*) – EPBC Act – Migratory;
- Sharp-tailed sandpiper (*Calidris acuminata*) – EPBC Act – Migratory;
- Red-necked stint (*Calidris ruficollis*) – EPBC Act – Migratory;
- Common greenshank (*Tringa nebularia*) – EPBC Act – Migratory ;
- Peregrine falcon (*Falco peregrinus*) – BC Act – Other Specially Protected;
- Western rosella (inland) (*Platycercus icterotis xanthogenys*) – Priority 4
- Hooded plover (*Thinornis rubricollis*) – Priority 4

The Curlew Sandpiper is a small, slim sandpiper and occurs around the coasts of Australia and is also quite widespread inland, though in smaller numbers. Inland, they inhabit around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand (DaWE, 2022). This species forages on mud flats and nearby shallow water and generally roost on bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh (DaWE, 2022). The application area may be utilised by this species as part of a larger range than be reliant specifically on the habitat within the application area.

Carnaby's cockatoo is a large cockatoo that is endemic to, and widespread in the south-west of Western Australia (DaWE, 2022). This species occurs in native eucalypt woodlands (e.g. those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species) (DaWE, 2022). Carnaby's cockatoo generally breeds in woodland or forest, but also in former woodland/forest present as isolated trees (DaWE, 2022). Foraging habitat is present within the application area, however, is not significant to the species and the Proteaceae dominated kwongan shrublands Priority Ecological Community, located 1.5 kilometres south of the application area provides habitat for the species. The application area does not contain any known breeding records and the nearest record is approximately 30 kilometres from the application area.

The Chuditch may occur in woodlands and shrublands in low densities, but there are very few records of this species in the region (DaWE, 2022). The Peregrine Falcon is likely to occur as a foraging visitor within the application area, however the proposed clearing is not likely to represent significant habitat for this species.

The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DaWE, 2022). This species requires a sandy substrate with an abundance of leaf litter for breeding (DaWE, 2022). Malleefowl is known to occur in the region and may utilise the area for foraging, but it is not likely to represent significant habitat for this species. However, it is known to occur within at least five kilometres from the application area and therefore precautionary measures should be taken to identify the presence of any active malleefowl mounds.

The common sandpiper, fork-tailed swift, sharp-tailed sandpiper, red-necked stint and the common greenshank are migratory avian species that migrate to Australia during non-breeding season (DaWE, 2022). These migratory species share similar habitat preferences and are found in a wide variety of inland wetlands, sheltered coastal habitats and tend to forage at the edge of the water of wetlands or intertidal mudflats (DaWE, 2022). The application area may be utilised by these species as part of a larger range than be reliant specifically on the habitat within the application area.

The inland western rosella is only found in the wheatbelt and is likely to occur in eucalypt woodlands and shrublands, breeding in tree hollows (DaWE, 2022). The hooded plover (western) is endemic to the southern states of Australia and occurs on the south-west Western Australian coast from Cape Naturaliste to Eyre, and on inland lakes as far north as lakes Cowan, Moore and Yalgorup (DaWE, 2022). The application area may be utilised by these species as part of a larger range than be reliant on the habitat within the application area.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing of fauna habitat within the application area is not likely to have a significant impact to fauna species in the local area.

Conditions

The clearing permit contains a condition that requires the applicant to engage an environmental specialist to conduct an inspection of the area to identify active malleefowl mounds.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 12 August 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim over the area under application (DPLH, 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 is one 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 Programme of Work approved under the *Mining Act 1978*.

Advice was requested from the Department of Biodiversity, Conservation and Attractions to provide comment on the impacts to threatened and priority flora (DBCA, 2022). The advice confirmed the potential impacts to the threatened and priority flora to be not significant at the species level and supported the proposed mitigation strategies (DBCA, 2022).

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																														
<p>Response to request for more information.</p> <p>Information regarding number of Priority Flora and Threatened Flora proposed to be impacted:</p> <table border="1"> <thead> <tr> <th>Taxon</th> <th>DBCA Priority Rating</th> <th>No. plants proposed to be impacted</th> <th>No. plants within 40km radius</th> <th>% impact on local population</th> </tr> </thead> <tbody> <tr> <td><i>Acacia euthyphylla</i></td> <td>P3</td> <td>29</td> <td>1311</td> <td>2.2</td> </tr> <tr> <td><i>Acacia glaucissima</i></td> <td>P3</td> <td>18</td> <td>320</td> <td>5.6</td> </tr> <tr> <td><i>Adenanthos ileticos</i></td> <td>P4</td> <td>18</td> <td>11,119</td> <td>0.2</td> </tr> <tr> <td><i>Darwinia polycephala</i></td> <td>P4</td> <td>30</td> <td>2296</td> <td>1.3</td> </tr> <tr> <td><i>Persoonia cymbifolia</i></td> <td>P3</td> <td>11</td> <td>637</td> <td>1.7</td> </tr> </tbody> </table> <ul style="list-style-type: none"> A maximum of 300 <i>E. merrickiae</i> plants are proposed to be impacted which includes regrowth seedlings/ re-sprouted plants from recent fires and overhanging branches of mature plants as specified in the section 40 Threatened Flora Authorisation application The section 40 application specifies a maximum total of 300 <i>E. merrickiae</i> plants are proposed to be impacted from five populations which includes regrowth seedlings/ re-sprouted plants from recent fires and overhanging branches of mature plants. Most of these individuals will not be directly taken but the 50m exclusion buffer may be impacted by ground disturbance activities. Overhanging branches of <i>E. merrickiae</i> may be removed via chainsaw or brush saw to ensure safety to traversing vehicles. The number is an estimate only based on an existing approved Threatened Flora authorisation obtained by the previous project holder (which allowed for impacts to 294 plants which was not conducted). A botanist will supervise all ground disturbing activities to ensure that impacts to <i>E. merrickiae</i> are avoided where possible and if unavoidable to minimise and mitigate impacts. A total of 63 populations of <i>E. merrickiae</i> (based on DBCA spatial database and Atlas of Living Australia) occur within a 40km radius of the Project. The estimated total number of plants (based on database records) is approximately 18,130 plants. The proposed impacts represents 1.7% of the total known population extent. 	Taxon	DBCA Priority Rating	No. plants proposed to be impacted	No. plants within 40km radius	% impact on local population	<i>Acacia euthyphylla</i>	P3	29	1311	2.2	<i>Acacia glaucissima</i>	P3	18	320	5.6	<i>Adenanthos ileticos</i>	P4	18	11,119	0.2	<i>Darwinia polycephala</i>	P4	30	2296	1.3	<i>Persoonia cymbifolia</i>	P3	11	637	1.7	<p>This additional information will be used as part of the applications assessment.</p>
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Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared located approximately 62 kilometres north-east of Esperance within the Shire of Esperance. The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by pasture to the west and south and salt lakes to the east and north (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	There are no conservation areas located within the application area (GIS Database). The closest conservation area is Mount Ney Nature Reserve located approximately 11 kilometres south east of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 125: Salt lake, lagoon, clay pan 482: Woodland other 519: Shrublands; mallee scrub, <i>Eucalyptus eremophila</i> 924: Shrublands; mallee scrub, <i>Eucalyptus eremophila</i> & red mallee

Characteristic	Details
	<p>A flora and vegetation survey was conducted over the application area by Terratree during September, 2015. The following vegetation associations were recorded within the application area (Terratree, 2015):</p> <p>EfMuAg: <i>Eucalyptus fraseri</i> ssp <i>fraseri</i> , <i>Eucalyptus flocktoniae</i> ssp. <i>flocktoniae</i> and <i>Eucalyptus kessellii</i> Low Open Woodland over <i>Melaleuca uncinata</i> , <i>Melaleuca linguiformis</i> and <i>Melaleuca acuminata</i> ssp. <i>acuminata</i> Tall Shrubland over <i>Acacia glaucissima</i> (P3), <i>Exocarpos aphyllus</i> and <i>Hibbertia pungens</i> Low Open Shrubland. Sandy soils, gently undulating plains;</p> <p>MtBuDK: <i>Melaleuca tuberculata</i> var. <i>macrophylla</i>, <i>Melaleuca subularis</i> and <i>Santalum acuminatum</i> Shrubland over <i>Baeckea uncinella</i> and <i>Cyathostemon tenuifolius</i> sparse Shrubland over <i>Darwinia</i> sp. Karonie (K.Newbey 8503), <i>Gahnia</i> sp. L (K.R. Newbey 7888) and <i>Darwinia polycephala</i> (P4) Low Sparse Shrubland. Located on the margins of salt lakes/pans;</p> <p>EeMfLr: <i>Eucalyptus eremophila</i> ssp <i>eremophila</i> and <i>Eucalyptus fraseri</i> ssp. <i>fraseri</i> Woodland over <i>Melaleuca fissurata</i> (P4), <i>Melaleuca rigidifolia</i> and <i>Melaleuca thyoides</i> Tall Shrubland over <i>Lissanthe rubicunda</i>, <i>Acacia glaucissima</i> (P3) and <i>Cyathostemon tenuifolius</i> Low Sparse Shrubland. White clay soils;</p> <p>EmMpDp: <i>Eucalyptus merrickiae</i> (T) and <i>Eucalyptus uncinata</i> Low Open Woodland over <i>Melaleuca pulchella</i>, <i>Phymatocarpus maxwellii</i> and <i>Melaleuca thyoides</i> Tall Open Shrubland over <i>Darwinia polycephala</i> (P4), <i>Calytrix duplistipulata</i> and <i>Conostephium drummondii</i> Low Shrubland. On white sand/clay soils adjacent to salt lakes/pans;</p> <p>EkBmPm: <i>Eucalyptus kessellii</i>, <i>Eucalyptus uncinata</i> and <i>Eucalyptus leptocalyx</i> Low Open Woodland over <i>Banksia media</i> and <i>Callitris roei</i> Tall Sparse Shrubland over <i>Phymatocarpus maxwellii</i>, <i>Melaleuca rigidifolia</i> and <i>Melaleuca uncinata</i> Shrubland over <i>Baeckea crispiflora</i> var. <i>icosandra</i>, <i>Darwinia polycephala</i> (P4) and <i>Cyathostemon tenuifolius</i> Low Sparse Shrubland. Gentle slopes in association with salt lakes;</p> <p>EcMpCt: <i>Eucalyptus conglobata</i> ssp. <i>perata</i>, <i>Eucalyptus leptocalyx</i> and <i>Eucalyptus kessellii</i> Low Woodland over <i>Melaleuca podiocalpa</i>, <i>Melaleuca bromelioides</i> and <i>Melaleuca rigidifolia</i> Tall Shrubland over <i>Cyathostemon tenuifolius</i>, <i>Daviesia benthamii</i> ssp. <i>acanthoclona</i> and <i>Boronia inornata</i> ssp. <i>leptophylla</i> Low Sparse Shrubland. White clay or sand, gently undulating plains;</p> <p>AvTs: <i>Atriplex vesicaria</i>, <i>Tecticornia syncarpa</i> and <i>Tecticornia halocnemoides</i> Low Heathland. On low-lying areas adjacent to salt lakes/pans;</p> <p>MsAg: <i>Melaleuca subularis</i>, <i>Melaleuca thyoides</i> and <i>Melaleuca fissurata</i> (P4) Tall Open Shrubland over <i>Acacia glaucissima</i> (P3), <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> and <i>Gahnia</i> sp. L (K.R. Newbey 7888) Low Open Shrubland over Mixed Herbland. Low-lying areas subject to seasonal inundation with white clay soils;</p> <p>EbMfCt: <i>Eucalyptus brachycalyx</i> Low Woodland over <i>Melaleuca fissurata</i> (P4), <i>Melaleuca linguiformis</i> and <i>Cyathostemon blackettii</i> Tall Shrubland over <i>Calytrix tetragona</i>, <i>Exocarpos aphyllus</i> and <i>Eremophila decipiens</i> ssp. <i>decipiens</i> Low Sparse Shrubland. Adjacent to salt lakes/pans;</p> <p>EgHpRc: <i>Eucalyptus gracilis</i> Low Sparse Woodland over <i>Hakea preissii</i>, <i>Geijera linearifolia</i> and <i>Alyxia buxifolia</i> Open Shrubland over <i>Rhagodia crassifolia</i>, <i>Atriplex vesicaria</i> and <i>Gunniopsis quadrifida</i> Low Open Shrubland. Located on red clays in low-lying areas subject to seasonal inundation; and</p> <p>EeMtBu: <i>Eucalyptus eremophila</i> ssp. <i>eremophila</i> Low Open Woodland over <i>Melaleuca teuthidoides</i>, <i>Melaleuca thyoides</i> and <i>Melaleuca uncinata</i> Tall Sparse Shrubland over <i>Baeckea uncinella</i> and <i>Tecticornia lylei</i> Low Open Shrubland. Margins of salt lakes.</p>
Vegetation condition	<p>The vegetation survey conducted by Terratree (Terratree, 2015a) indicate the vegetation within the proposed clearing area is in Very Good to Excellent (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p>
Climate and landform	<p>The region experiences a dry warm Mediterranean climate and a mean annual rainfall of 490.6 millilitres (BOM, 2022).</p>
Soil description	<p>The soils of the application area are broadly mapped as the following soil types:</p> <ul style="list-style-type: none"> • 246Sc_7: Scaddan 7 subsystem. Esperance, Ravensthorpe and Salmon Gums, • 246Ha_1: Halbert 1 subsystem. Gently to undulating plain with many small playas. <p>Lunettes and sand dunes are common on eastern side of lakes. Alkaline grey deep and shallow sandy duplex and associated salt lake soils, pale deep sands and calcareous loamy earths,</p>

Characteristic	Details
	<ul style="list-style-type: none"> 246Ha_2: Halbert 2 subsystem. Large level saline playas with associated lunettes on the eastern edges of lakes. Salt lake soils with associated calcareous loamy earths, pale deep sands and other soils, 246Wm_2: Wittenoom 2 subsystem. Hillslopes. Granite and gneiss and colluvium. Alkaline grey shallow sandy and loamy duplex soils with pale deep sands, minor non-cracking clays and shallow gravels Mallee heath and shrubland. Some woodland of <i>E. occidentalis</i> in damp areas, 246Wm_1: Wittenoom 1 subsystem. Moderately inclined to steeply inclined crests and slopes of hills. Proterozoic granite and gneiss and associated colluvium. Bare rock and associated stony soils. Mostly devoid of vegetation, some shrubland of broombush and heath, 246Bu_7: Buraminnya 7 subsystem. Level to gently undulating plain. Weathered Tertiary sediments and granite and gneiss. Alkaline grey shallow sandy duplex soils and Calcareous loamy earth with minor non-cracking grey clays. Mallee woodland of <i>Eucalypts eremophila</i>, and 246Bu_2: Buraminnya 2 subsystem. Gently sloping plain. Tertiary sediments over undulating basement rock of granite and gneiss. Calcareous loamy earths and associated alkaline grey shallow sandy duplex soils. Mallee shrubland and woodland <i>E. ? redunca</i> and <i>E. uncinata</i> (DPIRD, 2022).
Land degradation risk	Approximately 20 per cent of application area is mapped as having a moderate to extreme risk of salinity at surface and 83 per cent of the application area has an extremely low capacity soil water (GIS Database). The proposed clearing may cause appreciable land degradation.
Waterbodies	The desktop assessment and aerial imagery indicate that the application area partially transects multiple ephemeral salt lakes (GIS Database). There are no Ramsar wetlands or wetlands of national importance (ANCA Wetlands) within the application area. Lake Halbert is located within close proximity to the application area with works designed to avoid clearing within the surface water feature.
Hydrogeography	The application area is not mapped within a proclaimed groundwater area (GIS Database).
Flora	<p>A total of 218 species, representing 120 genera from 52 families were recorded within the study area (Terratree, 2015a). The desktop assessment produced eight records of Threatened Flora and 124 Priority Flora as occurring within a 40 kilometre radius of the assessment area (Botanica Consulting, 2022).</p> <p>One Threatened species, <i>Eucalyptus merrickiae</i>, was recorded within the study area (Terratree, 2015a).</p> <p>Five Priority species were recorded within the study area –three Priority 3 (P3) – <i>Acacia euthyphylla</i> (P3), <i>Acacia glaucissima</i> (P3), and <i>Persoonia cymbifolia</i> (P3) and two Priority 4 (P4) – <i>Adenanthos ileticos</i> (P4) and <i>Darwinia polycephala</i> (P4).</p> <p>Ten species of introduced flora were recorded within the study area.</p>
Ecological communities	There are no Threatened or Priority Ecological Communities (TEC or PEC) recorded within the application area. The Proteaceae dominated kwongan shrublands PEC (Priority 3) is the closest PEC, located 2.5 kilometres south of the application area (GIS Database).
Fauna	There are no records of conservation significant fauna within the application area (GIS Database). Based on the previous recordings of species in the local area and vegetation types present, 12 conservation significant fauna may occur within the application area.

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion - Mallee	7,395,894.36	4,180,937.68	56.53	1,289,384.08	18.03
IBRA Subregion - Eastern Mallee	3,414,176.54	2,709,890.01	79.37	924,517.55	27.35
Local Government – Shire of Esperance	4,459,670.90	3,210,952.18	72.00	969,738.28	22.09
Beard vegetation associations - State					

Veg Assoc No. 125	3,485,785.49	3,146,487.22	90.27	265,740.10	9.29
Veg Assoc No. 482	1,628,465.01	1,612,811.44	99.04	143,864.83	8.83
Veg Assoc No. 519	2,333,413.96	1,440,062.48	61.71	244,095.67	10.54
Veg Assoc No. 924	107,607.70	60,765.47	56.47	23,935.82	22.64
Beard vegetation associations - Bioregion (Mallee)					
Veg Assoc No. 125	160,327.46	107,845.06	67.27	25,031.57	26.79
Veg Assoc No. 482	341,081.18	325,427.61	95.41	22,471.85	6.59
Veg Assoc No. 519	2,100,313.59	1,248,661.16	59.45	225,928.43	10.85
Veg Assoc No. 924	107,510.91	60,668.68	56.43	23,839.45	22.57
Beard vegetation associations - Subregion (Eastern Mallee)					
Veg Assoc No. 125	78,722.67	76,043.22	96.60	6,583.51	8.97
Veg Assoc No. 482	337,519.85	321,866.28	95.36	21,383.65	6.34
Veg Assoc No. 519	536,742.32	465,627.03	86.75	29,594.52	5.52
Veg Assoc No. 924	107,510.91	60,668.68	56.43	23,839.45	22.57

Government of Western Australia (2019)

B.3. Flora analysis table

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

Species name	Conservation status	No. plants within application area	No. plants proposed to be impacted	No. plants within 40km radius	% impact on local population
<i>Acacia euthyphylla</i>	P3	29	29	1,311	2.2
<i>Acacia glaucissima</i>	P3	82	18	320	5.6
<i>Adenanthos ileticos</i>	P4	18	18	11,119	0.2
<i>Darwinia polycephala</i>	P1	32	30	2,296	1.3
<i>Persoonia cymbifolia</i>	P1	11	11	637	1.7
<i>Eucalyptus merrickiae</i>	VU	789	300	18,130	1.7

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

B.4. Fauna analysis table

Species name	Common Name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Actitis hypoleucos</i>	Common Sandpiper	MI	Y	24
<i>Apus pacificus</i>	Fork-tailed Swift	MI	Y	24
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	Y	46
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	Y	36
<i>Calidris ruficollis</i>	Red-necked stint	MI	Y	24
<i>Dasyurus geoffroi</i>	Chuditch, western quoll	VU	Y	37

Species name	Common Name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Falco peregrinus</i>	Peregrine falcon	OS	N	31
<i>Leipoa ocellata</i>	Malleefowl	VU	Y	5
<i>Platycercus icterotis xanthogenys</i>	Western Rosella (inland)	P4	Y	31
<i>Thinornis rubricollis</i>	Hooded Plover	P4	Y	5
<i>Tringa nebularia</i>	Common Greenshank	MI	Y	22
<i>Zanda latirostris</i>	Carnaby's Black Cockatoo	EN	N	30

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

Appendix C. 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 study area comprises of 11 vegetation communities. A number of communities associated with the margins of salt lakes/pans contain a high percentage of the surveys area diversity (Terratree, 2015a). The application area may contain suitable or significant habitat for priority flora and conservation significant fauna species.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared may contain suitable habitat for a number of conservation significant fauna species (Botanica Consulting, 2022a).</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is likely to contain number of conservation significant flora species (Botanica Consulting, 2022a).</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."</p> <p><u>Assessment:</u></p> <p>There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database).</p> <p>Flora and vegetation surveys of the application area did not identify any TECs (Botanica Consulting, 2022b; Terratree, 2015a; Terratree, 2015b).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		

Assessment against the clearing principles	Variance level	Is further consideration required?
<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 application area falls within the Mallee Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database).</p> <p>Approximately 56% of the pre-European vegetation still exists in the Mallee Bioregion IBRA (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 125, 482, 519 and 924 (GIS Database). These vegetation associations have not been extensively cleared as over 50% of the pre-European extent of these vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). The application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared (GIS Database).</p>	Not likely to be 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>There are no conservation area located within the application area. The closest conservation area is Mount Ney Nature Reserve located approximately 11 kilometres south east of the application area (GIS Database). Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</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 several minor ephemeral salt lakes located within the application area which provides suitable habitat for several conservation significant flora species. Therefore, the proposed clearing will impact on vegetation associated with a watercourse. Potential impacts to vegetation growing in association with watercourses may be minimised by the implementation of a watercourse management condition.</p>	At variance	No
<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>Noting that the area immediately surrounding the application area is highly vegetated; the proposed clearing is not likely to cause appreciable land degradation through salinity or water erosion. However, given the application area occurs on mostly alkaline grey shallow sandy duplex soil and salt lake soils, the proposed clearing may cause appreciable land degradation in the form of wind erosion (Botanica Consulting, 2022a). Potential erosion may be minimised by the implementation of a staged clearing condition.</p>	May be at variance	No
<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>The application area is not located in a Public Drinking Water Source Areas (PDWSAs) (GIS Database). There are no permanent wetlands or waterbodies in the application area, however there are several non-perennial</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>salt lakes and Lake Halbert is located within close proximity to the application area, however, works have been designed to avoid clearing within these areas where possible. Given the low average annual rainfall, the salt lakes are likely to only be briefly inundated and the proposed clearing is unlikely to impact surface water quality.</p> <p>Given the groundwater is already saline, the proposed clearing is unlikely to alter existing groundwater salinity.</p>		
<p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>There are no Ramsar wetlands or wetlands of national importance (ANCA Wetlands) within the application area (GIS Database). Lake Halbert is located within close proximity to the application area with works designed to avoid clearing within. Non-perennial salt lakes are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix D. 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 Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)

- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- 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)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape 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
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- Black Cockatoo WTBC Breeding
- Black Cockatoo FRTBC Breeding
- Black Cockatoo BC Roosts
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- Black Cockatoo Feeding Areas Buffered
- Black Cockatoo Baudins Distribution
- Black Cockatoo Forest Red Tail Distribution
- Black Cockatoo Carnabys Distribution
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

- BoM (2022) Bureau of Meteorology Website – Climate Data Online, Marble Bar. Bureau of Meteorology.
- Botanica Consulting (2022a) Mt Ridley Rare Earth Elements Project – Exploration Environmental Management Plan E63/1547, E63/1564, E63/2111, E63/2112, E63/2113 & E63/2125. Report prepared for Mount Riley Limited, by Botanica Consulting, July 2022.
- Botanica Consulting (2022b) Memorandum: Targeted Flora Survey-Mt Ridley North Exploration Program. Report prepared for Mount Ridley Mines. 12 July 2022.
- Botanica Consulting (2022c) Additional information received in relation to Clearing Permit Application CPS 9815/1. Mount Ridley Mines Limited, Western Australia.
- DBCA (2022) Advice received in relation to Clearing Permit Application CPS 9815/1. Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, Western Australia, September, 2022.
- DaWE (2022) Species Profile and Threats Database. Department of Agriculture, Water and the Environment. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

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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.