

## 1. Application details and outcomes

### 1.1. Permit application details

<b>Permit number:</b>	9504/1
<b>Permit type:</b>	Purpose Permit
<b>Applicant name:</b>	Lake Austin Mining Pty Ltd
<b>Application received:</b>	24 November 2021
<b>Application area:</b>	123.51 hectares
<b>Purpose of clearing:</b>	Mineral Production and Associated Activities
<b>Method of clearing:</b>	Mechanical Removal
<b>Tenure:</b>	Mining Lease 20/54
<b>Location (LGA area/s):</b>	Shire of Cue
<b>Colloquial name:</b>	White Well Gold Project

### 1.2. Description of clearing activities

Lake Austin Mining Pty Ltd proposes to clear up to 123.51 hectares of native vegetation within a boundary of approximately 523 hectares, for the purpose of mineral production and associated activities. The project is located approximately 30 kilometres east of Cue, within the Shire of Cue.

The application is to allow for establishing an open pit mine, processing plant, tailings dam, waste rock dump, roads, bore field and associated infrastructure.

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Grant
<b>Decision date:</b>	17 June 2022
<b>Decision area:</b>	123.51 hectares of native vegetation

### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 24 November 2021. 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 B), relevant datasets (Appendix E), supporting information provided by the applicant (Appendix A), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), the applicant's avoidance and mitigation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3). The Delegated Officer also took into consideration previous assessments of clearing activities that took place within the same application area which overlaps with permit CPS 6981/3, granted on 3 September 2020 for the purpose of expanding the clearing area to 123.51 hectares for mineral production and associated activities. Permit CPS 6981/3 expired on 30 June 2021, hence Lake Austin Mining applied for this permit. A total of 13.51 hectares have been cleared in the application area under permit CPS 6981/1 and CPS 6981/2. Out of the total 13.51 hectares that have been cleared, 4.01 hectares were cleared for the creation of bore fields, 4.80 hectares were cleared for the creation of an internal road, and 4.70 hectares were cleared for the creation of a camp area. These clearing activities were taken into consideration by the Delegated Officer in making this decision.

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential loss of riparian vegetation;
- potential land degradation in the form of wind and water erosion.

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

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- staged clearing to minimise erosion;
- vegetation management for riparian zones.

## 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 includes:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM 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 2013)
- *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)

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

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. Where possible, infrastructure will be located on previously disturbed areas and bore field and pipeline corridors are located along previously disturbed drill access tracks.

### 3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles (see Appendix C) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimize, hygiene, staged clearing, and vegetation management conditions.

### 3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 10 December 2021 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 (WC1999/046) over the area under application (DPLH, 2022). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2022). 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.

**End**

## Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Targeted flora and fauna survey conducted by Botanica Consulting in 2019	This additional information was used in the assessment of clearing principles a, b, and c, as well as for the assessment of vegetation condition and the identification of vegetation associations present in the application area.

## Appendix B. Site characteristics

### B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is located at the existing White Well mine site and it is surrounded by several development projects to the west and sparse native vegetation to the east. Some of the land from the development projects in the area will be rehabilitated and returned for pastoral use.
Ecological linkage	The application area does not form part of any ecological linkages.
Conservation areas	The application area does not fall within a conservation area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association:</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>) (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Botanica Consulting during March, 2012 and a targeted survey was conducted in the same area during September 2019. The following vegetation associations were recorded within the application area (Botanica Consulting, 2012; Botanica Consulting, 2019):</p> <p>1: Low woodland of <i>Acacia aneura</i> over low scrub of <i>Eremophila forrestii</i> subsp. <i>forrestii</i> over open low grass of <i>Monachather paradoxus</i>/<i>Aristida contorta</i> on rocky plain;</p> <p>2: Low woodland of <i>Acacia caesaneura</i> over low scrub of <i>Eremophila jucunda</i> subsp. <i>jucunda</i> over open low grass of <i>Eriachne flaccida</i>/<i>Aristida contorta</i> on clay-loam plain;</p> <p>3: Open low woodland of <i>Acacia aneura</i> over open low scrub of <i>Thyrtomene decussata</i> over open low grass of <i>Aristida contorta</i>;</p> <p>4: Low woodland of <i>Acacia aneura</i> over open dwarf scrub of <i>Ptilotus obovatus</i>/<i>Maireana triptera</i> on rehabilitated waste landform;</p> <p>5: Low woodland of <i>Acacia aneura</i> over scrub of <i>Acacia ramulosa</i> over low open grass <i>Monachather paradoxus</i>;</p> <p>6: Forest of <i>Acacia aneura</i> over low scrub of <i>Acacia ramulosa</i>/<i>Eremophila forrestii</i> subsp. <i>forrestii</i> over open low grass of <i>Monachather paradoxus</i>/<i>Eragrostis eriopoda</i> in creekline;</p> <p>7: Forest of <i>Acacia incurvaneura</i> over low shrub of <i>Eremophila</i> species and open low grassland of <i>Aristida contorta</i> on rocky hillslope.</p>
Vegetation condition	<p>The vegetation survey (Botanica Consulting, 2019) and aerial imagery indicate the vegetation within the proposed clearing area is in Good to Degraded (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p>
Climate and landform	The climate of the area is arid with a low mean annual rainfall of 232.6 millimetres and it is located at an elevation of 453 metres (BoM, 2022).
Soil description	The soil is mapped as soil unit AB14 (GIS Database). This soil unit is described as upland sand plains with occasional dunes and minor inclusions of associated plains units: chief soils are red earthy sands with red sands on the dunes (Northcote et al. 1960-68).

Characteristic	Details
Land degradation risk	<p>The application area falls within two different land systems, the Wiluna land system and the Jundee land system (DPIRD, 2022).</p> <p>The Jundee land system is described as hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly grooved mulga shrublands. The Wiluna land system is described as low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs (DPIRD, 2022).</p>
Waterbodies	There are several minor non-perennial watercourses that transect the application area (GIS Database).
Hydrogeography	The application area is located within the East Murchison Groundwater Area. The mapped ground water salinity is of 1,000-3,000 milligrams per litre total dissolved solids, which is described as brackish to saline (GIS Database).
Flora	There are records of 22 Priority flora and one Threatened flora species within a 50 kilometre radius of the application area (Botanica Consulting, 2019). The field survey conducted by Botanica Consulting in 2019 found a Priority 3 flora species within the application area.
Ecological communities	The application area does not intersect any known Threatened Ecological Community (TEC) or Priority Ecological Community (PEC). The closest ecological community is Priority 1 PEC, Lake Austin vegetation complexes located approximately seven kilometres south of the application area.
Fauna	There are no records of Priority or Threatened fauna within the application area (GIS Database).

### Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains a total of eight individuals of the Priority 3 species <i>Drummondita miniata</i> recorded at three different sites within the application area. However, these records are not unique to the region and this species has also been found in the neighbouring shire of Meekatharra (Western Australian Herbarium, 1998-). <i>D. miniata</i> occurs at laterite and breakaways. This topography was not recorded within the vegetation associations found in the application area or in the description of soil unit AB14. Advice from the Department of Biodiversity, Conservation and Attractions (DBCA) suggest that the individuals found within the application area, are unlikely to represent a significant population of the Priority 3 species.</p> <p>There are no known PECs within the application area (GIS Database; Botanica Consulting, 2019).</p> <p>In 2012, Botanica Consulting recorded one introduced (weed) species (<i>Cucumis myriocarpus</i>) within the application area. This species is not listed as a Declared Pest or in the Weeds Of National Significance (WONS). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Care should be taken to ensure that weeds are not introduced into the area as the result of clearing activities required to access the lake. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains habitat that is common and widespread across the region. It is unlikely to represent a significant habitat for fauna. The closest record of a Priority fauna is approximately 14 kilometres west of the application area (GIS Database). A targeted search for malleefowl was conducted within the application area. There was no evidence of malleefowl mounds or other evidence of malleefowl activity (tracks, feathers or bird observations etc.) observed during the targeted survey (Botanica Consulting, 2019).</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain any known Threatened flora species (GIS Database; Botanica Consulting, 2019). There is one record of the Threatened species <i>Eremophila rostrata</i> subsp. <i>rostrata</i> located approximately 2.2 kilometres northwest of the application area (GIS Database). However, Botanica Consulting did not find any individual of this species within the application area neither in their 2012 nor their 2019 flora surveys. In addition, <i>E. rostrata</i> is known to occur in saline quartzite loams. This soil type was not recorded within the application area. For these reasons <i>E. rostrata</i> is unlikely to occur within the proposed clearing area.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not form part of any known TEC's, nor are there any nearby (GIS Database).</p>	Not at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>Approximately 99 per cent of the pre-European vegetation still exists in the Murchison Bioregion (Government of Western Australia, 2019). Vegetation association 18 has not been extensively cleared as approximately 99 per cent of the pre-European extent of this vegetation association remains uncleared at both state and bioregional level (Government of Western Australia, 2019). The permit area does not contain nor does it form part of any significant remnants of native vegetation in the local area (GIS Database).</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>The application area is not within a conservation area. The closest conservation area is approximately 36 kilometres southwest of the application area (GIS Database). Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>There are no wetlands within or nearby the application area, and several minor ephemeral drainage lines are recorded within the application area. Vegetation type 6 (refer to section B.1) is associated with these drainage lines. Potential impacts to vegetation growing in association with watercourses may be minimised by the implementation of a vegetation management condition.</p>	May be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>For the Jundee land system, concentrated drainage zones are mildly susceptible to accelerated erosion when degraded; hardpan plains otherwise not normally susceptible to erosion unless severely degraded (Curry et al., 1994). For the Wiluna land system, the sandy surfaced gravelly plains; alluvial fans and plains; and drainage floors, are mildly to moderately susceptible to accelerated erosion when degraded (Curry et al., 1994). This land system shows some localised erosion as a result of mining activities (Curry et al., 1994).</p> <p>Noting the location of the application area and the condition of the vegetation, the proposed clearing is likely to have an appreciable impact on land degradation. Impacts from clearing can be minimised by a staged clearing condition.</p>	May be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u></p> <p>Given there are no permanent water courses, wetlands, or Public Drinking Water Source Areas recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality. The closest Public Drinking Water Source Area is Cue Water Reserve located approximately 15 kilometres west of the application area (GIS Database).</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>Given there are no perennial water courses, wetlands, or areas subject to inundation recorded within or nearby the application area, the proposed clearing is unlikely to cause or exacerbate, the incidence or intensity of flooding.</p>	Not likely to be at variance	No

#### Appendix D. Vegetation condition rating scale

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

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

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

### Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

## Appendix E. Sources of information

### E.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- 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)

### E.2. References

- BoM (2022) Bureau of Meteorology Website – Climate Data Online, Leinster Aero. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 1 June 2022).
- Botanica (2012) Level 1 Flora and Vegetation Survey of White Well Mine. Report Prepared for Cobra Mining Ltd, by Botanica Consulting.
- Botanica (2019) Targeted flora/fauna survey – White Well Project M20/54 and P20/2190. Report Prepared for Lake Austin Mining Pty Ltd, by Botanica Consulting, October 2019.
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra. Department of Biodiversity, Conservation and Attractions (DBCA) (2020) Advice received in relation to Clearing Permit Application CPS 6981/3. Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, Western Australia, September 2020.
- Curry, P.J., Payne, A.L., Leighton, K.A., Hennig, P. and Blood, D.A. (1994) An Inventory and Condition Survey of the Murchison River Catchment and Surrounds, Western Australia. Technical Bulletin No. 84. Department of



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- Department of Planning, Lands and Heritage (DPLH) (2021) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 1 June 2022).
- Department of Primary Industries and Regional Development (DPIRD) (2021) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (Accessed 1 June 2022).
- Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: [http://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey\\_Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf)
- Environmental Protection Authority (EPA) (2016) Technical Guidance – Terrestrial Fauna Surveys. Available from: [https://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf](https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf)
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Lake Austin Mining Pty Ltd (2021) White Well Gold Project application for clearing permit within Mining Lease M20/54. Lake Austin Mining Pty Ltd, November 2021.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) Atlas of Australian Soils, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 1 June 2022).

## 4. Glossary

### Acronyms:

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