Department of Energy, Mines, Industry Regulation and Safety

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10919/1
Permit type:	Purpose Permit
Applicant name:	Mineral Mining Services Pty Ltd
Application received:	17 January 2025
Application area:	100 hectares
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 27/263
	Exploration Licence 27/528-I
Location (LGA area):	City of Kalgoorlie-Boulder
Colloquial name:	East Sampson Dam

1.2. Description of clearing activities

Mineral Mining Services Pty Ltd (MMS) proposes to clear up to 100 hectares of native vegetation within a boundary of approximately 146 hectares, for the purpose of mineral production and associated activities (Astill Consultants, 2024; MMS, 2025). The project is located approximately 43 kilometres north-northeast of Kalgoorlie-Boulder, within the City of Kalgoorlie-Boulder (MMS, 2025; GIS Database).

The application is to allow for the development of the East Sampson Dam Project, which involves the formation of an open pit mining void and provision for future underground extension with supporting infrastructure to extract gold ore for processing at the nearby Paddington Mill (Astill Consultants, 2024). The proposed clearing on Exploration Licence 27/528-I is for the purpose of access track maintenance (Astill Consultants, 2024).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	17 June 2025
Decision area:	100 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix E), the results of a vegetation survey (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3). The Delegated Officer also took into consideration the purpose of the clearing to allow for the development of the East Sampson Dam Project.

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- the loss of native vegetation that is suitable habitat for malleefowl (*Leipoa ocellata*);
- the loss of potentially suitable habitat for arid bronze azure butterfly (*Ogyris subterrestris petrina*);
- the loss of potentially suitable habitat for inland hairstreak butterfly (*Jalmenus aridus*);
- potential impacts to vegetation growing in association with watercourses; and
- potential disruptions to surface water flow.

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

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- a fauna management (malleefowl) condition within potentially suitable breeding habitat requiring areas proposed to be cleared between 1 September and 31 January are inspected to identify active (in use) malleefowl mounds, and to maintain a 200 metre buffer around identified active mounds;
- a fauna management (arid bronze azure butterfly) condition requiring areas proposed to be cleared to be surveyed to identify potential critical habitat, ant colonies and ABAB individuals and no clearing within 100 metres of ant colonies;
- a fauna management (inland hairstreak butterfly) condition requiring areas proposed to be cleared to be surveyed to identify potential critical habitat and inland hairstreak individuals, and no clearing within 50 metres of inland hairstreak butterfly host plants; and
- avoid clearing riparian vegetation where possible and maintain water flows.

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Biosecurity and Agriculture Management Act 2007* (BAM Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

Relevant agreements (treaties) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

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

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant submitted the following avoidance and mitigation measures (Astill Consultants, 2024):

- **General:**
  - Clearing areas will be kept to the minimum area required for mine activities;
  - clearing will be undertaken progressively as required;
  - existing disturbances will be utilised where possible;
  - proposed clearing will be demarcated by a surveyor using high visibility tape / survey pegs to ensure clear visual boundaries for operators prior to clearing commencement;
  - toolbox meetings will be held between the supervisor and clearing operator to ensure awareness of clearing areas and any areas to be avoided;
  - where practicable, raised blade clearing will be used; and
  - where raised blade clearing is not practicable, topsoil will be stripped to 200 millimetre depth and stockpiled for use in rehabilitation, along with removed vegetation.
- **Air quality:**
  - Weather conditions are monitored, and dust impacts are assessed during clearing;
  - topsoil stripping and spreading activities will be restricted if dust cannot be adequately controlled during periods of high winds; and
  - water carts are available and utilised for wetting down soils as required.
- **Land and soils:**
  - Regular inspections and maintenance of machinery including daily pre-starts;
  - spill kits closely available during clearing activities;
  - stripping topsoil to a maximum 200 millimetre depth;

    - topsoil stripping to be undertaken as close as possible to commencement of activities; and
    - soils to be paddock-dumped into stockpiles of no greater than two metres in height and have adequate distance between them to create a series of mounds and troughs.
- **Watercourses and flooding:**
    - Drainage diversion infrastructure will be installed where necessary to ensure that flood risks to the Project are mitigated whilst preserving natural surface water flow paths.
- **Fauna:**
    - Speed limits will be signed and enforced;
    - any injury or death of fauna will be recorded and investigated;
    - access to food wastes will be minimised by ensuring effective storage and disposal; and
    - personnel are prohibited from direct contact with fauna, including feeding.
- **Vegetation:**
    - Existing disturbances will be utilised where possible for mine infrastructure;
    - choosing paths of least resistance through vegetation when siting roads and other linear infrastructure (where practicable); and
    - retention of canopy trees where possible.
- **Weeds:**
    - All vehicles and equipment arriving on site will be free of soil, seeds, and vegetative matter;
    - movement of vehicles and equipment will be restricted to areas to be cleared; and
    - weed spray programs may be implemented on a seasonal basis to eradicate identified weed infestations.

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

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (flora and fauna). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

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

Assessment

The detailed flora and vegetation survey did not identify any threatened or priority flora species (Onshore Environmental, 2019). The desktop assessment identified 11 priority flora species with suitable habitat within the application area. These species are listed as follows:

- *Eremophila praecox*;
- *Ricinocarpos digynus* (formerly known as *Ricinocarpos* sp. Eastern Goldfields) ;
- *Rhodanthe uniflora*;
- *Elachanthus pusillus*;
- *Lepidium fasciculatum*;
- *Eremophila arachnoides* subsp. *tenera*;
- *Ptilotus procumbens*;
- *Alyxia tetanifolia*;
- *Eleocharis papillosa*;
- *Hysterobaeckea ochropetala* subsp. *cometes*; and
- *Notisia intonsa*.

Targeted searches for conservation significant flora were conducted in addition to quadrats (Onshore Environmental, 2019). The survey effort was adequate for identifying priority flora species (EPA, 2016; Onshore Environmental, 2019). Therefore, the above species are unlikely to occur.

No weed species have been recorded within the application area (Onshore Environmental, 2019). Weeds have potential to outcompete native flora and reduce biodiversity of an area.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact conservation significant flora. The introduction of weeds may result in biodiversity loss.

Conditions

To address the potential impact, the following management measures will be required as a condition on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

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

Assessment

A fauna habitat field assessment was conducted between 22 and 24 November 2019 by Onshore Environmental (2019). Three broad habitat types were identified:

- Mallee woodland;
- Open woodland; and
- Shrubland (Onshore Environmental, 2019).

The following species require discussion:

Malleefowl
A malleefowl nest mound, that showed signs of recent activity, was identified in the fauna habitat field assessment conducted by Onshore Environmental (2019).

Suitable habitat for Malleefowl includes a sandy substrate, leaf litter, and shrubs to provide horizontal cover (Commonwealth of Australia, 2008). Suitable species include mallee, mulga and other acacias (Commonwealth of Australia, 2008). Preferred malleefowl habitat is present within the application area, being the mallee woodland and shrubland habitat types (Onshore Environmental, 2019). The malleefowl nest mound was located within the shrubland habitat (Onshore Environmental, 2019).

Arid bronze azure butterfly (ABAB)
The arid bronze azure butterfly (ABAB) is listed as critically endangered under the EPBC Act, and is threatened by clearing and habitat degradation (DBCA, 2025b). The ABAB has an obligate association with a sugar ant *Camponotus* sp. nr. *terebrans*, so critical breeding habitat for ABAB are areas which have colonies of the host ant (DBCA, 2025b). The host ant creates nests at the base of smooth-barked *Eucalyptus* trees (DBCA, 2025b).

The following eight *Eucalyptus* taxa were recorded in the biological survey by Onshore Environmental (2019):

Taxa	Description (Western Australian Herbarium, 1998-)	Study sites recorded at	Known ABAB host ant habitat? (DBCA, 2025b)
Eucalyptus longissima (greenstone mallee)	Mallee, with lignotuber, 3.5 to 8 metres high, bark rough, coarsely stringy-fibrous, brown to grey on lower part of stems up to branches or smooth throughout, decorticating in long ribbons, grey, coppery-tan, pink to white.	4, 5, 8, 17, 18, 23, 26, 27	No
Eucalyptus concinna (Victoria Desert mallee)	Mallee or tree, 3 to 14 metres high.	3, 5, 12, 13, 14, 23	Yes
Eucalyptus salmonophloia (salmon gum)	Tree, 4 to 30 metres high, bark smooth.	1, 3, 10, 12, 19, 20, 24, 27	Yes
Eucalyptus transcontinentalis (redwood)	Mallee or tree, up to 15 metres high, bark smooth or rough, white to grey with pale grey-yellow or pink patches.	10, 20, 24	No
Eucalyptus lesouefii (Goldfields blackbutt)	Mallee or tree, 5 to 21 metres high, bark rough & black at base, smooth above.	2, 6, 14, 25	No
Eucalyptus salubris (gimlet)	Mallee or tree, 2 to 24 metres high, bark smooth, trunk or stems usually coarsely fluted.	11, 12, 14, 22	Yes
Eucalyptus yilgarnensis (yorrel)	Mallee or tree, 2 to 9 metres high, bark rough, fibrous or flaky on trunk, smooth above.	10	No
Eucalyptus celastroides (mirret)	Mallee or tree, 2 to 12 metres high, bark smooth or rough & flaky on lower parts.	14	No

As at least three of these tree species are suitable habitat for the host ant, it is considered that ABAB could occur.

Inland hairstreak
The inland hairstreak (*Jalmenus aridus*) is a Priority 2 butterfly species known from the Goldfields region (DBCA, 2025a). Preferred habitat for inland hairstreak consists of open woodland with *Senna*, *Eremophila*, *Scaveola* and *Maireana* shrubs (Eastwood et al., 2023). The biological survey by Onshore Environmental (2019) recorded four *Senna* species, 14 taxa from the *Eremophila* genus, one *Scaveola* species, and nine taxa from the *Maireana* genus, with parts of the application area described as *Senna* shrubland or open woodland (Onshore Environmental, 2019).

Carnaby's cockatoo
Carnaby's cockatoo (*Zanda latirostris*) (Endangered) usually occurs in the Southwest, Swan Coastal Plain, Southern Coast and Wheatbelt, with most records occurring south of 29°S and west of 120°E (Commonwealth of Australia, 2008; IUCN, 2022). However, there have been four recent (2016-2018) records of Carnaby's cockatoos in Kalgoorlie (GIS Database).

Carnaby's cockatoo breeding habitat includes *Eucalyptus* trees capable of producing suitable breeding hollows; this includes salmon gum, which is present within the application area (Commonwealth of Australia, 2022; Onshore Environmental, 2019).

The distribution of Carnaby's cockatoos has become more restricted in the past 50 years, with the distribution moving further southwest (Commonwealth of Australia, 2008). As there are only four other Carnaby's cockatoo records within the Coolgardie bioregion – all being greater than 25 years old – and none in the Murchison bioregion, it is believed that the aforementioned occurrences of Carnaby's cockatoos in Kalgoorlie were extraordinary (GIS Database). Therefore, it is unlikely that Carnaby's cockatoos occur within the application area, despite the presence of suitable habitat.

Peregrine Falcon
The peregrine falcon is a global species that migrates long distances and occurs in a wide range of habitats on every continent except Antarctica (NWF, n.d.). This species may use the application area as a wider home range, but the area is not considered critical habitat.

Western spiny-tailed skink
The western spiny-tailed skink (*Egernia stokesii badia*) (Endangered) inhabits refuges within *Eucalyptus* woodlands (Commonwealth of Australia, 2008; SEWPAC, 2011). The open woodland fauna habitat within the application area may be suitable for the species (Onshore Environmental, 2019).

The western spiny-tailed skink occurs in the northern Wheatbelt of Western Australia, from Mullewa area south to Kellerberrin, with isolated populations in the Shark Bay area (Commonwealth of Australia, 2008; SEWPAC, 2011). There is one record of *Egernia stokesii badia* from the Goldfields, being collected in 1930 (ALA, n.d.a; How et al., 2003; GIS Database). This record is believed to have been an individual which was transported inside timber to the region, and no recent records have been made in the region (ALA, n.d.a; How et al., 2003).

Chuditch
Chuditch (*Dasyurus geoffroii*) (Vulnerable) is a carnivorous marsupial (Commonwealth of Australia, 2008; DEC, 2012). Chuditch can occur in a variety of habitats but require hollow logs, burrows or rock crevices for denning (DEC, 2012). Chuditch once occurred across 70% of the Australian continent, but following European settlement the range was much reduced (DEC, 2012). The major portion of the existing population occurs in the south-west corner of Western Australia (DEC, 2012). The species or species habitat may occur in the area northeast of Kalgoorlie (Commonwealth of Australia, 2008).

The open woodland habitat identified during the fauna habitat assessment conducted by Onshore Environmental (2019) was determined to be potentially suitable for chuditch. However, this habitat wasn't considered ideal for chuditch, as it had a very open understorey, few suitable hollows detected (Astill Consultants, 2024).

There is only one record of chuditch within the Eastern Murchison Interim Biogeographic Regionalisation for Australia (IBRA) subregion (GIS Database). This record is from 2008, was based on secondary evidence, and had an unsure certainty (GIS Database).

Bilby and numbat
The greater bilby (*Macrotis lagotis*) (Vulnerable) had a wide distribution, occurring over 70 percent of mainland Australia, prior to European settlement (DCCEEW, 2023). Since then, the range has contracted towards the north, and the bilby now only occurs in northern, arid areas in Western Australia, and reintroduction sites (Commonwealth of Australia, 2008; DCCEEW, 2023). Bilbies are unlikely to occur in the Goldfields and the nearest record was collected in 1929 (ALA, n.d.b; Commonwealth of Australia, 2008; GIS Database).

The numbat (*Myrmecobius fasciatus*), Endangered, were once widespread, but are now restricted to a small portion of its former range (DPAW, 2017). The nearest numbat record was collected from Kalgoorlie in 1927 (ALA, n.d.c; GIS Database). The current numbat distribution includes translocation and natural populations, across the jarrah forest and wheatbelt of Western Australia (DPAW, 2017). Numbats are unlikely to occur in the Goldfields (Commonwealth of Australia, 2008; DPAW, 2017).

Conclusion

The following species may be impacted by the proposed clearing:

Malleefowl: As suitable malleefowl habitat and evidence of malleefowl breeding has been recorded within the application area, it is likely that malleefowl will be impacted by the proposed clearing.

Arid bronze azure butterfly (ABAB): As suitable habitat for the ABAB host ant was detected during the biological survey, a survey to detect whether the host ant is present in large numbers is recommended, to determine whether the application area includes critical breeding habitat for ABAB (DBCA, 2025b; Onshore Environmental, 2019)

Inland hairstreak: As preferred habitat and host species occur within the application area, surveys for species' critical habitat are required.

The following species are unlikely to be impacted by the proposed clearing:

Peregrine Falcon: The peregrine falcon is unlikely to be impacted by the proposed clearing.

Western spiny-tailed skink: Given there is only one local record of *Egernia stokesii badia*, the age of the record, and that is record is likely due to the accidental transport of the species to the region, *Egernia stokesii badia* is unlikely to occur within the application area, and is therefore unlikely to be impacted by the proposed clearing.

Carnaby's cockatoo: As there are limited records in the local area, and the application area is outside of the usual range of the species, it is unlikely that Carnaby's cockatoos occur within the application area.

Chuditch: Given the application area is outside of the core range of the species, limited suitable habitat was detected, and the nearest record (approximately 71 kilometres from the application area) had a low certainty, it is unlikely that chuditch occurs within the application area.

Greater bilby and numbat: Bilbies and numbats are unlikely to occur within the application area, as the application area is outside of their current distribution. Therefore, the proposed clearing is unlikely to impact these species.

For the reasons set out above, it is considered that the potential impacts of the proposed clearing on malleefowl, arid bronze azure butterfly and inland hairstreak can be managed using the below conditions, to be environmentally acceptable. Other species discussed above are unlikely to be impacted by the proposed clearing.

The applicant may have notification responsibilities under the EPBC Act for potential impacts to malleefowl and arid bronze azure butterfly and their habitats, as set out in the EPBC Act. The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- a fauna management (malleefowl) condition within potentially suitable breeding habitat requiring areas proposed to be cleared between 1 September and 31 January are inspected to identify active (in use) malleefowl mounds, and to maintain a 200 metre buffer around identified active mounds;
- a fauna management (ABAB) condition requiring areas proposed to be cleared to be surveyed to identify potential critical habitat, ant colonies and ABAB individuals and no clearing within 100 metres of ant colonies; and
- a fauna management (inland hairstreak butterfly) condition requiring areas proposed to be cleared to be surveyed to identify potential critical habitat and inland hairstreak individuals, and no clearing within 50 metres of inland hairstreak butterfly host plants.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 28 February 2025 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There are no native title claims and no registered Aboriginal Sites of Significance within the application area (DPLH, 2025). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on malleefowl and potentially arid bronze azure butterfly, which are protected matters under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Climate Change, Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate Change, Energy, the Environment and Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

Other relevant authorisations required for the proposed land use include:

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

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

End

Appendix A. Site characteristics

A.1. Site characteristics

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Local context</td><td>The application area is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is located within the Eastern Murchison subregion of the Murchison bioregion and closely borders the Eastern Goldfields subregion of the Murchison bioregion (GIS Database).

The application area is within the Mt Vetters Pastoral Lease. It is also surrounded by predominantly nickel and goldmining operations. Approximately 98% of the local area (50 kilometre radius from the application area) remains uncleared (GIS Database).</td></tr>
<tr><td>Ecological linkage</td><td>The application area is not known to be an important ecological linkage (GIS Database).</td></tr>
<tr><td>Conservation areas</td><td>The application area is not located within any DBCA legislated conservation areas (GIS Database). The nearest legislated conservation area is the Bullock Holes Timber Reserve located approximately 12.4 kilometres southeast of the application area (GIS Database).</td></tr>
<tr><td>Vegetation description</td><td>The vegetation of the application area is broadly mapped as the following Beard vegetation association:
• 20: Low woodland of Acacia aneura and associated species (GIS Database).

A flora and vegetation survey was conducted over the application area between 21 and 24 October 2019 by Onshore Environmental (2019). The following ten vegetation associations were recorded within the application area:
• HC SafDlAk DlSsWr Cp (Vegetation Unit (VU) 6);
• SP AdAbAt El Cp (VU12);
• SP AdDlSaf Cp AdAmAt (VU2);
• SP AiAdAmgc Cp SafSsAh (VU3);
• SP ElEc Cp AdAbAi (VU5);
• SP EsEt Es SafSs (VU12);
• SP EtEl Cp SafEs (VU11);
• HP AmAmgccGn AbAdAt SafPs (VU7);
• FP ElEc AmgcAdAi SafSaaDl (VU4); and
• GP Es Es AvMpEmb (VU8) (Onshore Environmental, 2019).

The full descriptions of vegetation types recorded is available in Appendix D.</td></tr>
<tr><td>Vegetation condition</td><td>The vegetation survey (Onshore Environmental, 2019) indicates the vegetation within the proposed clearing area is in excellent to good (Trudgen, 1991) condition, described as:
• Excellent: pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
• Very good: some relatively slight signs of damage caused by human activities since European settlement.
• Good: more obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.

The full Trudgen (1991) condition rating scale is provided in Appendix C.</td></tr>
<tr><td>Climate and landform</td><td>The climate of the Murchison bioregion is described as arid, with the nearest weather station (Gindalbie) recording an average rainfall of approximately 231.9 millimetres per year (BoM, 2025; CALM, 2002).

The application area is mapped at elevations of 380-400 metres Australian height datum (GIS Database). Land system mapping broadly describes the application area as level to gently undulating plains (DPIRD, 2025).</td></tr>
<tr><td>Soil description</td><td>The soils within the application area are broadly mapped as the following (DPIRD, 2025):
<table>
<tr><th>System</th><th>Description</th></tr>
<tr><td>265Il – Illaara System (114 hectares)</td><td>Plains with ironstone gravel or calcrete mantles supporting eucalypt woodlands and mulga-casuarina shrublands</td></tr>
<tr><td>265Kw – Kanowna System (16 hectares)</td><td>Level to gently inclined pedeplains, gently undulating stony plains and prominent drainage foci supporting eucalypt woodlands with saltbush low shrubs</td></tr>
<tr><td>265Lm – Latimore System (15 hectares)</td><td>Gently undulating gravelly plains and low rises on laterite with acacia tall shrublands and occasional eucalypts</td></tr>
</table>
</td></tr>
</table>

Characteristic	Details
Land degradation risk	In the Illaara system, drainage tracts are poorly developed, and soil erosion is unlikely to occur (Pringle, 1994). The Latimore and Kanowna systems are unlikely to experience soil erosion due to their gravelly or stony soil texture (Pringle, 1994).
Waterbodies	The desktop assessment and aerial imagery indicated that one minor, non-perennial watercourse transects the application area (GIS Database). The East Sampson Dam is at the downstream, western end of the minor watercourse, and is located within the application area (Astill Consultants, 2024; GIS Database).
Hydrogeography	The application area is not within any mapped Public Drinking Water Source Areas (PDWSA) or legislated surface water areas. The nearest PDWSA is the Broad Arrow Dam Catchment Area located approximately 26 kilometres to the west of the application area (GIS Database). The application area is located within the Goldfields Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS Database). The groundwater salinity of the permit area has been broadly mapped as being 10,000-30,000 milligrams per litre total dissolved solids, which is considered hypersaline (Astill Consultants, 2024; GIS Database).
Flora	The desktop assessment located 27 conservation significant flora species recorded within a 50 kilometre radius of the application area (GIS Database). The nearest record is located less than six kilometres from the application area (GIS Database).
Ecological communities	The biological survey did not record any threatened ecological communities (TECs) or priority ecological communities (PECs) within the application area (Biota, 2025). One TEC occurs in the Murchison bioregion, being the Depot Springs stygofauna community (DBCA, 2023). There is one PEC recorded within a 50 kilometre radius of the application area (GIS Database). This is the Emu Land System PEC, which has multiple occurrences within a 50 kilometre radius of the application area, the nearest being approximately 20 kilometres from the application area (GIS Database). As the nearest occurrence of the Emu land system is approximately 20 kilometres from the application area, it is unlikely the Emu Land System PEC occurs within the application area (GIS Database).
Fauna	The desktop assessment located 16 conservation significant fauna species recorded within a 50 kilometre radius of the application area (GIS Database). The nearest record is located approximately 5.1 kilometres from the application area (GIS Database).
Fauna habitat	A fauna habitat field assessment was conducted between 22 and 24 November 2019 by Onshore Environmental (2019). Three broad habitat types were identified: • Mallee woodland; • Open woodland; and • Shrubland (Onshore Environmental, 2019).

A.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA Managed Land (proportion of pre-European extent) (%)
IBRA Bioregion - Murchison	28,120,587	28,044,823	~99	293,505	1.04
Beard vegetation associations - State					
20	1,295,103	1,292,475	~99	250,986	19.38
Beard vegetation associations - Bioregion					
20	1,174,259	1,171,631	~99	181,845	15.49

Government of Western Australia (2019)

A.3. Flora analysis table

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

The likelihood of occurrence for these species were determined by potentially suitable habitat within the application area and known regional records (Astill Consultants, 2024; DPIRD, 2025; Onshore Environmental, 2019; Western Australian Herbarium, 1998-; GIS Database)

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]	Likelihood of occurrence
Eremophila praecox	P2	Y	<13	Y	Possible
Ricinocarpos digynus (formerly known as *Ricinocarpos* sp. Eastern Goldfields)	P1	Y	<17	Y	Possible
Rhodanthe uniflora	P1	Y	<22	Y	Possible
Elachanthus pusillus	P2	Y	<39	Y	Possible
Lepidium fasciculatum	P3	Y	<40	Y	Possible
Eremophila arachnoides subsp. *tenera*	P3	Y	<43	Y	Possible
Ptilotus procumbens	P1	Y	<44	Y	Possible
Alyxia tetanifolia	P3	Y	<44	Y	Possible
Eleocharis papillosa	P3	Y	<45	Y	Possible
Hysterobaeckea ochropetala subsp. *cometes*	P3	Y	<46	Y	Possible
Notisia intonsa	P3	Y	<46	Y	Possible
Ptilotus rigidus	P1	N	<6	Y	Unlikely
Acacia epedunculata	P1	N	<20	Y	Unlikely
Angianthus prostratus	P3	N	<22	Y	Unlikely
Eucalyptus jutsonii subsp. *jutsonii*	P4	N	<29	Y	Unlikely
Calandrinia quartzitica	P1	N	<31	Y	Unlikely
Ptilotus sp. Kalgoorlie (J. Jackson & B. Moyle 260)	P1	N	<34	Y	Unlikely
Cyathostemon verrucosus	P3	N	<37	Y	Unlikely
Xanthoparmelia dayiana	P3	N	<37	Y	Unlikely
Eremophila xantholaemus	P1	N	<38	Y	Unlikely
Frankenia glomerata	P4	N	<39	Y	Unlikely
Calandrinia lefroyensis	P1	N	<40	Y	Unlikely
Eucalyptus x *brachyphylla*	P4	N	<41	Y	Unlikely
Thryptomene eremaea	P2	N	<41	Y	Unlikely
Melaleuca coccinea	P3	N	<44	Y	Unlikely
Tecticornia flabelliformis	P2	N	<44	Y	Unlikely
Tecticornia enodis	P1	N	<50	Y	Unlikely

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

A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information, impacts to the following conservation significant fauna required further consideration (Onshore Environmental, 2019).

The likelihood of occurrence for these species were determined by potentially suitable habitat within the application area, species distribution, and known regional records (DBCA, 2025b; DPAW, 2017; Commonwealth of Australia, 2008; Onshore Environmental, 2019; GIS Database).

As the 50 kilometre search radius included inland lakes and wetlands, seven migratory birds, the hooded plover and a fairy shrimp (*Branchinella denticulata*) were recorded in the desktop search. These species are unlikely to occur within the application area, as there are no inland lakes or wetlands present (Commonwealth of Australia, 2008; Johnstone & Storr, 1998; Onshore Environmental, 2019; Timms, 2008; GIS Database). Therefore, these species do not require further discussion.

The inland hairstreak and chuditch were not recorded in the 50 kilometre search radius, however, were included due to the presence of suitable habitat (DEC, 2012; Eastwood et al., 2023; Onshore Environmental, 2019).

Species name	Conservation status		Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]	Likelihood of occurrence
	WA	EPBC				
Leipoa ocellata (malleefowl)	VU	VU	Y	0.0	Y	Recorded – discussed in Section 3.2.2
Falco peregrinus (peregrine falcon)	OS	-	Y	37.0	Y	Possible – discussed in Section 3.2.2
Ogyris subterrestris petrina (arid bronze azure butterfly)	CR	CR	Y	41.2	N	Possible – discussed in Section 3.2.2
Jalmenus aridus (inland hairstreak)	P3	-	Y	~53	N	Possible – discussed in Section 3.2.2
Macrotis lagotis (bilby)	VU	VU	N	21.5	Y	Unlikely – discussed in Section 3.2.2
Egernia stokesii badia (western spiny-tailed skink)	VU	EN	Y	40.1	Y	Unlikely – discussed in Section 3.2.2
Myrmecobius fasciatus (numbat)	EN	EN	Y	40.6	Y	Unlikely – discussed in Section 3.2.2
Zanda latirostris (Carnaby's cockatoo)	EN	EN	N	41.1	Y	Unlikely – discussed in Section 3.2.2
Dasyurus geoffroii (chuditch)	VU	VU	Y	~71	Y	Unlikely – discussed in Section 3.2.2
Calidris ruficollis (red-necked stint)	MI	MI	N	17.8	Y	Unlikely
Calidris acuminata (sharp-tailed sandpiper)	MI	VU, MI	N	19.3	Y	Unlikely
Tringa nebularia (common greenshank)	MI	EN, MI	N	19.3	Y	Unlikely
Calidris ferruginea (curlew sandpiper)	CR	CR, MI	N	19.3	Y	Unlikely
Thinornis rubricollis (hooded plover)	P4	-	N	19.6	Y	Unlikely
Plegadis falcinellus (glossy ibis)	MI	MI	N	42.4	Y	Unlikely
Tringa glareola (wood sandpiper)	MI	MI	N	42.4	Y	Unlikely
Calidris alba (sanderling)	MI	MI	N	46.0	Y	Unlikely
Branchinella denticulata (fairy shrimp)	P3	-	N	28.8	Y	Highly unlikely

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

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment:	Not likely to be at variance	Yes *Refer to Section 3.2.1and Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
The area proposed to be cleared does not contain record of conservation significant flora or assemblages of plants (Onshore Environmental, 2019; GIS Database).		
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains potential breeding habitat for malleefowl, may contain critical habitat for ABAB and inland hairstreak, and contains suitable habitat for other conservation significant fauna.	May be at variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There are no known records of threatened flora within a 50 kilometre radius of the application area (GIS Database). The flora survey of the application area did not record any species of threatened flora (Onshore Environmental, 2019).	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: No threatened ecological communities (TECs) were mapped within the application area, and surveys of the application area did not record and TECs (Biota, 2025; GIS Database). The only TEC known from the Murchison bioregion is the Depot Springs stygofauna community (DBCA, 2023). The proposed clearing is unlikely to impact stygofaunal communities that may be present within local groundwater, including the Depot Springs stygofauna community Threatened Ecological Community (TEC), if it were to occur within the application area.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The local area has not been extensively cleared (GIS Database). The extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001; Appendix A.2).	Not at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance (12.4 kilometres) to the nearest conservation areas, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given a minor non-perennial watercourse intercepts the application area, the proposed clearing is likely to impact surface water flows and riparian vegetation. Condition: To address the above impact, the following management measure will be required as a condition on the clearing permit: • A watercourse management condition requiring that surface water flows are not impacted by the proposed clearing.	At variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the mapped soils are not susceptible to erosion, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: The proposed clearing area is not located within a Public Drinking Water Source Area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear, however, there is a non-perennial watercourse within the application area (GIS Database). The proposed clearing is unlikely to result in significant changes to surface water quality. The groundwater salinity of the permit area has been broadly mapped as being 10,000-30,000 milligrams per litre total dissolved solids, which is considered hypersaline (Astill Consultants, 2024; GIS Database). Groundwater recharge is slow (Astill Consultants, 2024). The proposed clearing is unlikely to result in significant changes to groundwater quality.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The average annual rainfall at Gindalbie is 231.9 millimetres (BoM, 2025). Average annual evaporation is between 2,400 and 2,800 millimetres per year, exceeding rainfall (BoM, 2006). Rainfall in the area is irregular, with intense rainfall events typically associated with tropical storms and cyclonic activity occurring occasionally (Astill Consultants, 2024). Localised flooding is known to occur following intense rainfall events, however the incidence or intensity of flooding is not likely to be significantly influenced by the proposed vegetation clearing.	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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

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

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

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

Appendix D. Vegetation types

Table adapted from Onshore Environmental (2019)

Code and Vegetation Unit (VU)	Broad floristic formation	Vegetation description	Quadrats
Hill crests			
HC SafDlAk DlSsWr Cp VU6	Senna Low Scrub A	**Low Scrub A** of: *Senna artemisioides* subsp. *filifolia*, *Dodonaea lobulata* and *Acacia kalgoorliensis* over; **Dwarf Scrub C** of: *Dodonaea lobulata*, *Scaevola spinescens* and *Westringia rigida* with; **Open Low Woodland A** of: *Casuarina pauper* over Open Scrub of *Acacia duriuscula*, *Acacia burkittii* and *Santalum spicatum* on; orange sandy loams on hill crests, upper hill slopes and low stony rises	ES02, ES06, ES12, ES15, ES29, ES30
Stony plains			
SP AdAbAt El Cp VU12	Acacia Scrub	**Scrub** of: *Acacia duriuscula*, *Acacia burkittii* and *Acacia tetragonophylla* with; **Very Open Tree Mallee** of: *Eucalyptus longissima* over; **Open Low Woodland A** of: *Casuarina pauper* over; **Open Low Scrub A** of: *Scaevola spinescens*, *Dodonaea lobulata* and *Senna artemisioides* subsp. *filifolia* on; orange silty loam on stony plains	ES16, ES17, ES26
SP AdDlSaf Cp AdAmAt VU2	Acacia Low Scrub A	**Low Scrub A** of: *Acacia duriuscula*, *Dodonaea lobulata* and *Senna artemisioides* subsp. *filifolia* with; **Open Low Woodland A** of: *Casuarina pauper* over; **Open Scrub** of: *Acacia duriuscula*, *Acacia ?incurvaneura* x *mulganeura* and *Acacia tetragonophylla* over; **Open Dwarf Scrub C** of: *Scaevola spinescens*, *Ptilotus obovatus* and *Eremophila granitica* on; red silty loam on stony plains	ES07, ES09, ES28
SP AiAdAmgc Cp SafSsAh VU3	Acacia Scrub	**Scrub** of: *Acacia incurvaneura*, *Acacia duriuscula* and *Acacia ?incurvaneura* x *mulganeura* with; **Open Low Woodland A** of: *Casuarina pauper* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens* and *Acacia hemiteles* over; **Open Dwarf Scrub C** of: *Dodonaea lobulata*, *Scaevola spinescens* and *Ptilotus obovatus* on; brown silty loams on stony plains	ES27
SP ElEc Cp AdAbAi VU5	Eucalyptus Open Tree Mallee	**Open Tree Mallee** of: *Eucalyptus longissima* and *Eucalyptus concinna* over; **Open Low Woodland A** of: *Casuarina pauper* over; **Open Scrub** of: *Acacia duriuscula*, *Acacia burkittii* and *Acacia incurvaneura* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia*, *Eremophila granitica* and *Dodonaea lobulata* over; **Open Dwarf Scrub D** of: Ptilotus obovatus on; brown silty loam on stony plains	ES05, ES13
SP EsEt Es SafSs VU1	Eucalyptus Woodland	**Woodland** of: *Eucalyptus salmonophloia* (with *Eucalyptus transcontinentalis*) over; **Open Scrub** of: *Eremophila scoparia* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia* and *Senna stowardii* over; **Open Dwarf Scrub D** of: *Sclerolaena diacantha*, *Maireana triptera* and *Maireana tomentosa* on; red brown silty clay loam on stony plains	ES01, ES10, ES20
SP EtEl Cp SafEs VU11	Eucalyptus Open Woodland	**Open Woodland** of: *Eucalyptus transcontinentalis* and *Eucalyptus lesouefii* over; **Open Low Woodland A** of: *Casuarina pauper* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia* and *Eremophila scoparia* over; **Open Dwarf Scrub D** of: *Eremophila parvifolia* subsp. *auricampa*, *Ptilotus obovatus* and *Maireana trichoptera* on; red sandy clay loam on stony plains	ES24, ES25

Hardpan plains			
HP AmAmgccGn AbAdAt SafPs VU7	Acacia Thicket	**Thicket** of: *Acacia mulganeura*, *Acacia ?incurvaneura* x *mulganeura* and *Grevillea nematophylla* subsp. *nematophylla* over; **Scrub** of: *Acacia burkittii*, *Acacia duriuscula* and *Acacia tetragonophylla* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia* and *Psydrax suaveolens* on; red sandy clay loam on hardpan plains	ES08, ES19, ES23
Floodplains			
FP ElEc AmgcAdAi SafSaaDl VU4	Eucalyptus Open Tree Mallee	**Open Tree Mallee** of: *Eucalyptus longissima* and *Eucalyptus concinna* over; **Scrub** of: *Acacia ?incurvaneura* x *mulganeura*, *Acacia duriuscula* and *Acacia incurvaneura* over; **Open Low Scrub A** of: *Senna artemisioides* subsp. *filifolia*, *Senna artemisioides* subsp. x *artemisioides* and *Dodonaea lobulata* over; **Open Dwarf Scrub D** of: *Ptilotus obovatus* on; red sandy clay loams on floodplains	ES03, ES04, ES18
Gilgai plains			
GP Es Es AvMpEmb VU8	Eucalyptus Low Woodland	**Low Woodland A** of: *Eucalyptus salubris* over; **Low Scrub A** of: *Eremophila scoparia* over; **Open Dwarf Scrub C** of: *Atriplex vesicaria*, *Maireana pyramidata* and *Eremophila maculata* subsp. *brevifolia* over; **Open Dwarf Scrub D** of: *Sclerolaena diacantha*, *Maireana trichoptera* and *Enchylaena tomentosa* var. *tomentosa* on; red silty clay loam on Gilgai plains	ES11, ES22

Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- Clearing Regulations - Environmentally Sensitive Areas (DWER-046)
- Clearing Regulations - Schedule One Areas (DWER-057)
- DBCA - Lands of Interest (DBCA-012)
- DBCA - Legislated Lands and Waters (DBCA-011)
- DBCA Fire History (DBCA-060)
- Esri World Imagery
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

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

E.2. References

Astill Consultants (2024) Native Vegetation Clearing Permit – East Sampson Dam Project. Prepared for Mineral Mining Services Pty Ltd, by Astill Consultants, 2024.

Atlas of Living Australia (ALA) (n.d.a) *Egernia stokesii badia* Storr, 1978. Atlas of Living Australia. Egernia stokesii badia : Western Spiny-Tailed Skink | Atlas of Living Australia (Accessed 30 May 2025).

Atlas of Living Australia (ALA) (n.d.b) *Macrotis lagotis* Reid, 1837. Atlas of Living Australia. Macrotis lagotis : Bilby | Atlas of Living Australia (Accessed 30 May 2025).

Atlas of Living Australia (ALA) (n.d.c) *Myrmecobius fasciatus* Waterhouse, 1836. Atlas of Living Australia. Myrmecobius fasciatus : Numbat | Atlas of Living Australia (Accessed 30 May 2025).

Bureau of Meteorology (BoM) (2006) Map of average pan evaporation – Annual. Bureau of Meteorology. Average annual, monthly and seasonal evaporation maps, Bureau of Meteorology (Accessed 10 June 2025).

Bureau of Meteorology (BoM) (2025) Bureau of Meteorology Website – Climate Data Online, Gindalbie. Bureau of Meteorology. https://reg.bom.gov.au/climate/data/ (Accessed 29 May 2025).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Commonwealth of Australia (2008) Species Profile and Threats Database. Department of Climate Change, Energy, the Environment and Water, Australia. https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl (Accessed 29 May 2025).

Commonwealth of Australia (2022) Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo, Department of Agriculture, Water and the Environment, Canberra.

Conservation and Land Management (CALM) (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

Department of Biodiversity, Conservation and Attractions (DBCA) (2023) Threatened Ecological Communities List May 2023. Department of Biodiversity, Conservation and Attractions. https://www.dbca.wa.gov.au/wildlife-and-ecosystems/threatened-ecological-communities/list-threatened-ecological-communities (Accessed 29 May 2025).

Department of Biodiversity, Conservation and Attractions (DBCA) (2025a) Threatened and priority fauna list April 2025. Department of Biodiversity, Conservation and Attractions. Threatened species and communities | Department of Biodiversity, Conservation and Attractions (Accessed 30 May 2025).

Department of Biodiversity, Conservation and Attractions (DBCA) (2025b) Threatened and priority fauna resources: Arid bronze azure butterfly. Department of Biodiversity, Conservation and Attractions. Threatened and priority fauna resources | Department of Biodiversity, Conservation and Attractions (Accessed 30 May 2025).

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023) Recovery Plan for the Greater Bilby (*Macrotis lagotis*). Department of Climate Change, Energy, the Environment and Water, Canberra. http://www.environment.gov.au/cgi-bin/sprat/public/publicshowallrps.pl

Department of Environment and Conservation (DEC) (2012) Chuditch (*Dasyurus geoffroii*) National Recovery Plan. Western Australian Wildlife Management Program No. 54. Department of Environment and Conservation, Perth, Western Australia. Chuditch (Dasyurus geoffroii) National Recovery Plan

Department of Parks and Wildlife (DPAW) (2017) Numbat (*Myrmecobius fasciatus*) Recovery Plan. Wildlife Management Program No. 60. Prepared by J.A. Friend and M.J. Page, Department of Parks and Wildlife, Perth, WA

Department of Planning, Lands and Heritage (DPLH) (2025) Aboriginal Cultural Heritage Inquiry System. Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS (Accessed 30 May 2025).

Department of Primary Industries and Regional Development (DPIRD) (2025) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f (Accessed 29 May 2025).

Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) (2011) Survey guidelines for Australia's threatened reptiles: Guidelines for detecting reptiles listed as threatened under the *Environment Protection and Biodiversity Conservation Act* 1999. Department of Sustainability, Environment, Water, Population and Communities. survey-guidelines-reptiles.pdf

Eastwood, R., Jacks, A., Williams, A.A.E., Petersen, L. and Cameron, J. (2023) Current distribution, preferred habitat, behaviour, and biology of the Inland Hairstreak, *Jalmenus aridus* Graham & Moulds, 1988 (Lepidoptera: Lycaenidae) in the Eastern Goldfields region of Western Australia.

Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf

Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

How, R. A., Dell, J. and Robinson, D. J. (2003) The western spiny-tailed skink, *Egernia stokesii badia*: declining distribution in a habitat specialist. Western Australian Naturalist, 24, 138-146. The western Australian naturalist

IUCN (2022) The IUCN Red List of Threatened Species: Carnaby's Black-cockatoo. Zanda latirostris (Carnaby's Black-cockatoo) (Accessed 11 June 2025).

Johnstone, R. E. and Storr, G. M. (1998) Handbook of Western Australian Birds: Volume I, Non-passerines. Western Australian Museum, Perth, Western Australia, October 1998.

Mineral Mining Services Pty Ltd (MMS) (2025) Clearing permit application form, CPS 10919/1, received 17 January 2025.

National Wildlife Federation (NWF) (n.d.) Peregrine Falcon. National Wildlife Federation, Virginia. Peregrine Falcon | National Wildlife Federation (Accessed 27 March 2025).

Onshore Environmental (2019) East Sampson Dam Project Biological Survey. Prepared for Moho Resources Ltd, by Onshore Environmental, December 2024.

Pringle, H. J. (1994) Pastoral resources and their management in the north-eastern goldfields, Western Australia. Report 22/94. Department of Primary Industries and Regional Development, Western Australia, Perth. https://library.dpird.wa.gov.au/misc_pbns/24

Timms, B. V. (2008) Further studies on the fairy shrimp genus *Branchinella* (Crustacea, Anostraca, Thamnocephalidae) in Western Australia, with descriptions of new species. Records of the Western Australian Museum, 24, 289-306. Adec Preview Generated PDF File

Trudgen, M.E. (1991) Vegetation condition scale in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dbca.wa.gov.au/ (Accessed 29 May 2025).

4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

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

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

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

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

CR **Critically endangered species**

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

VU **Vulnerable species**
Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) or The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

CD **Species of special conservation interest (conservation dependent fauna)**
Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

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

OS **Other specially protected species**
Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

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

P **Priority species:**

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

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

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

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

Assessment of priority status is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species – known from few locations, none on conservation lands**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species – known from few locations, some on conservation lands**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species – known from several locations**
Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.

Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.
(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.
(d) Other species in need of monitoring.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.