



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10070/1
Permit type:	Purpose Permit
Applicant name:	Forrestania Resources Limited
Application received:	7 February 2023
Application area:	1 hectare
Purpose of clearing:	Mineral Exploration
Method of clearing:	Mechanical Removal
Tenure:	Exploration Licence 77/2348
Location (LGA area/s):	Shire of Kondinin
Colloquial name:	Crossroads Exploration Program

1.2. Description of clearing activities

Forrestania Resources Limited proposes to clear up to one hectare of native vegetation within a boundary of approximately 23 hectares, for the purpose of mineral exploration. The project is located approximately 34 kilometres east of nearest Hyden, within the Shire of Kondinin.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	6 April 2023
Decision area:	1 hectare 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 7 February 2023. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

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

The assessment identified that the proposed clearing may result in:

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

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to long-term adverse impacts on 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;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- clearing of habitat trees for black cockatoos will not be authorised. Habitat trees are standing trees that have a diameter at breast height (DBH) of 30 centimetres or greater, for *Eucalyptus salmonophloia* or *Eucalyptus wandoo*; or 50 centimetres or greater, for all other species.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.

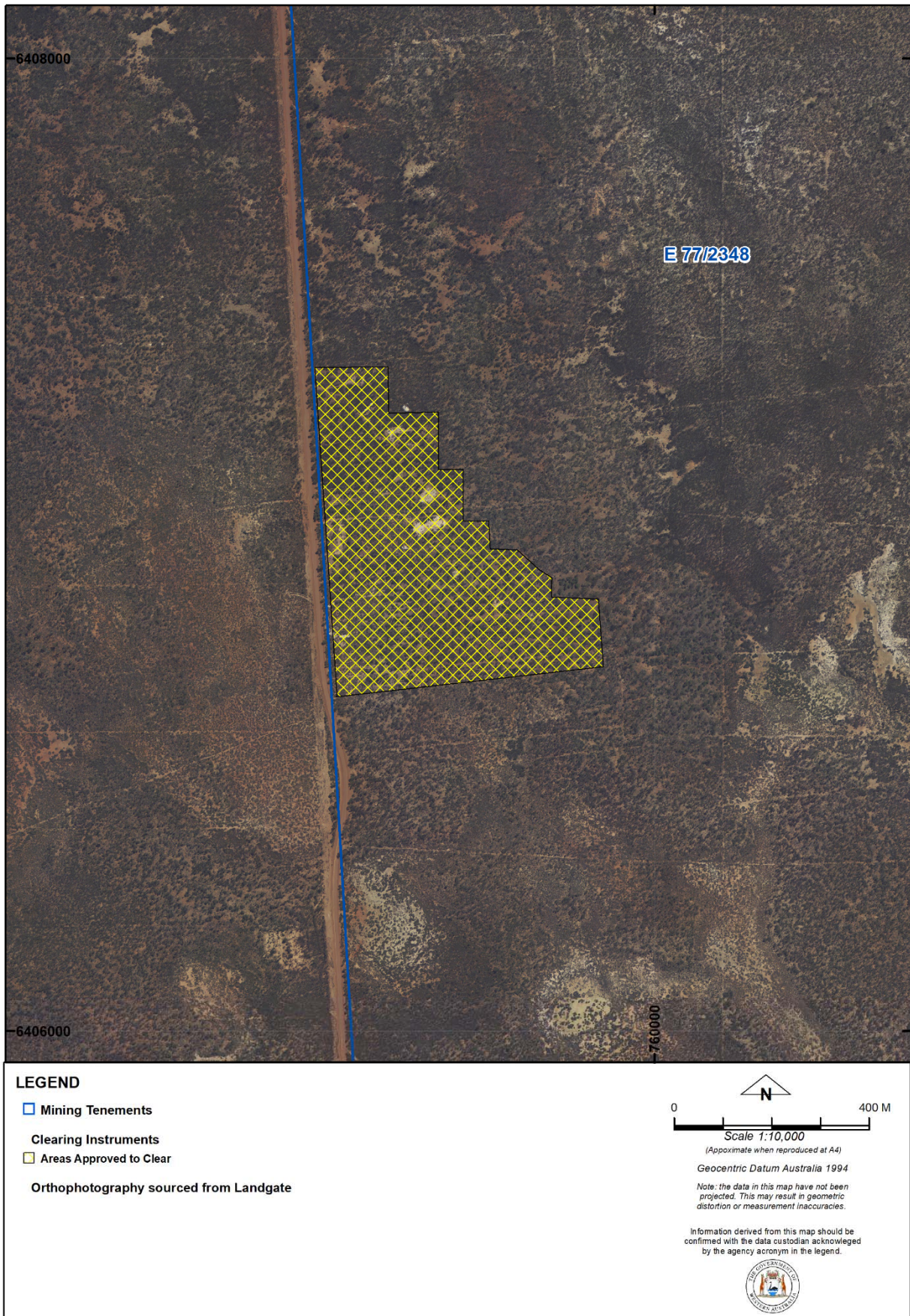


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *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 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The proponent has advised the Department of avoidance and mitigation measures that will be undertaken during the clearing, such as utilising previously cleared tracks where possible to avoid/minimise vegetation loss.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

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 identified that the impacts of the proposed clearing present a risk biological values (fauna and flora). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora) - Clearing Principles (a) and (c)

Assessment

Desktop investigations identified 44 conservation significant flora species which were recorded within the greater survey area (Botanica Consulting, 2022; GIS database). Of these, 31 were considered unlikely due to unsuitable habitat and/or outside their normal distribution, and 13 were considered as possibly occurring within the area (Botanica Consulting, 2022; GIS Database).

A flora and vegetation survey was undertaken of the tenement in September 2022 (Botanica Consulting, 2022). The field survey identified 78 vascular flora taxa, represented by 38 genera across 20 families (Botanica Consulting, 2022). No threatened flora were recorded within the survey area, however Priority 2 flora species, *Eutaxia lasiocalyx*, was recorded within the survey area (Botanica Consulting, 2022).

Eutaxia lasiocalyx, Priority 2, is a low spreading, multi-stemmed shrub, growing up to 0.15 metres high, which can be found inhabiting red sandy loam, laterite and quartz gravel on gentle lower slopes (Western Australian Herbarium (1998-)). This species has been recorded in the Avon Wheatbelt and Coolgardie IBRA regions from five records within the Western Australian Herbarium (Western Australian Herbarium (1998-)). The flora and vegetation survey identified one population (8 individuals) of *Eutaxia lasiocalyx* within the application area (Botanica Consulting, 2022). The potential clearing is considered to have a significant impact to the local population however is not considered significant at the species level.

Although the application area is located within the 'Ironcap Hills vegetation assemblages' Priority 3 ecological community, the flora and vegetation survey did not identify vegetation considered representative of this community (Botanica Consulting, 2022). The proposed clearing of one hectare will not likely lead to a significant impact on this Priority Ecological Community.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing of priority flora can be managed by taking the steps to avoid and minimise the extent of the clearing.

Conditions

No flora management conditions required.

3.2.2. Biological values (fauna) - Clearing Principles (b)

Assessment

A flora, vegetation and fauna survey was undertaken of the tenement in September 2022 (Botanica Consulting, 2022). No significant fauna species were recorded within the application area and no Malleefowl mounds or other evidence of Malleefowl activity were identified during the survey (Botanica Consulting, 2022). The following eight conservation significant fauna species can be regarded as possibly utilising the survey area based on the habitat present and historical records (Botanica Consulting, 2022; GIS Database).

Fork-tailed swift (*Apus pacificus*) is a migratory bird, a non-breeding visitor to all states and territories of Australia (DCCEEW, 2023). In Western Australia (WA), they are widespread in coastal and subcoastal areas between August and Carnarvon, including some on nearshore and offshore islands, with sparsely scattered records inland (DCCEEW, 2023). The fork-tailed swift is almost exclusively aerial and occur over inland plains, above foothills or in coastal areas, they mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh (DaWE, 2023). This species may forage within the local area, however it is not considered to be critical to the species and therefore the clearing of one hectare will not significantly impact the fork-tailed swift.

Carnaby's cockatoo (*Zanda latirostris*), Endangered, distribution extends throughout the south-west, south coast and Wheatbelt regions of Western Australia (Botanica Consulting, 2022; DCCEEW, 2023). The Eucalyptus woodlands observed within the survey area by Botanica Consulting (2022) may provide breeding habitat for this species, however no suitable hollows were identified during the survey. Botanica Consulting did not identify any foraging habitat within the application area (Botanica Consulting, 2022). The survey did not search for any habitat trees (>500 millimetres diameter at breast height (DBH)) (Botanica Consulting, 2022). Clearing of habitat trees (>500 millimetres diameter at breast height (DBH)) may impact future breeding or roosting habitat for this species, which can be managed by the implementation of a flora management condition.

Dasyurus geoffroyi (Chuditch), Vulnerable, previously occurred throughout semi-arid Australia, but now is restricted to south-west WA (DCCEEW, 2023). This species can be found inhabiting hollow logs or earth burrows (DCCEEW, 2023). The habitat present within the application area may comprise part of the home range of individuals but are unlikely to represent critical habitat. The clearing of one hectare will unlikely lead to a significant impact to this species.

Peregrine falcon (*Falco peregrinus*), Other Specially Protected, has been previously recorded throughout Australia (Botanica Consulting, 2022; GIS Database). The species may inhabit the area as part of its larger home range and no suitable nesting sites were observed during the fauna survey (Botanica Consulting, 2022). The clearing of one hectare will unlikely lead to a significant impact to this species.

Leipoa ocellata (malleefowl) has been recorded in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DCCEEW, 2023). This species requires a sandy substrate with an abundance of leaf litter for breeding (DCCEEW, 2023). No Malleefowl mounds or other evidence of Malleefowl activity were identified during the survey (Botanica Consulting, 2022). Malleefowl is known to occur in the region and may utilise the area for foraging, but it is not likely to represent significant habitat for this species as similar habitat is available to the north, south, east and west of the project area (Botanica Consulting, 2022; GIS Database).

Notamacropus irma (western bush wallaby), Priority 4, is endemic to south-western Australia and occurs in a wide range of habitats including open forest and woodland (Wayne, A.F, *et al.* 2021). The vegetation present may provide suitable habitat to this species however it is not considered critical and the clearing of one hectare will not likely lead to a significant impact.

Paroplocephalus atriceps (Lake Cronin snake) has been recorded within 10 kilometres from the application area (GIS Database). The species is found inhabiting a variety of habitats in semi-arid woodland and although not recorded within the application area, as suitable habitat is present, it could potentially occur (DCCEEW, 2023). As similar habitat is available in adjacent areas and the majority of the clearing proposal lies within previously disturbed areas, the proposed vegetation to be cleared is not likely significant to the species and impacts to the species via clearing may be managed with a fauna condition with slow directional clearing.

Platycercus icterotis xanthogenys (western rosella (inland)) is found inhabiting Eucalypt and Casuarina woodland and shrublands, especially Wandoo, Flooded Gums and Salmon Gums (DCCEEW, 2023). This species has been recorded within 10 kilometres of the application area (GIS Database). As the application area only contains a small area of tall eucalypt woodland, it is unlikely the species will be present and unlikely to be impacted by the proposed clearing as it will readily move to adjacent areas if disturbed and therefore impacts may be managed with a fauna condition with slow directional clearing.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitats can be managed by, slow directional clearing to allow fauna to move into adjacent vegetation prior to clearing.

Conditions

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

- slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals; and
- clearing of habitat trees will not be authorised. Habitat trees are standing trees that have a diameter at breast height (DBH) of 30 centimetres or greater, for *Eucalyptus salmonophloia* or *Eucalyptus wandoo*; or 50 centimetres or greater, for all other species.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 24 February 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

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

Other relevant authorisations required for the proposed land use include:

- A Programme of Work approved under the *Mining Act 1978*.

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

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared located approximately 34 kilometres east of nearest Hyden, within the Shire of Kondinin (GIS Database). The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). It is surrounded by similar vegetation to the north, east, south and west and pasture further south of the application area (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The application area is located wholly within an Environmentally Sensitive Area (ESA) (Register of National Estate), the Lake Cronin Area (GIS Database). At the closest point, the application area is approximately 4.5 kilometres south of the Lake Cronin Nature Reserve Boundary (GIS Database). According to the Australian Heritage Database (2023), the Lake Cronin Area encompasses over 31,000 hectares and is rich in endemic species, for example 16 fauna species that are endemic either to the south-west region or to Western Australia occur within the Lake Cronin Area (Australian Heritage Database, 2023). The Lake Cronin Area is also described as being an important refuge for rare species due to widespread clearing in the wheatbelt to the west (Australian Heritage Database, 2023). Rare species include fauna such as the Malleefowl (<i>Leipoa ocellata</i>) and flora species such as <i>Eucalyptus steedmanii</i> and <i>Paragoodia crenulata</i> (Australian Heritage Database, 2023).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association/s:</p> <p>511: Forrestania – medium woodland, salmon gum and morrel (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Botanic Consulting during September, 2022. The following vegetation associations were recorded within the application area (Botanica Consulting, 2022):</p> <ul style="list-style-type: none"> • CLP-EW1: <i>Eucalypt</i> woodland. <i>Eucalyptus salmonophloia</i> woodland over <i>Eucalyptus cylindrocarpa</i> and <i>E. eremophila</i> tall mallee shrubland over <i>Acacia maculata</i>, <i>Acacia densifolia</i> and <i>Eremophila drummondii</i> shrubland; and • CLP-MWS1: <i>Eucalyptus</i> mallee woodland. <i>Eucalyptus polita</i> and <i>E. urna</i> mallee woodland over <i>Melaleuca pauperiflora</i> tall shrubland over <i>Acacia merrallii</i>, <i>A. tetragonophylla</i> and <i>A. deficiens</i> shrubland.
Vegetation condition	<p>The vegetation survey (Botanic Consulting, 2022) indicate the vegetation within the proposed clearing area is in 'Good' to 'Very Good' (Keighery, 1994) condition, described as</p> <ul style="list-style-type: none"> • '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; and • 'Good': Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing. <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p>
Climate and landform	The climate of the region is arid to semi-arid Warm Mediterranean and experiences an average annual rain fall of 341.0 millilitres (BOM, 2023).
Soil description	<p>The soils of the application area are broadly mapped as the following soil types:</p> <ul style="list-style-type: none"> • 266h9: DD10 atlas system. Plains with some clay pans and small salt lakes, dunes, and lunettes (DPIRD, 2023).
Land degradation risk	The desktop assessment and aerial imagery indicate that the application area is located within and area that is subject to inundation (GIS Database).
Waterbodies	The application area is mapped within a non-perennial water body (GIS Database). There are no Ramsar wetlands or wetlands of national importance (ANCA Wetlands) within the application area and no permanent or ephemeral drainage lines occur within the application area (GIS Database).
Hydrogeography	The application area is not mapped within a proclaimed groundwater area (GIS Database).
Flora	A flora and vegetation survey was conducted over the application area by Botanica Consulting in September 2022 (Botanica, 2022). Based on historical records (within a 10 kilometre radius) and available habitat, twelve conservation significant flora species have the potential to occur within the

Characteristic	Details
	application area (Botanica Consulting 2022; GIS Database). One Priority species was recorded within the application area (Botanica Consulting, 2022).
Ecological communities	The application area is located within the boundary of the Priority Ecological Community (PEC) 'Ironcap Hills Vegetation Complexes' (Botanica Consulting, 2022; GIS Database). The PEC includes vegetation on Mt Holland, Middle Ironcap Hill, Northern Ironcap Hill, Southern Ironcap Hill, Digger Rock and Hatter Hill (Botanica Consulting, 2022). The flora and vegetation survey did not identify vegetation within the survey area that was considered representative of this community (Botanica Consulting, 2022).
Fauna	Based on historical records (within a 10 kilometre radius) and available habitat, eight conservation significant flora species have the potential to occur within the application area (Botanica Consulting 2022; GIS Database).

A.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion - Coolgardie	12,912,204.35	12,648,491.39	97.96	2,114,349.37	16.37
Beard vegetation associations - State					
Veg Assoc No. 511	700,692.60	520,615.26	74.30	105,109.09	15.00
Beard vegetation associations - Bioregion					
Veg Assoc No. 511	464,423.62	435,177.21	93.70	89,744.81	19.32

Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records derived from Florabase (total)
<i>Acacia asepala</i>	P2	Y	<10	19
<i>Acacia kerryana</i>	P2	Y	<10	16
<i>Austrostipa everettiana</i>	P1	N	<10	4
<i>Balaustion grandibracteatum</i> subsp. <i>juncturum</i>	P2	Y	<10	41
<i>Balaustion</i> sp. North Ironcap (R.J. Cranfield 10580)	P1	N	<10	7
<i>Comesperma calcicola</i>	P3	N	<10	11
<i>Cryptandra polyclada</i> subsp. <i>polyclada</i>	P3	N	<10	18
<i>Cyanothamnus westringioides</i>	P2	N	<10	15
<i>Daviesia implexa</i>	P3	N	<10	38
<i>Elatine macrocalyx</i>	P3	N	<10	7
<i>Eremophila biserrata</i>	P4	N	<10	22
<i>Eremophila inflata</i>	P4	N	<10	29
<i>Eremophila racemosa</i>	P4	Y	<10	36
<i>Eucalyptus cerasiformis</i>	P4	N	<10	37
<i>Eucalyptus exigua</i>	P3	Y	<10	37

<i>Eucalyptus georgei</i> subsp. <i>fulgida</i>	P4	N	<10	23
<i>Eucalyptus steedmanii</i>	T	N	<10	41
<i>Eutaxia acanthoclada</i>	P3	N	<10	21
<i>Eutaxia hirsuta</i>	P2	N	<10	7
<i>Eutaxia lasiocalyx</i>	P2	Y	Recorded within application area	5
<i>Eutaxia nanophylla</i>	P3	Y	<10	10
<i>Eutaxia rubricarina</i>	P3	Y	<10	10
<i>Frankenia drummondii</i>	P3	N	<10	43
<i>Haegiela tatei</i>	P4	N	<10	22
<i>Hemigenia</i> sp. Newdegate (E. Bishop 75)	P1	N	<10	9
<i>Hibbertia pachyphylla</i>	P3	N	<10	17
<i>Hibbertia tuberculata</i>	P1	N	<10	6
<i>Hydrocotyle eichleri</i>	P3	N	<10	7
<i>Hysterobaeckea pterocera</i>	P1	N	<10	8
<i>Isolepis australiensis</i>	P3	N	<10	9
<i>Melaleuca macronychia</i> subsp. <i>trygonoides</i>	P3	N	<10	21
<i>Microcorys</i> sp. Forrestania (V. English 2004)	P4	Y	<10	38
<i>Notisia intonsa</i>	P3	Y	<10	26
<i>Olearia laciniifolia</i>	P2	N	<10	20
<i>Paragoodia crenulata</i>	T	N	<10	7
<i>Pityrodia scabra</i> subsp. <i>dendrotricha</i>	P3	Y	<10	27
<i>Pterostylis echinulata</i>	P3	N	<10	15
<i>Pultenaea daena</i>	P3	N	<10	19
<i>Rinzia torquata</i>	P3	Y	<10	19
<i>Scaevola tortuosa</i>	P1	N	<10	19
<i>Seringia adenogyna</i>	P3	Y	<10	29
<i>Stylidium sejunctum</i>	P3	N	<10	34
<i>Stylidium validum</i>	P1	N	<10	13
<i>Teucrium diabolicum</i>	P3	N	<10	15

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

A.4. Fauna analysis table

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Apus pacificus</i>	fork-tailed swift	MI	Y	<10
<i>Zanda latirostris</i>	Carnaby's cockatoo	EN	Y	<10
<i>Dasyurus geoffroii</i>	Chuditch, western quoll	VU	Y	<10
<i>Falco peregrinus</i>	peregrine falcon	OS	Y	<10
<i>Leipoa ocellata</i>	malleefowl	VU	Y	<10
<i>Notamacropus irma</i>	western brush wallaby	P4	Y	<10

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Paroplocephalus atriceps</i>	Lake Cronin snake	P3	Y	<10
<i>Platycercus icterotis xanthogenys</i>	western rosella (inland)	P4	Y	<10

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

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The application area occurs wholly within the Lake Cronin Area which is listed on the Register of National Estate for its high level of flora and fauna diversity and endemism (GIS Database). The area is mapped within the Priority Ecological Community 'Ironcap Hills Vegetation Complexes' (Botanica Consulting 2022; GIS Database).</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>No significant fauna habitats have been recorded within the application area (GIS Database). Eight species of conservation significant fauna may potentially utilise the habitat within the application area, however, the application area is not likely to represent significant habitat for the species (GIS Database).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>A flora survey of the application area did not record any species of Threatened flora (Botanica Consulting, 2022). The desktop assessment identified two known records of Threatened flora in the nearby vicinity (within a 10 kilometre radius): <i>Eucalyptus steedmanii</i> and <i>Paragoodia crenulata</i>, however no individuals were recorded during the flora and vegetation survey (Botanica Consulting, 2022; DBCA, 2020a; GIS Database).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."</p> <p><u>Assessment:</u></p> <p>There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the permit area (GIS Database). The flora and vegetation survey did not identify any TECs (Botanica Consulting; 2022).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</p> <p><u>Assessment:</u></p> <p>The extent of native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (Government of Western Australia, 2019). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<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 occurs within an Environmentally Sensitive Area (ESA) (Register of National Estate), the Lake Cronin Area (GIS Database). At its closest point, the application area is approximately 5 kilometres south of the Lake Cronin Nature Reserve boundary (GIS Database).</p> <p>According to the Australian Heritage Database (2023), the Lake Cronin Area is one of a number of areas in the south-west which has provided excellent conditions for the persistence of a range of primitive and relict species. At over 31,000 hectares, the Lake Cronin Area is a significant area in maintaining existing processes at a regional scale and therefore is a potentially important contemporary refugia for many species (Australian Heritage Database, 2020; GIS Database).</p> <p>The Lake Cronin Area is dominated by Mallee and woodland associations (Australian Heritage Database, 2023). The habitat to be cleared is therefore well represented within the conservation estate. Lake Cronin Nature Reserve is surrounded by extensive vegetation and the clearing of up to 1 hectare of vegetation at a distance of approximately 5 kilometres or greater from the reserve will not significantly affect ecological linkages to the reserve.</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 be cleared (GIS Database). The application area is located wholly within a non-perennial lake which is only likely to contain water after heavy rainfall events (GIS Database). The vegetation survey did not identify any vegetation growing in, or in association with, a watercourse or wetland (Botanica Consulting, 2022).</p>	Not likely to 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>The desktop assessment and aerial imagery indicate that the application area is located within an area that is subject to inundation (GIS Database). The proposed clearing of up to one hectare of native vegetation for the purpose of mineral exploration may cause appreciable land degradation however this risk can be adequately managed under the <i>Mining Act 1978</i> through standards mineral exploration conditions.</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>There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Although the application area is located within an ephemeral lake, the proposed clearing of up to one hectare is unlikely to result in significant changes to surface water quality.</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 arid to semi-arid Warm Mediterranean and experiences an average annual rainfall of 341.0 millilitres (BOM, 2023). Rainfall is usually experienced during winter months and it is likely that during times of intense rainfall there may be some localised flooding in adjacent areas (BOM, 2023; GIS Database). The proposed clearing of up to one hectare is not likely to increase the incidence or intensity of natural flooding events.</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.
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. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from 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)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

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

D.2. References

- Australian Heritage Database (2023) Register of National Estate: Lake Cronin Area. http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=place_name%3Dlake%2520cronin%2520area%3Blist_code%3DRNE%3Bkeyword_PD%3Don%3Bkeyword_SS%3Don%3Bkeyword_PH%3Don%3Blatitude_1dir%3DS%3Blongitude_1dir%3DE%3Blongitude_2dir%3DE%3Blatitude_2dir%3DS%3Bin_region%3Dpart:place_id=9929 (Accessed 17 February 2023).
- BoM (2023) Bureau of Meteorology Website – Climate Data Online, Marble Bar. Bureau of Meteorology.
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- Department of Climate Change, Energy, the Environment and Water (DCCEEW) Species Profile and Threats Database (SPRAT). Available from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> (Accessed 20 March 2023).
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- Department of Planning, Lands and Heritage (DPLH) (2023) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 23 March 2023).
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- Environmental Protection Authority (EPA) (2020) Technical Guidance – Terrestrial Fauna Surveys. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.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.
- Wayne, A.F., Read, E., Maxwell, M.A., Ward, C.G. Breeding patterns for western brush wallaby (*Notamacropus Irma*) in the southern jarrah forest. Department of Biodiversity, Conservation and Attractions, February 2021. URL: <https://library.dbca.wa.gov.au/static/FullTextFiles/072564.pdf> (Accessed 20 March 2023).
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 20 March 2023).

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.