

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

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| Permit number: | 10341/1 |
| Permit type: | Purpose Permit |
| Applicant name: | Spartan Resources Limited |
| Application received: | 29 August 2023 |
| Application area: | 1,200 hectares |
| Purpose of clearing: | Mineral Production and Associated Activities |
| Method of clearing: | Mechanical Removal |
| Tenure: | Mining Lease 59/749 Miscellaneous Licences 59/141, 59/142, 59/151, 59/152, 59/153, 59/167, 59/168, 59/169, 59/170 |
| Location (LGA area/s): | Shire of Mount Magnet and Shire of Yalgoo |
| Colloquial name: | Dalgaranga Gold Project |

1.2. Description of clearing activities

Spartan Resources Limited proposes to clear up to 1,200 hectares of native vegetation within a boundary of approximately 2,082 hectares, for the purpose of mineral production and associated activities. The project is located approximately 63.16 kilometres southwest of Cue, within the Shire of Mount Magnet and Shire of Yalgoo.

The application will replace CPS 7240/4, which was granted by the Department of Mines, Industry Regulation and Safety (now the Department of Energy, Mines, Industry Regulation and Safety) on 18 January 2022 and was valid from 10 December 2016 to 31 December 2031. The permit authorised the clearing of up to 779 hectares of native vegetation within a boundary of approximately 1,724 hectares, for the purpose of mineral production and associated activities.

The increase in the amount of clearing is to allow for future mining activities (Spartan, 2023).

1.3. Decision on application and key considerations

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|----------------|-------------------------------------|
| Decision: | Grant |
| Decision date: | 23 January 2024 |
| Decision area: | 1,200 hectares of native vegetation |

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (now Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)) on 29 August 2023. DEMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

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

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential impacts to vegetation growing in association with drainage lines;
- impacts to conservation significant flora; and
- potential erosion from the removal of native vegetation.

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

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- watercourse management condition; and
- avoidance area condition around the population of *Calotis* sp. Perrinvale Station.

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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

Relevant agreements (treaties) considered during the assessment include:

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

The key guidance documents which inform this assessment are:

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

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application; however Spartan Resources have provided a number of avoidance and mitigation measures within the related Mining Proposal (Ecotec, 2023):

- implementing a Site Disturbance Permit system with strict survey controls and requiring sign off by the Registered Manager prior to clearing commencing.
- clearly delineating areas to be cleared using survey pegs and coloured flagging tape and record (“pick up”) cleared areas on completion.
- maintaining records of clearing undertaken.
- providing information to site personnel by way of an induction and specific training where necessary to identify conservation significant vegetation and highlight the importance of clearing protocols.
- machinery and equipment are thoroughly cleaned prior to being mobilised to site.
- contractors provide a weed hygiene certificate for each item of machinery bought to site.
- machinery and equipment that arrives on site will be inspected. Machinery that does not meet the hygiene requirements will require removal and additional cleaning in an appropriate location.
- regular monitoring of disturbed areas and road verges to identify weeds.
- identifying weeds species, abundance and cover during rehabilitation monitoring.
- control of weed outbreaks using herbicide or manual removal.
- preventing stock access to rehabilitated areas.
- educating site personnel by way of the site induction.
- a water cart will be in operation on unsealed roads, in the pit, on the ROM and other open areas to minimise dust generation.
- minimise direct impacts to catchment areas and drainage lines by avoiding alteration of catchment areas and drainage lines (via clearing or infrastructure development) as far as practicable.
- manage surface water runoff from hardstand areas, roads and other cleared areas.

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles identified that the impacts of the proposed clearing required further interrogation of fauna and their habitats, and conservation significant flora. 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 and fauna) - Clearing Principles (a) and (b)

Assessment

Six fauna surveys have been conducted over various parts of the application area during October 2013, May and June 2016, May 2017, May 2020, March 2021, and August 2022 (AES, 2014; Ecotec, 2023; MBC, 2016; 2017; Western Ecological, 2020a; 2021).

The surveys recorded evidence of one conservation significant fauna species: malleefowl (*Leipoa ocellata*, VU). Six malleefowl mounds were identified within the application area, however all of them were determined to be extinct mounds given the level of degradation. It is unlikely that these mounds have been utilised for many decades (AES, 2014; Ecotec, 2023; MBC, 2016; 2017; Western Ecological, 2020a; 2021).

No sightings or other evidence (tracks, scats, feathers, etc.) of malleefowl were identified during the field assessments. Much of the available fauna habitat within the application area is unlikely to be suitable for breeding (AES, 2014; Ecotec, 2023; MBC, 2016; 2017; Western Ecological, 2020a; 2021). The extinct mounds indicate that the area was once suitable breeding habitat for malleefowl. Given the level of disturbance within the application area it is now unlikely that the available habitats will support breeding for malleefowl.

JBBC (2022) recorded priority 3 flora species *Calotis* sp. Perrinvale Station within the application area, with approximately 80 plants present. *Calotis* sp. Perrinvale Station is known from the Coolgardie, Murchison, and Yalgoo bioregions (WAH, 1998-). The plants recorded within the application falls approximately in the middle of the species known range, however all records are located greater than 50 kilometres away from the application area (WAH, 1998-). The species has not previously been recorded within the application area (Ecotec, 2021; JBBC, 2022; NVS, 2016; 2020; WAH, 1998-; GIS Database). Given the species has not formally been named and there is a lack of information about the species, an avoidance area condition is recommended.

Conclusion

Based on the above assessment, the proposed clearing may result in impacts to conservation significant flora.

Conditions

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- avoidance area condition around the population of *Calotis* sp. Perrinvale Station.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 28 November 2023 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims (WCD2017/007, WCD2015/001) over the area under application (DPLH, 2023). These claims have been determined by the Federal Court on behalf of the claimant groups. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

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

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

End

Appendix A. Site characteristics

A.1. Site characteristics

| Characteristic | Details | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------------|---|--------------------------|---|---------------------|---|---|---|---|---|--|---|--|---|-----------------------------------|---|-------------------------------|---|--|---|---|---|---|------|-------------|---|--|---|---|---|--|
| Local context | <p>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of the Western Murchison subregion of Western Australia. The majority of the Western Murchison is grazing native pastoral land, in addition to nickel and gold mining operations (CALM, 2002; GIS Database). Most mining tenure surrounding the application area falls within pastoral lands (CALM, 2002; GIS Database).</p> <p>Approximately 99% of the local area (50 kilometre radius from the application area) remains uncleared (GIS Database).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ecological linkage | <p>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).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conservation areas | <p>The application area is not located within any conservation areas (GIS Database). The nearest legislated conservation area is Lakeside National Park, located approximately 12.24 kilometres northeast of the application area (GIS Database).</p> <p>The application area intersects two former pastoral leases, Dalgaranga and Noongal, which are proposed for conservation (GIS Database). Approximately 124.73 hectares of Dalgaranga and 71.23 hectares of Noongal are located within the application area (GIS Database).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vegetation description | <p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>) 39: Shrublands; mulga scrub 204: Succulent steppe with open scrub; scattered mulga & <i>Acacia sclerosperma</i> over saltbush & bluebush; and 395: Hummock grasslands, mixed sandplain; bowgada, mallee, heath and spinifex (GIS Database).</p> <p>A number of flora and vegetation surveys have been conducted over various parts of the application area in May and June 2016, August 2021, and August 2022. The following vegetation types were recorded within the application area by the various surveys (Ecotec, 2021; JBBC, 2022; NVS, 2016):</p> <p>NVS (2016):</p> <table border="1"> <thead> <tr> <th>CODE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>Rehabilitated vegetation</td> </tr> <tr> <td>b</td> <td>Open mulga woodland</td> </tr> <tr> <td>c</td> <td>Mulga over <i>Acacia ramulosa</i> and <i>Eremophila forrestii</i> shrubland</td> </tr> <tr> <td>d</td> <td>Mulga over <i>Thryptomene costata</i> and <i>Eremophila glutinosa</i> shrubland</td> </tr> <tr> <td>e</td> <td>Open mulga shrubland over stony plains</td> </tr> <tr> <td>f</td> <td><i>Acacia aneura</i> and <i>Acacia craspedocarpa</i> over <i>Eremophila jucunda</i> open shrubland with herbaceous understorey</td> </tr> <tr> <td>g</td> <td><i>Acacia burkittii</i> shrubland</td> </tr> <tr> <td>h</td> <td>Mulga over chenopod shrubland</td> </tr> <tr> <td>i</td> <td><i>Acacia grasbyi</i> shrubland over laterite breakaways</td> </tr> <tr> <td>j</td> <td>Mulga woodland over <i>Acacia grasbyi</i> and <i>Acacia rhodophloia</i></td> </tr> <tr> <td>k</td> <td><i>Acacia aneura</i> over <i>Eremophila exilifolia</i> and <i>Eremophila forrestii</i> shrubland on hill slopes</td> </tr> </tbody> </table> <p>Ecotec (2021):</p> <table border="1"> <thead> <tr> <th>CODE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><i>Acacia caesaneura</i> and <i>Acacia assimilis</i> subsp. <i>assimilis</i> sparse woodland over <i>Acacia craspedocarpa</i>, <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>, <i>Eremophila latrobei</i> subsp. <i>latrobei</i>, <i>Eremophila glutinosa</i> and <i>Eremophila punicea</i> sparse shrubland over mixed sparse herbs</td> </tr> <tr> <td>2</td> <td><i>Acacia fusca</i> and <i>Acacia caesaneura</i> very open woodland over <i>Acacia ramulosa</i>, <i>Acacia grasbyi</i>, <i>Acacia tetragonophylla</i> open shrubland over <i>Eremophila</i> species very open low shrubland</td> </tr> <tr> <td>3</td> <td><i>Acacia grasbyi</i>, <i>Acacia ramulosa</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland over sparse <i>Eremophila</i> species low shrubland</td> </tr> </tbody> </table> | CODE | DESCRIPTION | a | Rehabilitated vegetation | b | Open mulga woodland | c | Mulga over <i>Acacia ramulosa</i> and <i>Eremophila forrestii</i> shrubland | d | Mulga over <i>Thryptomene costata</i> and <i>Eremophila glutinosa</i> shrubland | e | Open mulga shrubland over stony plains | f | <i>Acacia aneura</i> and <i>Acacia craspedocarpa</i> over <i>Eremophila jucunda</i> open shrubland with herbaceous understorey | g | <i>Acacia burkittii</i> shrubland | h | Mulga over chenopod shrubland | i | <i>Acacia grasbyi</i> shrubland over laterite breakaways | j | Mulga woodland over <i>Acacia grasbyi</i> and <i>Acacia rhodophloia</i> | k | <i>Acacia aneura</i> over <i>Eremophila exilifolia</i> and <i>Eremophila forrestii</i> shrubland on hill slopes | CODE | DESCRIPTION | 1 | <i>Acacia caesaneura</i> and <i>Acacia assimilis</i> subsp. <i>assimilis</i> sparse woodland over <i>Acacia craspedocarpa</i> , <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Eremophila glutinosa</i> and <i>Eremophila punicea</i> sparse shrubland over mixed sparse herbs | 2 | <i>Acacia fusca</i> and <i>Acacia caesaneura</i> very open woodland over <i>Acacia ramulosa</i> , <i>Acacia grasbyi</i> , <i>Acacia tetragonophylla</i> open shrubland over <i>Eremophila</i> species very open low shrubland | 3 | <i>Acacia grasbyi</i> , <i>Acacia ramulosa</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland over sparse <i>Eremophila</i> species low shrubland |
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| 3 | <i>Acacia caesaneura</i> , <i>Acacia aptaneura</i> , <i>Acacia fuscaeneura</i> low open woodland over <i>Acacia craspedocarpa</i> , <i>Acacia tetragonophylla</i> tall open to sparse shrubland over <i>Eremophila</i> species low open shrubland over low forland | | | | | | | | | | | | | | |
| 4 | <i>Acacia burkittii</i> , <i>Acacia tetragonophylla</i> , <i>Acacia sibina</i> tall sparse shrubland over <i>Eremophila</i> species low sparse shrubland over low sparse forland with isolated <i>Cymbopogon ambiguus</i> grass tussocks | | | | | | | | | | | | | | |
| 5 | <i>Acacia craspedocarpa</i> , <i>Acacia tetragonophylla</i> , <i>Acacia caesaneura</i> , <i>Acacia fuscaeneura</i> tall open shrubland over <i>Eremophila</i> species low sparse shrubland over isolated to sparse low forbs or grass tussocks | | | | | | | | | | | | | | |
| 6 | <i>Acacia aptaneura</i> low isolated trees over <i>Acacia craspedocarpa</i> , <i>Acacia aptaneura</i> tall sparse shrubland over <i>Eremophila punicea</i> , <i>Ptilotus obovatus</i> , <i>Eremophila fraseri</i> subsp. <i>fraseri</i> low sparse shrubland over low open forland | | | | | | | | | | | | | | |
| Vegetation condition | <p>Vegetation surveys of the application area found the vegetation to be in very good, good, poor, very poor, and completely degraded condition (Ecotec, 2021; JBBC, 2022; NVS, 2016; Trudgen, 1991). The full Trudgen (1991) condition rating scale is provided in Appendix C.</p> <p>Surveys of the application area have recorded 19 different weed species present, including Athel pine (<i>Tamarix aphylla</i>) which is listed as a Weed of National Significance (WoNS) and Declared Pest (Earth Stewardship, 2018; Ecotec, 2021; JBBC, 2021; NVS, 2016).</p> | | | | | | | | | | | | | | |
| Climate and landform | <p>The climate of the Western Murchison subregion is described as arid, with the nearest weather station recording an average rainfall of approximately 243.3 millimetres per year (BoM, 2023; CALM, 2002).</p> <p>The application area is mapped at elevations of 450-500 metres Australian height datum (GIS Database).</p> | | | | | | | | | | | | | | |
| Soil description | <p>The soils within the application area are mapped as (DPIRD, 2024; Northcote et al., 1960-68; GIS Database):</p> <table border="1"> <thead> <tr> <th>UNIT</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>Mz23 (1,556.64 ha)</td> <td>Extensive flat and gently sloping plains with a scatter of surface gravels, chief soils are shallow acid red earths and shallow earthy loams often occurring in intimate micro association. Red-brown hardpan occasionally outcrops and is normally present within a depth of 30 inches.</td> </tr> <tr> <td>BE2 (524.75 ha)</td> <td>Generally undulating terrain on granites with rocky granitic hills, bosses and tors, some breakaways, and a surface stone mantle: chief soils seem to be shallow earthy loams underlain by a red-brown hardpan. Associated are shallow soils both underlain by a red-brown hardpan; some soils underlain by a red-brown hardpan; and shallow soils on the hills (no hardpan). The red-brown hardpan is often exposed in eroded sites and elsewhere is present between 8 and 40 inches.</td> </tr> </tbody> </table> | UNIT | DESCRIPTION | Mz23 (1,556.64 ha) | Extensive flat and gently sloping plains with a scatter of surface gravels, chief soils are shallow acid red earths and shallow earthy loams often occurring in intimate micro association. Red-brown hardpan occasionally outcrops and is normally present within a depth of 30 inches. | BE2 (524.75 ha) | Generally undulating terrain on granites with rocky granitic hills, bosses and tors, some breakaways, and a surface stone mantle: chief soils seem to be shallow earthy loams underlain by a red-brown hardpan. Associated are shallow soils both underlain by a red-brown hardpan; some soils underlain by a red-brown hardpan; and shallow soils on the hills (no hardpan). The red-brown hardpan is often exposed in eroded sites and elsewhere is present between 8 and 40 inches. | | | | | | | | |
| UNIT | DESCRIPTION | | | | | | | | | | | | | | |
| Mz23 (1,556.64 ha) | Extensive flat and gently sloping plains with a scatter of surface gravels, chief soils are shallow acid red earths and shallow earthy loams often occurring in intimate micro association. Red-brown hardpan occasionally outcrops and is normally present within a depth of 30 inches. | | | | | | | | | | | | | | |
| BE2 (524.75 ha) | Generally undulating terrain on granites with rocky granitic hills, bosses and tors, some breakaways, and a surface stone mantle: chief soils seem to be shallow earthy loams underlain by a red-brown hardpan. Associated are shallow soils both underlain by a red-brown hardpan; some soils underlain by a red-brown hardpan; and shallow soils on the hills (no hardpan). The red-brown hardpan is often exposed in eroded sites and elsewhere is present between 8 and 40 inches. | | | | | | | | | | | | | | |

| Characteristic | Details | | | | | | | | | | | | | | | | |
|------------------------|---|-------------|------------------|------------------------|--|------------------|--|-----------------|--|------------------|--|--------------|--|--------------|--|--------------|---|
| Land degradation risk | <p>The application area is primarily mapped within the Jundee (411.87 ha), Violet (621.82 ha), and Yanganoo (902.31 ha) land systems (DPIRD, 2024; GIS Database). To a much lesser extent the application area is also mapped within the Challenge (28.58 ha), Cunyu (53.88 ha), Kalli (38.42 ha), and Norie (24.50 ha) land systems (DPIRD, 2024; GIS Database).</p> <p>The risk of land degradation for each land system is outlined below (Payne et al., 1998):</p> <table border="1"> <thead> <tr> <th>LAND SYSTEM</th> <th>DEGRADATION RISK</th> </tr> </thead> <tbody> <tr> <td>JUNDEE</td> <td>Alteration to natural sheet flows can initiate soil erosion and cause water starvation and consequent loss of vigour in vegetation downslope</td> </tr> <tr> <td>VIOLET</td> <td>Mantles provide effective protection against soil erosion, except where the soil surface has been disturbed (i.e. construction of tracks and gridlines). In such circumstances the soil becomes moderately susceptible to water erosion. Narrow drainage tracts are mildly susceptible to water erosion.</td> </tr> <tr> <td>YANGANOO</td> <td>Generally not susceptible to soil erosion except for drainage tracts receiving concentrated run-on which are moderately susceptible to accelerated erosion if vegetation is degraded. Impedance to sheet flows on hardpan plains can cause water starvation and consequent loss of vigour in vegetation downslope.</td> </tr> <tr> <td>CHALLENGE</td> <td>Saline stony plains and alluvial plains are moderately susceptible to water erosion.</td> </tr> <tr> <td>CUNYU</td> <td>Alluvial plains and drainage floors are moderately susceptible to water erosion if perennial shrub cover is substantially reduced, or the soil surface is disturbed. Vulnerable to over grazing by herbivores.</td> </tr> <tr> <td>KALLI</td> <td>Not normally susceptible to accelerated erosion, vehicular tracks can cause local gullying on steeper gradients; dense vegetation protects the soil from wind erosion.</td> </tr> <tr> <td>NORIE</td> <td>Footslopes and drainage tracts are slightly susceptible to accelerated erosion.</td> </tr> </tbody> </table> | LAND SYSTEM | DEGRADATION RISK | JUNDEE | Alteration to natural sheet flows can initiate soil erosion and cause water starvation and consequent loss of vigour in vegetation downslope | VIOLET | Mantles provide effective protection against soil erosion, except where the soil surface has been disturbed (i.e. construction of tracks and gridlines). In such circumstances the soil becomes moderately susceptible to water erosion. Narrow drainage tracts are mildly susceptible to water erosion. | YANGANOO | Generally not susceptible to soil erosion except for drainage tracts receiving concentrated run-on which are moderately susceptible to accelerated erosion if vegetation is degraded. Impedance to sheet flows on hardpan plains can cause water starvation and consequent loss of vigour in vegetation downslope. | CHALLENGE | Saline stony plains and alluvial plains are moderately susceptible to water erosion. | CUNYU | Alluvial plains and drainage floors are moderately susceptible to water erosion if perennial shrub cover is substantially reduced, or the soil surface is disturbed. Vulnerable to over grazing by herbivores. | KALLI | Not normally susceptible to accelerated erosion, vehicular tracks can cause local gullying on steeper gradients; dense vegetation protects the soil from wind erosion. | NORIE | Footslopes and drainage tracts are slightly susceptible to accelerated erosion. |
| LAND SYSTEM | DEGRADATION RISK | | | | | | | | | | | | | | | | |
| JUNDEE | Alteration to natural sheet flows can initiate soil erosion and cause water starvation and consequent loss of vigour in vegetation downslope | | | | | | | | | | | | | | | | |
| VIOLET | Mantles provide effective protection against soil erosion, except where the soil surface has been disturbed (i.e. construction of tracks and gridlines). In such circumstances the soil becomes moderately susceptible to water erosion. Narrow drainage tracts are mildly susceptible to water erosion. | | | | | | | | | | | | | | | | |
| YANGANOO | Generally not susceptible to soil erosion except for drainage tracts receiving concentrated run-on which are moderately susceptible to accelerated erosion if vegetation is degraded. Impedance to sheet flows on hardpan plains can cause water starvation and consequent loss of vigour in vegetation downslope. | | | | | | | | | | | | | | | | |
| CHALLENGE | Saline stony plains and alluvial plains are moderately susceptible to water erosion. | | | | | | | | | | | | | | | | |
| CUNYU | Alluvial plains and drainage floors are moderately susceptible to water erosion if perennial shrub cover is substantially reduced, or the soil surface is disturbed. Vulnerable to over grazing by herbivores. | | | | | | | | | | | | | | | | |
| KALLI | Not normally susceptible to accelerated erosion, vehicular tracks can cause local gullying on steeper gradients; dense vegetation protects the soil from wind erosion. | | | | | | | | | | | | | | | | |
| NORIE | Footslopes and drainage tracts are slightly susceptible to accelerated erosion. | | | | | | | | | | | | | | | | |
| Waterbodies | The desktop assessment indicated that no permanent waterbodies are located within the application area (GIS Database). Several minor non-perennial drainage lines intersect the application area and there is an area at the west end of the application area prone to inundation (GIS Database). | | | | | | | | | | | | | | | | |
| Hydrogeography | <p>The application area is not within any Public Drinking Water Source Areas or legislated surface water areas (GIS Database). The application area is located within the East Murchison Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (GIS Database).</p> <p>The mapped groundwater salinity is 1,000-3,000 total dissolved solids milligrams per litre, which is described as brackish water quality (GIS Database).</p> | | | | | | | | | | | | | | | | |
| Flora | There are records of 33 priority flora species within a 50 kilometre radius of the application area (GIS Database). | | | | | | | | | | | | | | | | |
| Ecological communities | There are no known threatened or priority ecological communities mapped within the application area (GIS Database). The nearest known ecological community is the ' <i>Gabyon calcrete groundwater assemblage type on Moore palaeodrainage on Gabyon Station</i> ' priority ecological community (P1), located approximately 29.27 kilometres east of the application area (GIS Database). | | | | | | | | | | | | | | | | |
| Fauna | There are records of 11 conservation significant fauna species within a 50 kilometre radius of the application area (GIS Database). | | | | | | | | | | | | | | | | |
| Fauna habitats | <p>A number of fauna habitat assessments have been conducted over various parts of the application area in October 2013, May and June 2016, May 2017, May 2020, March 2021, and August 2022. The following fauna habitats were recorded within the application area by the various surveys (AES, 2014; Ecotec, 2023; MBC, 2016; 2017; Western Ecological, 2020a; 2021):</p> <table border="1"> <thead> <tr> <th>Habitat</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Mulga Shrubland</td> <td>Mulga (<i>Acacia aneura</i>) shrubland in the upper storey, with a sparse midstorey of <i>Acacia</i>, <i>Eremophila</i>, and <i>Grevillea</i> species and very sparse to near absent ground layer.</td> </tr> <tr> <td>Shrubland</td> <td>No upper storey and consisted of a sparse shrub layer that included <i>Maireana</i> and <i>Atriplex</i> species and little to no ground cover vegetation.</td> </tr> </tbody> </table> | Habitat | Description | Mulga Shrubland | Mulga (<i>Acacia aneura</i>) shrubland in the upper storey, with a sparse midstorey of <i>Acacia</i> , <i>Eremophila</i> , and <i>Grevillea</i> species and very sparse to near absent ground layer. | Shrubland | No upper storey and consisted of a sparse shrub layer that included <i>Maireana</i> and <i>Atriplex</i> species and little to no ground cover vegetation. | | | | | | | | | | |
| Habitat | Description | | | | | | | | | | | | | | | | |
| Mulga Shrubland | Mulga (<i>Acacia aneura</i>) shrubland in the upper storey, with a sparse midstorey of <i>Acacia</i> , <i>Eremophila</i> , and <i>Grevillea</i> species and very sparse to near absent ground layer. | | | | | | | | | | | | | | | | |
| Shrubland | No upper storey and consisted of a sparse shrub layer that included <i>Maireana</i> and <i>Atriplex</i> species and little to no ground cover vegetation. | | | | | | | | | | | | | | | | |

| Characteristic | Details | |
|----------------|-------------------------------|--|
| | Open Eucalypt Woodland | Scattered <i>Eucalyptus gongylocarpa</i> and very scattered <i>Melaleuca</i> species, almost no midstorey and a few small scattered patches of shrubs in the groundstorey where leaf litter had accumulated. |
| | Sparse Mulga Shrubland | Scattered shrubland of Mulga (<i>Acacia aneura</i>) on stony plains, with limited cover in the midstorey of <i>Acacia</i> and <i>Eremophila</i> species, with a very sparse to absence of ground cover. |
| | Low Rocky Hill | Scattered cover of Mulga on laterite, with limited to no vegetation cover in the midstorey and almost no ground cover on low rocky hills. |
| | Calcrete Plain | Plains with a calcrete substrate of stones on the surface, very little vegetation cover apart from some low scattered shrubs (<i>Acacia</i> and <i>Eremophila</i> species). |

A.2. Vegetation extent

| | Pre-European area (ha) | Current extent (ha) | Extent Remaining % | Current extent in all DBCA managed land (ha) | Current proportion (%) of pre-European extent in all DBCA Managed Lands |
|---|------------------------|---------------------|--------------------|--|---|
| IBRA Bioregion - Murchison | 28,120,586 | 28,044,823 | ~99 | 2,185,987 | 7.77 |
| Beard vegetation associations - State | | | | | |
| 18 | 19,892,306 | 19,843,148 | ~99 | 1,317,179 | 6.62 |
| 39 | 6,613,567 | 6,602,578 | ~99 | 795,070 | 12.02 |
| 204 | 199,475 | 198,735 | ~99 | 13,465 | 6.75 |
| 395 | 102,487 | 102,487 | ~100 | 20,952 | 20.44 |
| Beard vegetation associations - Murchison bioregion | | | | | |
| 18 | 12,403,172 | 12,363,252 | ~99 | 614,964 | 4.96 |
| 39 | 1,148,400 | 1,138,064 | ~99 | 40,834 | 3.56 |
| 204 | 185,601 | 184,861 | ~99 | 13,465 | 7.26 |
| 395 | 102,166 | 102,166 | ~100 | 20,912 | 20.47 |

Government of Western Australia (2019)

A.3. Flora analysis table

The following conservation significant flora species have records within a 50 kilometre radius of the application area (JBBC, 2022; GIS Database). Habitat suitability and likelihood of occurrence was determined utilising biological survey information (Ecotec, 2021; JBBC, 2022; NVS, 2016; 2020; Terratree, 2020; WAH, 1998-; GIS Database).

| Species | Conservation status | Distance of closest record to application area (km) | Likelihood of occurrence | Habitat suitability | Surveys adequate to identify? [Y, N, N/A] |
|---|---------------------|---|--------------------------|--|---|
| <i>Acacia burrowsiana</i> | P3 | 40.63 | unlikely | limited habitat present | Y |
| <i>Acacia lapidosa</i> | P1 | 13.72 | unlikely | no suitable habitat | Y |
| <i>Acacia speckii</i> | P4 | 12.17 | unlikely | no suitable habitat | Y |
| <i>Acacia subsessilis</i> | P3 | 8.97 | unlikely | no suitable habitat | Y |
| <i>Alyxia tetanifolia</i> | P3 | 42.97 | unlikely | no suitable habitat | Y |
| <i>Angianthus uniflorus</i> | P1 | 49.31 | unlikely | no suitable habitat | Y |
| <i>Atriplex lindleyi</i> subsp. <i>conduplicata</i> | P3 | 44.22 | unlikely | no suitable habitat, historical record | Y |

| | | | | | |
|--|----|--------|----------|---|---|
| <i>Calotis</i> sp. Perrinvale Station | P3 | within | recorded | suitable habitat present | Y |
| <i>Cyanicula fragrans</i> | P3 | 10.18 | unlikely | no suitable habitat | Y |
| <i>Dodonaea amplisemina</i> | P4 | 44.98 | unlikely | no suitable habitat | Y |
| <i>Drosera eremaea</i> | P3 | 38.01 | unlikely | no suitable habitat | Y |
| <i>Eragrostis</i> sp. Lake Carey | P1 | 37.57 | unlikely | limited habitat present, restricted to Lake Carey | Y |
| <i>Eremophila glabra</i> subsp. Lake Austin | P1 | 44.22 | unlikely | limited habitat present | Y |
| <i>Eremophila simulans</i> subsp. <i>megacalyx</i> | P3 | 13.82 | possible | suitable habitat present | Y |
| <i>Euryomyrtus recurva</i> | P3 | 46.45 | unlikely | limited habitat present | Y |
| <i>Frankenia confusa</i> | P4 | 42.71 | unlikely | no suitable habitat | Y |
| <i>Gnephosis cassiniana</i> | P3 | 31.91 | unlikely | limited habitat present | Y |
| <i>Goodenia berringbinensis</i> | P4 | 35.63 | unlikely | no suitable habitat | Y |
| <i>Grevillea globosa</i> | P3 | 20.46 | possible | suitable habitat present | Y |
| <i>Grevillea inconspicua</i> | P4 | 41.97 | unlikely | limited habitat present | Y |
| <i>Gunniopsis divisa</i> | P3 | 16.54 | likely | suitable habitat present | Y |
| <i>Isotropis petrensis</i> | P1 | 44.22 | unlikely | no suitable habitat | Y |
| <i>Jacksonia lanicarpa</i> | P1 | 8.4 | possible | suitable habitat present | Y |
| <i>Micromyrtus racemosa</i> var. <i>Jingemarra</i> | P2 | 46.76 | unlikely | some suitable habitat, however record is historic | Y |
| <i>Millotia depauperata</i> | P1 | 44.22 | unlikely | no suitable habitat | Y |
| <i>Petrophile pauciflora</i> | P3 | 22.6 | unlikely | suitable habitat present | Y |
| <i>Petrophile vana</i> | P1 | 7.96 | unlikely | limited habitat present | Y |
| <i>Psammomoya grandiflora</i> | P2 | 11.11 | unlikely | some suitable habitat, however record is historic | Y |
| <i>Ptilotus luteolus</i> | P3 | 44.98 | unlikely | limited habitat present | Y |
| <i>Sauropus</i> sp. Woolgorong | P3 | 44.62 | possible | some suitable habitat | Y |
| <i>Tecticornia fimbriata</i> | P3 | 44.22 | unlikely | no suitable habitat | Y |
| <i>Verticordia jamiesonii</i> | P3 | 34.82 | unlikely | no suitable habitat | Y |
| <i>Wurmbea murchisoniana</i> | P4 | 24.24 | unlikely | no suitable habitat | Y |

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

A.4. Fauna analysis table

The following conservation significant fauna species have records within a 50 kilometre radius of the application area (GIS Database). Habitat suitability, likelihood of occurrence, and impact was determined utilising biological survey information (AES, 2014; Ecotec, 2022; Invertebrate Solutions, 2020; MBC 2016; 2017; Western Ecological, 2020a; 2020b; 2021; GIS Database).

| Species name | Conservation status | | Distance of closest record to application area (km) | Likelihood of occurrence | Habitat suitability | Surveys adequate to identify? [Y, N, N/A] |
|---|---------------------|------|---|--------------------------|--|---|
| | WA | EPBC | | | | |
| BIRD | | | | | | |
| <i>Amytornis textilis textilis</i> western grasswren | P4 | | 41.27 | unlikely | no suitable habitat, primarily a coastal bird | Y |
| <i>Apus pacificus</i> fork-tailed swift | MI | MI | 42.04 | unlikely | limited habitat, vagrant visitors to surrounding regional salt lakes | Y |
| <i>Falco peregrinus</i> peregrine falcon | OS | | 5.92 | possible | some suitable habitat, mostly limited | Y |
| <i>Gelochelidon nilotica</i> gull-billed tern | MI | MI | 33.59 | unlikely | limited habitat, vagrant visitors to surrounding regional salt lakes | Y |
| <i>Leipoa ocellata</i> malleefowl | VU | VU | 6.97 | possible | suitable habitat present, extinct mounds found within application area | Y |
| <i>Limosa lapponica</i> bar-tailed godwit | MI | MI | 48.17 | unlikely | limited habitat, vagrant visitors to surrounding regional salt lakes | Y |
| <i>Pezoporus occidentalis</i> night parrot | CR | EN | 9.08 | unlikely | no suitable habitat | Y |
| INVERTEBRATE | | | | | | |
| <i>Branchinella wellardi</i> a fairy shrimp (Carnarvon and Murchison) | P3 | | 21.49 | unlikely | no suitable habitat | N |

| Species name | Conservation status | | Distance of closest record to application area (km) | Likelihood of occurrence | Habitat suitability | Surveys adequate to identify? [Y, N, N/A] |
|--|---------------------|------|---|--------------------------|--------------------------|---|
| | WA | EPBC | | | | |
| <i>Idiosoma clypeatum</i> northern shield-backed trapdoor spider | P3 | | 6.05 | possible | suitable habitat present | Y |
| MAMMAL | | | | | | |
| <i>Petrogale lateralis lateralis</i> black-flanked rock-wallaby, black-footed rock-wallaby, moorong | EN | EN | 10.49 | unlikely | no suitable habitat | Y |
| REPTILE | | | | | | |
| <i>Egernia stokesii badia</i> western spiny-tailed skink | VU | EN | 1.24 | unlikely | no suitable habitat | Y |

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

Appendix B. Assessment against the clearing principles

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|------------------------------|--|
| Environmental value: biological values | | |
| <p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The application area does not contain locally or regionally significant vegetation, or locally significant fauna or their habitats.</p> <p>One conservation significant flora species was recorded within the application area.</p> | May be at variance | No <i>Refer to Section 3.2.1, above.</i> |
| <p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>The application area may contain suitable habitat for conservation significant fauna, however this habitat is unlikely to be necessary for the maintenance of any fauna species.</p> | May be at variance | Yes <i>Refer to Section 3.2.1, above.</i> |
| <p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>There are no known records of threatened flora species within the application area or within a 50 kilometre radius (Appendix A.3; GIS Database).</p> <p>None of the flora and vegetation surveys undertaken identified any threatened flora species (Ecotec, 2021; JBBC, 2022; NVS, 2016; 2020; WAH, 1998-; GIS Database). Many of the vegetation types recorded within the application area are common and widespread within the region, and is unlikely to provide suitable habitat for threatened flora species (Ecotec, 2021; JBBC, 2022; NVS, 2016; 2020; WAH, 1998-; GIS Database).</p> | Not likely to be at variance | No |
| <p><u>Principle (d):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."</p> <p><u>Assessment:</u></p> <p>There are no known state or federally listed threatened ecological communities (TECs) located within or in close proximity to the application area (GIS Database). The nearest known threatened ecological community is the federally listed 'Eucalypt woodlands of the Western Australian Wheatbelt' (CR; P1 state listing) located approximately 135 kilometres southwest of the application area (GIS Database).</p> | Not likely to be at variance | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---------------------------|------------------------------------|
| <p>Flora and vegetation surveys of the application area and surrounds did not record vegetation that could be representative of a TEC (Ecotec, 2021; JBBC, 2022; NVS, 2016; 2020).</p> | | |
| <p>Environmental value: significant remnant vegetation and conservation areas</p> | | |
| <p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The application area falls within the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Coolgardie Bioregion (Government of Western Australia, 2019).</p> <p>The application area is broadly mapped as Beard vegetation associations 18: Low woodland; mulga (<i>Acacia aneura</i>); 39: Shrublands; mulga scrub; 204: Succulent steppe with open scrub; scattered mulga & <i>Acacia sclerosperma</i> over saltbush & bluebush; and 395: Hummock grasslands, mixed sandplain; bowgada, mallee, heath and spinifex (GIS Database).</p> <p>Approximately 99-100% of the pre-European extent of these vegetation associations remain uncleared at both the state and bioregional level (Government of Western Australia, 2019).</p> <p>The vegetation proposed to be cleared is unlikely to represent a significant area of remnant vegetation within a bioregional context (GIS Database).</p> | <p>Not at variance</p> | <p>No</p> |
| <p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>The application area is not located within any conservation areas (GIS Database). The application area intersects two former pastoral leases, Dalgara and Noongal, which are proposed for conservation and managed by DBCA (GIS Database). Approximately 124.73 hectares of Dalgara and 71.23 hectares of Noongal are located within the application area (GIS Database).</p> <p>The proposed clearing within DBCA managed land is unlikely to cause any significant additional disruption to ecological linkages, however care should be taken to avoid the spread of weeds into these areas.</p> | <p>May be at variance</p> | <p>No</p> |
| <p>Environmental value: land and water resources</p> | | |
| <p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Several minor non-perennial drainage lines intersect the application area and there is an area at the west end of the application area prone to inundation (GIS Database). This area prone to inundation has one vegetation type that is growing in association in it: mulga over chenopod shrubland (NVS, 2020).</p> <p>Potential impacts to vegetation growing in association with these drainage lines may be minimised by the implementation of a watercourse management condition.</p> | <p>At variance</p> | <p>No</p> |
| <p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped land systems may be susceptible to erosion if the soil surface or vegetation cover is removed (Appendix A.1; DPIRD, 2024; GIS Database).</p> <p>Potential land degradation as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.</p> | <p>May be at variance</p> | <p>No</p> |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|--|------------------------------|------------------------------------|
| <p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u></p> <p>There are no Public Drinking Water Source Areas within or in close proximity to the clearing permit application area (GIS Database). There are no permanent watercourses or wetlands within or in close proximity to the application area (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall.</p> <p>The proposed clearing is unlikely to result in increased sedimentation of any watercourse, or cause deterioration in the quality of surface or underground water.</p> | Not likely to be at variance | No |
| <p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>There are no permanent major watercourses within the application area, and drainage lines in the area are dry for the majority of the year (GIS Database). During major rainfall events water flows will be in the form of wide, shallow sheet flow (Ecotec, 2023). The area naturally experiencing shallow sheet flow indicates that infiltration into the soil occurs at a slow rate. Temporary localised flooding may occur during these rainfall events, however the removal of native vegetation is unlikely to exacerbate the incidence or intensity of flooding. The watercourse management condition may help minimise impacts from waterlogging.</p> | Not likely to be at variance | No |

Appendix C. Vegetation condition rating scale

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

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

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

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

Appendix D. Sources of information

D.1. GIS databases

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

- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

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

D.2. References

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4. Glossary

Acronyms:

| | |
|-----------------|---|
| BC Act | <i>Biodiversity Conservation Act 2016</i> , Western Australia |
| BoM | Bureau of Meteorology, Australian Government |
| DAA | Department of Aboriginal Affairs, Western Australia (now DPLH) |
| DAFWA | Department of Agriculture and Food, Western Australia (now DPIRD) |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water, Australian Government |
| DBCA | Department of Biodiversity, Conservation and Attractions, Western Australia |
| DER | Department of Environment Regulation, Western Australia (now DWER) |
| DEMIRS | Department of Energy, Mines, Industry Regulation and Safety, Western Australia (DEMIRS) |
| DMIRS | Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS) |
| DMP | Department of Mines and Petroleum, Western Australia (now DMIRS) |
| 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 | <i>Environmental Protection Act 1986</i> , Western Australia |
| EPA | Environmental Protection Authority, Western Australia |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act) |

| | |
|-----------------|---|
| GIS | Geographical Information System |
| ha | Hectare (10,000 square metres) |
| IBRA | Interim Biogeographic Regionalisation for Australia |
| IUCN | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| PEC | Priority Ecological Community, Western Australia |
| RIWI Act | <i>Rights in Water and Irrigation Act 1914</i> , Western Australia |
| TEC | Threatened Ecological Community |

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T Threatened species:

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

Threatened fauna is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

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

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

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

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

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

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX Extinct species

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

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

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

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

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

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

MI

Migratory species

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

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

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD

Species of special conservation interest (conservation dependent fauna)

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

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS

Other specially protected species

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

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P

Priority species:

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

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

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

P1

Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2

Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3

Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

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

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

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.