Department of Mines, Petroleum and Exploration

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10913/1
Permit type:	Purpose Permit
Applicant name:	Redcliffe Project Pty Ltd
Application received:	10 January 2025
Application area:	400 hectares
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Leases 37/86, 37/227, 37/277, 37/300, 37/428, 37/594, 37/646, 37/1319 and 37/1331 Miscellaneous Licences 37/106, 37/127, 37/128 and 37/242
Location (LGA area):	Shire of Leonora
Colloquial name:	Bruno-Lewis Project

1.2. Description of clearing activities

Redcliffe Project Pty Ltd proposes to clear up to 400 hectares of native vegetation within a boundary of approximately 2,005 hectares, for the purpose of mineral production and associated activities (Redcliffe Project Pty Ltd, 2024; Talis Consultants, 2024). The project is located approximately 27 kilometres northeast of Leonora, within the Shire of Leonora (Talis Consultants, 2024; GIS Database).

The application is to allow for the development of the Bruno-Lewis Project, which will involve two open pit void complexes, two associated waste rock landforms (WRLs), two run-of-mine (ROM) pads, as well as associated supporting infrastructure such as laydown areas and transport and infrastructure corridors (Talis Consultants, 2024).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	4 September 2025
Decision area:	400 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) (now DMPE) advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix F), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation survey (Appendix E), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), 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 Bruno-Lewis 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;
- impacts to conservation significant flora;
- the loss of riparian vegetation associated with a wetland that is suitable habitat for migratory birds;
- the increased risk of fauna injury or mortality;
- potential land degradation in the form of erosion; and
- the increased risk of siltation, due to erosion, which may impact water quality and risk of flooding.

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 (Section 3.1).

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;
- limiting the clearing of, and within 10 metres of, any individuals of *Acacia* sp. Marshall Pool, *Cratystylis centralis*, *Hibiscus* sp. Perrinvale Station, *Alectryon oleifolius* subsp*. canescens and Neurachne munroi*;
- where practicable, avoid clearing riparian vegetation;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion; and
- a watercourse management condition requiring that surface water flows are not impacted by the proposed clearing.

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Biosecurity and Agriculture Management Act 2007* (BAM Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)

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, 2016b)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

As the applicant intends to truck mined ore to an existing processing facility, less infrastructure is required on-site, therefore reducing the amount of clearing (Talis Consultants, 2024).

Additionally, the following environmental measures were submitted by the applicant:

- clearing areas will be demarcated prior to the commencement of project activities and prior to the commencement of native vegetation clearing;
- clearing will be undertaken in accordance with the Genesis site Ground Disturbance Permitting Procedure;
- induction of all contractors and/or internal personnel undertaking the clearing in accordance with Genesis's internal procedures. GPS coordinates of clearing permit area will be supplied to contractors;
- prior to clearing activities, areas of native vegetation to be retained will be clearly demarcated by star pickets, coloured tape or bunting and all personnel will be made aware of the requirement to protect native vegetation in these areas; and
- spatial data will be retained within Genesis Ground Disturbance Database and will be vetted and reported as per Mining Rehabilitation Fund and Native Vegetation Clearing Permit requirements (Talis Consultants, 2024).

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 (Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (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

Priority Flora recorded in surveys

The following four priority flora have been identified within the application area (Talis Consultants, 2024). The below table is adapted from information provided by the applicant (Appendix A).

Species	Priority Status	Abundance within Clearing Permit Application Area	Abundance within indicative site layout	Proposed maximum impact
Acacia sp. Marshall Pool (formerly recorded as *Acacia* sp. nov. aff. *resinimarginea*)	P3	4,238	19	100
Cratystylis centralis	P3	268	0	20
Hibiscus sp. Perrinvale Station	P1	71	0	0
Gunniopsis propinqua	Delisted	2	0	0

***Acacia* sp. Marshall Pool (G. Cockerton 3024)**
Acacia sp. Marshall Pool, Priority 3, inhabits clayey sand or clay on hills, slopes or ridges (Western Australian Herbarium, 1998-). It has been recorded within the application area during the MWH (2018) survey as *Acacia* sp. nov. aff. *resinimarginea*. A total of 4,238 plants of this species have been recorded within the application area (MWH, 2018; Western Botanical, 2019; Appendix A). Non-exhaustive studies have recorded an estimated local population of 10,000 plants and an estimated regional population of 37,000 (Western Botanical, 2019). The applicant proposes to take up to 100 plants of this species (Appendix A). The proposed take of 100 plants represents less than one percent of the local and regional population, and is unlikely to be significant to the conservation of this species.

Cratystylis centralis
Cratystylis centralis, Priority 3, inhabits red sandy loam with ironstone gravel on flat plains and breakaway country (Western Australian Herbarium, 1998-). 268 plants of this species were recorded in one population within the application area (Western Botanical, 2019; Appendix A). This population was recorded adjacent to the existing access road (Western Botanical, 2019). The applicant has proposed to take up to 20 plants of this species, to facilitate the widening of the access track (Appendix A). The proposed take of up to 20 plants represents approximately 7.5 percent of the local population. As this population is one of 13 recently recorded known populations of the species, and occurs within the existing distribution, the proposed clearing is unlikely to be significant at a regional or species level (Western Australian Herbarium, 1998-).

***Hibiscus* sp. Perrinvale Station (J. Warden & E. Ager WB 10581)**
Hibiscus sp. Perrinvale Station, Priority 1, inhabits banded ironstone formation (BIF) hill slopes, rocky areas and within drainage lines (Western Australian Herbarium, 1998-). 71 plants of this species were recorded within the application area (Western Botanical, 2019; Appendix A). There is no proposed take of this species (Appendix A).

Gunniopsis propinqua
This species was recorded in surveys, but has since been delisted (MWH, 2018; Stantec, 2018b; Western Australian Herbarium, 1998-; Western Botanical, 2019).

Priority Flora not recorded in surveys

Angianthus prostratus
Angianthus prostratus, Priority 3, is an annual herb, associated with samphire, that inhabits red clay or loamy soils on saline depressions (Western Botanical, 2019; Western Australian Herbarium, 1998-). This species is known from ten Western Herbarium (1998-) records, with all but one record occurring within the Eastern Murchison biogeographic region. Records in the Eastern Murchison biogeographic region are all in association with paleochannels or salt lakes (Western Botanical, 2019).

Approximately 572.5 hectares of suitable habitat occurs within the application area, as much of the application area has saline soils, and the application is intersected by the Raeside palaeovalley (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019; GIS Database). As an annual species, surveys must be timed following sufficient rainfall in order to detect *Angianthus prostratus* (Western Botanical, 2019). Of the surveys conducted over the application area, only the Western Botanical (2019) survey was conducted during a period when preceding rainfall was insufficient for the detection of *Angianthus prostratus* (MWH, 2018; Stantec, 2018; 2018b). As suitable habitat within the Western Botanical (2019) study area makes up approximately 8.5 percent of the total suitable habitat within the application area, the clearing of this habitat is not considered to be significant.

Triglochin protuberans
Triglochin protuberans, Priority 3, is a tiny, cryptic ephemeral herb, associated with samphire, which can be found inhabiting red loam, grey mud over clay in winter-wet sites, claypans, near salt lakes and margins of pools (Western Australian Herbarium, 1998-; Western Botanical, 2019).

Approximately 572.5 hectares of suitable habitat occurs within the application area, as much of the application area has saline soils (MWH, 2018; Stantec, 2018; 2018b; Western Botanical, 2019). Surveys must be timed following sufficient rainfall in order to detect *Triglochin protuberans* (Western Botanical, 2019). Of the surveys conducted over the application area, only the Western Botanical (2019) survey was conducted during a period when preceding rainfall was insufficient for the detection of *Triglochin protuberans* (MWH, 2018; Stantec, 2018a; 2018b). As suitable habitat within the Western Botanical (2019) study area makes up approximately 8.5 percent of the total suitable habitat within the application area, the clearing of this habitat is not considered to be significant.

Eremophila annosicaulis
Eremophila annosicaulis, Priority 3, has been recorded at nine sites in the Western Botanical (2019) survey, outside of the application area. As none of these sites occur within the application area, and the species was able to be detected in the survey, it is unlikely that the proposed clearing will significantly impact the species.

Calytrix praecipua
Calytrix praecipua, Priority 3, inhabits skeletal sandy soils over granite or laterite on breakaways and outcrops (Western Australian Herbarium, 1998-). Suitable habitat for this species occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019). *Calytrix* species are perennial shrubs and can usually be identified whether plants are in flower or in a vegetative state, so timing of field survey is not critical for identification (Western Botanical, 2025). As *Calytrix praecipua* was not identified in any surveys of the site, it is unlikely that it occurs undetected within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019).

Acacia websteri
Acacia websteri, Priority 1, inhabits red sand, clay or loam in low-lying areas or flats (Western Australian Herbarium, 1998-). Suitable habitat for this species occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019). *Acacia* species are perennial shrubs and can usually be identified whether plants are in flower or in a vegetative state, so timing of field survey is not critical for identification (Western Botanical, 2025). As *Acacia websteri* was not identified in any surveys of the site, it is unlikely that it occurs undetected within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019).

Ptilotus tetrandrus
Ptilotus tetrandrus, Priority 1, is an annual herb that is known from three Western Australian Herbarium (1998-) records across the Eremaean Botanical Province. The nearest record is located less than 28 kilometres south of the application area, and was recorded on loamy soil amongst many other annual herbs and mulga (Benl, 1978; GIS Database). Approximately 896 hectares of habitat suitable for *Ptilotus tetrandrus* occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019). As an annual species, surveys must be timed following sufficient rainfall in order to detect *Ptilotus tetrandrus*. As other annual *Ptilotus* species have been recorded, it is likely that *Ptilotus tetrandrus* would have been detectable, if it occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019).

***Calandrinia* sp. Menzies (F. Hort et al. FH 4100)**
Calandrinia sp. Menzies, Priority 3, is an annual herb that is associated with mulga shrublands and occurs in clayey sand with gravel, quartz or ironstone pebbles on flat plains and saline sites (Western Australian Herbarium, 1998-). This habitat occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019). As an annual species, surveys must be timed following sufficient rainfall in order to detect *Calandrinia* sp. Menzies. As other annual *Calandrinia* species have been recorded, it is likely that *Calandrinia* sp. Menzies would have been detectable, if it occurs within the application area (MWH, 2018; Stantec, 2018a; 2018b; Western Australian Herbarium, 1998-; Western Botanical, 2019).

Calandrinia quartzitica
Calandrinia quartzitica, Priority 1, is a perennial herb, associated with samphire, that inhabits saline areas dominated by quartzite (Obbens, 2018; Western Australian Herbarium, 1998-; Western Botanical, 2019). Vegetation types 8.01 and S16 provide suitable habitat for *Calandrinia quartzitica* (Appendix E.9; Appendix E.10). As this species is a perennial, it would have been detectable if it occurred within the application area. Therefore, this species is unlikely to occur.

Other species of significance

The following two species have locations mapped within the application area and require further discussion (Western Botanical, 2019).

Alectryon oleifolius* subsp. *canescens
Alectryon oleifolius subsp. *canescens* is an endemic tree that resembles an Olive and is widely recorded in the southern Goldfields and Nullarbor regions (Western Botanical, 2019). This species is uncommon in the local landscape and the occurrence within the application represents a slight north-westerly range extension of around 100 kilometres, from the nearest known occurrence, south of Murrin Murrin (Western Botanical, 2019). This species should be avoided where possible as this population represents the northern limit of its range in Western Australia (Western Botanical, 2019).

Neurachne munroi
Neurachne munroi is a perennial grass with 11 Western Australian Herbarium (1998-) records. This species is known from stony hills, and is therefore patchily distributed across central Australia (Western Australian Herbarium, 1998-; Western Botanical, 2019). As this species is uncommon in the landscape, it is recommended to be avoided where possible (Western Botanical, 2019).

Conclusion

Priority Flora recorded in surveys

Based on the above assessment, the proposed clearing will not result in significant impacts to priority flora, provided the applicant does not exceed their proposed impact. To ensure the proposed impact is not exceeded, flora management conditions will be required on the clearing permit.

Priority Flora not recorded in surveys

Angianthus prostratus* and *Triglochin protuberans
These species may occur within the application area, however, the impact of the clearing habitat for this species where they potentially occur, is unlikely to be significant to the conservation of these species, as habitat is widespread in the local area.

Eremophila annosicaulis*, *Calytrix praecipua*, *Acacia websteri*, *Ptilotus tetrandrus*, *Calandrinia* sp. Menzies and *Calandrinia quartzitica
It is considered that surveys of the application area are adequate for the detection of these species. Therefore, these species are unlikely to occur within the application area, and are unlikely to be impacted by the proposed clearing.

Other species of significance

Two non-priority species mapped within the application area are of conservation significance due to being uncommon in the local landscape. It is recommended that clearing of these species are avoided.

Conditions

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

- limiting the clearing of, and within 10 metres of, any individuals of *Acacia* sp. Marshall Pool, *Cratystylis centralis*, *Hibiscus* sp. Perrinvale Station, *Alectryon oleifolius subsp. canescens and Neurachne munroi*.

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

Assessment

Long-tailed dunnart
Long-tailed dunnart (*Sminthopsis longicaudata*), Priority 4, is a small carnivorous marsupial found in arid Western Australia and the Northern Territory, where it inhabits rocky areas (IUCN, 2025; van Dyck & Strahan, 2008; WAM, n.d.; Young, 1981). Within the application area breakaways and rocky hills provide suitable habitat for long-tailed dunnart (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019; Appendix E). Within the application area, there is 0.04 hectares of breakaway habitat and 407.7 hectares of rocky hills habitat (MWH, 2018; Stantec, 2018a; 2018b; Western Botanical, 2019).

One scat, inferred to be from long-tailed dunnart based on morphology and habitat preferences, was located within the application area (Phoenix, 2019). Therefore, long-tailed dunnart is likely to be a resident of the application area (Phoenix, 2019). As there is little gene flow between long-tailed dunnart populations, due to habitat disparity, protection of known populations is important for maintaining intraspecies biodiversity (WAM, n.d.).

Long-tailed dunnarts have high mobility and transiency, permitting them to opportunistically invade new habitats (Friend et al., 1997). As the suitable habitat is abundant in the local area, and long-tailed dunnart will be able to move to new habitat, the proposed clearing of habitat is unlikely to be significant to the conservation of this species. However, mechanical clearing poses the risk of injury or mortality to long-tailed dunnart individuals.

Migratory birds
The following migratory birds were recorded within 50 kilometres of the application area:

- *Tringa nebularia* (common greenshank);
- *Actitis hypoleucos* (common sandpiper);
- *Calidris acuminata* (sharp-tailed sandpiper);
- *Pluvialis fulva* (Pacific golden plover);
- *Tringa glareola* (wood sandpiper); and
- *Calidris canutus* (red knot) (GIS Database).

The wetland habitat, recorded within the application area provides suitable habitat for these species, when inundated (Commonwealth of Australia, 2008; Stantec, 2018b). This habitat is restricted within the application area and is recommended to be avoided (Stantec, 2018b).

Peregrine falcon
The peregrine falcon (*Falco peregrinus*), Other Specially Protected, is a migratory species. Within their global range, peregrine falcons can be found in a variety of habitats, including mountains, forests, cities, valleys, deserts, and coastlines (Australian Museum, 2019; NWF, n.d.). Peregrine falcons are likely to occasionally occur within the application area to disperse or forage (Phoenix, 2019; Stantec, 2018b).

Peregrine falcons lay their eggs on cliff faces, tree hollows or abandoned nests of other large birds (Australian Museum, 2019). Peregrine falcons could utilise abandoned crow nests, located within the application area, as breeding habitat (Phoenix, 2019). Crow nests were located within the *Acacia papyrocarpa* woodlands vegetation complex, where *Acacia papyrocarpa* represents the dominant canopy vegetation (Phoenix, 2019; Appendix E.6). Australian corvid (crow) species; particularly *C. coronoides* and *C. orru* which were recorded in the Phoenix (2019), MWH (2018) and Stantec (2018b) surveys; usually nest within the tallest trees in the landscape (Rowley, 1973). *Acacia papyrocarpa* is the largest and most prominent tree in the local landscape, providing refuge and nesting opportunities for larger birds (Talis Consultants, 2024; Western Botanical, 2019). The Western Botanical (2019) survey recorded approximately 341 hectares of the *Acacia papyrocarpa* woodlands vegetation complex, with approximately 43 hectares of this located within the application area. The clearing of up to 13 percent of the known local extent

to this vegetation type is unlikely to be significant in the context of peregrine falcon nesting, given that peregrine falcons have a home range of 20 to 30 square kilometres and breeding success is correlated more closely with prey availability than a particular habitat type (Australian Museum, 2019; Kettel et al., 2018; Mak et al., 2021).

Additionally, peregrine falcons usually nest on cliffs, with the stick nests of other birds being utilised more so when cliff sites are unavailable (COSEWIC, 2017). Highly suitable breeding habitat has been located on artificial cliffs from old mining activities at the Mertondale site, approximately 20 kilometres north of the application area (Phoenix, 2019; GIS Database).

Grey falcon

The grey falcon (*Falco hypoleucos*) is a nomadic species occurs at low densities across inland Australia (Birdlife International, 2022). In inhabits timbered plains, particularly Acacia shrublands near tree-lined watercourses (Birdlife International, 2022; Garnett & Crowley, 2000). Grey falcons are likely to occasionally occur within the application area to forage (Phoenix, 2019). As foraging habitat is widespread in the surrounding area and as the species is nomadic, foraging habitat within the application area is unlikely to be significant (Birdlife International, 2022; Phoenix, 2019).

The grey falcon uses the old nests of other raptors or corvids for nesting (TSSC, 2019). Nests chosen are usually located in tall trees (Garnett & Crowley, 2000; TSSC, 2019). *Acacia papyrocarpa* is the largest and most prominent tree in the local landscape, providing refuge and nesting opportunities for larger birds (Talis Consultants, 2024; Western Botanical, 2019). Grey falcons could utilise abandoned crow nests, located within the application area, as breeding habitat (Phoenix, 2019). Crow nests were located within the *Acacia papyrocarpa* woodlands vegetation complex, where *Acacia papyrocarpa* represents the dominant canopy vegetation (Phoenix, 2019; Appendix E.6). The Western Botanical (2019) survey recorded approximately 341 hectares of the *Acacia papyrocarpa* woodlands vegetation complex, with approximately 43 hectares of this located within the application area. The proposed clearing would result in a loss of up to 12.6 percent of the recorded habitat in the local area.

Malleefowl

Malleefowl (*Leipoa ocellata*), Vulnerable, inhabits areas with a sandy substrate, leaf litter, and shrubs to provide horizontal cover (DCCEEW, 2024). Suitable species include mallee, mulga and other acacias (DCCEEW, 2024). To build incubator nesting mounds, a sandy soil type and abundant leaf litter is required (DCCEEW, 2024). The surveys of the application area found the habitat in the area was generally of low suitability for malleefowl, and no evidence of malleefowl usage was detected (MWH, 2018; Phoenix, 2019). The species may use the application area as an occasional visitor, but as suitable foraging habitat is abundant in the region, the habitat within the application area is unlikely to be critical to malleefowl conservation (Phoenix, 2019).

Greater stick-nest rat

Greater stick-nest rat (*Leporillus conditor*), Vulnerable, inhabits shrublands, particularly with succulent or semi-succulent plant species (DEWHA, 2008). The greater stick-nest rat populations only exist at reintroduction sites, with feral predators managed at these sites (DEWHA, 2008). As the application area is not a predator managed reserve or reintroduction site, it is unlikely that the greater stick-nest rat occurs within the application area.

Conclusion

Based on the above assessment, the proposed clearing will result in the following impacts to the below-listed species:

Long-tailed dunnart: the proposed clearing is unlikely to significantly impact long-tailed dunnart via the removal of suitable habitat, however, mechanical clearing poses the risk of injury or mortality to long-tailed dunnart individuals, which may threaten the local population. Therefore, a condition to undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity will be imposed on the clearing permit.

Migratory birds: migratory birds may utilise wetlands when inundated. As wetland habitat is restricted within the application area, it is recommended that this habitat is avoided. Therefore, a condition to, where practicable, avoid clearing riparian vegetation will be imposed on the clearing permit.

The applicant may have notification responsibilities under the EPBC Act for impacts to migratory bird species (*Tringa nebularia*, *Actitis hypoleucos*, *Calidris acuminata*, *Pluvialis fulva*, *Tringa glareola* and *Calidris canutus*) 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.

Peregrine and grey falcons: the clearing of up to 13 percent of the known local extent of the *Acacia papyrocarpa* woodlands vegetation complex is unlikely to significantly impact the potential for falcon breeding in the local area.

Malleefowl: suitable foraging habitat occurs within the application area, but the habitat is unlikely to be critical to the conservation of malleefowl.

Greater stick-nest rat: unlikely to occur within the application area, and therefore unlikely to be impacted by the proposed clearing.

Conditions

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

- where practicable, avoid clearing riparian vegetation; and
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 25 February 2025 by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) (now DMPE) inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims (WCD2022/002 – Darlot and WCD2023/002 - Nyalpa Pirniku) over the area under application (DPLH, 2025). These claims have been determined by the Federal Court on behalf of the claimant groups. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Sites of Significance (Place 19873) 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 to migratory bird species (*Tringa nebularia*, *Actitis hypoleucos*, *Calidris acuminata*, *Pluvialis fulva*, *Tringa glareola* and *Calidris canutus*), 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 (Commonwealth) Department of Climate Change, Energy, the 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 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. Additional information provided by applicant

Summary of comments	Consideration of comment
On 6 August 2025 the applicant provided summarised abundance data for Priority Flora, as well as a shapefile of the indicative site layout.	This information is considered in the assessment of Principle (a).
On 27 August 2025, the applicant provided the proposed maximum take for both *Acacia* sp. Marshall Pool and *Cratystylis centralis*.	This information is considered in the assessment of Principle (a).

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is located within the Eastern Murchison subregion of the Murchison bioregion (GIS Database). The proposed clearing area is surrounded by predominantly goldmining operations. Approximately 99% of the local area (50 kilometre radius from the application area) remains uncleared (GIS Database).
Ecological linkage	The application area is not considered a significant ecological linkage. The vegetation immediately surrounding the application area and the majority of the region remains uncleared (GIS Database). However, the watercourses intersecting the application area, including Cardinia Creek, are likely to represent a minor ecological linkage for surface water flows (GIS Database).
Conservation areas	The application area is not located within any DBCA legislated conservation areas (GIS Database). The nearest legislated conservation area is an unnamed nature reserve approximately 52 kilometres south of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 18: Low woodland; mulga (*Acacia aneura*); 28: Low woodland; mulga (*Acacia aneura*); and 39: Shrublands; acacia species (GIS Database). Flora and vegetation surveys were conducted over the application area during the following periods: • 5 to 17 February 2019 (Western Botanical, 2019); • 10 to 19 October 2018 (Western Botanical, 2019); • 17 to 18 March 2018 (Stantec, 2018a); • 14 to 18 March 2018 (Stantec, 2018b); • 7 to 10 August 2017 (MWH, 2018); • 10 to 12 May 2017 (MWH, 2018); and • 28 November to 5 December 2016 (MWH, 2018). 11 vegetation complexes were recorded within the Western Botanical (2019) survey area. The following eight vegetation complexes were recorded within the application area: 1. Mulga woodlands over perennial non-halophytic shrubs on hills and plains; 2. Mulga shrublands / woodlands over perennial grasses on plains; 3. *Acacia* woodlands over shrubs and grasses in major drainage lines and groves; 4. *Acacia* (other than mulga) shrublands on stony hills; 5. *Acacia papyrocarpa* woodlands; 6. Perennial grasslands; 7. *Hakea preissii* and/or halophytic chenopod shrublands; and 8. Breakaway complex (Western Botanical, 2019). The previous surveys recorded vegetation units, categorised into the following five habitat types, within the application area: • Acacia shrublands on plains; • Chenopod shrublands; • Drainage lines; • Low hills; and • Wetlands (MWH, 2018; Stantec, 2018a; 2018b). Descriptions of all the vegetation units recorded within the application area are provided in Appendix E.

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Vegetation condition</td><td>The vegetation survey by Western Botanical (2019) indicates the vegetation within the proposed clearing area is in Pristine to Very Good Keighery (1994) condition.

As the proposed clearing is located within the Eremaean Botanical Province, these condition ratings have been converted to the Trudgen (1991) condition rating scale (GIS Database). Therefore, the vegetation within the proposed clearing area ranges from Excellent to Poor 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.
• 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.

Vegetation from hilltops was generally in excellent condition, with drainage lines being most disturbed due to the presence of aggressive weeds and evidence of cattle grazing (Western Botanical, 2019).

The full Trudgen (1991) condition rating scale is provided in Appendix D.</td></tr>
<tr><td>Climate and landform</td><td>The climate of the Murchison bioregion is described as arid, with the nearest weather station (Leonora) recording an average rainfall of approximately 236.4 millimetres per year (BoM, 2025; CALM, 2002).
The application area is mapped at elevations of 370-440 metres Australian height datum (GIS Database). Land system mapping broadly describes the application area as gently undulating stony plains and hills (GIS database).</td></tr>
<tr><td>Soil description</td><td>The soils within the application area are mapped as the following land systems (DPIRD, 2025; GIS Database):
<table>
<tr><th>System</th><th>Area within application</th><th>Description</th></tr>
<tr><td>Gundockerta system (279Gu)</td><td>809.8 ha (40.4 %)</td><td>Extensive, gently undulating calcareous stony plains supporting bluebush shrublands</td></tr>
<tr><td>Nubev system (279Mu)</td><td>589.8 ha (29.4 %)</td><td>Gently undulating stony plains, minor limonitic low rises and drainage floors supporting mulga and halophytic shrublands</td></tr>
<tr><td>Leonora system (279Le)</td><td>273.3 ha (13.6 %)</td><td>Low greenstone hills and stony plains supporting mixed chenopod shrublands</td></tr>
<tr><td>Jundee system (279Ju)</td><td>133.3 ha (6.6 %)</td><td>Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands</td></tr>
<tr><td>Tiger system (279Tg)</td><td>78.5 ha (3.9 %)</td><td>Gravelly hardpan plains and sandy banks with mulga shrublands and wanderrie grasses</td></tr>
<tr><td>Monitor system (279Mr)</td><td>66.6 ha (3.3 %)</td><td>Distributary alluvial fans and wash plains supporting mulga - chenopod shrublands</td></tr>
<tr><td>Felix system (279Fx)</td><td>33.1 ha (1.7 %)</td><td>Gently undulating plains with quartz mantles, supporting acacia-eremophila shrublands locally with wanderrie grasses</td></tr>
<tr><td>Hootanui system (279Ht)</td><td>21.1 ha (1.1 %)</td><td>Breakaways, hills and ridges with saline gravelly and stony lower plains supporting scattered halophytic low shrublands</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The Gundockerta and Hootanui land systems are susceptible to soil erosion on slopes and within drainage lines. The Leonora, Nubev and Felix land systems are also susceptible to soil erosion within drainage lines, particularly when shrub cover is removed (Pringle, 1994).

Disruption of natural sheet flows within the Jundee and Tiger land systems can result in erosion and water starvation (Pringle, 1994).

The Monitor land system is susceptible to soil erosion when shrub cover is removed (Pringle, 1994).</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment indicated that the application area is intersected by several minor, non-perennial watercourses, including Cardinia Creek (GIS Database).</td></tr>
</table>

Characteristic	Details
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 Leonora Water Reserve located approximately 12.5 kilometres to the northwest 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). Two levels of groundwater salinity are mapped across the application area, being: • 1,000-3,000 total dissolved solids milligrams per litre, which is described as brackish water quality; and • 3,000-7,000 total dissolved solids milligrams per litre, which is described as brackish water quality (NWGA, 2023; GIS Database).
Flora	Desktop search located 22 priority flora records in local area (50 kilometre radius of the application area), with the nearest records located within the application area (GIS Database).
Ecological communities	No TECs were identified during biological surveys of the application area (MWH, 2018; Stantec, 2018a; 2018b; Talis Consultants, 2024; Western Botanical, 2019). There are two Priority Ecological Communities (PECs) mapped within a 50 kilometre radius of the application area (GIS Database). These are: • Melita calcrete groundwater assemblage type on Raeside palaeodrainage on Melita (Sons of Gwalia) Station, Priority 1 PEC; and • Mount Morgan calcrete groundwater assemblage type on Carey palaeodrainage on Mt Weld Station, Priority 1 PEC (GIS Database). As these PECs are both calcrete groundwater communities, and there no calcrete systems within the application area, they are unlikely to occur within the application area (Stantec, 2021). One TEC occurs in the Murchison bioregion, being the Depot Springs stygofauna community (DBCA, 2023b).
Fauna	Desktop search located 13 conservation significant fauna records in local area (50 kilometre radius of the application area), with the nearest records located 7.1 kilometres from the application area (GIS Database).
Fauna habitat	**<u>Terrestrial fauna</u>** A terrestrial fauna survey was conducted over the application area by Phoenix Environmental Sciences (2019) during April 2019. The following fauna habitats were recorded within the application area: • mulga woodland on plain; • shrubland on plain; • acacia shrubland on stony hills; • acacia woodland in drainage lines and groves; • mulga woodland on stony hills; • cleared; and • outcropping and breakaway (Phoenix, 2019). As this survey did not cover the entire application area, the following habitats are inferred based on vegetation surveys: • perennial grasslands; and • wetland (Stantec, 2018b; Western Botanical, 2019). **<u>Subterranean fauna</u>** A subterranean fauna survey was conducted within and adjacent to the application area by Stantec (2021) during the following periods: • 31 January to 21 March 2017 (troglofauna survey); • January to February 2017 (stygofauna and troglofauna survey); • March 2009 (stygofauna and troglofauna survey); • December 2008 (stygofauna and troglofauna survey); and • October 2008 (stygofauna and troglofauna survey). **Stygofauna habitat** There is an absence of extensive groundwater associated calcrete systems within the project area (Stantec, 2021). The most prospective habitat for stygofauna within the project area occurs in association with geological structures present within the fractured rock aquifer systems (e.g. primarily regional shear zones and faults, but also in more localised fractures, and unconformities), and in the coarse-grained alluvial sediments present along the main drainage lines and associated tributaries (Stantec, 2021). There are numerous intrusive dolerite dykes in the project area, but do not appear to restrict groundwater flow to such an extent as the Mertondale dykes that occur higher in the landscape (Stantec, 2021). The salinity of the groundwater at the site is suitable for stygofauna habitation (Stantec, 2021).

Characteristic	Details
	Troglofauna habitat Troglofauna habitats occurred near to the Cardinia Creek drainage line where the upper part of the weathered and fractured rock geological units remained unsaturated and overlain by relatively thin (extending to around 7 to 8 mbgl) alluvial/colluvial strata that was not clay dominated (Stantec, 2021).

B.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					
18	19,892,306	19,843,148	~99	1,317,179	6.62
28	395,895	392,172	~99	N/A	N/A
39	6,613,418	424,642.41	~99	479,206	7.25
Beard vegetation associations - Bioregion (Murchison)					
18	12,403,172	12,363,253	~99	45,094	0.36
28	224,292	220,584	~98	N/A	N/A
39	1,148,400	1,138,064	~99	40,834	3.56

Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix **Error! Reference source not found.**), and biological survey information, impacts to the following conservation significant flora required further consideration (MWH, 2018; Stantec, 2018a; 2018b; Talis Consultants, 2024; Western Botanical, 2019).

The likelihood of occurrence for these species were determined by potentially suitable habitat within the application area and known regional records (MWH, 2018; Stantec, 2018a; 2018b; Talis Consultants, 2024; Western Botanical, 2019; 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
Hibiscus sp. Perrinvale Station (J. Warden & E. Ager WB 10581)	P1	Y	0	Y	Known to application area - discussed in Section 3.2.1
Acacia sp. Marshall Pool (G. Cockerton 3024)	P3	Y	0	Y	Known to application area - discussed in Section 3.2.1
Cratystylis centralis	P3	Y	0	Y	Known to application area - discussed in Section 3.2.1
Angianthus prostratus	P3	Y	<12	N	Very likely - discussed in Section 3.2.1
Calytrix praecipua	P3	Y	<16	Y	Very likely - discussed in Section 3.2.1
Acacia websteri	P1	Y	<20	Y	Very likely - discussed in Section 3.2.1
Triglochin protuberans	P3	Y	<6	N	Likely - discussed in Section 3.2.1

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
Ptilotus tetrandrus	P1	Y	<28	Y	Likely - discussed in Section 3.2.1
Eremophila annosicaulis	P3	Y	<40	Y	Likely - discussed in Section 3.2.1
Calandrinia sp. Menzies (F. Hort et al. FH 4100)	P3	Y	<48	Not included in targeted search	Likely - discussed in Section 3.2.1
Calandrinia quartzitica	P1	Y	<46	Y	Possible - discussed in Section 3.2.1
Stenanthemum patens	P1	Y	<42	Y	Likely
Eremophila mirabilis	P2	Y	<47	Y	Likely
Calytrix hislopii	P3	Y	<35	Y	Possible
Eremophila shonae subsp. *diffusa*	P3	Y	<44	Y	Possible
Eremophila simulans subsp. *megacalyx*	P3	Y	<32	Y	Possible
Eremophila veronica	P3	Y	<45	Y	Possible
Goodenia lyrata	P3	Y	<46	Y	Possible
Micromyrtus serrulata	P3	N	<50	Y	Unlikely
Nicotiana salina	P1	N	<12	Y	Possible
Pigea sp. *Chloroxantha* (E. Bennett & D. Bright EUC 1810) (formerly *Hybanthus floribundus* subsp. *chloroxanthus*)	P3	Y	<13	Y	Possible
Conospermum toddii	P4	N	<30	Y	Unlikely
Hemigenia exilis	P4	N	<11	Y	Unlikely

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

B.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix **Error! Reference source not found.**), and biological survey information, impacts to the following conservation significant fauna required consideration (MHW, 2018; Phoenix, 2019; Stantec, 2018b).

The likelihood of occurrence for these species were determined by potentially suitable habitat within the application area and known regional records (Australian Museum, 2019; Birdlife Australia, 2025; n.d.; CALM, n.d.; Commonwealth of Australia, 2008; DEWHA, 2008; Garnett & Crowley, 2000; Lundrigan & Girvin, 2000; MHW, 2018; NWF, n.d.; Phoenix, 2019; Stantec, 2018b; van Dyck & Strahan, 2008; GIS Database).

As the 50 kilometre search radius included inland wetlands, many migratory birds were recorded in the desktop search (Birdlife Australia, 2025; Commonwealth of Australia, 2008; GIS Database). These species are unlikely to occur within the application area, as there are no wetlands present (Birdlife Australia, 2025; Commonwealth of Australia, 2008; MHW, 2018; Phoenix, 2019; GIS Database). Therefore, these species do not require further discussion.

Species name	Conservation status		Suitable habitat? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]	Likelihood of occurrence
	WA	EPBC				
Falco peregrinus (peregrine falcon)	OS	-	Y	7.1	Y	Likely – discussed in Section 3.2.2
Sminthopsis longicaudata (long-tailed dunnart)	P4	-	Y	12.8	Y	Likely – discussed in Section 3.2.2
Leipoa ocellata (malleefowl)	VU	VU	Y	19.3	Y	Possible – discussed in Section 3.2.2
Falco hypoleucos (grey falcon)	VU	VU	Y	29.6	Y	Possible – discussed in Section 3.2.2

Species name	Conservation status		Suitable habitat? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]	Likelihood of occurrence
	WA	EPBC				
Leporillus conditor (greater stick-nest rat)	CD	VU	Y	14.1	Y	Unlikely – discussed in Section 3.2.2
Tringa nebularia (common greenshank)	MI	MI	Y	7.2	N	Possible – discussed in Section 3.2.2
Actitis hypoleucos (common sandpiper)	MI	MI	Y	7.5	N	Possible – discussed in Section 3.2.2
Calidris acuminata (sharp-tailed sandpiper)	MI	MI	Y	10.1	N	Possible – discussed in Section 3.2.2
Pluvialis fulva (Pacific golden plover)	MI	MI	Y	10.1	N	Possible – discussed in Section 3.2.2
Tringa glareola (wood sandpiper)	MI	MI	Y	19.4	N	Possible – discussed in Section 3.2.2
Calidris canutus (red knot)	EN	EN & MI	Y	31.4	N	Possible – discussed in Section 3.2.2
Charadrius cucullatus (hooded plover)	P4	-	N	7.7	N	Unlikely
Bettongia lesueur graii (burrowing bettong, boodie)	EX	EX	Y	24.0	Y	Highly unlikely

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains conservation significant flora, and contains habitats potentially used by conservation significant fauna species.	At variance	Yes *Refer to Section 3.2.1 and Section 3.2.2 above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains potentially significant habitat for 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: The area proposed to be cleared is unlikely to contain Threatened Flora species, given there are no Threatened Flora known to occur in the local area (Western Botanical, 2019; GIS Database).	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 TECs were identified during biological surveys of the application area (MWH, 2018; Stantec, 2018a; 2018b; Talis Consultants, 2024; Western Botanical, 2019).	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
One Threatened Ecological Community (TEC) occurs in the Murchison bioregion, being the Depot Springs stygofauna community (DBCA, 2023b). As this community is located approximately 162 kilometres from the application area, and there is an absence of calcrete systems within the project area, this TEC is unlikely to occur (DBCA, 2023a; Stantec, 2021).		
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; B.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 (approximately 52 kilometres) to the nearest conservation area, 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: The application area is intersected by several minor, non-perennial watercourses, including Cardinia Creek, and the presence of riparian vegetation within the application area has been confirmed in vegetation mapping (Talis Consultants, 2024; GIS Database). 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; and • where practicable, avoid clearing riparian vegetation.	At variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The soil systems mapped within the application area are susceptible to erosion when surface water flows are disrupted or vegetation cover is removed, particularly in drainage lines (Pringle, 1994). Therefore, the proposed clearing may have an appreciable impact on land degradation. 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; and • a staged clearing condition to minimise erosion.	May 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: **Surface water**	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The application area is intersected by several minor, non-perennial watercourses, including Cardinia Creek (GIS Database). Siltation is caused by soil erosion and can lead to a decline in surface water quality (DER, 2014; CRC, 2025). As soils within the application area are susceptible to erosion when surface water flows are disrupted or vegetation cover is removed, the proposed clearing has the potential to cause the deterioration of surface water quality (Pringle, 1994). **Underground water** With high annual evaporation rates and low annual rainfall, regional groundwater recharge mostly occurs during heavy rainfall or flooding events (BoM, 2006; 2025; Johnson et al., 1999). Most rainfall is directly evaporated, utilised by native vegetation, or goes towards recharging surface water channels and lakes (Johnson et al., 1999). The proposed clearing is unlikely to significantly impact groundwater recharge rate. However, if the surface water quality is degraded, it may affect the groundwater quality following recharge events (Makhlouf et al., 2024). 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; and • a staged clearing condition to minimise erosion.		
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 application area is intersected by several minor, non-perennial watercourses, including Cardinia Creek (GIS Database). Siltation is caused by soil erosion and can increase the likelihood of flooding in a waterway (CRC, 2025). As soils within the application area are susceptible to erosion when surface water flows are disrupted or vegetation cover is removed, the proposed clearing has the potential to increase the incidence or intensity of flooding (Pringle, 1994). 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; and • a staged clearing condition to minimise erosion.	May be at variance	No

Appendix D. Vegetation condition rating scale

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

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

Condition	Description
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 E. Vegetation Units

E.1. Mulga Woodlands over Perennial Non-Halophytic Shrubs on hills and plains (1)

Seventeen vegetation associations were recorded in the Western Botanical (2019) survey with a diverse range of Mulga species (*Acacia aneura*, *A. aptaneura*, *A. caesaneura*, *A. fuscaneura*, *A. incurvaneura*, *A. macraneura*, *A. mulganeura* and *A. pteraneura*) forming the dominant upper stratum as trees and shrubs 4 to 6 m in height. Eight of these associations occur within the application area (1.01, 1.02, 1.03, 1.05, 1.06, 1.10, 1.15 and 1.16). The understorey varies considerably with geological substrate type, soil depth and landscape position, from *Eremophila clarkei*, *E. forrestii*, *E. platycalyx* subsp. Leonora (J. Morrisey 252), *E. simulans* subsp. *simulans*, *E. latrobei* or *E. annosocaulis* P3 on stony hill tops and slopes; to *Eremophila compacta* subsp. *compacta* on loamy wash plains; to *Eremophila galeata* scattered shrublands on skeletal soils on hardpan plains and granite platforms. Some areas of Mulga woodlands have an understorey dominated by two informally recognised species; either *Ptilotus obovatus* Upright form (G. Cockerton et al 15206) or *Ptilotus obovatus* Typical Goldfields form (G. Cockerton et al 15213) which reflect differing soil types with the former associated with calcareous soils and the latter with non-calcareous soils (Western Botanical, 2019). Both species are common and widespread in the eastern Goldfields of WA and occasionally occur together within a Vegetation Association (Western Botanical, 2019).

***Acacia aneura*, *A. ramulosa*, *Eremophila platycalyx* subsp. Leonora (Morrisey J. 252), *Ptilotus obovatus* (Upright form) Shrubland and grasses (1.01)**

Small conical basalt outcrop supporting *Eremophila platycalyx* subsp. Leonora shrubland over *Digitaria brownii* grasses and occasional *Cheilanthes lasiophyllum* ferns between rocks on the southern side.

(Western Botanical, 2019)

***Acacia aneura* (forms), *Ptilotus obovatus* (Upright form), *Maireana triptera* Shrubland (1.02)**

Low basalt hill supporting scattered *Acacia aneura* (2 varieties), *A. ramulosa* to 3.5m, PFC 15% over *Eremophila platycalyx* subsp. Leonora (J. Morrisey 252) 1.5m, PFC 5% over *Ptilotus obovatus* (both Upright and Typical Goldfields forms) 0.3 to 0.7m, PFC 3% over grasses dominated by *Digitaria brownii* 0.4m, *Aristida contorta* 0.2m, PFC 1.5 to 2%. Basalt is uniform fine grained dark grey).

(Western Botanical, 2019)

***Acacia aneura*, *Maireana sedifolia*, *Scaevola spinescens* Narrow leaf spiny form *Ptilotus obovatus* (typical Goldfields form) Shrubland (1.03)**

Mulga woodland on low rocky sandstone shale hill. *Acacia incurvaneura* 4m, *Acacia caesaneura* 4m, PFC 10% over *Sida calyxhymenia* 1m, *Scaevola spinescens* (narrow leaf spiny form) 1m, PFC 10%. Note, differs from adjacent Mulga woodland on plains in having fewer chenopods and *Sida* and *Scaevola* understorey.

(Western Botanical, 2019)

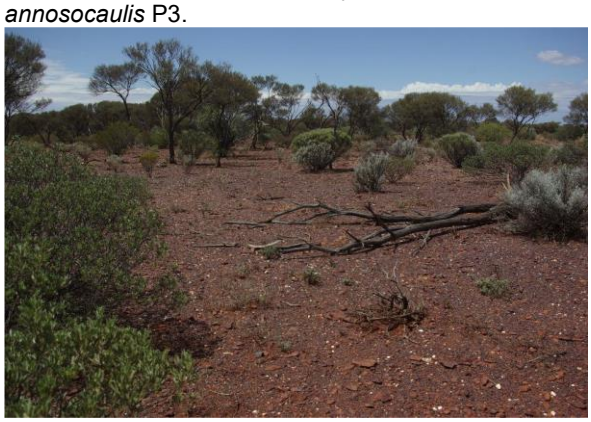
***Acacia aneura* (forms) over *Eremophila platycalyx* subsp. Leonora (Morrisey J. 252) over *Senna* spp. over *Ptilotus obovatus* (Upright form) and *Maireana triptera* Shrubland (1.05)**

Acacia aneura forms 4 to 5m, PFC 10% over *Eremophila platycalyx* subsp. Leonora 1 to 2.5m, PFC 2% over *Senna* sp. Meekatharra (E. Bailey 1-26) 1.5m, *Senna artemisioides* subsp. *helmsii* 1.2m, *Maireana sedifolia* 1m, *Senna artemisioides* subsp. *filifolia* 1m, *Scaevola spinescens* (narrow leaf spiny form), PFC 7%, over *Ptilotus obovatus* (upright form) 0.8m, *Solanum lasiophyllum* 0.7m, *Atriplex bunburyana* 0.8m, PFC 2% over *Maireana triptera* 0.3m, *Sclerolaena cuneata* 0.2m, PFC 0.5%. Site is gently sloping to the east, ~ 2 degrees, and has a continuous mantle of ironstone, basalt and quartz stones 0.5 to 10 cm diameter over a red silty sand soil.

(Western Botanical, 2019)

***Acacia aneura* (forms) over *Eremophila* spp. (*E. margarethae*, *E. compacta* subsp. *compacta*, *E. simulans* subsp. *simulans* or *E. annosocaulis* P3 over *Ptilotus schwartzii* Shrubland (1.06)**

Mulga Shrubland over *Eremophila margarethae*. *Acacia aneura* 3 to 4m, PFC 15% over *Eremophila margarethae* 0.8m, PFC 5% over *Ptilotus schwartzii* 0.4m, PFC 4%. In moisture gaining sites, small groves of Mulga are present between sheet wash areas and support *Eremophila annosocaulis* P3 and denser vegetation to 6m high, PFC 70%. This community has been broadened to include a mid story of either/or *Eremophila margarethae, E. compacta*, *E. simulans subsp. simulans* or *E. annosocaulis* P3.



(Western Botanical, 2019)

***Acacia aneura* over *Maireana sedifolia* over *Ptilotus obovatus* (Upright form) Shrubland over *Maireana triptera* Shrubland and grasses (1.10)**

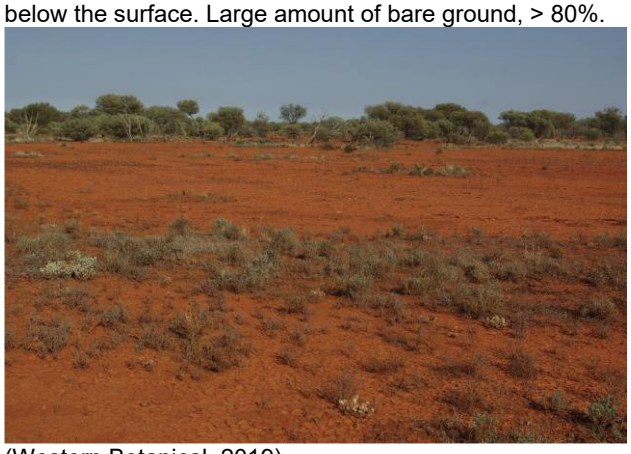
Acacia incurvaneura 4m, PFC 1 to 5% over *Maireana sedifolia* 1.5m, PFC 10 to 15% over *Ptilotus obovatus* (Upright form) (G Cockerton et al 15206) over *Maireana triptera* and grasses dominated by *Enneapogon caerulescens*. Soil is a red-brown silty sand surface has a continuous mantle of subrounded ironstone, gabbro; angular quartz gravel and stones to 10 cm diameter. Southerly aspect at 1 to 2 degrees.

(Western Botanical, 2019)

Hardpan Plain, deflation zone (1.15)

Acacia incurvaneura, Acacia pteraneura to 6m, PFC 10 to 30% with a tall shrub stratum of *Eremophila platycalyx* subsp. Leonora 3m, *Santalum lanceolatum* 3m, and younger Mulga to 3m, PFC 5 to 15% over low shrubs *Ptilotus obovatus* Typical Goldfields form (G. Cockerton et al 15213) 0.6m, *Maireana triptera* 0.5m, *Teucrium teucriiflorum* 1m, PFC 1% over scattered grasses *Eriachne ovata, Enteropogon ramosus* and occasional *Austrostipa elegantissima* 1m, PFC 0.5%.

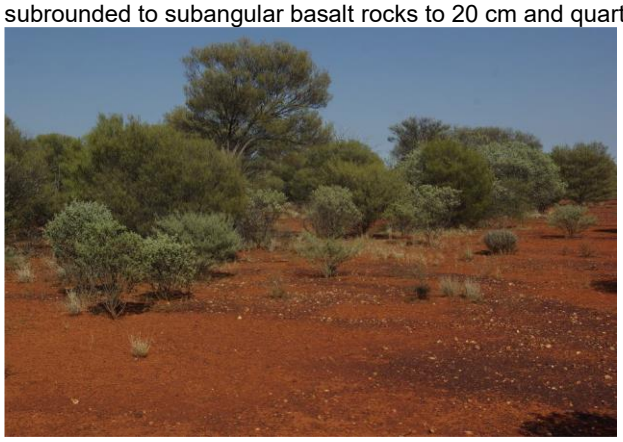
A relatively level site representing a broad distributary fan subject to sheet flow (adjacent to the HPP community) with hardpan red silty sand soil and abundant but discontinuous lag quartz and basalt gravel with evidence of conglomerate Wiluna hardpan below the surface. Large amount of bare ground, > 80%.



(Western Botanical, 2019)

Hardpan Mulga Shrubland (1.16)

Acacia aneura 4 to 6m, PFC 5% over scattered *Maireana pyramidata* 1m, PFC 1% over *Ptilotus obovatus* (Goldfields form) 0.5m, PFC 5% over *Aristida contorta* 0.3m, PFC 15%. A level broad valley floor, non-saline at surface, red silty sand with subrounded to subangular basalt rocks to 20 cm and quartz fragments.



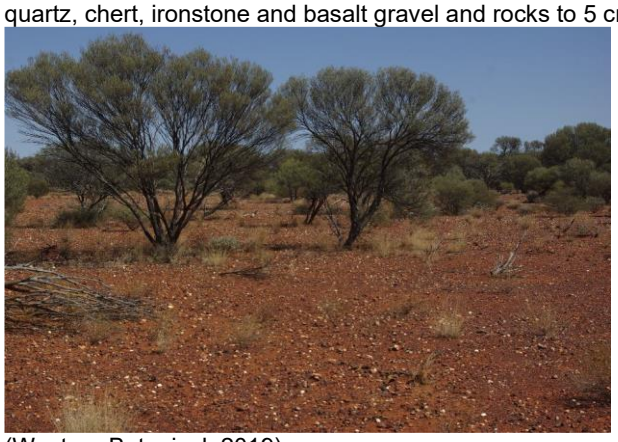
(Western Botanical, 2019)

E.1.Mulga Shrublands / Woodlands over Perennial Grasses on Plains (2)

Two vegetation associations, where silty-sandy soils over hardpan higher in the landscape were present within the Western Botanical (2019) survey area. Here Mulga is associated with a grassy understorey of *Monachather paradoxus* and *Eragrostis*

eriopoda, collectively known as Wanderrie grasses (Western Botanical, 2019). One of these associations (2.01) was recorded within the application area (Western Botanical, 2019).

Mulga-Wanderrie (Acacia aneura, Eragrostis eriopoda) Grassland (2.01)
Acacia caesaneura, Acacia incurvaneura 4 to 8m, PFC 15% over shrubs *Eremophila compacta* subsp. *compacta* 0.8m, PFC 3% over *Ptilotus schwartzii* 0.5m, PFC < 1% and *Eragrostis eriopoda* 0.5M, PFC 5 to 15%. Site has a discontinuous mantle of quartz, chert, ironstone and basalt gravel and rocks to 5 cm diameter with a red silty sandy soil.



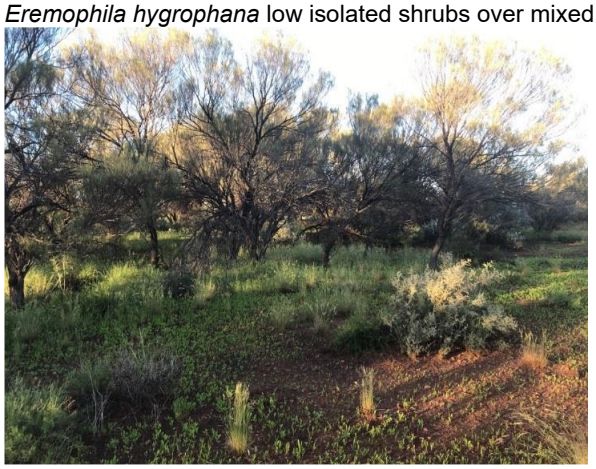
(Western Botanical, 2019)

E.2.*Acacia* shrublands on plains (S)

A?dArrEspp.
Acacia ? *duriuscula*, *Acacia* ? *aneura* isolated trees over *Acacia ramulosa* var. *ramulosa* mid isolated shrubs over *Eremophila margarethae*, *Ptilotus obovatus* var. *obovatus* low open shrubland.

(Stantec, 2018a; 2018b)

AaAaEspp.
Acacia ? *aneura* mid isolated trees over low *Acacia* ? *aneura*, *Eremophila youngii* subsp. *youngii* mid sparse shrubland over *Eremophila hygrophana* low isolated shrubs over mixed grassland.



(Stantec, 2018a; 2018b)

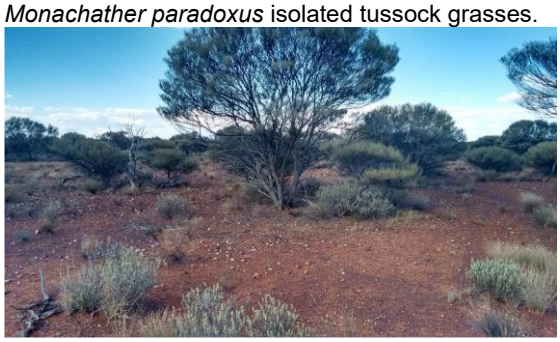
AaAcEms

Acacia aneura tall open shrubland over *Acacia craspedocarpa* mid open shrubland over *Ptilotus obovatus* var. *obovatus*, *Eremophila mackinlayi* subsp. *spathulata* low sparse shrubland over *Fimbristylis dichotoma*, *Cheilanthes sieberi* and introduced forbs.

(Stantec, 2018a; 2018b)

AaArAq (S02)

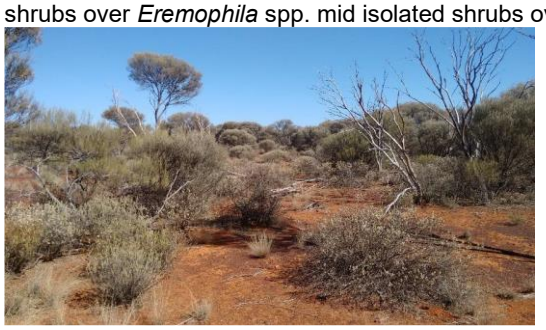
Acacia quadrimarginea, *Acacia incurvaneura* and *Acacia aneura* low woodland over *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla* tall to mid sparse shrubland over *Eremophila* spp. low isolated shrubs over *Eragrostis eriopoda* and *Monachather paradoxus* isolated tussock grasses.



(MWH, 2018)

AaArEspp. (S03)

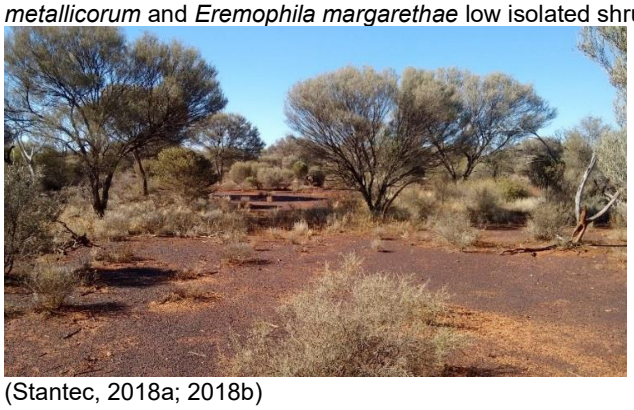
Acacia aneura, *Acacia incurvaneura* and *Acacia caesaneura* low open forest over *Acacia ramulosa* var. *ramulosa* tall isolated shrubs over *Eremophila* spp. mid isolated shrubs over low isolated mixed shrubs, herbs and grasses.



(MWH, 2018; Stantec, 2018a)

AaAtEp (S04)

Acacia aneura, *Acacia aptaneura* and *Acacia caesaneura* low open woodland over *Eremophila platycalyx* subsp. *platycalyx*, *Acacia ramulosa* subsp. *ramulosa* and *Acacia tetragonophylla* tall to mid isolated shrubs over *Ptilotus obovatus*, *Eremophila metallicorum* and *Eremophila margarethae* low isolated shrubs, over mixed low grasses.



(Stantec, 2018a; 2018b)

AaAtEspp. (S05)

Acacia aneura, *Acacia caesaneura* and *Acacia pteraneura* low woodland over *Acacia tetragonophylla* tall isolated shrubs over mixed low isolated shrubs.

(MWH, 2018)

AcAaSpp.M

Acacia craspedocarpa, *Acacia ayersiana*, *Acacia aneura* to tall isolated shrubs over *Senna* sp. Meekatharra (E. Bailey 1-26) mid sparse shrubland over *Maireana triptera* and *Sclerolaena* sp. chenopod shrubland.

(Stantec, 2018a; 2018b)

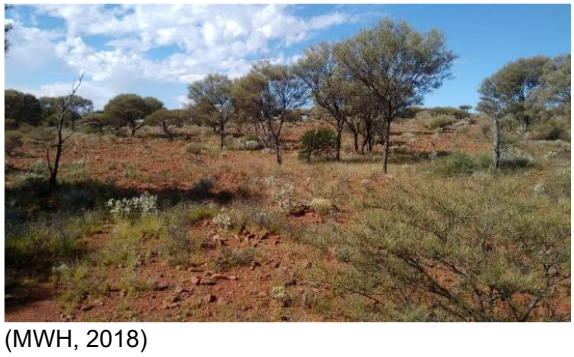
AcHpEp (S09)

Acacia craspedocarpa, *Acacia aneura* and *Acacia incurvaneura* low open woodland over *Acacia oswaldii*, *Hakea preissii* and *Rhagodia drummondii* mid isolated shrubs, over *Eremophila pantonii*, *Maireana georgei* and *Atriplex nummularia* subsp. *spathulata* low isolated shrubs over *Sclerolaena densiflora*, *Enneapogon caerulescens* and *Ptilotus aervoides* low isolated forbs and grasses.

(MWH, 2018)

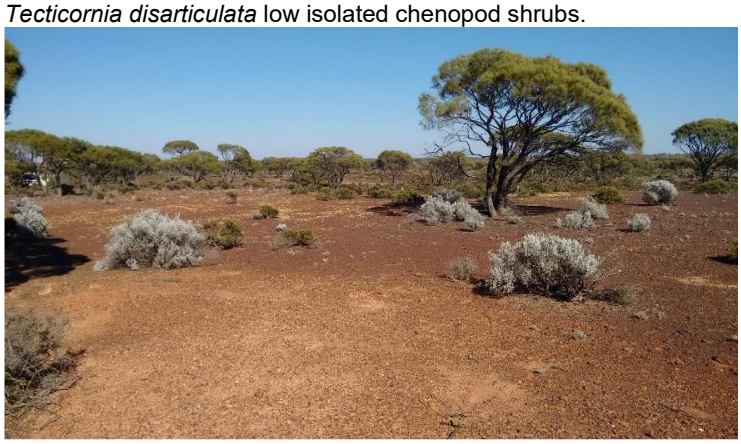
AiElEc (S10)

Acacia incurvaneura low open woodland over *Eremophila latrobei* subsp. *latrobei*, *Solanum lasiophyllum* and *Ptilotus obovatus* low sparse shrubland, over *Enneapogon caerulescens* low grassland over *Sclerolaena diacantha* isolated dwarf chenopod shrubs.



(MWH, 2018)

AiMsTd (S11)
Acacia inceana subsp. *conformis* low woodland over *Maireana sedifolia* mid isolated shrubs over *Maireana pyramidata* and *Tecticornia disarticulata* low isolated chenopod shrubs.



(MWH, 2018)

AkHpEs (S13)
Acacia kalgoorliensis, *Acacia oswaldii* and *Hakea preissii* low open woodland over *Eremophila scoparia*, *Senna stowardii* and *Acacia craspedocarpa* mid isolated shrubs over *Ptilotus obovatus*, *Maireana triptera* and *Cratystylis subspinescens* low isolated shrubs over *Sclerolaena eriacantha*, *Sclerolaena densiflora* and *Ptilotus* sp. Goldfields (R. Davis 10796) low isolated forbs on rocky plains.

(MWH, 2018; Stantec, 2018a)

Asp.MsEs (S14)
Acacia sp. tall isolated trees over *Senna artemisioides* var *filifolia*, *Eremophila scoparia*, *Maireana sedifolia* mid sparse shrubland over *Tecticornia* ? *disarticulata* chenopod shrubland.

(Stantec, 2018a; 2018b)

E.3.*Acacia* Woodlands over Shrubs and Grasses in Major Drainage Lines and Groves (3)

Two major drainage tracts and several minor drainage lines occur within the Western Botanical (2019) Study Area, draining from the north-east to the south-west. The vegetation of the major drainage line in the west of the Study Area, Cardinia Creek, with it's upper reaches draining from the Cardinia deposit areas in the Leonora and Gundockerta Land Systems, is dominated by Mulga species (Western Botanical, 2019). Bummer Creek, with a small representation within the south-east of the Study Area, drains from the Violet Land System (the site of the Murrin Murrin minesite, east of the Study Area), and is dominated by *Acacia burkittii*. The vegetation of the minor drainage lines within the Study Area reflect on the vegetation adjacent hills and

plains, but are denser and with a greater species representation due to the accumulation of resources (Western Botanical, 2019).

Drainage Line Mulga *Acacia aneura* (sens. lat.) Woodland (3.01)
Major incised multi channelled braided Drainage Line supporting Mulga Woodland of *Acacia aneura* varieties 4 to 8m, PFC 10 to 20% over *Acacia burkittii* 3m, *A. tetragonophylla* 2.5m, PFC 10% over Shrubs of *Sida ectogama* 1.5m, *Senna artemisioides* subsp. *artemisioides* 1.2m, *Maireana pyramidata* 1.2m, PFC 3 to 4% over grasses including *Digitaria brownii* 0.8m, *Enteropogon ramosus* 0.5m, PFC 25% and *Ptilotus obovatus* Typical Goldfields form (G Cockerton et al 15213) 0.5m, PFC 5 to 10%. Soils are colluvial sands, gravel and some clay with areas of exposed Wiluna Hardpan conglomerate in deeper channels with sandy slugs present.

(Western Botanical, 2019)

E.4. Drainage line (S)

AbAtTt (S07)
Acacia burkittii and *Acacia aptaneura* low open woodland over *Acacia tetragonophylla* and *Acacia burkittii* mid sparse shrubland over *Themeda triandra*, *Eriachne flaccida* and *Enteropogon ramosus* low tussock grasses on sandy drainage line.

(Stantec, 2018a; 2018b)

E.5. *Acacia* (other than Mulga) Shrublands on Stony Hills (4)

Four vegetation associations on stony hills within a large proportion of the Western Botanical (2019) Study Area are dominated by *Acacia* trees and shrubs other than Mulga. Two of these associations occur within the application area (4.01 and 4.02). Here *Acacia* sp. Marshall Pool (G. Cockerton 3024) is the dominant shrub to small tree on the stony gabbro and basalt hills of the Leonora Land System (Western Botanical, 2019). It may also be co-dominant with *Acacia sibirica* in some locations (Western Botanical, 2019). *Acacia doreta* short phyllode form (M. Stone & S. Colwill WB34381), being the typical form of the species), is also present in association with *A*. sp. Marshall Pool on one small hill in the central-west of the Study Area (Western Botanical, 2019). *Acacia burkittii* was found to be dominant in small, well defined areas of calcrete platform, higher in the landscape, presumably due to an elevated soil moisture availability in the calcrete (Western Botanical, 2019).

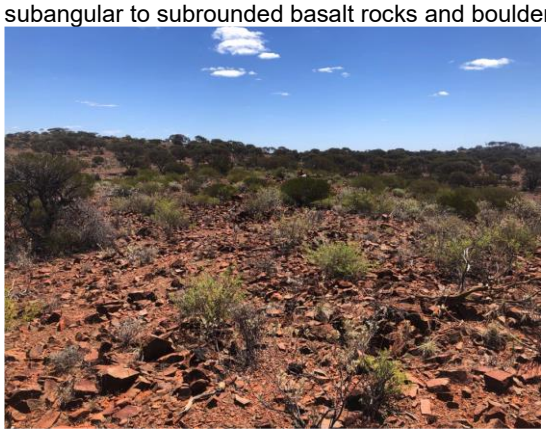
***Acacia* sp. Marshall Pool (G. Cockerton 3024) Shrubland (4.01)**

Acacia sp. Marshall Pool (G. Cockerton 3024) 1.5 to 2m with occasional trees to 3.5m, PFC 25% with occasional *Acacia burkittii* 3 to 4m, PFC 3 %, *A. caesaneura* 0.1%, *Acacia quadrimarginea* narrow phyllode form 1.5m, PFC 0.1% over *Eremophila georgei* 0.4 to 1.8m, PFC 1% and *Senna cardiosperma* 1m, PFC 0.5%. A large and extensive stony gabbro range with a substantial population of *Acacia* sp. Marshall Pool (G. Cockerton 3024). Soil is a red silty sand amongst a continuous cover of rounded (occasionally freshly fractured) gabbro rocks.

(Western Botanical, 2019)

***Acacia* sp. Marshall Pool (G. Cockerton 3024), *A. sibirica*, *Acacia aneura*, *A. burkittii* Shrubland (4.02)**

Acacia ramulosa subsp. *ramulosa*, *A.* sp. Marshall Pool to 3m, PFC 10% over *Acacia sibirica* to 1.2m, *Philotheca brucei* subsp. *brucei* to 1.2m, *Dodonaea lobulata* 1m, *Eremophila forrestii* 1m, PFC 15% over *Prostanthera albiflora* 0.7m, *Ptilotus obovatus* Upright form (G. Cockerton et al 15206) 0.8m, *Ptilotus obovatus* Typical Goldfields form (G Cockerton et al 15213) 0.4m, *Cymbopogon ambiguus* 0.6m, PFC 10%. Stony basalt (fine grain) hilltop with fine red silty sandy soil, continuous mantle of subangular to subrounded basalt rocks and boulders.



(Western Botanical, 2019)

E.6.*Acacia papyrocarpa* woodlands (5)

Four variants of the *Acacia papyrocarpa* woodland were observed in the Western Botanical (2019) study. Three of these (5.01, 5.02 and 5.03) occur within the application area (Western Botanical, 2019). The dominant and defining understorey varies from *Tecticornia disarticulata* in more saline sites; to *Eremophila scoparia* where calcrete is present; to *Ptilotus obovatus* (Upright form), *Maireana triptera* and grasses where there is non-saline but mildly alkaline soil cover over underlying materials; to *Maireana pyramidata* in areas subject to some waterlogging and salinity (Western Botanical, 2019). *Acacia papyrocarpa* is by far the largest and most prominent tall tree in the landscape within the Study Area (Western Botanical, 2019).

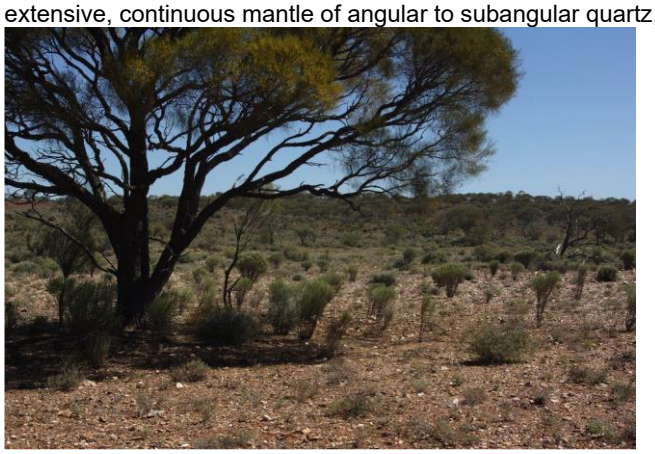
***Acacia papyrocarpa* Open Low Woodland, *Tecticornia disarticulata* Shrubland (5.01)**

Low rise supporting *Acacia papyrocarpa* 5 to 7m, PFC 10% with occasional *Acacia sibirica* 2.5m, *A. aneura* (3 forms) 2 to 5m, PFC 1% total over medium shrubs *Tecticornia disarticulata* 1m, *Maireana sedifolia* 1.5m, *Lepidium platypetalum* 0.8m, PFC 5% over scattered low shrubs *Maireana georgei* 0.25m, *M. triptera* 0.25m, PFC < 1%. Site slopes at 2 to 3 degrees and has a continuous lateritic gravel mantle, 0.5cm to 6 cm diameter with conglomerate ferricrete boulders present, soil is a fine red silty sand.

(Western Botanical, 2019)

***Acacia papyrocarpa* Open Low Woodland, *Eremophila scoparia* and *Maireana* spp. Shrubland (5.02)**

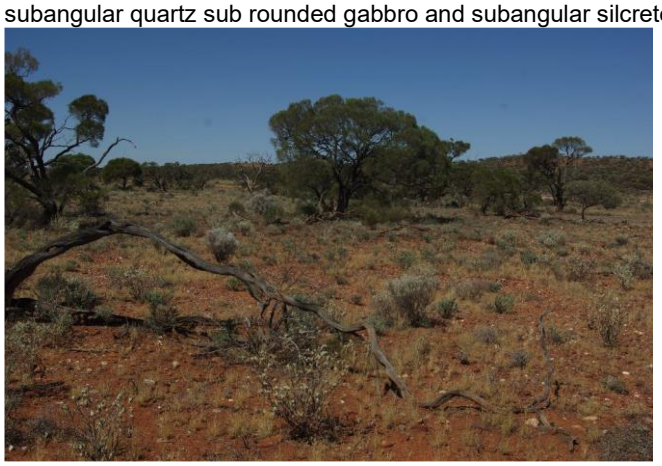
Acacia papyrocarpa 8 to 10m, PFC 7% over *Eremophila scoparia* 0.5 to 2.1m, PFC 5% over *Maireana georgei* 0.3m, *M. triptera* 0.3m, *M. glomerifolia* 0.4m, *Maireana tomentosa* (type 1 WB38650) complex 0.3m, PFC 5 to 10%. A low rounded hill with an extensive, continuous mantle of angular to subangular quartz, weathered gabbro gravel and stones to 15 cm diameter.



(Western Botanical, 2019)

***Acacia papyrocarpa* Open Low Woodland, *Ptilotus obovatus* (Upright form), *Maireana triptera* Shrubland and grasses (5.03)**

Acacia papyrocarpa 3.5 to 5m with occasional *Casuarina pauper* 4m, PFC 5% over *Ptilotus obovatus* Upright form (G Cockerton et al 15206) 0.4 to 0.8m, PFC 7% with occasional *Maireana sedifolia* 1.2m, *Eremophila oldfieldii* (young plants) 1m and *Senna artemisioides* subsp. *filifolia* 1.5m, PFC 1% over *Maireana triptera* 0.3m, PFC 4% and grasses dominated by *Enneapogon caerulescens, E. polyphyllus* 0.25m, PFC 2%. Soil at surface is a red-brown silty sand with abundant but discontinuous subangular quartz sub rounded gabbro and subangular silcrete fragments to 8 cm diameter.



(Western Botanical, 2019)

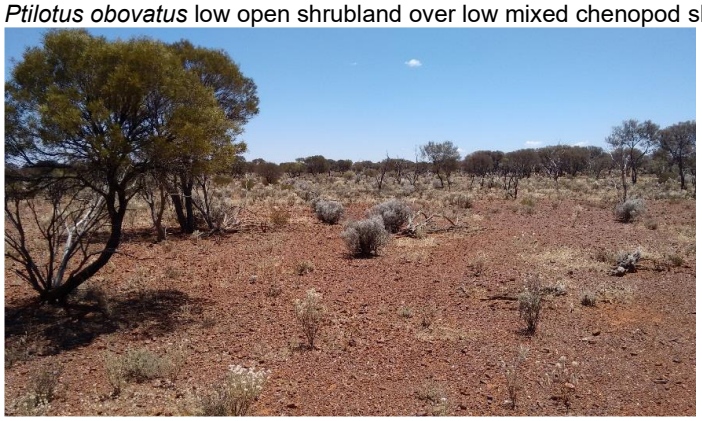
E.7.Low hills (S)

A?rSaMs (S01)

Acacia sp. nov. aff. *resinimarginea*, *Acacia aneura* and *Acacia caesaneura* tall open shrubland, over *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens* and *Acacia tetragonophylla* mid isolated shrubs over *Ptilotus obovatus, Maireana sedifolia* and *Solanum lasiophyllum* low isolated shrubs over *Ptilotus helipteroides* and *Enneapogon caerulescens* low isolated forbs and grasses on rocky hills.

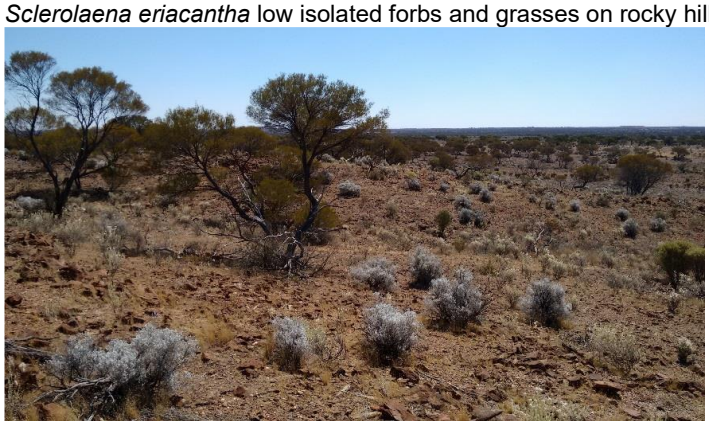
(MWH, 2018)

AaSaMs (S06)
Acacia aneura and *Acacia caesaneura* tall open woodland over *Senna artemisioides* subsp. *filifolia*, *Maireana sedifolia* and *Ptilotus obovatus* low open shrubland over low mixed chenopod shrubland on rocky hills.



(MWH, 2018)

AkAbMs (S12)
Acacia kempeana low open woodland over *Acacia burkittii*, *Maireana sedifolia* and *Eremophila scoparia* mid open shrubland, over *Ptilotus obovatus*, *Sida ectogama* and *Solanum lasiophyllum* low isolated shrubs, over *Enneapogon caerulescens* and *Sclerolaena eriacantha* low isolated forbs and grasses on rocky hills.



(MWH, 2018)

CpArEo (S15)
Casuarina pauper, Acacia caesaneura and *Acacia aneura* low woodland over *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla* tall isolated shrubs over *Eremophila oldfieldii* subsp. *angustifolia* mid isolated shrubs over Maireana *triptera, Sclerolaena eriacantha* and *Sclerolaena densiflora* low isolated forbs.

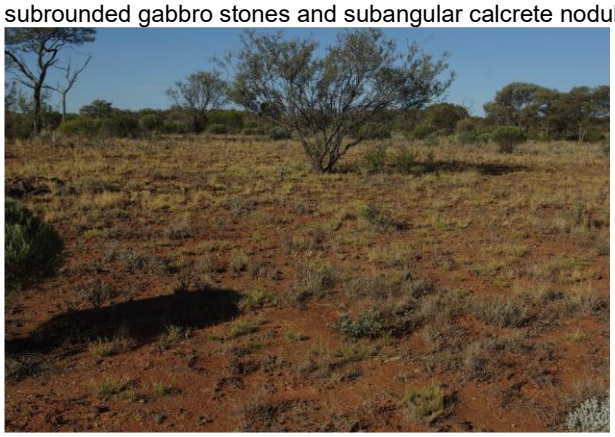
(MWH, 2018; Stantec, 2018a)

E.8. Perennial grasslands (7)

Two perennial grasslands were mapped within the application area (Western Botanical, 2019). These are small, discrete patches of *Eragrostis* sp. Yeelirrie Calcrete (S. Regan LCH26770) on calcrete platforms (relatively low in the landscape); and similarly small, discrete patches of *Neurachne munroi* Hummock Grassland on Mudstone on low rises (Western Botanical, 2019).

***Eragrostis* sp. Yeelirrie Calcrete (S. Regan LCH 26770) Hummock Grassland on Calcrete (7.01)**

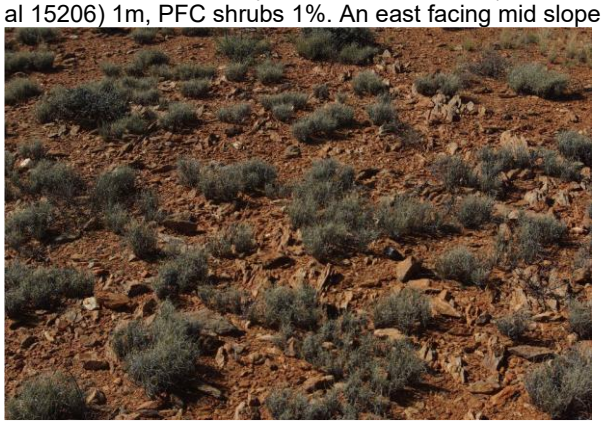
Hakea preissii 3.5m, *Acacia caesaneura* and *A. incurvaneura* 6m, PFC < 1%, *Eremophila scoparia* 1 to 2m, PFC 1% over *Maireana pyramidata* 0.8m, *Maireana sedifolia*, *Solanum lasiophyllum* 0.4m, *Maireana triptera* 0.3m, M. georgei 0.4m, PFC 2% over *Eragrostis* sp. Yeelirrie Calcrete (S. Regan LCH26770) 0.15m, PFC 20%. Foot slope of a low gabbro hill with a southerly aspect, slope 1 to 2 degrees. Outcropping gabbro immediately north of this point and soil surface has a discontinuous lag of subrounded gabbro stones and subangular calcrete nodules.



(Western Botanical, 2019)

***Neurachne munroi* Hummock Grassland on Mudstone (7.02)**

Neurachne munroi 0.2 to 0.3m, PFC 15% hummock grassland with occasional emergent *Hakea preissii* 1m, *Maireana sedifolia* 1m, *Ptilotus obovatus* Typical Goldfields form (G. Cockerton et al 15213) 0.5m, Ptilotus obovatus Upright form (G. Cockerton et al 15206) 1m, PFC shrubs 1%. An east facing mid slope of a low stony rise with outcropping pale yellow-brown fine sandstone.



(Western Botanical, 2019)

E.9.*Hakea preissii* and/or Halophytic Chenopod Shrublands (8)

Thirteen topographically controlled variants of Chenopod Shrublands were recognised within the Western Botanical (2019) survey area, with a major distinction being those with *Hakea preissii* emergent above the lower shrubs in areas with a deeper soil profile vs. those lacking *H. preissii*, lower in the landscape and more frequently subject to inundation or waterlogging. Eight of these associations occur within the application area (8.01, 8.02, 8.03, 8.04, 8.05, 8.07, 8.09 and 8.11). These environments are all moderately to highly saline and support a largely well known group of *Maireana*, *Atriplex* (less tolerant of waterlogging) and *Tecticornia* (Samphire, more tolerant of waterlogging) species (Western Botanical, 2019).

***Hakea preissii*, *Maireana pyramidata*, *Tecticornia disarticulata* Shrubland (8.01)**

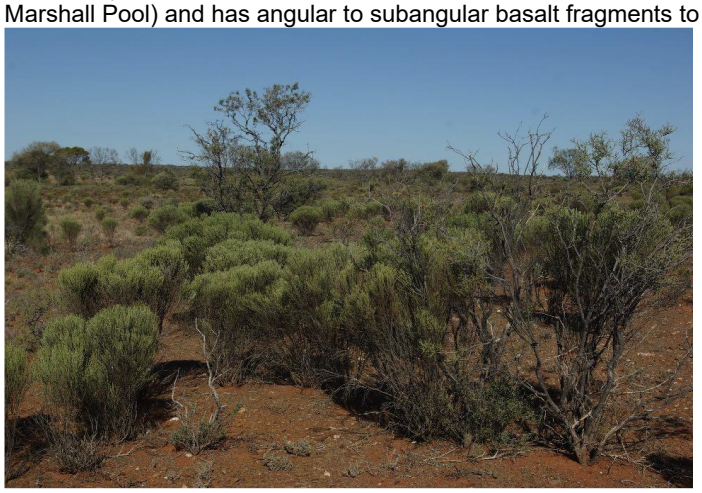
Chenopod Shrubland of *Tecticornia disarticulata* 1m, *Maireana pyramidata* 1m, PFC 2 to 15% over *Maireana georgei* 0.2m, Sclerolaena spp. 0.2m, PFC 3% with occasional grasses *Enneapogon caerulescens*, *E. polyphyllus*, *Enteropogon ramosus* 0.4m, PFC 1%. Gently sloping site (1 deg) with a continuous mantle of ironstone and quartz pebbles to 5 cm over a hard setting fine sandy clay soil.

(Western Botanical, 2019)

***Hakea preissii*, *Maireana pyramidata*, *Cratystylis subspinescens* Shrubland (8.02)**
Hakea preissii 3m, occasional emergent *Pittosporum angustifolium* 4m, PFC 5% over chenopod shrubs *Maireana pyramidata* 1m, PFC 5%, *Cratystylis subspinescens* 1m, 1%, *Maireana georgei* and *M. triptera* 0.2m, PFC 4% with patches of grasses Aristida contorta 0.2m, PFC 1%. An upland site with red silty sand soil and a continuous mantle of subangular to subrounded ironstone and quartz gravel and stones to 10 cm with occasional chert outcrop to 1.5m above landscape supporting a few Acacia aneura (varieties).

(Western Botanical, 2019)

***Hakea preissii*, *Maireana pyramidata*, *Eremophila scoparia* Shrubland (8.03)**
Hakea preissii to 3m, PFC 1% over *Eremophila scoparia* 1.2m (2.1m), PFC 20% over scattered *Maireana tomentosa* (type 1 WB38650) complex, *M. triptera* 0.25m, *M. glomerifolia*, PFC < 1%. Site is the footslope of a low basalt range (with *Acacia* sp. Marshall Pool) and has angular to subangular basalt fragments to 10 cm diameter with abundant carbonates evident at surface.



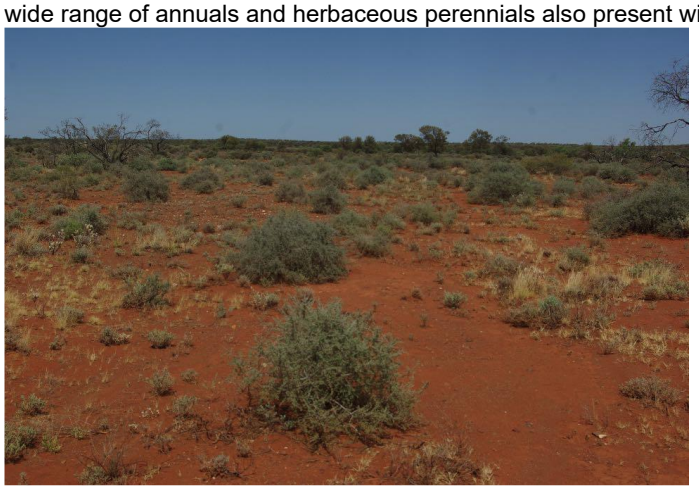
(Western Botanical, 2019)

***Hakea preissii*, *Ptilotus obovatus* (Goldfields form), *Maireana triptera* Shrubland (8.04)**
Hakea preissii 3m, PFC 7.5% over scattered mid shrubs *Maireana pyramidata* 1m, *Sida calyxhymenia* 1m, PFC 1, over *Maireana triptera* 0.2m, *Ptilotus obovatus* Typical Goldfields form (G Cockerton et al 15213) 0.3m, PFC 30 with *Enneapogon caerulescens* 0.3m, *E. cylindricus* 0.3m PFC 20% and occasional patches of *Eragrostis* sp. Yeelirrie Calcrete (S. Regan LCH 26770) PFC 1%. Site represents a low hill with a continuous gravely to stony mantle of subangular weathered basalt, quartz and sandstone mantle to 15 cm with some calcrete evident. Soil profile as observed in drill spoil indicates kaolin clay at depth.

(Western Botanical, 2019)

***Hakea preissii*, *Maireana pyramidata*, *Maireana* sp. decussate leaves. (G. Cockerton & G. Grigg WB40064) Shrubland and grasses (8.05)**

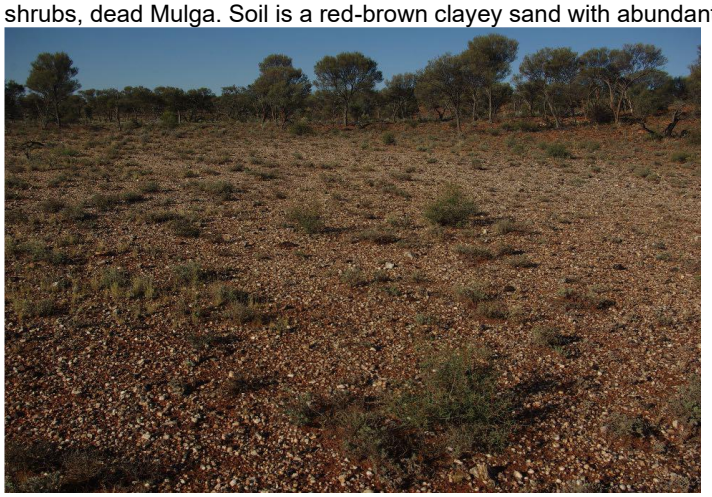
Chenopod shrubland with occasional emergent *Hakea preissii* and *Acacia aneura* (sens. alt.). *Hakea preissii* 3m, PFC 1 to 2% over *Maireana pyramidata* 1.2m, PFC 10 to 15% over *Maireana tomentosa* (type 1 WB38650) complex 0.3m, PFC 10 to 15%. A wide range of annuals and herbaceous perennials also present with grasses prominent. May also include *Maireana sedifolia*.



(Western Botanical, 2019)

***Maireana triptera*, *Frankenia* spp. Low Open Shrubland (8.07)**

Low Chenopod Shrubland of *Maireana triptera*, *M. georgei*, includes patches of *Frankenia* spp., occasional *Hakea preissii* shrubs, dead Mulga. Soil is a red-brown clayey sand with abundant discontinuous subangular quartz stones to 15 cm diameter.



(Western Botanical, 2019)

***Tecticornia disarticulata*, *Surreya diandra*, *Frankenia setosa*, *Maireana* sp. decussate leaves. (G. Cockerton & G. Grigg WB40064) Shrubland (8.09)**

Low lying stony plain supporting a low chenopod shrubland of *Tecticornia disarticulata* 0.3m, *Frankenia setosa* Type 1 0.25m, *Surreya diandra* 0.25m, PFC 25% with occasional emergent *Maireana pyramidata, Cratystylis subspinescens* and *Hakea preissii* 2m, PFC < 1%. A highly saline site where plants are small in comparison to other less stressful sites. Soil is a fine red silty sand and the surface is covered in a discontinuous mantle of subangular to subrounded quartz and ironstone gravel and stones to 10 cm diameter.

(Western Botanical, 2019)

***Frankenia* spp. Shrubland (8.11)**

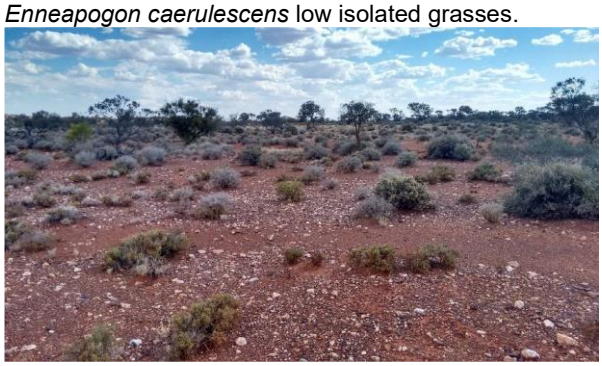
Low shrubland of *Frankenia* sp. #145 0.15m, Frankenia sp. #65 0.3m, *Frankenia setosa* 0.3m, PFC 10 to 15%, with occasional *Maireana pyramidata* 1m, PFC < 1%. Site represents the breakaway footslope of a low (6 to 8m high) breakaway with quartz, ? basalt and sandstone shale rubble producing a kaolinitic soil, likely highly saline.

(Western Botanical, 2019)

E.10. Chenopod Shrublands (S)

HpCsMp (S16)

Hakea preissii low isolated trees over *Cratystylis subspinescens* and *Maireana pyramidata* mid open shrubland over *Tecticornia pruinosa*, *Tecticornia disarticulata* and *Tecticornia pergranulata* subsp. *pergranulata* low open chenopod shrubland over *Enneapogon caerulescens* low isolated grasses.



(MWH, 2018; Stantec, 2018a)

MpTdSd (S17)

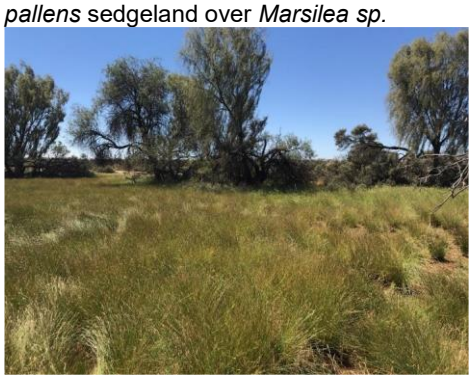
Maireana pyramidata and *Tecticornia disarticulata* low chenopod shrubland over *Sclerolaena densiflora* isolated dwarf chenopod shrubs with *Aristida contorta, Enteropogon ramosus* and *Sporobolus actinocladus* isolated tussock grasses.

(MWH, 2018)

E.11. Wetlands (S)

PaAtEp

Pittosporum angustifolium isolated trees over *Santalum spicatum, Acacia tetragonophylla* mid isolated trees over *Eleocharis pallens* sedgeland over *Marsilea sp.*

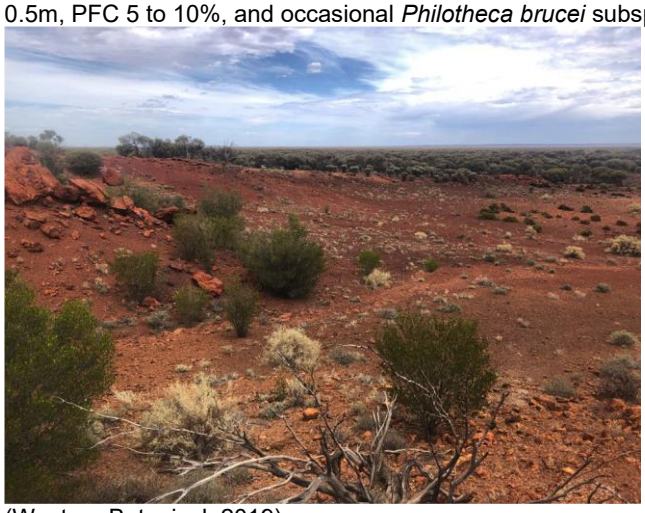


(Stantec, 2018b)

E.12. Breakaway complex (11)

The breakaway complex is represented in the northern part of the Western Botanical (2019) Study Area south of Mertondale where *Eucalyptus striaticalyx* is present at the leading edge of the low (5 to 10 m high) lateritised breakaway and a range of species tolerant of kaolin clay soils and some salinity are present in a changing mosaic pattern on the mid to lower slopes of the landscape. Groups of species such as *Frankenia* spp., *Eremophila scoparia*, *Maireana* and *Tecticornia disarticulata* are dominant while Stantec reported *Gunniopsis propinqua* P3 in this community type (Western Botanical, 2019). The Breakaway Complex extends well outside the Study Area near the Mertondale deposit (Western Botanical, 2019).

***Eremophila scoparia*, *Frankenia* spp. Shrubland with *Sclerolaena diacantha* (11.01)**
A complex of (i) Breakaway slopes and saline plains and (ii) Breakaway Plateaux. Breakaway slopes and saline plains supporting a Chenopod dominated low shrublands of *Maireana triptera*, *Sclerolaena diacantha*, and *Frankenia setosa* (type 2), PFC 10 to 15%. Breakaway Plateaux and upper slopes with *Eremophila scoparia* PFC 5%, occasional tall *Eucalyptus gypsophila* to 8m, PFC < 1% on the upper slopes at the eastern side of the large eroded gully. Highly eroded gully system below low breakaways, ca 5 to 10m relief, with kaolinitic slopes and soils and with abundant continuous mantle of angular metamorphosed mudstone, ironstone, quartz gravel and stones to 10 cm diameter. Slopes form vertical to 15-20 degrees and a near-level valley floor with narrow unincised drainage channels. Breakaways on the margin have lateritised rocks and support *Acacia sibirica*, *A. craspedocarpa* (lanceolate phyllode form), *A. aneura* sens. lat., *Dodonaea viscosa* subsp. *mucronata* 2m, *Eremophila annosocaulis* P3 1m, *Senna manicula* 1.2m, *Ptilotus obovatus* Typical Goldfields form (G Cockerton et al 15213) 0.5m, PFC 5 to 10%, and occasional *Philotheca brucei* subsp. *brucei* and *Eragrostis lancunaria*.



(Western Botanical, 2019)

E.13. Disturbed Areas (dist)

Areas of disturbance including historical and recent mining activities (MWH, 2018; Stantec, 2018a; Western Botanical, 2019).

Appendix F. Sources of information

F.1. GIS datasets

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

- 10 metre contours (DPIRD-073)
- Cadastre (Polygon) (LGATE-217)
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Clearing Instruments Conditions (Areas Subject to Conditions) (DWER-077)
- Clearing Instruments Proposals (Areas Applied to Clear) (DWER-075)
- 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)
- EPA Redbook Recommended Conservation Reserves 1976-1991 (DBCA-029)
- EPA Referred Schemes Pending (DWER-121)
- EPA Referred Significant Proposals (DWER-120)
- EPA Referred Significant Proposals Pending (DWER-103)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Government Area (LGA) Boundaries (LGATE-233)
- Localities (LGATE-234)
- Medium Scale Topo Water (Line) (LGATE-018)
- Medium Scale Topo Water (Point) (LGATE-017)

- Medium Scale Topo Water (Polygon) (LGATE-016)
- Native Title (Determination) (LGATE-066)
- Native Title (Fed Court) (LGATE-005)
- Native Title (ILUA) (LGATE-067)
- Native Title (NNTT) (LGATE-004)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping - Best Available (DPIRD-027)
- Townsites (LGATE-248)
- WA Now Aerial Imagery

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)

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4. Glossary

Acronyms:

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

Definitions:

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

Threatened species

T Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the Biodiversity Conservation Act 2016 (BC Act).

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

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

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

CR **Critically endangered species**

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

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

EN **Endangered species**

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

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

VU **Vulnerable species**

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

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

Extinct species

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

EX **Extinct species**

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

EW **Extinct in the wild species**

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

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

Specially protected species

SP **Specially protected species**

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

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

MI **Migratory species**

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

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

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

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

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

OS **Other specially protected species**

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

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

Priority species

P **Priority species**

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

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

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

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

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

P1 **Priority One - Poorly-known species – known from few locations, none on conservation lands**

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

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

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

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

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

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

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

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

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.

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

(d) Other species in need of monitoring.

Principles for clearing native vegetation:

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

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

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

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

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

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

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

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

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

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