

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	6412/3
Permit type:	Purpose Permit
Applicant name:	MacPhersons Resources Limited
Application received:	19 November 2024
Application area:	100 hectares
Purpose of clearing:	Mineral production and associated infrastructure
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 25/355, 26/29, 26/277, 26/318, 26/490 Miscellaneous Licence 26/240, 26/266
Location (LGA area/s):	City of Kalgoorlie-Boulder
Colloquial name:	Boorara Gold Project

1.2. Description of clearing activities

MacPhersons Resources Limited proposes to clear up to 100 hectares of native vegetation within a boundary of approximately 411 hectares, for the purpose of mineral production and associated infrastructure (MacPhersons Resources Limited, 2024). The project is located approximately 17 kilometres south-east of Kalgoorlie, in the City of Kalgoorlie-Boulder (GIS Database).

Clearing permit CPS 6412/1 was granted by the Department of Mines and Petroleum (now the Department of Energy, Mines, Industry Regulation and Safety) on 5 February 2015 and was valid from 28 February 2015 to 28 February 2020. The permit authorised the clearing of up to 100 hectares of native vegetation within a boundary of approximately 411 hectares, for the purposes of mineral production and associated infrastructure.

CPS 6412/2 was granted on 30 January 2020, amending the permit to extend the permit duration by five years.

On 19 November 2024, the Permit Holder applied to amend CPS 6412/2 to extend the permit duration by five years.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	30 January 2025
Decision area:	100 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51O and 51KA(1) of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on 19 November 2024. DEMIRS advertised the application for public comment for a period of 7 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics, relevant datasets, the clearing principles set out in Schedule 5 of the EP Act, and any other matters considered relevant to the assessment.

After consideration of the available information, the Delegated Officer determined that the proposed clearing is not likely to lead to an unacceptable risk to the environment. The Delegated Officer decided to grant a clearing permit with standard and additional non-standard management conditions.

2. Assessment of application

2.1. Avoidance and mitigation measures

While no evidence of avoidance or mitigation measures was provided to support the application, noting the potential impacts of the proposed clearing can be managed through conditions on the clearing permit, it was deemed that no further consideration is required to minimise impacts on environmental values.

2.2. Assessment of impacts on environmental values

The total clearing of native vegetation conducted under CPS 6412/1 and CPS 6412/2 as of 30 June 2024 is 42.486 hectares. No clearing has been conducted after 30 June 2021 (Horizon Minerals Ltd, 2024). A review of the available databases of the application area has been conducted and no new records of conservation significant flora or fauna have been identified (GIS Database).

The assessment against the ten clearing principles identified that the native vegetation proposed to be cleared contains a Priority 1 flora species (*Grevillea phillipsiana*). This species was recorded twice within the application area (Mattiske, 2014). No Threatened flora species were recorded in the application area (Mattiske, 2014; GIS Database). Impacts to Priority flora within the application area can continue to be managed through the continued implementation of the flora management condition on the clearing permit, ensuring the permit holder will avoid clearing within 10 metres of the recorded individuals of *Grevillea phillipsiana*.

The Arid bronze azure butterfly (ABAB) (*Ogyris petrina* formally known as *Ogyris subterrestris petrina*) is listed as Critically Endangered under the BC Act and the EPBC Act. ABAB populations are severely fragmented, restricted in geographic range and sensitive to clearing and habitat disturbance (DBCA, 2020). The preferred habitat for this species is described as vegetation of mature mixed gimlet (*Eucalyptus salubris*), salmon gum (*Eucalyptus salmonophloia*) woodlands on red-brown loam soils, with an open understorey (DBCA, 2020). Most of the application area is covered by Eucalypt Woodlands (Mattiske, 2014). Potential impacts to ABAB can be minimised with the implementation of a pre-clearance fauna survey condition which requires the permit holder to engage a fauna specialist to identify any potential critical habitat utilised by the ABAB.

Inland hairstreak butterfly (*Jalmenus aridus*) is listed as Priority 1 and is data deficient. This species was previously only known to two locations near Kalgoorlie, however, has been recorded from another 10 locations within an area of extending approximately 121 kilometres north to south by 42 kilometres east to west (Eastwood *et al.*, 2023). The preferred habitat for this species is summarised as open woodland, *Senna artemisioides* subsp. *filifolia*, variety of flowering shrubs (*Eremophila*, *Scaveola*, and *Maireana*) and open areas of well drained exposed ground adjoining the hostplants (Eastwood *et al.*, 2023). Inland hairstreak caterpillars feed on flowers of *Senna artemisioides* subsp. *filifolia* and this species forms an obligate association with ant species, *Froggattella kirbii* (Eastwood *et al.*, 2023). Vegetation type C1 in the application area contains *Senna artemisioides* subsp. *filifolia* (Mattiske, 2014) which is likely to provide habitat for the Priority 1 inland hairstreak (*Jalmenus aridus*) (Eastwood *et al.*, 2023). Potential impacts to inland hairstreak butterfly can be minimised with the implementation of a pre-clearance fauna survey condition which requires the permit holder to engage a fauna specialist to identify potential critical habitat utilised by the inland hairstreak.

A targeted malleefowl survey determined the vegetation structure adjacent to the application area was generally unsuitable for mound building for malleefowl due to a lack of available ground cover (shrub understorey and leaf litter) (Outback Ecology, 2014). Additionally, substrate adjacent to the application area (heavy red clay) was considered unsuitable for malleefowl because soils with high clay content have low porosity which limits drainage of water and are therefore not suitable for the construction of malleefowl mounds (Outback Ecology, 2014). These findings are likely to be true for the application area as well due to the close proximity of the survey to the application area (GIS Database).

The application area does not form a part of a Threatened or Priority Ecological Community (Mattiske, 2014; GIS Database). At the bioregion (Murchison) level, over 99 per cent of the pre-European vegetation extent remains (Government of Western Australia, 2019). The nearest conservation area is located over 1.7 kilometres west of the application area and the proposed clearing is not likely to impact on the environmental values of this area (GIS Database). Given there are no permanent watercourses in the application area (GIS Database), the proposed clearing is not likely to significantly impact surface water quality, groundwater quality or lead to increase in flooding.

Noting the soils in the application area are moderately susceptible to water erosion (Pringle, *et al.*, 1994), the proposed clearing may be at variance to principle (g) and may increase the risk of water erosion in the application area. However, potential land degradation impacts can be managed by the continued implementation of a staged clearing condition, preventing cleared areas from being exposed for long periods of time.

Although various drainage lines intersect the application area, the surface flows of these drainage lines are likely to be dry most of the year therefore it is not expected the proposed clearing will have a detrimental effect on native vegetation growing in, or in association with a watercourse or wetland (Mattiske, 2014; GIS Database). The proposed clearing is not likely to be at variance to principle (f).

Based on the above, the proposed clearing may be at variance to principles (a), (b), and (g), is not at variance with principle (e), and is not likely to be at variance with the remaining clearing principles.

The vegetation associations, fauna habitats and landform types present within the permit area, are well represented in surrounding areas (Mattiske, 2014; GIS Database). The extension of five years for the permit duration is unlikely to result in any significant change to the environmental impacts of the proposed clearing.

The amendment application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*. Environmental information has been reviewed, and the assessment of the proposed clearing against the clearing principles remains consistent with the assessment contained in previous versions of the decision report, with the exception of principle (b). The variance of the proposed clearing to this principle has changed due to recent knowledge and guidelines for the ABAB and inland hairstreak being made available.

2.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 17 January 2025 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC2017/007) over the area under application (DPLH, 2025). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group (MARLINYU GHOORLIE). 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 is one registered Aboriginal Sites of Significance within the application area (DPLH, 2025). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- 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.

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 the native vegetation of the Coolgardie Bioregion and the current Boorara Gold Project (GIS Database).
Ecological linkage	According to the aerial imagery, the application area does not form part of any formal or informal ecological linkages (GIS Database).
Conservation areas	The application area is not located within any known or mapped conservation area (GIS Database). The closest conservation area is Lakeside Timber Reserve, located approximately 1.7 kilometres west of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association: 468: Wheatbelt; York gum, salmon gum etc. <i>Eucalyptus loxophleba</i>, <i>E. salmonophloia</i>. Goldfields; gimlet, redwood etc. <i>E. salubris</i>, <i>E. oleosa</i>. Riverine; rivergum <i>E. camaldulensis</i> (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Mattiske Consulting Pty Ltd during April, 2014. The following vegetation types were recorded within the application area (Mattiske, 2014):</p> <p>Eucalypt Woodlands</p> <p>E1: Very Open Woodland of <i>Eucalyptus ravidia</i>, <i>Eucalyptus stricklandii</i>, <i>Eucalyptus transcontinentalis</i> and <i>Eucalyptus salmonophloia</i> over mixed <i>Eremophila</i> species over <i>Atriplex nummularia</i> and mixed shrubs on flats with red/brown clay soils and scattered quartz pebbles.</p> <p>E3: Open Woodland of <i>Eucalyptus stricklandii</i> with occasional <i>Eucalyptus ravidia</i> and <i>Eucalyptus salmonophloia</i> over <i>Casuarina pauper</i> over <i>Eremophila interstans</i> subsp. <i>virgata</i> and <i>Exocarpos aphyllus</i> over <i>Atriplex nummularia</i>, <i>Atriplex vesicaria</i> and mixed shrubs on flats with rocky red/brown clay soils.</p> <p>E4: Open Woodland of <i>Eucalyptus salmonophloia</i> with occasional <i>Eucalyptus transcontinentalis</i> and <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> over <i>Atriplex nummularia</i>, <i>Exocarpos aphyllus</i> and <i>Eremophila interstans</i> and mixed shrubs on flats with red/brown clay soils.</p> <p>E5: Open Low Woodland of <i>Eucalyptus stricklandii</i>, <i>Casuarina pauper</i> and occasional <i>Eucalyptus griffithsii</i> over <i>Santalum spicatum</i> and <i>Acacia burkittii</i> over <i>Dodonaea lobulata</i>, mixed <i>Eremophila</i> species and other mixed shrubs over occasional <i>Triodia scariosa</i> on flats with red/brown clay soils with scattered ironstone and quartz pebbles.</p> <p>E6: Open Woodland of <i>Eucalyptus salmonophloia</i>, <i>Eucalyptus celastroides</i>, <i>Eucalyptus ?yilgarnensis</i>, <i>Eucalyptus ravidia</i>, and <i>Eucalyptus stricklandii</i> over <i>Eremophila interstans</i>, mixed <i>Atriplex</i> species, <i>Exocarpos aphyllus</i>, and mixed shrubs and Chenopods on flats with red/brown clay soils with scattered ironstone pebbles.</p>

Characteristic	Details
	<p>E7: Open Woodland of <i>Eucalyptus griffithsii</i> and <i>Eucalyptus lesouefii</i> over <i>Acacia burkittii</i>, mixed <i>Eremophila</i> species, <i>Dodonaea lobulata</i> and <i>Atriplex nummularia</i> over mixed shrubs with red/brown clay soils.</p> <p>E8: Open Woodland of <i>Eucalyptus ravidia</i>, <i>Eucalyptus stricklandii</i>, <i>Eucalyptus transcontinentalis</i> and <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> over <i>Atriplex nummularia</i> and mixed shrubs on flats with red/brown clay soils.</p> <p>E9: Open Woodland of <i>Eucalyptus griffithsii</i> over mixed <i>Acacia</i> and <i>Eremophila</i> species over mixed shrubs on flats with red/brown clay soils.</p> <p>E10: Thicket of <i>Eucalyptus griffithsii</i> over <i>Acacia</i> and <i>Eremophila</i> species and mixed shrubs on red/brown clay soils with calcrete pebbles.</p> <p>E11: Low woodland of <i>Eucalyptus ravidia</i>, <i>Melaleuca sheathiana</i> and occasional <i>Eucalyptus lesouefii</i> over <i>Eremophila</i> and mixed shrubs on flats with red/brown clay soils and scattered ironstone pebbles.</p> <p>E12: Closed woodland of <i>Eucalyptus lesouefii</i> over mixed <i>Eremophila</i> species and <i>Atriplex nummularia</i> over mixed shrubs on lower-slopes with red/brown soils.</p> <p>E13: Closed woodland of <i>Eucalyptus ravidia</i> over mixed <i>Eremophila</i> species and mixed shrubs on flats with red/brown clay soils.</p> <p>E14: Open woodland of <i>Eucalyptus ?lesouefii</i>, <i>Eucalyptus griffithsii</i> and <i>Casuarina pauper</i> over <i>Melaleuca sheathiana</i>, <i>Santalum spicatum</i> and mixed <i>Eremophila</i>.</p> <p>Mixed Shrublands and Scrubs</p> <p>A2: Open Shrubland of <i>Acacia burkittii</i> and <i>Acacia tetragonophylla</i> with occasional <i>Santalum spicatum</i> and <i>Casuarina pauper</i> over sparse mixed shrubs on upper slopes with gravel soils and numerous lateritic outcrops.</p> <p>A3: Open Shrubland of <i>Acacia burkittii</i> over Chenopod and mixed shrubs on flats with red/brown clay soils.</p> <p>A4: Open Shrubland of <i>Acacia ?sibirica</i> and <i>Acacia tetragonophylla</i> over mixed <i>Eremophila</i> species over mixed shrubs on flats with red/brown clay soils.</p> <p>C1: Open Chenopod Shrubland of <i>Atriplex nummularia</i>, <i>Atriplex vesicaria</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila scoparia</i> over <i>Scaevola spinescens</i> and mixed <i>Maireana</i> species on seasonally inundated drainage lines with red/brown clay soils.</p>
Vegetation condition	<p>The vegetation survey (Mattiske, 2014) and aerial imagery indicate the vegetation within the proposed clearing area is in Excellent to Pristine (Trudgen, 1991) condition.</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix B. Representative photos are available in Appendix C.</p>
Climate and landform	<p>The application area is located in an arid zone of Western Australia with low rainfall (BoM, 2016). The annual average rainfall (Kalgoorlie-Boulder Airport) is 264.7 millimetres (BoM, 2025).</p>
Soil description	<p>The soils within the application area are mapped as calcareous loamy earth, red/brown non-cracking clay, and red deep sand (DPIRD, 2025).</p>
Land degradation risk	<p>The application area falls within three land systems, described below (DPIRD, 2025):</p> <p>Mx43 atlas land system: Gently undulating valley plains and pediments; some outcrop of basic rock.</p> <p>Graves land system: Basalt and greenstone rises and low hills supporting eucalypt woodlands with prominent saltbush and bluebush understoreys. Alluvial plains are susceptible to water erosion where perennial shrub cover is substantially reduced or the soil surface is disturbed (Pringle <i>et al.</i>, 1994).</p> <p>Moriarty land system: Low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys. Slopes of low rises without protective stone mantles, alluvial plains and narrow drainage tracts are moderately susceptible to water erosion, particularly if perennial shrub cover is substantially reduced or the soil surface is disturbed (Pringle <i>et al.</i>, 1994).</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that various, non-perennial watercourses transect the area proposed to be cleared (GIS Database).</p>
Hydrogeography	<p>The application area falls within the Goldfield Groundwater Area, legislated by the RIWI Act 1914 (GIS Database). The mapped groundwater salinity is between 14,000-35,000 milligrams per litre total dissolved solids which is described as saline quality (GIS Database).</p>

Characteristic	Details
Flora	There were no Threatened flora species recorded within the application area (Mattiske, 2014; GIS Database). One flora species suspected to be Priority 1 flora <i>Grevillea phillipsiana</i> was recorded at two locations within the application area (Mattiske, 2014).
Ecological communities	Vegetation types identified in the application area are not representative of any known or mapped Threatened or Priority Ecological Communities (Mattiske, 2014; GIS Database).
Fauna	A malleefowl survey was conducted by Outback Ecology (2014) in the Nimbus Project (CPS 5829/2) which is adjacent to the application area. The area searched did not find any evidence of malleefowl, either in the form of sightings of individuals, mounds or other evidence such as tracks or scats. No fauna survey has been conducted over the application area.
Fauna habitat	Two broad habitat types were identified in the application area (Outback Ecology, 2014), these were: <ul style="list-style-type: none"> • Eucalypt Woodland on red loamy clay; and • Open Shrubland on red loamy clay.

Appendix B. 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 C. Photographs of the vegetation



Figure 1. Vegetation type E1 (Mattiske, 2014).



Figure 2. Vegetation type E3 (Mattiske, 2014).



Figure 3. Vegetation type E4 (Mattiske, 2014).



Figure 4. Vegetation type E5 (Mattiske, 2014).



Figure 5. Vegetation type E6 (Mattiske, 2014).



Figure 6. Vegetation type E7 (Mattiske, 2014).



Figure 7. Vegetation type E8 (Mattiske, 2014).



Figure 8. Vegetation type E9 (Mattiske, 2014).



Figure 9. Vegetation type E10 (Mattiske, 2014).



Figure 10. Vegetation type E11 (Mattiske, 2014).



Figure 11. Vegetation type E12 (Mattiske, 2014).



Figure 12. Vegetation types E13 (Mattiske, 2014).



Figure 13. Vegetation type E14 (Mattiske, 2014).



Figure 14. Vegetation type A2 (Mattiske, 2014).



Figure 15. Vegetation type A3 (Mattiske, 2014).



Figure 16. Vegetation type A4 (Mattiske, 2014).



Figure 17. Vegetation type C1 (Mattiske, 2014).

Appendix D. References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- 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)
- IBRA Vegetation Statistics
- Regional Parks (DBCA-026)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

2. References

- Bureau of Meteorology (BoM) (2016) Bureau of Meteorology Website – Climate classification maps, Seasonal rainfall. Bureau of Meteorology. http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/ (Accessed 16 January 2025).
- Bureau of Meteorology (BoM) (2025) Bureau of Meteorology Website – Climate Data Online, Weather Station. Bureau of Meteorology. <https://reg.bom.gov.au/climate/data/> (Accessed 20 January 2025).
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020) Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia.
- Department of Planning, Lands and Heritage (DPLH) (2025) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 20 January 2025).

- Department of Primary Industries and Regional Development (DPIRD) (2025) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (Accessed 20 January 2025).
- Eastwood, R., Jacks, A., Williams, A.A.E., Petersen, L., Cameron, J. (2023) Current distribution, preferred habitat, behaviour, and biology of the Inland Hairstreak, *Jalmenus aridus* Graham & Moulds, 1988 (Lepidoptera: Lycaenidae) in the Eastern Goldfields region of Western Australia.
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Horizon Minerals Ltd (2024) Submission of 2024 Annual Report for CPS 6412/2. Prepared for the Department of Energy, Mines, Industry Regulation and Safety.
- MacPhersons Resources Limited (2024) Clearing permit application form, CPS 6412/3, received 19 November 2024.
- Mattiske Consulting Pty Ltd (Mattiske) (2014) Flora and Vegetation Values on the Boorara Project Area Including a Desktop Fauna Assessment. Prepared for MacPhersons Resources Limited, November 2014.
- Outback Ecology (2014) MacPhersons Resource Ltd Nimbus Project Targeted Malleefowl (*Leipoa ocellata*) Survey.
- Pringle, H J, Gilligan, S A, and van Vreeswyk, A M. (1994), *An inventory and condition survey of rangelands in the north-eastern Goldfields, Western Australia*. Department of Primary Industries and Regional Development, Western Australia, Perth. Technical Bulletin 87. https://library.dpird.wa.gov.au/tech_bull/5
- 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.

3. 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)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety ²⁰²
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

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

T Threatened species:

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

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

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

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

CR Critically endangered species

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

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

EN Endangered species

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

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

VU Vulnerable species

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

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

Extinct Species:

EX Extinct species

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

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

EW Extinct in the wild species

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

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

Specially protected species:

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

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

- MI** **Migratory species**
 Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).
- Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
- Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
- CD** **Species of special conservation interest (conservation dependent fauna)**
 Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).
- Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
- OS** **Other specially protected species**
 Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).
- Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
- P** **Priority species:**
- Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.
- Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
- Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
- P1** **Priority One - Poorly-known species**
 Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
- P2** **Priority Two - Poorly-known species**
 Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3** **Priority Three - Poorly-known species**

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

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

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

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

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

Principles for clearing native vegetation:

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