

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9563/1
Permit type:	Purpose Permit
Applicant name:	Lithco No.2 Pty Ltd
Application received:	11 January 2022
Application area:	126 hectares
Purpose of clearing:	Mineral Production
Method of clearing:	Mechanical Removal
Tenure:	Mining Leases 15/400, 15/1305, 15/1308 Miscellaneous Licence 15/365
Location (LGA area/s):	Shire of Coolgardie
Colloquial name:	Bald Hill Project

1.2. Description of clearing activities

Lithco No.2 Pty Ltd proposes to clear up to 126 hectares of native vegetation within a boundary of approximately 126.742 hectares, for the purpose of mineral production. The project is located approximately 54 kilometres south-east of Kambalda, within the Shire of Coolgardie.

The application is to allow for resumption and expansion of mining activities (open pit, waste dumps, roads, topsoil storage areas, evaporation dam and new tailings storage facility).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	5 May 2022
Decision area:	126 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 11 January 2022. DMIRS advertised the application for public comment for a period of 21 days, with one submissions received in relation to Aboriginal heritage.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix D), supporting information provided by the applicant including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix B), and relevant planning instruments and any other matters considered relevant to the assessment.

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.

After consideration of the available information, 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.

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)
- *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 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application.

3.2. Assessment of impacts on environmental values

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

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

3.3. Relevant planning instruments and other matters

The clearing permit application application was advertised on 11 February 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. One submission was received in relation to this application in regards to Aboriginal heritage.

There is one native title claim (WC1999/002) 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. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 54 kilometres south-east of Kambalda, within the Shire of Coolgardie in the extensive land use zone. The predominant land use in the region is grazing of native pastures, conservation, mining activity, and urban development.
Ecological linkage	As the application area is located adjacent to an existing mine and is to allow for the expansion of mining activities, it is not considered to be an ecological linkage to other areas of vegetation.
Conservation areas	The nearest conservation area is Binaronca Nature Reserve, which is located approximately 48 kilometres west, south-west of the application area.
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>509: Succulent steppe with woodland; gimlet & saltbush; and</p> <p>676: Succulent steppe; samphire (GIS Database).</p> <p>A targeted flora and vegetation survey was conducted over the application area by Ecotec during March, 2017, with a subsequent reconnaissance survey undertaken in August 2017 by Ecologia. The following vegetation associations were recorded within the application area (Ecotec, 2017):</p> <ul style="list-style-type: none"> • Maireana Low Shrubland; • Eucalyptus Open Woodland; • <i>Callitris preissii</i> Open Low Woodland; and • <i>Tecticornia</i> Low Shrubland.
Vegetation condition	<p>The vegetation survey (Ecotec, 2017) indicate the vegetation within the proposed clearing area is in good to degraded (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • 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. <p>To</p> <ul style="list-style-type: none"> • 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. <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p>
Climate and landform	The application area is mapped at an elevation of 280 metres to 320 metres (GIS Database). The annual average rainfall (Coolgardie) is 269.6 millimetres (BoM, 2022).
Land degradation risk and soil description	The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006). Much of the application area has been previously been disturbed by mining and exploration activities, as well as historical removal of timber and overgrazing by stock.
Waterbodies	The desktop assessment and aerial imagery indicate that three minor, non-perennial watercourses transect the area proposed to be cleared.
Hydrogeography	According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database). There are no permanent waterbodies or watercourses within the application area, however, there are three minor non perennial watercourses within the application area and Lake Cowan, a non-perennial salt lake, occurs in close proximity to the application area (GIS Database).
Flora	There are no records of Threatened or Priority flora within five kilometres of the application area, however there are records of four Priority flora species within 20 kilometres of the application area.

Characteristic	Details
Ecological communities	There are no mapped Threatened or Priority Ecological Communities (TEC/PEC) within the application area. The nearest ecological community is the Priority 3 Mount Belches BIF PEC, located approximately 37 kilometres north of the application area (GIS Database).
Fauna	The habitat types within the application area are common and widespread both locally and regionally (Biostat Pty Ltd, 2017). Human activities have modified much of the area by historical removal of timber and overgrazing by stock. This has likely caused disturbance to the local fauna, although the homogeneity of habitats suggests that most species found near Bald Hill will also be common regionally. The vegetation within the application area may be utilised by a variety of fauna but the lack of specialised fauna habitats means it is unlikely to provide core habitat for any fauna species.

A.2. Flora analysis table

Flora analysis of records within 20 kilometres of the application area (none occur within five kilometres of the application area (Ecotec, 2017).

Status	Species name	Preferred habitat
P3	<i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>	Stony loam, laterite clay. Granite outcrops.
P4	<i>Eucalyptus kruseana</i>	Sandy loam. Granite outcrops and hills.
P4	<i>Eucalyptus x brachyphylla</i>	Sandy loam. Granite outcrops.
P4	<i>Lepidosperma lyonsii</i>	Gentle hill slopes, upper slopes of large hills.

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

A.3. Fauna analysis tables

Fauna analysis of conservation significant records within 20 kilometres of the application area (Biostat, 2017).

Species	Status	Notes	Potential Occurrence
<i>Calidris ferruginea</i> Curlew Sandpiper	S3, S5 CE, M, J, C, R	This is a coastal shorebird species that is sometimes seen inland during its migration wherever large vegetated water bodies occur. It may utilise pondage areas within the Project Area as a non permanent transitory.	Unlikely to Low
<i>Pezoporus occidentalis</i> Night Parrot	S1 EN	This species will utilise open shrubland but is more commonly associated with hummock grasslands and dense tussock grasslands (Garnett, Szabo & Dutson 2011). It has been in serious decline since European settlement and is found in very few locations across Australia.	Extremely Unlikely
<i>Leipoa ocellata</i> Malleefowl	S3 VU	Malleefowl distributions have been generally restricted to the lower rainfall areas (<600mm isohyet) and predominantly absent from the higher rainfall areas (Saunders & Ingram 1995). There are records of this species from the St Ives and Fraser Range areas.	Unlikely
<i>Apus pacificus</i> Fork-tailed Swift	S5 M, J, C, R	Spends summer and most of the autumn in Australia. Fork-tailed Swifts are almost entirely aerial. They feed and sleep on the wing, sometimes occurring in extremely large flocks of up to 2,000 individuals. They are likely to be recorded flying over the Study Area, especially during the onset of storms.	Seasonally High
<i>Motacilla cinerea</i> Grey Wagtail	S5 M	A vagrant recorded on very few occasions across Western Australia.	Unlikely
<i>Ardea modesta</i> Eastern Great Egret	S5 M, J, C	This bird is more commonly associated with northern Australia, although there has been an increased number recorded in the South-west (Barrett et al. 2003). It usually occurs in shallow waters, both fresh and salt, including estuaries.	Moderate to Low
<i>Ardea ibis</i> Cattle Egret	S5 M, J, C	The Cattle Egret has a sporadic distribution in the more arid areas of Australia and is more likely to be recorded around the better-watered areas of the State. It prefers damp grasslands and pastures and is often associated with Cattle.	Unlikely
<i>Thinornis rubricollis</i> Hooded Plover	M P4	The Hooded Plover will utilise several habitats ranging from estuarine, marine to wetland and riparian systems. Although more commonly associated with coastal areas, this species could utilise the habitats around Lake Cowan after good rains.	Moderate to Low
<i>Merops ornatus</i> Rainbow Bee-eater	S5 M	This species are Spring/Summer migrants to southern Australia, but may be resident in the north. It prefers lightly wooded country near water and preferably with sandy soils suitable for its breeding burrows, i.e. soils that are easy to excavate, but firm enough to support burrows.	Seasonally High

Feral Species List (Biostat, 2017).

Name	Status	Type of Presence
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity." <u>Assessment:</u> A flora assessment did not identify any Threatened or Priority flora within the application area (Ecotec, 2017). No conservation significant fauna have been recorded within the application area (GIS Database). The vegetation within the application area is unlikely to represent any Threatened or Priority Ecological Communities (GIS Database).	Not likely to be at variance	No
<u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna." <u>Assessment:</u> The area proposed to be cleared is not likely to contain foraging, roosting, breeding, critical, or significant habitat for conservation significant fauna.	Not likely to be at variance	No
<u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora." <u>Assessment:</u> There are no known records of Threatened flora within the application area (GIS Database). A flora survey of the application area did not record any species of Threatened flora (Ecotec, 2017) and the vegetation proposed to	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
be cleared is not expected to support any species of Threatened flora (GIS Database).		
<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>There are no known Threatened Ecological Communities (TECs) located within the application area (GIS Database). There are no TECs located within 50 kilometres of the application area (GIS Database).</p> <p>The flora and vegetation surveys over the permit area have not identified any TECs (Ecotec, 2017).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<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>The application area falls within the Coolgardie IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:</p> <p>Beard vegetation association 509: Succulent steppe with woodland; gimlet & saltbush; and</p> <p>Beard vegetation association 676: Succulent steppe; samphire (Government of Western Australia, 2013; GIS Database).</p> <p>According to the Government of Western Australia (2019), Beard vegetation association 509 retains approximately 99% of its pre-European extent at the state and bioregion level and Beard vegetation association 676 retains approximately 95% of its pre-European extent at the state level, and 99% for the bioregion. The vegetation within the application area is not significant as a remnant of native vegetation in an area that has been extensively cleared (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>There are no conservation areas in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the Binaronca Nature Reserve which is located approximately 48 kilometres west, south-west of the application area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation area.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<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 permanent watercourses or wetlands within the area proposed to clear. Three minor, non-perennial watercourses that intersect the application area (GIS Database). No distinctive vegetation growing in association with a watercourse was observed during a survey conducted by Ecotec (2017) or Ecologia (2017). Drainage lines within the project area are poorly defined and are only likely to flow following major rainfall events.</p>	At variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (g):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</i></p> <p><u>Assessment:</u></p> <p>The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006).</p> <p>Much of the application area has been previously disturbed by mining and exploration activities, as well as historical removal of timber and overgrazing by stock. It is therefore unlikely that the proposed clearing will generate any significant additional land degradation issues.</p>	Not likely to 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 no significant water courses, wetlands or Public Drinking Water Sources Areas have been recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p> <p>Previous analysis by Muir (2000), has identified that the geology of the application area is very tight and groundwater is generally confined to sheer zones, which are steeply dipping and trend in a north-south direction. Ground water analyses identified that the water quality is hyper saline with a Total Dissolved Solids (TDS) of 110,000 mg/L and a pH of 6.95 (Muir, 2000). Given the high TDS, the proposed clearing is not likely to cause groundwater salinity levels within the application area to alter.</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>The climate of the region is semi-arid, with a low average rainfall of approximately 269.6 millimetres per year (BoM, 2022). There are no permanent water courses or waterbodies within the application area, however there are three ephemeral drainage lines (GIS Database). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall.</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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

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

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.

Condition	Description
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 D. Photographs of the vegetation

Photos from flora survey undertaken by Ecotec in March 2017 (Ecotec, 2017)



Photo 1: Very open shrubland of *Maireana brevifolia* and *M. sedifolia* over various herbaceous species.



Photo 2: Very open shrubland of *Maireana brevifolia* and *M. sedifolia* over various herbaceous species.



Photo 3: Very open shrubland of *Maireana brevifolia* and *M. sedifolia* over various herbaceous species. Scattered *Acacia tetragonophylla*.



Photo 4: Closed to open heath of *Tecticornia* spp. over *Disphyma crassifolium* and *Gunniopsis quadrifida*.



Photo 5: Very open shrubland of *Maireana brevifolia* and *M. sedifolia* over various herbaceous species.



Photo 6: Open Eucalypt woodland over *Atriplex vesicaria* and other herbaceous species.

Appendix E. Sources of information

E.1. GIS databases

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

- 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)
- 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)
- 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

- Biostat Pty Ltd (2017) Risk Assessment (Fauna) — Bald Hill Tantalum Project. Unpublished report prepared for HRM resources Australia Ltd by Biostat Pty Ltd, March 2017.
- BOM (2022) Bureau of Meteorology Website - Climate Statistics for Australian Locations, Summary Statistics Coolgardie. <http://www.bom.gov.au/> (Accessed 2 May 2022).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 3 (COO3 - EasternGoldfields subregion). Department of Conservation and Land Management, Western Australia. Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Ecologia (2017) Tawana Resources – Bald Hill Project. Reconnaissance Flora and Vegetation Assessment. Unpublished report prepared for Tawana Resources Ltd by *ecologia* Environment, August 2017.
- Ecotec (2017) Flora and Vegetation Assessment of the Bald Hill Project Expansion Areas. Unpublished report prepared for Alliance Mineral Assets Ltd and Tawana Resources Ltd by Ecotec (WA) Pty Ltd, March 2017.
- 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.
- Muir (2000) Alliance Mineral Assets Limited Native Vegetation Clearing Permit Report. Report prepared by Muir Environmental Limited for Alliance Mineral Assets Limited, 2014.
- Tille, P. (2006) Soil-landscapes of Western Australia's Rangelands and Arid Interior. Technical Report 313. Department of Agriculture and Food, Western Australia. ISSN 1039-7205.

4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, 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 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.