



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9654/1
Permit type:	Purpose Permit
Applicant name:	Premier Coal Limited
Application received:	14 March 2022
Application area:	10 hectares
Purpose of clearing:	Coal Exploration
Method of clearing:	Mechanical Removal
Tenure:	<i>Collie Coal (Western Collieries) Agreement Act 1979</i> , Mining Lease 262SA (AML 70/262)
Location (LGA area/s):	Shire of Collie
Colloquial name:	Premier Coal Pit 7

1.2. Description of clearing activities

Premier Coal Limited (PCL) proposes to clear up to 10 hectares of native vegetation within a boundary of approximately 387.31 hectares, for the purpose of coal exploration. The project is located approximately 10 kilometres east-south-east of Collie, within the Shire of Collie.

The application is to allow for drilling and exploration in the area known as Pit 7. This area falls outside of the current approved disturbance area under Ministerial Statement 416.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	18 November 2022
Decision area:	10 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 14 March 2022. DMIRS advertised the application for a public comment for a period of 21 days, and two submissions were received.

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

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds and dieback into vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential impacts to conservation significant flora; and
- the loss of native vegetation that is suitable habitat for conservation significant fauna.

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

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- no clearing of native vegetation unless the purpose for which the clearing is authorised is enacted within 6 months of the authorised clearing being undertaken;

- preparation of a dieback management plan prior to the commencement of any clearing;
- pre-clearance flora surveys to identify conservation significant flora;
- maintain surface existing surface water flows of drainage lines;
- no clearing of priority of threatened flora species;
- no clearing within vegetation type “LS Em Xp Bo” due to high biodiversity values;
- no clearing of any potential black cockatoo habitat trees (trees greater than 50 centimetres in diameter at breast height (DBH));
- if clearing is undertaken during Chuditch denning periods (September to December, inclusive), pre-clearing checks of fallen logs are required and are to be relocated to a suitable location; and
- rehabilitate and retain cleared vegetation and topsoil, and respread this on a cleared area of equivalent size within 6 months of clearing to ensure fauna habitat is not permanently lost.

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Collie Coal (Western Collieries) Agreement Act 1979* (WA)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)

The key guidance documents which inform this assessment are:

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

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that when clearing for access tracks, drill pads and seismic survey lines, trees with a diameter at breast height (DBH) of greater than 500 mm will be avoided to ensure potential hollow-bearing trees are not disturbed. Other trees and large fallen timber that appears habitable for fauna will also be avoided wherever possible (Premier Coal Limited, 2022). The application has also provided the following avoidance, mitigation and management measures:

- Exploration activities will utilise existing access tracks and disturbed areas wherever possible to minimise native vegetation clearing;
- The maximum extent of clearing is 10 hectares to be undertaken between 2022 and 2027, which was reduced from 12 hectares;
- Areas cleared which are no longer required will be rehabilitated within 6 months;
- Areas identified in the flora survey conducted by Onshore Environmental (2022a) containing priority flora will be avoided;
- All earthmoving machinery will be cleaned and inspected for weeds and dieback prior to entry to the project area; and
- Clear pine plantation over native vegetation, where practicable.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

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

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

Assessment

The application area is situated in the Interim Biogeographic Regionalisation for Australia (IBRA) Jarrah Forrest Bioregion (GIS Database). The Jarrah Forest bioregion is divided into two subregions; the Northern Jarrah Forest and the Southern Jarrah Forest. The study area is located close to the border of these two regions but within the Southern Jarrah Forest subregion. The Southern Jarrah Forest is described as; "Duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo - Marri woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands (Hearn, Williams, Comer and Beecham, 2002).

The application area is located within the Collie State Forest (GIS Database). The Collie State Forest is approximately 16,000 hectares (GIS Database). The proposed clearing of 10 hectares of native vegetation will impact on approximately 0.0625% of the Collie State Forest, with parts of the application area comprising pine plantation and areas of rehabilitation. Given the relatively low extent of clearing within the Collie State Forest, the proposed clearing is unlikely to significantly impact on the environmental values of the State Forrest on a local or regional scale.

Detailed Flora and Vegetation surveys have been conducted over the application area between the 30 October and 3 November 2019, and 16 to 17 February 2022 by Onshore Environmental (2022a). The findings of both surveys have been detailed in one combined report (Onshore Environmental, 2022a). Numerous priority and threatened flora species were identified as potentially occurring within the application area based on previous records in the local area and the presence of suitable habitat within the application area (refer to section C.3 for the list of flora species) (Onshore Environmental, 2022a; GIS Database). During the field survey, two priority flora species were recorded within the application area; *Acacia semitrullata* (P4) and *Pultenaea skinneri* (P4) (Onshore Environmental, 2022a). No threatened flora species were recorded during the field surveys (Onshore Environmental, 2022b).

Acacia semitrullata was recorded across four vegetation types within the application area (HC AfEm BoHamHr Bg, LS Ep Kg BiBa, SF MpNfEm Xp BeHaCf and WE Pa PeAoHa Mp). Approximately 150 individuals from 42 locations were recorded and are considered to be one population (Onshore Environmental, 2022a). Individuals were recorded predominantly on lower sandy slopes in the southeast corner of the application area. *Acacia semitrullata* has been recorded throughout the south west region (Augusta Margaret River, Bunbury, Busselton, Capel, Collie, Dardanup, Donnybrook-Balingup, Harvey, Manjimup, Murray, Nannup and Waroona local government areas) (Western Australian Herbarium, 1998-). As such, this species ranges beyond the Jarrah Forest IBRA region and is unlikely to be significantly impacted on a regional scale from the proposed clearing. However, the removal of approximately 150 individuals may significantly impact this species on a local scale, and therefore, is considered likely to impact the biodiversity of the local area.

Pultenaea skinneri was recorded in one vegetation type (LS Db MpEmNf KgKr PeAoHa) within the application area. Approximately 50 individuals from seven locations were recorded and are considered to be one population (Onshore Environmental, 2022a). Individuals were recorded predominantly on grey sand / sandy loam on lower slopes and flats in the northeast of the application area (Onshore Environmental, 2022a). *Pultenaea skinneri* has been recorded throughout the south west region (Augusta Margaret River, Bunbury, Busselton, Capel, Collie, Harvey and Nannup local government areas) (Western Australian Herbarium, 1998-). As such, this species ranges beyond the Jarrah Forest IBRA region and is unlikely to be significantly impacted on a regional scale from the proposed clearing. However, the removal of approximately 50 individuals may significantly impact this species on a local scale, and therefore, may impact on the biodiversity of the local area.

Of the remaining flora species identified as potentially occurring within the application area (refer to section C.3), 21 have been assessed as "unlikely" to occur due to the limited suitable habitat available, the condition of suitable habitat within the application area or the area is outside of the species known distribution range (Western Australia Herbarium, 1998-; GIS Database). A further 14 species have been assessed as "possible" to occur and one species has been assessed as "likely" to occur within the application area. This is due to the presence of suitable habitat and the application area occurring within the species known distribution. Although, these species were not identified during the flora and vegetation surveys (Onshore Environmental, 2022a), these species may appear over the duration of the permit. As such, flora conditions are required to minimise impacts to priority and threatened flora from the proposed clearing activities.

The vegetation condition within the application area ranges from "completely degraded" to "excellent" (Keighery, 1994). Vegetation type LS Em Xp Bo was noted as being the only vegetation type in "excellent" condition (Onshore Environmental, 2022a). This vegetation type is broadly described as Eucalypt Forest and comprises approximately 13% of the application area (see Figure 1 in Appendix F). The vegetation type exhibits suitable habitat for numerous priority and threatened flora species listed in section C.3, holds suitable habitat (foraging and potential breeding) for black cockatoo species and holds suitable foraging habitat for priority fauna (further discussion relating to fauna habitats is discussed in section 3.2.2 below). Given the condition of this vegetation type, the relatively low extent present in the application area and the presence of suitable habitat for threatened and priority flora species and threatened and priority fauna within it, vegetation type LS Em Xp Bo is considered to hold high biodiversity values. As such, clearing restrictions are required to conserve the biodiversity values of this vegetation type on a local scale.

Phytophthora Dieback (dieback) has been assessed as 'likely' to 'very likely' to be introduced or spread throughout the application area based on the type activity (clearing) and the presence of susceptible flora species (DBCA, 2022). Dieback refers to the disease caused by soil-borne plant pathogens from the genus *Phytophthora*. Forty-two *Phytophthora* species have been identified in Western Australia (DBCA, 2017b). Dieback affects susceptible flora species including many from the *Proteaceae* (banksia's and hakeas), *Myrtaceae* (eucalypts) and *Xanthorrhoeaceae* (grass-trees) families (DBCA, 2022). Dieback is a symptom of a *Phytophthora* infection and affects more than 40 per cent of the native plant species and half of the endangered species in the south-west of Western Australia (Premier Coal Limited, 2022). Given some of these susceptible species occur within the application area, dieback has the potential to impact on native vegetation, and subsequently the biodiversity of the local area. As such, conditions are required in order to manage the potential impacts of dieback.

A total of 23 introduced flora species were recorded within the application area during the field survey (Onshore Environmental, 2022a) with one these species, *Asparagus asparagoides* (Bridal Creeper), listed as a Declared Pest under the BAM Act and as a Weed of National Significance (WoNS) (DPIRD, 2022a). Clearing activities have the potential to result in an increase in the incidence of weed species, which may negatively impact on the biodiversity of the local area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Conclusion

Based on the above assessment, the proposed clearing may result in impacts to biodiversity within the area by the spread of weeds and dieback, the potential loss of conservation significant flora, and by the loss of vegetation considered to hold high biodiversity values.

For the reasons set out above, it is considered that the impacts of the proposed clearing on biodiversity can be managed by the implementation of management conditions, which are summarised below.

Conditions

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

- Hygiene – avoid the spread of weeds and dieback;
- Hygiene – prior to undertaking any clearing, prepare a dieback management plan;
- Flora – no clearing of priority flora (*Acacia semitrullata* and *Pultenaea skinneri*) identified within the application area;
- Flora – pre-clearing flora surveys and avoid any identified Threatened or Priority flora species; and
- Vegetation – no clearing within vegetation type “Ls Em Xp Bo” – Eucalypt Forest.

3.2.2. Biological values (fauna habitat) - Clearing Principles (a) and (b)

Assessment

A basic fauna survey was undertaken across the application area by Onshore Environmental (2022b). The field survey was completed over six person days between 15 and 18 December 2021, and the 27 January 2022. A total of 50 vertebrate fauna species were recorded during the field survey, including three reptiles, 41 birds and six mammals. Two fauna species listed as under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Western Australian *Biodiversity Conservation Act 2016* (BC Act) were recorded from the application area; Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) listed as Vulnerable, and Baudin's cockatoo (*Zanda Calyptorhynchus* (formerly *Calyptorhynchus baudinii*)), listed as Endangered. Two Priority fauna species, were also recorded from the application area; Quenda (*Isoodon fusciventer*) and Western Brush Wallaby (*Notamacropus irma*). Both species are listed as Priority 4 taxa (Onshore Environmental, 2022b). Ten additional species of conservation significance are considered likely to occur within the application area but were not recorded during the survey (see section C.1 for the list of species). Reasonable effort by Onshore Environmental has been undertaken to identify these species throughout the application area by the use of cameras, active foraging, three hollow searches, tree density assessments and black cockatoo searches (Onshore Environmental, 2022b).

Three broad fauna habitats were identified during the field survey. These are Jarrah/Marri Forest on hillslopes, Wetland/Drainage zones and Pine Plantation (Onshore Environmental, 2022b). It is important to note that Pine Plantations are not considered native vegetation, and are therefore, not subject to provisions under the EP Act.

Jarrah/Marri Forest on hillslopes

The majority of the study area is mapped as Forest on Hillslopes/Hillcrests with Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) forest and an open low/mid shrub understorey. This habitat may provide hollows in large old Marri and Jarrah trees, which have the potential for hollows to form in the future, potentially providing breeding habitat for black cockatoos. Additional habitat features include areas with large fallen logs (suitable as den sites for Chuditch), dense leaf litter, and scattered areas of laterite outcropping (Onshore Environmental, 2022b).

Wetland/Drainage zones

The wetland and drainage zone habitat occurs on flats with grey clayey sands within the southern and central parts of the application area. This habitat is characterised by a more open tree overstorey comprised of a Woodland of *Melaleuca preissiana* with Jarrah and Flooded Gum (*Eucalyptus rudis*) scattered (Onshore Environmental, 2022b). This habitat supported fewer large trees compared to the hillslopes habitat and therefore has a lower density of hollow bearing trees. The understorey vegetation was variable ranging from open to a very dense cover of shrubs and sedges. Dense understorey within this habitat provides good cover for small mammals, reptiles and birds. This habitat is likely to hold small pools of water during winter. Two large artificial waterbodies occur within the study area adjacent to this habitat. The quality of the water within these waterbodies is uncertain and the absence of dense fringing vegetation may limit the usability to local fauna (Onshore Environmental, 2022b).

The Forest red-tailed black cockatoo was recorded from two locations within the application area, by calls and recent foraging evidence. Baudin's cockatoo was recorded from two locations on hillslopes within the application area through direct observation and calls (Onshore Environmental, 2022b). Carnaby's cockatoo was not recorded, however, it is considered likely to occur within the application area given there is one known black cockatoo roost site within 12 kilometres of the application area and six roost sites within 20 kilometres of the application area (DBCA, 2022; GIS Database). Habitat across the majority of the application area is likely to be suitable foraging habitat for all three black cockatoo species (DBCA, 2022; Onshore Environmental, 2022b). In particular, it is likely that the Jarrah/Marri forest area is an important foraging resource for all three species of black cockatoos. The cumulative impact of loss of habitat is a reduction in the number of birds that can be supported in the region. In the respective black cockatoo recovery plans, it is noted that a reversal of threats (including loss of habitat) is required before significant increases in the black cockatoo populations can occur (DBCA, 2022). The Recovery Plans identify the need to protect and manage as much

habitat as possible to minimise the impacts of habitat loss. Therefore, all remaining resources are significantly important to black cockatoos. Furthermore, Onshore Environmental (2022b) recorded a total of 15 trees with hollows potentially suitable for use by black cockatoos. Lack of available suitable hollows is a key threat to black cockatoos and their long-term survival. As such, the proposed clearing is considered likely to have an impact on suitable habitat for these species and given the importance of preserving both trees with suitable hollows and potential foraging and breeding habitat, management conditions are required to minimise the impacts to black cockatoo habitat. To aid in preserving potential habitat for black cockatoo species, the restricted clearing condition in vegetation type “LS Em Xp Bo” will ensure that high quality Jarrah/Marri trees are not disturbed for foraging and potential breeding. Further to this, no clearing of trees greater than 50 centimetres at breast height are permitted to be cleared throughout the application area.

A single Western Brush Wallaby was sighted in the early morning during the fauna survey in the Jarrah/Marri hillslope (vegetation type “LS Em Xp Bo”) and evidence of distinctive Quenda diggings were recorded in the Jarrah/Marri hillslopes and wetland/drainage zones (Onshore Environmental, 2022b). The Western Brush Wallaby and Quenda are known to inhabit a wide-range of habitats including low Banksia woodlands, Jarrah/Marri woodlands and moist Melaleuca lowlands. While these priority species inhabit a wide range of habitats, potential impacts to Western Brush Wallaby and Quenda may be minimised by the use of a restricted clearing condition within vegetation type LS Em Xp Bo.

The Chuditch, or Western Quoll, (*Dasyurus geoffroi*) (Vulnerable) has been historically recorded within the application area (GIS Database) and there are confirmed records within 10 kilometres of the application area (DBCA, 2022; GIS Database). Searches for Chuditch were conducted during the field survey, however, no evidence of this species was recorded within the application area (Onshore Environmental, 2022b). Nonetheless, there is suitable denning (logs) and foraging habitat present within parts of the application area (DBCA, 2022; Onshore Environmental, 2022b). The Chuditch is the largest carnivorous marsupial occurring in Western Australia. The Chuditch is now largely restricted to southwest Western Australia. It survives mostly in jarrah forests and woodlands, mallee shrublands and heathlands (DBCA, 2017a). Chuditch have home ranges extending up to 15 square kilometres for males and 3 to 4 square kilometres for females. Their dens are typically found in hollow logs, tree limbs, rocky outcrops and burrows (DBCA, 2017a). Chuditch require adequate numbers of suitable den and refuge sites and sufficient prey biomass (large invertebrates, reptiles and small mammals) to survive. They are capable of travelling long distances, and even at their most abundant, they are generally present in low numbers (DBCA, 2017a).

The application area is considered to comprise of important habitat for the Chuditch, with the area possibly being utilised for both foraging and sheltering purposes. Whilst the proposed clearing will result in the removal of some denning and foraging habitat, there is still habitat remaining in the local area (based on nearby records) and the proposed clearing is not expected to have a significant impact on the long term viability of local populations (GIS Database). However, management measures are required to ensure that impacts to Chuditch habitat are limited. Potential impacts to Chuditch as a result of the proposed clearing may be minimised by the implementation of a fauna management condition. This will require a pre-clearing inspection for dens, relocation of individuals occupying identified dens, and replacement/relocation of confirmed dens in adjoining habitat.

There are records of the Western Ringtail Possum near the application area, with the most recent from Collie approximately 10 kilometres north-east of the application area (Onshore Environmental, 2022b; GIS Database). However, no scats, dreys or evidence of this species were observed during the active searches undertaken within the application area (Onshore Environmental, 2022b). The Western Ringtail Possum Recovery Plan (DPAW, 2017) identifies critical habitat for the species in the southern forest zone near Manjimup as forest dominated by Jarrah/Marri. This species may occasionally utilise the wetland and hillslope habitats within the study area. Hollows identified within the study area may also be utilised by Western Ringtail Possums. However, habitat within the majority of the study area is considered to be largely unsuitable for this species due to the lack of dense well-connected mid-storey and upper-storey vegetation, and/or lack of mature trees due to historical logging and rehabilitation (Onshore Environmental, 2022b).

Conclusion

Based on the above assessment, the proposed clearing will result in potential impacts to black cockatoo foraging and potential roosting habitat, potential denning habitat for Chuditch and foraging habitat for priority fauna.

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitats can be managed by the implementation of management conditions, which are summarised below.

Conditions

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

- Fauna management (black cockatoo breeding habitat) - No clearing of trees that are greater than 50 centimetres in diameter at breast height (150 centimetres above ground level);
- Fauna management (Chuditch denning habitat) – if clearing is to occur between August and December, that area shall be inspected by a fauna specialist to identify Chuditch (*Dasyurus geoffroi*) dens and individuals; and
- Vegetation – no clearing within vegetation type “Ls Em Xp Bo” – Eucalypt Forest.

3.3. Relevant planning instruments and other matters

It is noted that the proposed clearing may impact on foraging and potential breeding habitat for black cockatoo species, 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 Agriculture, Water and the Environment for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Agriculture, Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

The clearing permit application was advertised on 29 April 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. Two submissions were received in relation to this application which are detailed in Appendix B.

The permit area is within the South West Native Title Settlement area (DPLH, 2022). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. 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 native title claim over the area under application (DPLH, 2022). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the 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 that intersects 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.

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.

Other relevant authorisations required for the proposed land use include:

- A Programme of Work approved under the *Mining Act 1978*.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Proponent advised that the original 12 hectares of proposed clearing has been amended to 10 hectares.	Application area changed from 12 hectares to 10 hectares.

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
This application area is within daily foraging distance of hollows with signs of use for breeding; all hollows need to be assessed within this site for evidence of breeding; need to retain all trees with signs of breeding as well as sufficient breeding habitat (large and smaller hollows) to enable breeding habitat succession	This is considered in the assessment of impacts on environmental values (see Section 3.2.2). Conditions have been placed on the permit to prevent the clearing of potential habitat trees for black cockatoos and retaining areas of excellent quality vegetation which are used for foraging by black cockatoos.
The proposed clearing site contains large areas of pine plantations – potentially important foraging and roosting habitat for black cockatoos, particularly so close to confirmed breeding areas	The importance of pine plantations for foraging habitat for Cockatoos is acknowledged, however, this is beyond the scope of this assessment as pine plantations are not classified as native vegetation and are therefore not covered by any legislation that DMIRS administer.
The proposed clearing site is near (within daily foraging range) of confirmed roosts	This is considered in the assessment of impacts on environmental values (see Section 3.2.2)
Importance of considering Cumulative Impacts for Black Cockatoo species	This is considered in the assessment of impacts on environmental values (see Section 3.2.2)
Need for mitigation measures that are effective for black cockatoo conservation	This is considered in the assessment of impacts on environmental values (see Section 3.2.2). Conditions have been placed on the permit to prevent the clearing of potential habitat trees for black cockatoos and retaining areas of excellent quality vegetation which are used for foraging by black cockatoos.
Consideration given to Aboriginal Heritage and consultation	<p>During the initial advertising phase of this application, a direct interest letter was sent to the relevant party from DMIRS notifying them of the clearing permit application and inviting the relevant party to make a public comment on the application, if they considered it appropriate. No comments were received from this party.</p> <p>Aboriginal heritage has been discussed in the planning and other matters section.</p>

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. The proposed clearing area contains pine plantation, post mining rehabilitation, water filled mine voids and existing infrastructure (GIS Database).</p> <p>The dominant land use in the immediate surrounding area is mainly mining, grazing, dry land agriculture, forestry (of native forest) and conservation. There are smaller areas of forestry, irrigated horticulture, rural residential, and easements (for roads, power lines etc) (Hearn, Williams, Comer and Beecham, 2002).</p>
Ecological linkage	According to available databases, there are no formal ecological linkages within the application area (GIS Database).

Characteristic	Details
Conservation areas	The application area lies within the Collie State Forest, and is nearby the Muja State Forest (Onshore Environmental, 2022; GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as Beard vegetation association 3: medium forest; jarrah-marri (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Onshore Environmental during October/November 2019 and February 2022. There were 13 vegetation associations were recorded within the application area and are outlined in Appendix F.</p>
Vegetation condition	<p>The vegetation survey (Onshore Environmental, 2022a) indicate the vegetation within the proposed clearing area is in completely degraded to excellent (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • Completely degraded • Degraded • Good • Very good • Excellent <p>The full Keighery (1994) condition rating scale is provided in Appendix E and the full survey descriptions and mapping are available in Appendix F.</p>
Climate and landform	<p>The climate of south-west Western Australia is Mediterranean, with hot, dry summers and mild, wet winters. The application area has a long-term rainfall average of 927.7 mm (1899 to 2021), with highest monthly rainfall received during June (173 mm) and July (176 mm). Average maximum summer temperatures range between 28.3 and 30.5 degrees Celsius with winter minimum temperatures ranging from 4.2 to 5.0 degrees Celsius (Onshore Environmental, 2022a)</p> <p>The application area lies within the Collie Basin on the Darling Plateau. The Collie Basin is approximately 26 kilometres in length by 13 kilometres wide and stretches southeast from Allanson (to the west of Collie) (Onshore Environmental, 2022a).</p>
Soil description	<p>The soil is mapped as 255CfCF, 255CfX_MINE, 255CfCI and 255DpPNu soil units (DPIRD, 2022b). These are described as per below (DPIRD, 2022b):</p> <p>255CfCF - Low lying poorly drained flats over coal measures. Soils are deep sands and wet soils</p> <p>255CfX_MINE - Mine. Disturbed land</p> <p>255CfCI - Broad lateritic divides over coal measures relief 5-25 m, slopes 2-10%. Soils are deep sands and sandy gravels</p> <p>255DpPNu - Shallow minor valleys (10-20 m) with gentle side slopes (3-10%) and swampy floors (50-75 m wide). Soils are loamy gravels, and deep sands, and non-saline wet soils on the valley floors.</p>
Land degradation risk	The Department of Primary Industries and Regional Development (DPIRD), provides a series of soil degradation risk mapping at the systems levels (DPIRD, 2022). The land degradation table C.5 below summaries the soil degradation risk within the application area where information is available.
Waterbodies	According to available databases, there are three non-perennial watercourses and associated drainage lines that intersect the application area. There are no natural permanent waterbodies located within the application area, with the nearest permanent waterbody (Collie River South Branch) being approximately 4 kilometres south west of the application area (GIS Database).
Hydrogeography	<p>There are no public drinking water sources within the application area (GIS Database). The application area is within the Collie Groundwater Area, proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (GIS Database).</p> <p>The application area lies within the Wellington Dam Collie River hydrographic sub-catchment area (GIS Database).</p> <p>Groundwater salinity within the application area ranges between <500-3000 (fresh to saline) milligrams per litre of total dissolved solids (TDS) (GIS Database).</p>
Flora	A total number of 363 plant taxa from 54 families and 173 genera were recorded from the study area (Onshore Environmental, 2022a). Two Priority 4 flora taxa were recorded within the

Characteristic	Details
	application area; <i>Acacia semitrullata</i> and <i>Pultenaea skinneri</i> . No Threatened flora was identified within the application area (Onshore Environmental, 2022a; GIS Database).
Ecological communities	According to available databases, there are no mapped Threatened or Priority Ecological Communities (TEC/PECs) within the application area or within 40 kilometres of the application area (GIS Database).
Fauna	<p>According to available data bases, there are records of the following conservation significant fauna species within a 20 kilometres radius of the application area (GIS Database) and have been further considered in section C.4:</p> <ul style="list-style-type: none"> • Woylie (<i>Bettongia penicillata</i>), Cr; • Forest Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii naso</i>), Vu; • Baudin's Black Cockatoo (<i>Zanda Calyptorhynchus</i> (formerly <i>Calyptorhynchus baudinii</i>)), En; • Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>), En • Chuditch (<i>Dasyurus geoffroi</i>), Vu • Bilby (<i>Macrotis lagotis</i>), Vu • Numbat (<i>Myrmecobius fasciatus</i>), En • Western Ringtail Possum (<i>Pseudocheirus occidentalis</i>), Cr • Quokka (<i>Setonix brachyurus</i>), Vu • Darling Range South-west Ctenotus (<i>Ctenotus delli</i>), P4 • Peregrine Falcon (<i>Falco peregrinus</i>), OS • Western False Pipistrelle (<i>Falsistrellus mackenziei</i>), P4 • Pouched lamprey (<i>Geotria australias</i>), P4 • Water-rat (<i>Hydromys chrysogaster</i>), P4 • Quenda (<i>Isodon fusciventer</i>), P4 • Tammar Wallaby (<i>Notamacropus eugenii derbianus</i>), P4 • Western brush wallaby (<i>Notamacropus irma</i>), P4 <p>Two Priority 4 fauna species were recorded within the application area including the Quenda (<i>Isodon fusciventer</i>) and the Western Brush Wallaby (<i>Notamacropus Irma</i>). Two Threatened fauna species were recorded adjacent to the application area including Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>) listed as Vulnerable, and Baudin's cockatoo (<i>Zanda Calyptorhynchus</i> (formerly <i>Calyptorhynchus baudinii</i>)) listed as Endangered (Onshore Environmental, 2022b).</p>

C.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 - Jarrah Forest	4,506,660.25	2,399,838.15	53.25	1,673,614.25	39.43
IBRA Subregion - Southern Jarrah Forest	2,607,879.52	1,291,457.94	49.52	904,027.54	34.67
Beard vegetation associations - State					
Veg Assoc No. 3	2,661,404.62	1,803,437.48	67.76	1,469,765.60	58.39
Beard vegetation associations - Bioregion					
Veg Assoc No. 3	2,390,591.54	1,604,101.56	67.10	1,299,263.74	57.71

Government of Western Australia (2019)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), and biological survey information (Onshore Environmental, 2022a) impacts to the following conservation significant flora required further consideration.

Species name	Conservati on status	Habitat	Suitable habitat features ? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Likelihood in application area
<i>Acacia semitrullata</i>	Priority 4	Sandplains, swampy area	Y	0	150 within application area	Confirmed
<i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>	Priority 3	Grey sand, lateritic gravel	Y	5.5	2*	Unlikely
<i>Angianthus drummondii</i>	Priority 3	Grey or brown clay soils, ironstone. Seasonally wet flats	Y	12	1*	Unlikely
<i>Banksia subpinnatifida</i> var. <i>imberbis</i>	Priority 2	Laterite	Y	20	2*	Possible
<i>Blennospora doliiformis</i>	Priority 3	Grey or red clay soils over ironstone. Seasonally-wet flats	Y	13.5	1*	Unlikely
<i>Caladenia leucochila</i>	Threatened	Undulating lateritic hills	Y	20	32*	Possible
<i>Caladenia validinervia</i>	Priority 1	Sandy gravelly soil in Jarrah-Marri forest	Y	11	2*	Unlikely
<i>Calochilus</i> sp. <i>Boyup Brook</i>	Priority 1	Sand and well-drained sand	Y	20	1*	Unlikely
<i>Calothamnus graniticus</i> subsp. <i>leptophyllus</i>	Priority 4	Clay over granite, lateritic soils, hillsides	N	2	3*	Unlikely
<i>Calytrix pulchella</i>	Priority 3	Grey or white sands over laterite. Ridges, flats	Y	4	2*	Possible
<i>Commersonia erythrogyna</i>	Threatened	Lateritic ridge with Jarrah-Marri woodland	Y	17.5	1*	Unlikely
<i>Drakaea confluens</i>	Threatened	White-grey sands	Y	6.5	1*	Possible
<i>Eryngium</i> sp. <i>Ferox</i>	Priority 3	Seasonally wet areas, brown clay	Y	12.5	1*	Unlikely
<i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>	Priority 4	Loam. Flats, hillsides	Y	5.5	1*	Possible
<i>Gastrolobium tomentosum</i>	Priority 4	Gravelly loam or clay, sometimes over sandier substrates. Hills, road verges	Y	20	1*	Possible
<i>Grevillea prominens</i>	Priority 3	Gravelly loam, creek lines	Y	13.5	1*	Unlikely
<i>Grevillea rara</i>	Threatened	Lateritic loam. Creeklines	Y	20	6*	Unlikely
<i>Grevillea ripicola</i>	Priority 4	Swampy flats, granite outcrops, along water courses	N	5	32*	Unlikely
<i>Hypolaena robusta</i>	Priority 4	River edge, Collie Basin	N	11	1*	Unlikely
<i>Jacksonia velveta</i>	Threatened	Laterite, on slight slopes in low woodland area	Y	6	7*	Possible
<i>Juncus meianthus</i>	Priority 3	Black sand or sandy clay; creeks, seepage area	N	15	1*	Unlikely

<i>Lasiopetalum cardiophyllum</i>	Priority 4	Flats, hillslopes	Y	10	4*	Unlikely
<i>Leucopogon extremus</i>	Priority 2	Low-lying, seasonally wet sites on sandy loam or sandy clay	Y	1.5	2*	Likely
<i>Logania sylvicola</i>	Priority 2	Mid-slope of laterite rises with brown clay to clayey sand	Y	7	1*	Possible
<i>Lomandra whicherensis</i>	Priority 3	Loamy sand	Y	19	1*	Possible
<i>Meionectes tenuifolia</i>	Priority 3	Wetland margins, swamps	Y	12.5	1*	Unlikely
<i>Pultenaea skinneri</i>	Priority 4	Winer-wet depressions	Y	0	50 within the application area	Confirmed
<i>Sphaerolobium benetectum</i>	Priority 2	Ridges, swamps, undulating rises	Y	5.5	2*	Possible
<i>Stylidium acuminatum subsp. acuminatum</i>	Priority 2	Clayey sand over laterite; hillslopes, ridges and valleys	Y	17	1*	Unlikely
<i>Stylidium lepidum</i>	Priority 3	Gravelly sand, loam or clay, winter-wet depressions	Y	12.5	2*	Unlikely
<i>Stylidium rhipidium</i>	Priority 3	Wet creek flats, swamps, granite outcrops	Y	6	1*	Possible
<i>Stylidium squamellosum</i>	Priority 2	Brown to red-brown clay loam. Winter-wet habitats and depressions, open woodland, shrubland	Y	19.5	2*	Possible
<i>Synaphea decumbens</i>	Priority 3	Sand over laterite	Y	6.5	2*	Possible
<i>Synaphea hians</i>	Priority 3	Sandy soils, rises	Y	9	1*	Possible
<i>Synaphea petiolaris subsp. simplex</i>	Priority 3	Flats, winter-wet areas	Y	7	2*	Unlikely
<i>Synaphea trinacriformis</i>	Priority 1	Bare white sand to grey-brown loamy sand and laterite gravel. Undulating landscape, roadsides	Y	20	1*	Unlikely
<i>Tetrateca parvifolia</i>	Priority 3	Near river bank, heavy alluvial soil	N	13	3*	Unlikely
<i>Thysanotus unicipensis</i>	Priority 3	Laterite, grey brown sandy loam	Y	17	1*	Unlikely

Onshore Environmental (2022a), GIS Database.

*within 20 kilometres of the application area (GIS Database)

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

C.4. Fauna analysis table

Scientific Name	Common Name	EPBC Act	BC Act	DBCA	Habitat Preference	Suitable Habitat Present	Likelihood in the study area	Rationale
BIRDS								
<i>Actitis hypoleucos</i>	Common Sandpiper	MI			Edge of sheltered waters, salt or fresh, estuaries, river pools, claypans, drying swamps (Johnstone & Storr 1998)	Yes	Unlikely	Suitable habitat present. An uncommon migrant species which may occasionally utilise parts of the study area.
<i>Apus pacificus</i>	Fork-tailed Swift	MI			Entirely aerial species (Johnstone & Storr 1998)	Yes	Possible	May fly over study area.
<i>Atrichornis clamorus</i>	Noisy Scrub-bird, Tjimiluk	EN	EN		Dense, long-unburnt vegetation characterised as low forest (5-15 m high), scrub/thicket and (rarely) heath	No	Unlikely	Protected matters search indicated species or species habitat may occur within the search area. A translocated population occurs 60 km north. Nearest natural population is 250km south-east.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	EN	EN		Reedbeds, and other vegetation in water such as cumbungi, lignum and sedges	No	Unlikely	Habitat largely unsuitable. May fly over.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	MI			Coastal and inland areas saline and fresh or brackish wetlands (Geering et al. 2007)	Yes	Unlikely	Suitable habitat present. A migrant species which may occasionally utilise parts of the study area.
<i>Calidris canutus</i>	Red Knot	EN & MI	CR		Coastal habitats including intertidal mudflats, sandflats, beaches, estuaries, bays, inlets, lagoons and harbours	No	Unlikely	No suitable habitat.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	CR		Intertidal mudflats and ephemeral and permanent lakes	Yes	Unlikely	Suitable habitat present. A migrant species which may occasionally utilise parts of the study area.
<i>Calidris melanotos</i>	Pectoral Sandpiper	MI			Shallow fresh to saline wetlands	Yes	Unlikely	Suitable habitat present. An uncommon migrant species which may occasionally utilise parts of the study area.
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo, Karrak	VU	VU		Eucalypt forests, areas of seeding Marri, Jarrah, Blackbutt, Karri and Sheoak (Johnstone & Storr 1998)	Yes	Likely	Recorded 300m south of the study area and numerous locations in close proximity. Roosting occurs in close proximity (DBCA 2022).
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	EN	EN		Eucalypt forest, areas of Marri, Karri and Wandoo (Johnstone & Storr, 1998, Johnstone & Kirkby 2008)	Yes	Likely	Recorded 300m south of the study area and numerous locations in close proximity. Breeding and roosting occur in close proximity (DBCA 2022).
								Recorded 2km NW of the study area and numerous locations in close proximity. Breeding and roosting occur in close proximity (DBCA 2022).
<i>Calyptorhynchus latirostris</i>	Camaby's Black-cockatoo	EN	EN		Eucalypt woodlands and forests and adjacent area of <i>Proteaceous</i> scrubs and heaths (Johnstone & Storr 1998)	Yes	Likely	Recorded 2km NW of the study area and numerous locations in close proximity. Breeding and roosting occur in close proximity (DBCA 2022).
<i>Charadrius leschenaultii</i>	Greater Sand Plover	VU & MI	VU		Coastal or estuarine habitats including beaches, mudflats, sandbanks and lagoons	No	Unlikely	No suitable habitat.
<i>Falco hypoleucos</i>	Grey Falcon	VU	VU		Shrubland, grassland and wooded watercourses, wetlands	Yes	Unlikely	Protected matters search indicated species or species habitat may occur within the search area. No records from nearby.
<i>Falco peregrinus</i>	Peregrine Falcon			OS	Will utilise most habitats prefers coastal and inland cliffs or open woodlands near water, and also city buildings	Yes	Likely	Recorded 3km NE of the study area (DBCA 2022).
<i>Ixobrychus dubius</i>	Australian Little Bittern			P4	Swamps, lakes and rivers with well vegetated margins	Yes	Possible	DBCA database search indicated that this species may occur within the search area (DBCA 2022).
<i>Ixobrychus flavicollis australis</i> (southwest subpop.)	Black Bittern			P2	Dense vegetation and trees at the edges of water bodies	No	Unlikely	Nearby record is historical (DBCA 2022).
<i>Leipoa ocellata</i>	Malleefowl	VU	VU		Semi-arid mallee scrub on the fringes of the relatively fertile areas of southern Australia	No	Unlikely	No suitable habitat.
<i>Motacilla cinerea</i>	Grey Wagtail	MI			Various habitats with open waterbodies (Johnstone & Storr 2004)	Yes	Unlikely	Protected matters search indicated species or species habitat may occur within the search area. No records from nearby.
<i>Ninox connivens connivens</i>	Barking Owl			P3	Open country with tree lined water courses, open woodlands and forest edges	Yes	Possible	DBCA database search indicated that this species may occur within the search area (DBCA 2022).
<i>Numenius madaqascariensis</i>	Eastern Curlew	CR & MI	CR		Tidal mudflats, also reef flats, sandy beaches (Johnstone & Storr 1998)	No	Unlikely	No suitable habitat.
<i>Pandion haliaetus</i>	Osprey	MI			Sheltered seas around islands, tidal creeks, estuaries and saltwork ponds, and large river pools (Johnstone et al. 2013)	No	Unlikely	No suitable habitat.

<i>Oxyura australis</i>	Blue-billed Duck			P4	Well vegetated dams, lakes and swamps	Yes	Possible	Birddata search indicates has been recorded in the area. The date of the record is uncertain.
<i>Rostratula australis</i>	Australian Painted Snipe	EN	EN		Shallow inland wetlands, either freshwater or brackish	Yes	Possible	Protected matters search indicated species or species habitat likely to occur within the search area. No records from nearby.
<i>Sternula nereis nereis</i>	Australian Fairy Tern	VU	VU		Sheltered sandy beaches, spits and banks above the high tide line and below vegetation	No	Unlikely	No suitable habitat.
<i>Tringa nebularia</i>	Common Greenshank	MI			Intertidal mudflats and ephemeral and permanent lakes	Yes	Possible	Protected matters search indicated species or species habitat likely to occur within the search area. No records from nearby.
<i>Tyto novaehollandiae novaehollandiae</i>	Masked Owl			P3	Forests, woodlands, timbered waterways and open country	Yes	Possible	DBCA database search indicated that this species may occur within the search area (DBCA 2022).
FISH								
<i>Galaxiella nigrostriata</i>	Black-stripe Minnow	EN	EN		Ephemeral wetlands of the south-west (Bray and Gomon 2020)	Yes	Possible	Protected matters search indicated species or species habitat likely to occur within the search area. No records from nearby.
<i>Geotria australis</i>	Pouch Lamprey			P3	Rivers and streams, estuaries and coastal waters	No	Unlikely	No suitable habitat. Historical record in close proximity (DBCA 2022).
<i>Nannatherina balstoni</i>	Balston's Pygmy Perch	VU	VU		Coastal peat flats, rivers	No	Unlikely	No suitable habitat within the study area. Known from the nearby Collie River.
MAMMALS								
<i>Bettongia penicillata ogilbyi</i>	Woylie	EN	CR		Woodlands and adjacent heaths with a dense understorey of shrubs (Woinarski et al. 2014)	No	Likely	Recorded 3km SE in 2015 with numerous additional records nearby (DBCA 2022).
<i>Dasyurus geoffroi</i>	Chuditch, Western Quoll	VU	VU		Jarrah forest, in moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest particularly in riparian vegetation (Orell & Morris 1994)	Yes	Likely	Previous record within the study area (2006). Additional recent records nearby (DBCA 2022).
<i>Falsistrellus mackenziei</i>	Western False Pipistrelle			P4	Wet sclerophyll forests of Karri, Jarrah and Tuart eucalypts	Yes	Likely	Recently recorded from Collie (EcoEdge 2019).
<i>Hydromys chrysogaster</i>	Water-rat			P4	Permanent bodies of fresh or brackish water, subalpine streams to lakes and farm dams (Van Dyck & Strahan 2008)	Yes	Likely	Recent record 4km ESE (DBCA 2022).
<i>Isodon fusciventer</i>	Quenda			P4	Jarrah forest and swamp habitats, preferring dense vegetation around wetland fringes and heathland (Cooper 1998, Woinarski et al. 2014).	Yes	Likely	Recent record 10km NE (DBCA 2022).
<i>Macrotis lagotis</i>	Bilby	VU	VU		Mixture of woodland including Jarrah, Marri and Wandoo in the south-west (Abbott 2001).	Yes	Unlikely	Nearby records are historical (DBCA 2022).
<i>Myrmecobius fasciatus</i>	Numbat	EN	EN		Eucalypts forests and woodland, notably wandoo and jarrah woodland (Van Dyck & Strahan 2008)	Yes	Unlikely	Nearby records are historical (DBCA 2022).
<i>Notamacropus eugenii derbianus</i>	Tammar Wallaby			P4	Dense, low vegetation for daytime shelter and open grassy areas for feeding. This species inhabits coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland (Maxwell et al. 1996)	Yes	Likely	Recorded 15km NE of the study area (DBCA 2022)
<i>Notamacropus irma</i>	Western Brush Wallaby			P4	Wide-range of habitats including low Banksia woodlands, Jarrah/Marri woodlands and moist Melaleuca lowlands, favours open, grassy areas (Wann & Bell 1997, Woinarski et al. 2014)	Yes	Likely	Recent record 500m east of the study area (DBCA 2020)
<i>Phascogale calura</i>	Red-tailed Phascogale	VU	CD		Wandoo-rock sheoak uplands, and lowland habitat with riverine fringing vegetation of swamp sheoak, York Gum and Wandoo (Short et al. 2011)	Yes	Unlikely	No records within 50km.
<i>Phascogale tapoatafa wambenger</i>	South-western Brush-tailed Phascogale			CD	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees with a sparse ground cover (Woinarski et al. 2014).	Yes	Likely	Numerous recent records in close proximity (DBCA 2022).
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	CR	CR		Coastal <i>Agonis flexuosa</i> forest or eucalypt woodland or forest with a mid-story of <i>Agonis flexuosa</i> (DPaW 2017, Jones et al. 1994). Additionally, inland forest areas that have been unlogged and unburnt for long periods (Wayne et al. 2006)	Yes	Likely	Recent record 10km NE (DBCA 2022).
<i>Setonix brachyurus</i>	Quokka	VU	VU		Habitat varies, but prefer <i>Acacia</i> and <i>Melaleuca</i> thickets. Associated with <i>Taxandria linearifolia</i> in Jarrah Forest (de Tores 2008)	Yes	Possible	Recorded 17km north (2011). However nearby records are historical (DBCA 2022).
REPTILES								
<i>Ctenotus delli</i>	Darling Range South-west Ctenotus			P4	Jarrah and Marri woodlands with shrub dominated understorey on laterite, sand or clay soils (Bush et al 2010).	Yes	Likely	Recent record within 20km (ALA 2022).

(Onshore Environmental, 2022b)

C.5. Land degradation risk table

Risk categories	Coalfields System
Wind erosion	30-50% of the map unit has a high to extreme hazard
Water erosion	1% of the map unit has a very high to extreme hazard
Flood risk	1% of the map unit has a moderate to high hazard
Water logging	60% of the map unit has a moderate to very high to risk
Phosphorus export risk	0% of the map unit has a high to extreme hazard

(GIS Database)

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is situated within the Collie State Forest; contains foraging and potential breeding habitat for Threatened and Priority fauna species; may contain suitable habitat for Threatened flora and contains two Priority flora species (Onshore Environmental, 2022a; Onshore Environmental, 2022b; GIS Database).</p>	At variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2, 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 contains foraging and potential breeding habitat for conservation significant fauna (Onshore Environmental, 2022b).</p>	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 may contain habitat for flora species listed under the BC Act (Onshore Environmental, 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>The area proposed to be cleared does not contain species that can indicate a threatened ecological community (Onshore Environmental, 2022b; GIS Database).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</p> <p><u>Assessment:</u></p> <p>The application area occurs within the Jarrah Forrest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 53.25% of the pre-European vegetation remains (GIS Database; Government of Western Australia, 2019).</p> <p>The vegetation within the application area has been mapped as Beard vegetation association 3 (GIS Database; Onshore Environmental, 2022a). This vegetation association is well represented at both a state and bioregional level (>60% Pre-European extent remaining) (Government of Western Australia, 2019). Given the amount of vegetation remaining in the local area and bioregion, the vegetation proposed to be cleared is not considered to represent remnant vegetation.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<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>The application area is situated within the Collie State Forest (GIS Database). The Collie State Forest is managed by the Department of Biodiversity, Conservation and Attractions.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
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 no permanent watercourses or wetlands within the area proposed to clear (GIS Database). There are three ephemeral watercourses within the application area, however there has been no riparian vegetation identified within the application area (GIS Database; Onshore Environmental, 2022a).</p> <p>Given there are no permanent watercourses or wetlands and associated riparian vegetation recorded within the application area, the proposed clearing is unlikely to impact on native vegetation growing in, or in association with, a watercourse or wetland.</p>	Not likely to be 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>The mapped soils are considered moderately susceptible to wind or water erosion and nutrient export. To minimise potential land degradation in the form of erosion, a staged clearing condition has been applied to the permit.</p> <p><u>Condition:</u></p> <p>The Permit Holder shall not clear native vegetation unless the purpose for which the clearing is authorised is enacted within 6 months of the authorised clearing being undertaken.</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 within a Country Areas Water Supply Area (GIS Database), however the majority of the application area is within the low salinity risk Zone D and is unlikely to impact on groundwater quality provided rehabilitation is enacted at the end of each drilling program (which has been applied to this permit) (DWER, 2022; GIS Database).</p> <p>The Collie River South (a major river) is located approximately 4 kilometres south east of the application area and there are several ephemeral drainage lines within the application area that link to the Collie River South (GIS Database), there is a potential to impact on the quality of surface water during periods of high rainfall. As such, a watercourse condition is required to manage potential surface water quality impacts.</p> <p><u>Condition</u></p> <p>Vegetation management (watercourse and drainage line surface flow) - The permit holder is to maintain existing watercourse and drainage line flows.</p>	May be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>There are two water filled mining voids within the application area, which may cause flooding in periods of high rainfall. Overflow of these voids are predicated to flow to lower elevations, where ephemeral drainage lines occur and may cause of exacerbate the incidence of flooding. As such, a surface water flow condition is required to minimise the likelihood of flooding or water logging.</p>	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Condition:</u></p> <p>Where a watercourse or drainage line is to be impacted by clearing, the Permit Holder shall ensure that the existing surface flow is maintained.</p>		

Appendix E. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from:

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 F. Vegetation Associations and descriptions (Onshore Environmental, 2022a)

Code	Broad Floristic Formation	Vegetation Description	Quadrats	Condition	Area (ha)	% of Study Area
		Hill Crests				
HC AfEm BoHamHr Bg	Allocasuarina Forest	Forest of Allocasuarina fraseriana and Eucalyptus marginata subsp. marginata over Dwarf Scrub D of Bossiaea ornata, Hibbertia amplexicaulis and Hibbertia vaginata, with Open Low Woodland B of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata and Banksia grandis on grey sand on hill crests and upper hill slopes	PC02, PC06, PC08	Very Good	38.01	9.81
		Hill Slopes				
HS Em XgBoBd	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata Dwarf Scrub D of Xanthorrhoea gracilis, Bossiaea ornata and Banksia dallaneyi (Trymalium ledifolium) on grey sand on upper hill slopes	PC20	Very Good	1.34	0.35
		Lower Slopes				
LS Em Xp Bo	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata (+/- Allocasuarina fraseriana) over Low Scrub A of Xanthorrhoea preissii over Dwarf Scrub D of Bossiaea ornata (mid slopes) or Bossiaea eriocarpa (lower slopes) on brown loamy sand on mid and lower hill slopes	PC04, PC12, PC14	Excellent	50.15	12.95
LS Em BeCFHr XpXoPl	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata (Allocasuarina fraseriana) over Low Heath D of Bossiaea eriocarpa, Calytrix flavescens and Hibbertia vaginata (Babingtonia camphorosmae, Styphelia erubescens), with Open Scrub of Xanthorrhoea preissii, Xylomelum occidentale and Persoonia longifolia (Leptospermum erubescens, Allocasuarina humilis) on grey sand on lower slopes	PC10, PC26, PC30, PC32, PC34	Very Good	15.51	4.00
LS EvEd XpHpKg BeHa	Eucalyptus Woodland	Tree Mallee of Eucalyptus decipiens subsp. decipiens over Open Low Scrub A of Xanthorrhoea preissii, Hakea prostrata and Kunzea glabrescens (Acacia saligna) over Open Dwarf Scrub D of Bossiaea eriocarpa and Hypocalymma angustifolium on brown sand on lower slopes	PC18, PC33	Good	2.51	0.65
LS Ep Kg BiBa	Eremaea Heath B	Heath B of Eremaea pauciflora with Scrub of Kunzea glabrescens and Open Low Woodland A of Banksia ilicifolia and Banksia attenuata on grey deep sand on sandy lower slopes	PC24, PC25	Good	8.68	2.24
LS Db MpEmIf KgKr PeAoHa	Dasyopogon Low Heath D	Low Heath D of Dasyopogon bromeliifolius with Open Low Woodland A of Melaleuca preissiana, Eucalyptus marginata subsp. marginata and Nuytsia floribunda, Open Scrub of Kunzea glabrescens and Kunzea recurva, and Open Dwarf Scrub C of Pericalymma ellipticum var. ellipticum, Adenanthos obovatus and Hypocalymma angustifolium on grey sand on lower slopes	PC16, PC31, PC36	Good	3.88	1.00
		Sandy Flats				

Code	Broad Floristic Formation	Vegetation Description	Quadrats	Condition	Area (ha)	% of Study Area
SF MplIfEm Xp BeHaCf	Melaleuca Low Woodland A	Low Woodland A of Melaleuca preissiana, Nuytsia floribunda and Eucalyptus marginata subsp. marginata over Open Scrub of Xanthorrhoea preissii over Open Dwarf Scrub C of Bossiaea eriocarpa, Hypocalymma angustifolium, Allocasuarina humilis and Calytrix flavescens over Open Dwarf Scrub D of Dasyopogon bromeliifolius on grey sand on sandy flats	PC13, PC15, PC22	Very Good	16.86	4.35
		Drainage Flats				
DF DbHa Mp Ao	Dasyopogon Dwarf Scrub D	Dwarf Scrub D of Dasyopogon bromeliifolius and Hypocalymma angustifolium with Open Low Woodland A of Melaleuca preissiana and Open Dwarf Scrub C of Adenanthos obovatus (Kunzea recurva) on grey loamy sand on open drainage flats	PC05, PC07, PC17	Very Good	35.76	9.23
		Wetland				
WE Mp Ha Pa	Melaleuca Forest	Forest of Melaleuca preissiana over Low Heath D of Hypocalymma angustifolium over Open Tall Sedges of Tremula tremulina on grey clay on wetland	PC19, PC27, PC28, PC35	Very Good	17.82	4.60
WE Ha PaCa MpEr	Hypocalymma Dwarf Scrub D	Dwarf Scrub D of Hypocalymma angustifolium over Open Tall Sedges of Tremula tremulina and Cyathochaeta avenacea with Open Low Woodland A of Melaleuca preissiana and Eucalyptus rudis subsp. rudis, Open Scrub of Taxandria linearifolia and Hakea varia, and Open Low Scrub B of Astartea scoparia, Taxandria linearifolia and Melaleuca incana subsp. incana on grey clay / clayey sand on wetland	PC01, PC09, PC29	Very Good	4.06	1.05
WE Pa PeAoHa Mp	Tremula Tall Sedges	Tall Sedges of Tremula tremulina with Dwarf Scrub C/D of Pericalymma ellipticum, Adenanthos obovatus and Hypocalymma angustifolium, Open Low Woodland A/B of Melaleuca preissiana, and Open Scrub of Xanthorrhoea preissii, Kunzea glabrescens and Kunzea recurva on grey clayey sand on wetland	PC21, PC23	Very Good	2.92	0.75
		Minor Drainage Line				
MI Mp AsMiHv Ca	Melaleuca Low Woodland A	Low Woodland A of Melaleuca preissiana over Low Scrub B of Astartea scoparia, Melaleuca incana subsp. incana and Hakea varia over Very Open Low Sedges of Cyathochaeta avenacea on cream / grey silty clay loam narrowly incised minor drainage lines	PC03, PC11	Very Good	3.51	0.91
		Cleared			2.60	0.67
		Plantation (Pine Trees)			76.36	19.72
		Powerline Corridors			1.67	0.43
		Native Rehabilitation (post-mining)			51.90	13.40
		Roads			9.74	2.51
		Water Filled Mining Voids			44.01	11.36

Code HC AfEm BoHamHr Bg
Broad Floristic Formation *Allocasuarina* Forest
Vegetation Type Forest of *Allocasuarina fraseriana* and *Eucalyptus marginata* subsp. *marginata* over Dwarf Scrub D of *Bossiaea ornata*, *Hibbertia amplexicaulis* and *Hibbertia vaginata*, with Open Low Woodland B of *Allocasuarina fraseriana*, *Eucalyptus marginata* subsp. *marginata* and *Banksia grandis* on grey sand on hill crests and upper hill slopes



Quadrats Sampled	PC02, PC06, PC08
Area	38.01 ha or 9.81% of the study area
Soils and Geology	Grey sand (skeletal), laterite, prominent outcropping
Land Form	Laterised hill crests
Priority Ecological Community	No
Conservation Significant Flora	<i>Acacia semitrullata</i> (P4) was recorded as 2 plants from one spot location in the southwest corner of the study area, but was more common on sandy lower slopes and flats nearby to the northeast
Introduced (Weed) Species	* <i>Aira caryophyllea</i>
Vegetation Condition	Very Good
Disturbances	Historical logging
Average Fire Age	Recent (0-2 years) to Moderate (3-5 years)

Code HS Em XgBoBd
Broad Floristic Formation *Eucalyptus* Forest
Vegetation Type Forest of *Eucalyptus marginata* subsp. *marginata* Dwarf Scrub D of *Xanthorrhoea gracilis*, *Bossiaea ornata* and *Banksia dallaneyi* (*Trymalium ledifolium*) on grey sand on upper hill slopes



Quadrats Sampled	PC20
Area	1.34 ha or 0.35% of the study area
Soils and Geology	Grey sand, laterite
Land Form	Upper hill slopes
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophyllea</i>
Vegetation Condition	Very Good
Disturbances	Historical logging
Average Fire Age	Recent (0-2 years)

Code LS Em Xp Bo
Broad Floristic Formation *Eucalyptus* Forest
Vegetation Type Forest of *Eucalyptus marginata* subsp. *marginata* (+/- *Allocasuarina fraseriana*) over Low Scrub A of *Xanthorrhoea preissii* over Dwarf Scrub D of *Bossiaea ornata* (mid slopes) or *Bossiaea enocarpa* (lower slopes) on brown loamy sand on mid and lower hill slopes



Quadrats Sampled	PC04, PC12, PC14
Area	50.15 ha or 12.95% of the study area
Soils and Geology	Brown loamy sand
Land Form	Mid and lower hill slopes
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Hypochaeris glabra</i>
Vegetation Condition	Excellent to Very Good
Disturbances	Historical mine exploration, frequent fire
Average Fire Age	Recent (0-2 years) to Moderate (3-5 years)

Code LS Em BeCfHr XpXoPl
Broad Floristic Formation *Eucalyptus* Forest
Vegetation Type Forest of *Eucalyptus marginata* subsp. *marginata* (*Allocasuarina fraseriana*) over Low Heath D of *Bossiaea enocarpa*, *Calytrix flavescens* and *Hibbertia vaginata* (*Babinotonia camphorosmae*, *Styphelia erubescens*), with Open Scrub of *Xanthorrhoea preissii*, *Xylomelum occidentale* and *Persoonia longifolia* (*Leptospermum erubescens*, *Allocasuarina humilis*) on grey sand on lower slopes



Quadrats Sampled	PC10, PC26, PC30, PC32, PC34
Area	15.51 ha or 4.00% of the study area
Soils and Geology	Grey sand
Land Form	Lower hill slopes
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophylla</i> , * <i>Disa bracteata</i> , * <i>Hypochaeris glabra</i> , * <i>Ursinia anthemoides</i>
Vegetation Condition	Excellent - Very Good
Disturbances	Historical logging, frequent fire, access tracks
Average Fire Age	Recent (0-2 years) to Moderate (3-5 years)

Code LS EwEd XpHpKg BeHa
 Broad Floristic Formation *Eucalyptus* Woodland
 Vegetation Type Woodland of *Eucalyptus wandoo* (\pm Tree Mallee of *Eucalyptus decipiens* subsp. *decipiens*) over Open Low Scrub A of *Xanthorrhoea preissii*, *Hakea prostrata* and *Kunzea glabrescens* (*Acacia saligna*) over Open Dwarf Scrub D of *Bossiaea eriocarpa* and *Hypocalymma angustifolium* (*Hakea lissocarpha*, *Banksia bipinnatifida*) on grey/brown sand on lower slopes



Quadrats Sampled	PC18, PC33
Area	2.51 ha or 0.0.65% of the study area
Soils and Geology	Brown loamy sand
Land Form	Lower hill slopes, footslopes
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophyllea</i> , * <i>Asparagus asparagoides</i> , * <i>Lysimachia arvensis</i>
Vegetation Condition	Good
Disturbances	Pigs, weeds, access track, powerline corridor, pine plantation adjacent
Average Fire Age	Moderate (3 to 5 yr)

Code LS Ep Kg BiBa
 Broad Floristic Formation *Eremaea* Heath B
 Vegetation Type Heath B of *Eremaea pauciflora* with Scrub of *Kunzea glabrescens* and Open Low Woodland A of *Banksia ilicifolia* and *Banksia attenuata* on grey deep sand on sandy lower slopes



Quadrats Sampled	PC24, PC25
Area	8.68 ha or 2.24% of the study area
Soils and Geology	Deep grey sand
Land Form	Lower hill slopes, footslopes, sandy flats
Priority Ecological Community	No
Conservation Significant Flora	The largest proportion of the <i>Acacia semitrullata</i> (P4) population occurred within this vegetation type in the southeast corner of the study area. Also present at the same location was the range extension <i>Aotus procumbens</i>
Introduced (Weed) Species	* <i>Aira caryophyllea</i> , * <i>Aira cupaniana</i> , * <i>Hypochaeris glabra</i> , * <i>Pentameris airoides</i> , * <i>Ursinia anthemoides</i> , * <i>Vulpia bromoides</i> ,
Vegetation Condition	Good to Very Good
Disturbances	Historical mine exploration, ground disturbance, access tracks
Average Fire Age	Old (6+ years)

Code LS Db MpEmNf KgKr PeAoHa
 Broad Floristic Formation *Dasyogon* Low Heath D
 Vegetation Type Low Heath D of *Dasyogon bromeliifolius* with Open Low Woodland A of *Melaleuca preissiana*, *Eucalyptus marginata* subsp. *marginata* and *Nuytsia floribunda*, Open Scrub of *Kunzea glabrescens* and *Kunzea recurva*, and Open Dwarf Scrub C of *Pericalymma ellipticum* var. *ellipticum*, *Adenanthos obovatus* and *Hypocalymma angustifolium* on grey sand on lower slopes



Quadrats Sampled	PC16, PC31, PC36
Area	3.88 ha or 1.00% of the study area
Soils and Geology	Grey sand, loamy sand
Land Form	Lower slopes, footslopes
Priority Ecological Community	No
Conservation Significant Flora	The entire population of <i>Pultenaea skinneri</i> (P4) was recorded within this vegetation type in the northeast sector of the study area
Introduced (Weed) Species	* <i>Aira caryophyllea</i> , * <i>Hypochaeris glabra</i> , * <i>Pentameris airoides</i> , * <i>Pinus radiata</i> , <i>Ursinia anthemoides</i>
Vegetation Condition	Good to Very Good
Disturbances	Historical mine exploration, logging, access tracks, heavy grazing by kangaroos
Average Fire Age	Old (6+ years)

Code SF MpNfEm Xp BeHaCf
 Broad Floristic Formation *Melaleuca* Low Woodland A
 Vegetation Type Low Woodland A of *Melaleuca preissiana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Open Scrub of *Xanthorrhoea preissii* over Open Dwarf Scrub C of *Bossiaea encarpa*, *Hypocalymma angustifolium*, *Allocasuarina humilis* and *Calytrix flavescens* over Open Dwarf Scrub D of *Dasyogon bromeliifolius* on grey sand on sandy flats



Quadrats Sampled	PC13, PC15, PC22
Area	16.86 ha or 4.35% of the study area
Soils and Geology	Grey sand
Land Form	Sandy flats
Priority Ecological Community	No
Conservation Significant Flora	Two spot locations for <i>Acacia semitrullata</i> (P4) were recorded within this vegetation type, noting the larger population occurred in the neighbouring association immediately to the south
Introduced (Weed) Species	* <i>Aira caryophyllea</i> , * <i>Briza maxima</i> , * <i>Hypochaeris glabra</i> , * <i>Pentameris airoides</i> , <i>Ursinia anthemoides</i>
Vegetation Condition	Good to Excellent
Disturbances	Frequent fire, historical mine exploration, access tracks and haul road nearby, ground disturbance, logging
Average Fire Age	Recent (0-2 years) and Old (6+ years)

Code	DF DbHa Mp Ao
Broad Floristic Formation	<i>Dasyogon Dwarf Scrub D</i>
Vegetation Type	Dwarf Scrub D of <i>Dasyogon bromeliifolius</i> and <i>Hypocalymma angustifolium</i> with Open Low Woodland A of <i>Melaleuca preissiana</i> and Open Dwarf Scrub C of <i>Adenanthos obovatus</i> (<i>Kunzea recurva</i>) on grey loamy sand on open drainage flats



Quadrats Sampled	PC05, PC07, PC17
Area	35.76 ha or 9.23% of the study area
Soils and Geology	Grey loamy sand
Land Form	Open drainage flats
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophylla</i> , * <i>Aira praecox</i> , * <i>Briza minor</i> , * <i>Disa bracteata</i> , * <i>Hypochaeris glabra</i> , * <i>Parentucellia latifolia</i> , * <i>Pentameris aroides</i> , * <i>Ursinia anthemoides</i> , * <i>Vulpia bromoides</i>
Vegetation Condition	Very Good
Disturbances	Access tracks, heavy grazing by kangaroos, frequent fire
Average Fire Age	Recent (0-2 years)

Code	WE Mp Ha Pa
Broad Floristic Formation	<i>Melaleuca Forest</i>
Vegetation Type	Forest of <i>Melaleuca preissiana</i> over Low Heath D of <i>Hypocalymma angustifolium</i> over Open Tall Sedges of <i>Tremula tremulina</i> on grey clay on wetland



Quadrats Sampled	PC19, PC27, PC28, PC35
Area	17.82 ha or 4.60% of the study area
Soils and Geology	Grey light to heavy clay / loamy sand
Land Form	Wetland / drainage flats
Priority Ecological Community	No
Conservation Significant Flora	Supports two range extension taxa, <i>Aotus procumbens</i> and <i>Acacia trigonophylla</i>
Introduced (Weed) Species	* <i>Aira caryophylla</i> , * <i>Conyza bonariensis</i> , * <i>Disa bracteata</i> , * <i>Hypochaeris glabra</i> , * <i>Pentameris aroides</i> , * <i>Pinus radiata</i> , * <i>Pseudognaphalium luteoalbum</i> , * <i>Ursinia anthemoides</i> , * <i>Vulpia bromoides</i>
Vegetation Condition	Very Good - Good
Disturbances	Pigs, mine rehabilitation nearby, heavy grazing by kangaroos, access tracks
Average Fire Age	Old (6+ years)

Code WE Ha PaCa MpEr
 Broad Floristic Formation *Hypocalymma Dwarf Scrub D*
 Vegetation Type Dwarf Scrub D of *Hypocalymma angustifolium* over Open Tall Sedges of *Tremula tremulina* and *Cyathochaeta avenacea* with Open Low Woodland A of *Melaleuca preissiana* and *Eucalyptus rudis* subsp. *rudis*, Open Scrub of *Taxandria linearifolia* and *Hakea varia*, and Open Low Scrub B of *Astarlea scoparia*, *Taxandria linearifolia* and *Melaleuca incana* subsp. *incana* on grey clay / clayey sand on wetland



Quadrats Sampled	PC01, PC09, PC29
Area	4.06 ha or 1.05% of the study area
Soils and Geology	Grey clay / clayey sand
Land Form	Wetland
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophylla</i> , * <i>Briza maxima</i> , * <i>Briza minima</i> , * <i>Lysimachia arvensis</i> , * <i>Pentameris aeroides</i> , * <i>Pinus radiata</i> , * <i>Sonchus oleraceus</i> , * <i>Ursinia anthemoides</i> , * <i>Vulpia bromoides</i>
Vegetation Condition	Very Good to Excellent
Disturbances	Frequent fire, access tracks
Average Fire Age	Recent (0-2 years) and Old (6+ years)

Code WE Pa PeAoHa Mp
 Broad Floristic Formation *Tremula Tall Sedges*
 Vegetation Type Tall Sedges of *Tremula tremulina* with Dwarf Scrub C/D of *Pericalymma ellipticum*, *Adenanthos obovatus* and *Hypocalymma angustifolium*, Open Low Woodland A/B of *Melaleuca preissiana*, and Open Scrub of *Xanthorrhoea preissii*, *Kunzea glabrescens* and *Kunzea recurva* on grey clayey sand on wetland



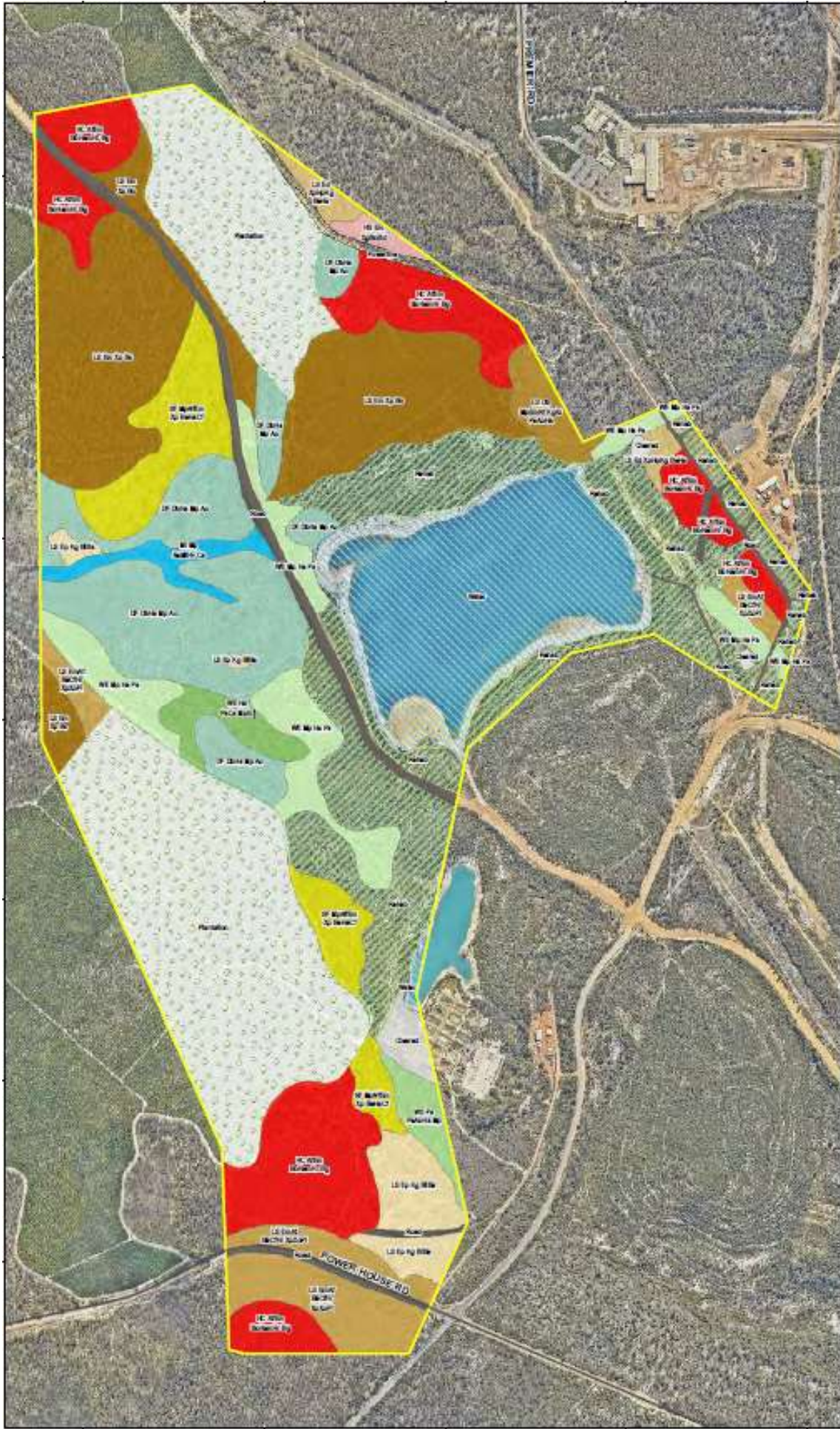
Quadrats Sampled	PC21, PC23
Area	2.92 ha or 0.75% of the study area
Soils and Geology	Grey clayey sand
Land Form	Wetland, flats
Priority Ecological Community	No
Conservation Significant Flora	One spot location for <i>Acacia semitrullata</i> (P4) was recorded within this vegetation type, noting the larger population occurred in the neighbouring association immediately to the west.
Introduced (Weed) Species	* <i>Disa bracteata</i> , * <i>Pinus radiata</i>
Vegetation Condition	Very Good to Excellent
Disturbances	Historical mine exploration, access tracks, logging
Average Fire Age	Old (6+ years)

Code	MI Mp AsMiHv Ca
Broad Floristic Formation	<i>Melaleuca</i> Low Woodland A
Vegetation Type	Low Woodland A of <i>Melaleuca preissiana</i> over Low Scrub B of <i>Astartea scoparia</i> , <i>Melaleuca incana</i> subsp. <i>incana</i> and <i>Hakea varia</i> over Very Open Low Sedges of <i>Cyathochaeta avenacea</i> on cream / grey silty clay loam narrowly incised minor drainage lines




Quadrats Sampled	PC03, PC11
Area	3.51 ha or 0.91% of the study area
Soils and Geology	Grey silty clay loam / loamy sand
Land Form	Minor drainage lines
Priority Ecological Community	No
Conservation Significant Flora	None
Introduced (Weed) Species	* <i>Aira caryophylla</i> , * <i>Disa bracteata</i> , * <i>Hypochaeris glabra</i> , * <i>Pentameris aroides</i> , * <i>Ursinia anthemoides</i> , * <i>Vellereophyton dealbatum</i> , * <i>Vulpia bromoides</i>
Vegetation Condition	Very Good to Excellent
Disturbances	Frequent fire, access tracks, heavy grazing by kangaroos
Average Fire Age	Recent (0 to 2 yr)

Figure 1. Vegetation Types (Onshore Environmental, 2022a)




Legend


 Study Area

Vegetation Types


Hillcrest

 HC AfEm BoHamHr Bg Forest of *Allocasuarina fraseriana* and *Eucalyptus marginata* subsp. *marginata* over Dwarf Scrub D of *Bossiaea omata*, *Hibbertia amplexicaulis* and *Hibbertia vaginata*, with Open Low Woodland B of *Allocasuarina fraseriana*, *Eucalyptus marginata* subsp. *marginata* and *Banksia grandis* on grey sand on hill crests and upper hill slopes


Hill Slope


 HS Em XgBoBd Forest of *Eucalyptus marginata* subsp. *marginata* Dwarf Scrub D of *Xanthorrhoea gracilis*, *Bossiaea omata* and *Banksia dallaneyi* (*Trymalium ledifolium*) on grey sand on upper hill slopes


Lower Slopes

 LS Ep Kg BiBa Heath B of *Eremaea pauciflora* with Scrub of *Kunzea glabrescens* and Open Low Woodland A of *Banksia ilicifolia* and *Banksia attenuata* on grey deep sand on sandy lower slopes


 LS EwEd XpHpKg BeHa Woodland of *Eucalyptus wandoo* (±Tree Mallee of *Eucalyptus decipiens* subsp. *decipiens*) over Open Low Scrub A of *Xanthorrhoea preissii*, *Hakea prostrata* and *Kunzea glabrescens* (*Acacia saligna*) over Open Dwarf Scrub D of *Bossiaea eriocarpa* and *Hypocalymma angustifolium* on brown sand on lower slopes

 LS Em BeCfHr XpXoPi Forest of *Eucalyptus marginata* subsp. *marginata* (*Allocasuarina fraseriana*) over Low Heath D of *Bossiaea eriocarpa*, *Calytrix flavescens* and *Hibbertia vaginata*, with Open Scrub of *Xanthorrhoea preissii*, *Xylomelum occidentale* and *Persoonia longifolia* on grey sand on lower slopes

 LS Db MpEmNf KgKr PeAoHa Low Heath D of *Dasygogon bromeliifolius* with Open Low Woodland A of *Melaleuca preissiana*, *Eucalyptus marginata* subsp. *marginata* and *Nuytsia floribunda*, Open Scrub of *Kunzea glabrescens* and *Kunzea recurva*, and Open Dwarf Scrub C of *Pericalymma ellipticum* var. *ellipticum*, *Adenanthos obovatus* and *Hypocalymma angustifolium* on grey sand on lower slopes


 LS Em Xp Bo Forest of *Eucalyptus marginata* subsp. *marginata* (+/- *Allocasuarina fraseriana*) over Low Scrub A of *Xanthorrhoea preissii* over Dwarf Scrub D of *Bossiaea omata* (mid slopes) or *Bossiaea eriocarpa* (lower slopes) on brown loamy sand on mid and lower hill slopes


Sandy Flats

 SF MpNfEm Xp BeHaCf Low Woodland A of *Melaleuca preissiana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Open Scrub of *Xanthorrhoea preissii* over Open Dwarf Scrub C of *Bossiaea eriocarpa*, *Hypocalymma angustifolium*, *Allocasuarina humilis* and *Calytrix flavescens* over Open Dwarf Scrub D of *Dasygogon bromeliifolius* on grey sand on sandy flats


Wetlands

 WE Mp Ha Pa Forest of *Melaleuca preissiana* over Low Heath D of *Hypocalymma angustifolium* over Open Tall Sedges of *Tremula tremulina* on grey clay on wetland


 WE Pa PeAoHa Mp Tall Sedges of *Tremula tremulina* with Dwarf Scrub C/D of *Pericalymma ellipticum*, *Adenanthos obovatus* and *Hypocalymma angustifolium*, Open Low Woodland A/B of *Melaleuca preissiana*, and Open Scrub of *Xanthorrhoea preissii*, *Kunzea glabrescens* and *Kunzea recurva* on grey clayey sand on wetland

 WE Ha PaCa MpEr Dwarf Scrub D of *Hypocalymma angustifolium* over Open Tall Sedges of *Tremula tremulina* and *Cyathochaeta avenacea* with Open Low Woodland A of *Melaleuca preissiana* and *Eucalyptus rudis* subsp. *rudis*, Open Scrub of *Taxandria linearifolia* and *Hakea varia*, and Open Low Scrub B of *Astartea scoparia*, *Taxandria linearifolia* and *Melaleuca incana* subsp. *incana* on grey clay / clayey sand on wetland

Minor Drainage Line

 MI Mp AsMiHv Ca Low Woodland A of *Melaleuca preissiana* over Low Scrub B of *Astartea scoparia*, *Melaleuca incana* subsp. *incana* and *Hakea varia* over Very Open Low Sedges of *Cyathochaeta avenacea* on cream / grey silty clay loam narrowly incised minor drainage lines

Drainage Flats

 DF DbHa Mp Ao Dwarf Scrub D of *Dasygogon bromeliifolius* and *Hypocalymma angustifolium* with Open Low Woodland A of *Melaleuca preissiana* and Open Dwarf Scrub C of *Adenanthos obovatus* (*Kunzea recurva*) on grey loamy sand on open drainage flats


Other

 Water

 Plantation

 Powerline

 Rehab

 Cleared

 Road

Appendix G. Sources of information

G.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- 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
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Black Cockatoo WTBC Breeding
- Black Cockatoo FRTBC Breeding
- Black Cockatoo BC Roosts
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- 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)
- Western Ringtail Possum Habitat Suitability (DBCA-049)

G.2. References

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- Premier Coal Limited (2022) Premier Coal Pit 7 Exploration Drilling. Native Vegetation Clearing Permit Application Supporting Information. Premier Coal Limited, February 2022.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 7 November 2022).

4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</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.