Government of Western Australia
Department of Mines, Industry Regulation and Safety

# Clearing Permit Decision Report

## 1. Application details and outcomes

### 1.1. Permit application details

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|---|---|
| **Permit number:** | 5648/3 |
| **Permit type:** | Purpose Permit |
| **Applicant name:** | Hinckley Range Pty Ltd |
| **Application received:** | 19 May 2023 |
| **Application area:** | 40 hectares |
| **Purpose of clearing:** | Mineral Exploration |
| **Method of clearing:** | Mechanical Removal |
| **Tenure:** | Exploration Licence 69/3065 |
| **Location (LGA area/s):** | Shire of Ngaanyatjarraku |

### 1.2. Description of clearing activities

Hinckley Range Pty Ltd proposes to clear up to 40 hectares of native vegetation within a boundary of approximately 3,700 hectares, for the purpose of mineral exploration. The project is located within the Shire of Ngaanyatjarraku, approximately 220 kilometres east of Warburton.

Clearing permit CPS 5648/1 was granted by the Department of Mines and Petroleum (now the Department of Mines, Industry Regulation and Safety) on 1 August 2013 and was valid from 24 August 2013 to 24 August 2018. The permit authorised the clearing of up to 14 hectares of native vegetation, within a boundary of approximately 7,311 hectares, for the purpose of mineral exploration.

CPS 5648/2 was granted on 9 August 2018, amending the permit to increase the amount of clearing authorised to 40 hectares and amend the permit boundary to align with the current tenement boundary of Exploration Licence 69/3065, decreasing from 7,311 hectares to approximately 3,700 hectares.

On 19 May 2023, the Permit Holder applied to amend CPS 5648/3 to extend the permit duration to 23 August 2028. The size of the area approved to clear and the permit boundary remains the same.

### 1.3. Decision on application and key considerations

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| **Decision:** | Grant |
| **Decision date:** | 22 August 2023 |
| **Decision area:** | 40 hectares of native vegetation |

### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51KA(1) of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 19 May 2023. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A.1), relevant datasets (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

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

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 conditions currently imposed on clearing permit CPS 5648/2 are considered adequate to manage the impacts of clearing:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- pre-clearance survey for conservation significant flora; and
- pre-clearance survey for conservation significant fauna habitat.

The assessment has resulted in decreased variance since the assessment for CPS 5648/2, as observed for clearing principles (d), (i) and (j). The Delegated Officer determined that the proposed amendment CPS 5648/3 to extend permit duration by five years is not likely to lead to an unacceptable risk to environmental values.

## 2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 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

As demonstration of avoidance and mitigation measures, the applicant has advised a grader will be used to establish access tracks and drill pads. The blade will be raised a few centimetres above the ground to avoid damage to vegetation rootstocks. Furthermore, drill pads will be limited to an area of 200 metres squared and the graded gridlines will have a maximum width of 4 metres between drill pads (Hinckley Range, 2023).

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

A review of current environmental information (Appendix B) reveals that the assessment against the clearing principles has posed slight changes from the Clearing Permit Decision Report CPS 5648/2.

In assessing the application, the Delegated Officer has had regard for the site characteristics (Appendix A.1) 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 (habitat for conservation significant species of 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 and vegetation) - Clearing Principle (a)*

Assessment

The application area occurs within the Mann-Musgrave Block subregion of the Central Ranges Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). The subregion is comprised of a high proportion of Proterozoic ranges including both volcanic and quartzites and derived soil plains, interspersed with red Quaternary sandplains with some permian exposure (CALM, 2002). The sandplains support low open woodlands of either Desert Oak or Mulga over *Triodia basedowii* hummock grasslands. Low open woodlands of Ironwood (*Acacia estrophiolata*) and Corkwoods (*Hakea spp.*) over tussock and hummock grasses often fringe the ranges. The ranges support mixed wattle scrub or *Callitris glaucophylla* woodlands over hummock and tussock grasslands (CALM, 2002).

*Surveys*

On July 2013, the permit holder commissioned a vegetation, flora and fauna desktop assessment of the underlying tenement'. However, this desktop assessment did not include a site visit or reconnaissance survey to ground truth the data presented within the report (Outback Ecology, 2013).

On 24 August 2013, the Department granted clearing permit CPS 5648/1. In compliance with permit Condition 6 of the permit, the permit holder commissioned a pre-clearance targeted flora survey over the proposed drill pads and access tracks on 8 to 14 December 2013 (Outback Ecology, 2014a). The EPA Technical Guidance for Flora and Vegetation Surveys for Environmental Impact Assessment (2016) stated that the appropriate time to conduct a flora survey in the Eremaean region is six to eight weeks post wet season which lies approximately from March through June (EPA, 2016). As a result, targeted annual and ephemeral flora species were not visible during the survey (Outback Ecology, 2014a).

Similarly, on 26 to 31 September 2018, a second pre-clearance targeted flora and fauna survey was undertaken over the proposed areas of clearing within the application area (Stantec, 2018). However, prior this survey being undertaken, a large scale fire was recorded during the middle of 2017 burning the majority of the application area. As a result, majority of the vegetation associated with the application area was lost, and pioneer species along with epicormics vegetation growth populated the application area (Stantec, 2018). The direct and indirect effects of this fire on the biological values of the application area posed a great limitation on the results of the pre-clearance survey undertaken.

Despite the permit holder commissioning multiple flora surveys within the application area, none are considered satisfactory in providing a true and accurate description of the current biological values and landscape of the application area post major disturbances. The lack of acceptable vegetation and flora survey data brings a level of uncertainty when assessing the level of biodiversity within the application area.

*Flora*

Despite no records of threatened or priority species of flora occurring within a 20 kilometre radius of the application area (Outback Ecology, 2014a; Stantec, 2018; GIS Database), the desktop assessment commissioned by the permit holder found 16 species of conservation significant flora potentially occurring within the application area (Appendix A.3). Following the pre-clearance targeted flora survey (Outback Ecology, 2014a), the habitat features for seven of the 16 flora species were not found within the survey area (Appendix A.3) (Outback Ecology, 2014a). Given the pre-clearance targeted flora survey (Outback Ecology, 2014a) covered a very small percentage of the entire application area, the following conservation significant flora species may have been overlooked; *Acacia auricoma, Dicrastylis subterminalis, Euphorbia parvicaruncula, Indigofera gilesii, Lythrum paradoxum, Verticordia mirabilis* and *Apowollastonia stirlingii* (Tate) Orchard subsp*. Stirlingii* to occur within the application area.

The most recent biological survey conducted over the application area concluded that if any conservation significant species of flora were present within the application area, the conditions surrounding the survey were unfavourable and potentially not observable post-fire (Stantec, 2018). Upon viewing aerial imagery, regrowth of vegetation since the 2017 fire can be observed within the application area. Given the fire occurred over six years ago, the current vegetation and conservation flora within the application area has the potential to have significantly changed since the last survey.

*Vegetation*

Description of the vegetation condition was absent within the pre-clearance surveys. However, aerial imagery indicates the current vegetation within the application area ranges from good, poor, and very poor conditions (Trudgen, 1991). The desktop assessment prior the 2017 wild fire identified 11 introduced species with the potential to occur within the application area, two of which are classified as Weeds of National Significance; *Rumex vesicarius* (Ruby Dock) and *Cenchrus ciliaris* (Buffel Grass) (Outback Ecology, 2013). However, the pre-clearance survey undertaken over the application area post-fire observed pioneer species were dominant within the vegetation and shrubs were identified as epicormic vegetative growth (Stantec, 2018). It is inferred weed abundance would be higher post-fire consequently affecting the possibility of conservation significant flora species occurring within the application area.

Conclusion

The lack of current vegetation and flora surveys undertaken over the entirety of the application area has posed a constraint against identifying the environmental impacts caused by the proposed clearing. Therefore, based on the above assessment, the proposed clearing may potentially result in loss of conservation significant flora species and their respective habitats features. This can be managed by continuous implementation of the flora management condition to minimise the risk of clearing priority flora that may be occurring within the application area. Furthermore, weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the continuous implementation of a weed management condition.

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
- to undertake pre-clearance surveys to identify and avoid Threatened and Priority flora.

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

*Surveys*

On July 2013, the permit holder commissioned a vegetation, flora and fauna desktop assessment of the underlying tenement'. However, this desktop assessment did not include a site visit or reconnaissance survey to ground truth the data presented within the report (Outback Ecology, 2013).

On 24 August 2013, the Department granted clearing permit CPS 5648/1. In compliance with permit Condition 7 of the permit, the permit holder commissioned a pre-clearance targeted fauna survey over the proposed drill pads and access tracks on 8 to 14 December 2013 (Outback Ecology, 2014b).

Similarly, on 26 to 31 September 2018, a second pre-clearance targeted flora and fauna survey was undertaken over the proposed areas of clearing within the application area (Stantec, 2018). However, prior this survey being undertaken, a large scale fire was recorded during the middle of 2017 burning the majority of the application area (Stantec, 2018). Given the major disturbances caused by the intense wild fire within the application area in relation to the presence and habitat of conservation significant fauna that may have been present, the timing of when this survey was undertaken is unlikely to be a true and accurate description of what is currently present within the application area.

*Fauna*

Despite no records of threatened or priority species of fauna within a 20 kilometre radius of the application area (Outback Ecology, 2014b; Stantec, 2018; GIS Database), the desktop assessment commissioned by the permit holder found 14 species of conservation significant fauna potentially occurring within the application area (Appendix A.4) (Outback Ecology, 2013). Of the 14 potentially occurring species, the following four species; *Macrotis lagotis* (Bilby, VU), *Dasycercus blythi* (Brush-tailed Mulgara, P4), *Dasycercus cristicauda* (Crest-tailed Mulgara, P4) and *Liopholis kintorei* (Great Desert Skink, VU) required targeted pre-clearance surveys as outlined in permit Condition 7 'Fauna Management'.

*Macrotis lagotis* (Bilby), Vulnerable – This species was once widely distributed but is now restricted to a portion of its former range with wild populations restricted primarily to the Tanami Desert in Northern Territory, the Great Sandy and Gibson Deserts in Western Australia, and an outlying population in south-west Queensland. This decline is thought to be primarily associated with predation by the European Red Fox (*Vulpes vulpes*) and the Feral Cat (*Felis catus*), although the role of the latter is uncertain. In addition to predation, habitat degradation and competition from introduced herbivores, drought, unsuitable fire regimes and habitat destruction have been identified as threats. The Bilby is often found in desert sand plains, dune fields with hummock grasslands, and massive red earths and Acacia shrub lands. It digs large burrows in sandy substrates and its distribution may be limited by the availability of suitable burrowing substrates (Stantec, 2014b).

*Dasycercus blythi* (Brush-tailed Mulgara), Priority 4 - Historically occurred across much of the arid interior, but since European settlement its abundance has declined. Furthermore, the Brush-tailed Mulgara is susceptible to predation by the Feral Cat and European Red Fox. The Brush-tailed Mulgara occurs in arid zone habitats, often in association with dune systems with previous observations reported in sand ridges and spinifex grasslands in dune swales. Burrows constructed by the Brush-tailed Mulgara contain multiple side-tunnels and pop-holes and entrances are usually characterised by having an approximately equal height and width, a rounded base and a high arch with scats usually present (Stantec, 2014b).

*Dasycercus cristicauda* (Crest-tailed Mulgara), Priority 4 - Historically occurred across much of the arid interior of Australia but it has more recently been reported only from the southern Simpson Desert in the Northern Territory and the northern Strzelecki and Tirari Deserts in South Australia. The decline of the Crest-tailed Mulgara may be a product of predation by the European Red Fox and Feral Cat along with habitat degradation from the Camel (*Camelus dromedarius*), European Rabbit (*Oryctolagus cuniculus*) and stock. The Crest-tailed Mulgara appears to be largely restricted to dune systems; it occurs on dune crests and steep slopes with Sandhill Cane Grass (*Zygochloa paradoxa*) clumps and Nitre Bush (*Nitraria billardieri*) hummocks. The species constructs burrows on dune crests, excavated with multiple side-tunnels and pop-holes at the bases of Sandhill Cane Grass clumps or Nitre Bush hummocks. Furthermore, burrow entrances are usually characterised by an approximately equal height and width, a rounded base and a high arch with scat usually present (Stantec, 2014b).

*Liopholis kintorei* (Great Desert Skink), Vulnerable – The current distribution is thought to consist of seven isolated populations in Australia. Threatening processes which may have been factors in the decline of this species include inappropriate fire management, predation by introduced predators, and habitat modification by European Rabbits, which have the potential to dig up and disrupt burrow systems. The Great Desert Skink lives communally in warren systems with multiple entrances, dug amongst spinifex grasslands, in sandy soils on arid red sand flats or in loamy clay soils. The large, elaborate burrow systems are utilised by many other fauna, including other species of conservation significance such as Mulgara, and the importance of these burrow systems to ecosystem function is therefore likely to be considerable. Active burrow systems are usually characterised by at least one communal scat pile or latrine, as well as signs of freshly dug sand at one or more of the entrances (Stantec, 2014b).

The 2014 pre-clearance survey identified two habitat types within the surveyed area; dune fields (approximately 16.7%) and, Eucalyptus and Acacia over hummock grassland (approximately 83.3%), with approximately 17.3% of the Eucalyptus and Acacia over hummock grassland habitat type dominated by exposed calcrete (Outback Ecology, 2014b). Coupled with evidence of feral species including camel scats and cat tracks, the survey area was indicative of an undesirable habitat for burrowing fauna species (Outback Ecology, 2014b). The survey also concluded that the application area was well outside of the distribution for the Crest-tailed Mulgara and therefore highly unlikely to occur within the application area and surrounds (Outback Ecology, 2014b).

Similarly, the 2018 pre-clearance survey conducted after the intense fire recorded at total of 20 species, none of which were conservation significant, but included four introduced species (Stantec, 2018). However, an important limitation of the survey was the large scale fire that burnt through the application area during the middle of 2017 resulting in the loss of large spinifex hummocks within the application area leaving only young and sparse vegetation that lacked cover as observed during the survey (Stantec, 2018). This created a lack of suitable habitat for the targeted conservation significant fauna and therefore species would unlikely rely on the application area for habitat and foraging resources. Presence of feral species including *Felis catus* (cat) and *Vulpes vulpes* (fox) recorded within the survey area coupled with the lack of shelter from the burnt vegetation would likely increase the vulnerability of conservation significant species to predation (Stantec, 2018).

Despite surveys recording no species of conservation significant fauna within the application area, the pre-clearance nature of the surveys undertaken are deemed insufficient in representing the fauna occurring within the entire application area, particularly due to the limitations caused by the large scale fire. Given that it has been six years since the fire, it can be inferred that the landscape including available vegetation and fauna population within the application area has significantly changed since the last survey conducted in 2018.

Conclusion

The lack of current fauna surveys undertaken over the entirety of the application area has posed a constraint against identifying the environmental impacts caused by the proposed clearing. Therefore, based on the above assessment, the proposed clearing may potentially result in loss of conservation significant fauna species and their respective suitable habitats. This can be managed by the continuous implementation of the fauna management condition to minimise the risk of clearing conservation significant fauna that may be occurring within the application area.

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;
- to undertake pre-clearance surveys to identify and avoid
    - *Macrotis lagotis* (Bilby) burrows;
    - *Dasycercus blythi* (Brush-tailed Mulgara) burrows;
    - *Dasycercus cristicauda* (Crest-tailed Mulgara) burrows; and
    - *Liopholis kintorei* (Great Desert Skink) burrows.

## 3.3. Relevant planning instruments and other matters

The amendment application was advertised on 16 June 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WCD2005/002) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court on behalf of the claimant group. However, the exploration 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*.

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 | The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation and landscape of the Central Ranges bioregion and lies approximately 15 kilometres west of the Northern Territory border and 20 kilometres northwest of the Wingellina Nickel Project (GIS Database). |
| Ecological linkage | The application area does not form part of any formal or informal ecological linkages (GIS database) |
| Conservation areas | The application area is located within the Ranges of the Western Desert which is classified as both a Schedule 1 Redbook area and an Environmentally Sensitive Area belonging on the Register of National Estate (GIS Database). The Ranges of the Western Desert covers a total area of approximately 8,019,568 hectares described as a series of mountain ranges of varied topography and geology containing colourful and spectacular scenery, and a place of Indigenous values (Australian Heritage Database, 2011; GIS Database). |
| Vegetation description | The vegetation of the application area is broadly mapped as the following Beard vegetation associations:<br>19: Mulga *Acacia aneura* and associated species;<br>39: Wattle, teatree & other species Acacia spp. Melaleuca spp.; and<br>230: Desert oak with soft spinifex *Allocasuarina decaisneana* over *Triodia pungens* (GIS database).<br><br>A targeted flora and fauna survey was undertaken over the application area by Stantec (2018) during 26 to 31 September 2018. Given the majority of the application was subject to intense fires approximately 18 months prior, the survey was able to identify two broad vegetation types within the application area:<br>A: Tall shrubland of *Eucalyptus oxymitra*, and *E. gamophylla* with occasional *E. socialis* over an open shrubland; and<br>B: Scattered shrubs of *Acacia maitlandii* and *A. ligulata* with occasional *Senna artemisioides subsp. Filifolia* and *Eremophila platythamnos subsp. exotrachys* over *Triodia basedowii* and *T. pungens* hummock grassland. |
| Vegetation condition | Aerial imagery indicates vegetation within the application area is in good, poor, and very poor (Trudgen, 1991) condition, described as:<br>- 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.<br>- 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.<br>- 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.<br><br>Furthermore, the targeted flora and fauna survey undertaken over the application area post-fire observed pioneer species were dominant within the vegetation and shrubs were identified as epicormic vegetative growth (Stantec, 2018)<br><br>The full Trudgen (1991) condition rating scale is provided in Appendix C. |
| Climate and landform | The application area is located in the Mann-Musgrave Block subregion of the Central Ranges bioregion described as a true arid desert with an annual average rainfall 292.8 millimetres (Giles Meteorological Office) (BoM, 2023).<br>The surveyed application area consisted of undulating sand plains with outcrops and cobbles of calcrete, interspersed by occasional low dunes (dominated by *Aluta maisonneuvei*) and small sandy clay pans/depressions (Stantec, 2018). |
| Soil description and land degradation risk | The soil within the application area is mapped as soil unit My112 (GIS Database). Soil unit My112 chief soils consist of neutral red earths and red earthy sands (Northcote et al., 1960-68). |

| Characteristic | Details |
|---|---|
| | The application area lies within the My112 atlas land system (DPIRD, 2023). The My112 atlas system is described as extensive plains with numerous dunes which are often short and of irregular shape and orientation (DPIRD, 2023). |
| Waterbodies | The desktop assessment and aerial imagery indicated that one minor non-perennial lake lies along the northern border of the application area (GIS Database). |
| Hydrogeography | The application area falls within the East Murchison Groundwater area which is legislated by the *RIWI Act 1914* (GIS Database). The maximum salinity within the application area varies from 1000 to 3000 milligrams per litre total dissolved solids, which is described as brackish water quality.<br><br>The application area does not intersect any Public Drinking Water Source Areas (PDWSA) (GIS Database). |
| Flora | No Threatened or Priority flora species were recorded within a 20 kilometre radius of the application area (Stantec, 2018; GIS Database). Based on habitats found during the field survey, it was determined that four flora species of conservation significance were identified to potentially occur within the application area (Stantec, 2018). |
| Ecological communities | The application area is not located within a known or mapped Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) (GIS Database). The closest record of a PEC is the Great Victoria Desert (P3) which lies approximately 600 kilometres south west of the application area (GIS Database). |
| Fauna | No Threatened, Priority or Specially Protected fauna have previously been recorded within the application area (GIS Database) and no significant fauna species were recorded during the targeted fauna survey (Stantec, 2018). Furthermore, due to the intense fire occurring approximately 18 months prior to the targeted fauna survey, the majority of the application area was burnt and therefore provided minimal suitability for conservation significant species owing to the large expanses of limited shelter and lack of suitable spinifex habitat (Stantec, 2018). |

## 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 - Central Ranges | 4,701,519.37 | 4,700,206.00 | 99.97 | N/A | N/A |
| IBRA Subregion - Mann-Musgrave Block | 4,701,519.37 | 4,700,206.00 | 99.97 | N/A | N/A |
| Local Government - Shire of Ngaanyatjarraku | 15,983,435.82 | 15,980,046.26 | 99.98 | 11.52 | 11.52 |
| Beard vegetation associations - State (Western Australia) | | | | | |
| Veg Assoc No. 19 | 4,385,295.47 | 4,384,249.90 | 99.98 | 30,947.80 | 0.71 |
| Veg Assoc No. 39 | 6,613,567.48 | 6,602,578.44 | 99.83 | 795,070.69 | 12.02 |
| Veg Assoc No. 230 | 1,453,287.54 | 1,451,249.66 | 99.86 | N/A | N/A |
| Beard vegetation associations - Bioregion (Central Ranges) | | | | | |
| Veg Assoc No. 19 | 902,247.79 | 902,170.93 | 99.99 | N/A | N/A |
| Veg Assoc No. 39 | 404,689.10 | 404,689.10 | 100.00 | N/A | N/A |
| Veg Assoc No. 230 | 1,180,953.67 | 1,180,953.67 | 100.00 | N/A | N/A |
| Beard vegetation associations - Subregion (Mann-Musgrave Block) | | | | | |
| Veg Assoc No. 19 | 902,247.79 | 902,170.93 | 99.99 | N/A | N/A |

| | | | | | |
|---|---|---|---|---|---|
| Veg Assoc No. 39 | 404,689.10 | 404,689.10 | 100.00 | N/A | N/A |
| Veg Assoc No. 230 | 1,180,953.67 | 1,180,953.67 | 100.00 | N/A | N/A |

Government of Western Australia (2019)

## A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information (Outback Ecology, 2013; 2014a; Stantec, 2018) the following conservation significant flora have been assessed and found to possibly occur within the application area.

| Species name | Conservation status | Suitable habitat features? | Number of known records (total) | Are surveys adequate to identify? |
|---|---|---|---|---|
| *Acacia auricoma* | P3 | N | 3 | N |
| *Daviesia arthropoda* | P3 | Y | 7 | N |
| *Dicrastylis subterminalis* | P1 | N | 1 | N |
| *Eucalyptus sparsa* | P3 | Y | 3 | N |
| *Euphorbia parvicaruncula* | P1 | N | 2 | N |
| *Goodenia gibbosa* | P3 | Y | 8 | N |
| *Goodenia modesta* | P3 | Y | 27 | N |
| *Indigofera gilesii* | P3 | N | 39 | N |
| *Lythrum paradoxum* | P3 | N | 2 | N |
| *Menkea lutea* | P1 | Y | 5 | N |
| *Neurachne lanigera* | P1 | Y | 17 | N |
| *Teucrium grandiusculum* subsp. *grandiusculum* | P2 | Y | 1 | N |
| *Thysanotus* sp. Desert East of Newman | P2 | Y | 7 | N |
| *Verticordia mirabilis* | P1 | N | 5 | N |
| *Vittadinia pustulata* | P3 | Y | 11 | N |
| *Apowollastonia stirlingii* (Tate) Orchard subsp. *stirlingii* | P1 | N | 2 | N |

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

## A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information (Outback Ecology, 2013; 2014b; Stantec, 2018) the following conservation significant fauna have been assessed and found to possibly occur within the application area.

| Species name | Common name | EPBC Status | WA Status | Suitable habitat features? | Are surveys adequate to identify? |
|---|---|---|---|---|---|
| Reptiles | | | | | |
| *Aspidites ramsayi* | Woma | - | P1 | Y | N |
| *Liopholis kintorei* | Great Desert Skink | VU | VU | Y | N |
| Birds | | | | | |
| *Amytornis striatus striatus* | Striated Grasswren | - | P4 | Y | N |
| *Apus pacificus* | Fork-tailed Swift | MI | MI | Y | N |
| *Falco hypoleucos* | Grey Falcon | - | VU | Y | N |

| | | | | | |
|---|---|---|---|---|---|
| *Falco peregrinus* | Peregrine Falcon | - | OS | Y | N |
| *Polytelis alexandrae* | Princess Parrot | VU | P4 | Y | N |
| Mammals | | | | | |
| *Dasycercus blythi* | Brush-tailed Mulgara | - | P4 | Y | N |
| *Dasycercus cristicauda* | Crest-tailed Mulgara | - | P4 | Y | N |
| *Leipoa ocellata* | Malleefowl | VU | VU | Y | N |
| *Macrotis lagotis* | Greater Bilby | VU | VU | Y | N |
| *Notoryctes typhlops* | Central Marsupial Mole | - | P4 | Y | N |
| *Nyctophilus major tor* | Western Long-eared Bat | - | P3 | Y | N |
| *Sminthopsis psammophila* | Sandhill Dunnart | EN | EN | Y | N |

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: Other Specially Protected

## Appendix B. Assessment against the clearing principles

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---|---|
| **Environmental value: biological values** | | |
| Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."*<br>Assessment:<br>Desktop assessment and pre-clearance surveys conducted within the application area found zero records of conservation significant flora or fauna species within a 20km radius of the application area (Outback Ecology, 2014a; 2014b; Stantec, 2018) (GIS Database). However, 16 priority flora species (Appendix A.3) and 14 significant fauna species (Appendix A.4) recorded within the local region were determined to potentially occur within the application area. | May be at variance<br>As per CPS 5648/2 | Yes<br>*Refer to Section 3.2.1, 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."*<br>Assessment:<br>Despite no records of conservation significant fauna occurring within a 20 kilometre radius of the application area (GIS Database), the area proposed to be cleared may contain habitat for several conservation significant fauna species. | May be at variance<br>As per CPS 5648/2 | Yes<br>*Refer to Section 3.2.1, above.* |
| Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."*<br>Assessment:<br>There are no known records of Threatened flora within 20 kilometres of the application area (GIS Database). Flora surveys of the application area did not record any species of Threatened flora (Outback Ecology, 2014a; Stantec, 2018).<br>However, given the significant limitations of the flora and vegetation surveys conducted within the application area (Outback Ecology, 2014a; Stantec, 2018), coupled with the fact no systematic surveying on a regional scale has been conducted within the Central Ranges bioregion (CALM, 2002), the existence of Threatened flora within the application area and surrounds is still uncertain.<br>The potential impacts of the proposed clearing on Threatened flora may be adequately minimised through a flora management condition that will require the permit holder to conduct a targeted flora survey prior any clearing within the application area. | May be at variance<br>As per CPS 5648/2 | 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."*<br>Assessment:<br>There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database). Flora and vegetation surveys | Not at variance<br>Changed from CPS 5648/2 | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---|---|
| of the application area and surrounds did not identify any vegetation representative of a TEC (Outback Ecology, 2013). | | |
| **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."*<br><br>Assessment:<br><br>The application area falls within the Central Ranges Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Central Ranges Bioregion (Government of Western Australia, 2019).<br><br>The application area is broadly mapped as Beard vegetation associations; 19, 39 and 230 (GIS Database), These vegetation associations have not been extensively cleared as over 99% of the pre-European extent of these vegetation association remain uncleared at a state, bioregional, and subregional level (Government of Western Australia, 2019). | Not at variance<br><br>As per CPS 5648/2 | 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."*<br><br>Assessment:<br><br>The application area lies within the Ranges of the Western Desert which is classified as both a Schedule 1 Redbook area and an Environmentally Sensitive Area (ESA) belonging on the Register of National Estate (RNE).<br><br>The Australian Heritage Commission described the Ranges of the Western Desert to contain colourful and spectacular scenery, and a place of Indigenous values of National Estate significance (Australian Heritage Database, 2011). Furthermore, the Commission's statement of significance recorded the presence of an endemic and rare species of *Ptilotus royceanus* (P1) along with a new species of *eucalypt* and *prostanthera* found within the Ranges of the Western Desert (Australian Heritage Database, 2011). However, given the application area overlaps approximately 0.05% of the Ranges and no records of these flora species occur within a 20 km radius of the application area (Outback Ecology, 2014a) (GIS Database), the proposed clearing is unlikely to impact the environmental values of the Ranges of the Western Desert.<br><br>The closest conservation area is the Pila Nature Reserve (Gibson Desert) which lies approximately 250 kilometres north west of the application area (GIS Database). Given the distance to Pila Nature Reserve, the proposed clearing is unlikely to have an impact on the environmental values of any conservation areas. | Not likely to be at variance<br><br>As per CPS 5648/2 | 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."*<br><br>Assessment:<br><br>The application area contains one minor non-perennial lake with native vegetation found growing in association with the watercourse (GIS Database).<br><br>However, given 23 other non-perennial lakes are found to occur within a 20 kilometre radius of the application area (GIS Database), the vegetation types association with the watercourse located within the application area are likely common within the local area. | At variance<br><br>As per CPS 5648/2 | No |
| Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."*<br><br>Assessment:<br><br>The application area falls within the My112 atlas land system is described as extensive plains with numerous dunes which are often short and of irregular shape and orientation (DPIRD, 2023). Given the permit holder has proposed to clear up to only 40 hectares within a boundary of approximately 3,700 hectares with clearing | Not likely to be at variance<br><br>As per CPS 5648/2 | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---|---|
| activities limited to drill pads and graded gridlines, the proposed clearing is not likely to have an appreciable impact on land degradation. | | |
| 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."*<br><br>Assessment:<br><br>The application area contains one minor non-perennial watercourse and no Public Drinking Water Source Areas are located within or in close proximity to the application area (GIS Database). The mapped groundwater salinity is 1000-3000 milligrams per litre which is described as brackish water quality (GIS Database). Therefore, the quality of groundwater is unlikely to be significantly impacted from the proposed clearing. | Not at variance<br><br>Changed from CPS 5648/2 | No |
| Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."*<br><br>Assessment:<br><br>Given no permanent watercourses or wetlands wetlands are recorded within the application area and that the average annual evaporation (3,200 to 3,600 millimetres) (BoM, 2023) is higher than the average annual rainfall (292.8 millimetres) (Giles Meteorological Office, BoM, 2023), the proposed clearing for exploration purposes is unlikely to cause, or exacerbate, the incidence or intensity of flooding. | Not at variance<br><br>Changed from CPS 5648/2 | 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):

- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- 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
- Native Title (ILUA) (LGATE-067)
- 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** | *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 |
| **DER** | Department of Environment Regulation, Western Australia (now DWER) |
| **DMIRS** | Department of Mines, Industry Regulation and Safety, Western Australia |
| **DMP** | Department of Mines and Petroleum, Western Australia (now DMIRS) |
| **DoEE** | Department of the Environment and Energy (now DCCEEW) |
| **DoW** | Department of Water, Western Australia (now DWER) |
| **DPaW** | Department of Parks and Wildlife, Western Australia (now DBCA) |
| **DPIRD** | Department of Primary Industries and Regional Development, Western Australia |
| **DPLH** | Department of Planning, Lands and Heritage, Western Australia |
| **DRF** | Declared Rare Flora (now known as Threatened Flora) |
| **DWER** | Department of Water and Environmental Regulation, Western Australia |
| **EP Act** | *Environmental Protection Act 1986*, Western Australia |
| **EPA** | Environmental Protection Authority, Western Australia |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* (Federal Act) |
| **GIS** | Geographical Information System |
| **ha** | Hectare (10,000 square metres) |
| **IBRA** | Interim Biogeographic Regionalisation for Australia |
| **IUCN** | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| **PEC** | Priority Ecological Community, Western Australia |
| **RIWI Act** | *Rights in Water and Irrigation Act 1914*, Western Australia |
| **TEC** | Threatened Ecological Community |

### Definitions:

**{DBCA (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.