Department of **Energy, Mines, Industry Regulation and Safety**

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10351/1
Permit type:	Purpose Permit
Applicant name:	Image Resources NL
Application received:	14 September 2023
Application area:	1.57 hectares
Purpose of clearing:	Mineral exploration
Method of clearing:	Mechanical Removal
Tenure:	Exploration Licence 70/2844
	Exploration Licence 70/3298
Location (LGA area/s):	Shire of Gingin
Colloquial name:	Bidaminna Project

1.2. Description of clearing activities

Image Resources NL proposes to clear up to 1.57 hectares of native vegetation within a boundary of approximately 14 hectares, for the purpose of mineral exploration. The project is located approximately 39 kilometres north-west of Gingin, within the Shire of Gingin.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	7 March 2024
Decision area:	1.57 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 Energy, Mines, Industry Regulation and Safety (DEMIRS) on 14 September 2023. DEMIRS 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), information from a flora and vegetation survey, 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 and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- impacts to conservation significant flora and vegetation;
- impacts to conservation significant fauna;
- the loss of native vegetation that is suitable foraging habitat for Carnaby's cockatoo; and
- potential deterioration of surface and underground water.

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 have long-term adverse impacts on environmental values and 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 and dieback;
- undertake clearing by riding an off-road vehicle over native vegetation or conducting raised blade clearing;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat

ahead of the clearing activity;
- avoid clearing standing trees with a diameter of 10 centimetres or greater;
- avoid clearing riparian vegetation where practicable and maintain waterflows;
- avoid clearing indicated priority flora and implement a 10 metre buffer around them; and
- engage a fauna spotter to determine the presence of the western swamp tortoise and report any findings to DBCA for relocation.

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 2014)
- *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

An Exploration Environmental Management Plan (Terratree, 2023) was submitted by the applicant as part as a Programme of Work application, demonstrating that the applicant is committed to adhere to the following avoidance and mitigation measures:

- Avoid or, if unavoidable, to minimise and mitigate impacts to native vegetation;
- avoid direct impacts on native fauna;
- avoid or, if unavoidable, minimise and mitigate impacts to native fauna habitat;
- avoid impacts to Carnaby's cockatoo habitat trees including mature *Banksia* and *Eucalyptus todtiana*;
- avoid impacts on fauna as a result of uncapped drill holes;
- no significant impacts to a Declared wetland ESA will occur as a result of exploration activities;
- prevent soil erosion and to rehabilitate areas disturbed during exploration;
- rehabilitate disturbed areas and mitigate the impacts caused by the exploration program;
- prevent the introduction and spread of pathogens during exploration, notably *Phytophthora* species;
- prevention of soil and water contamination and to minimise air and noise pollution as a result of exploration activities;
- there will be no impact to surface water flows and groundwater levels as a result of exploration activities; and
- ensure adequate regeneration of the native vegetation on completion of works.

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 to biological values (fauna, flora, and vegetation). 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 (d)

Assessment

The flora and vegetation survey conducted by Terratree (2019) recorded a total of 1,348 individuals of Priority 3 flora species *Banksia dallaneyi* subsp. *pollosta* in the survey area. Out of those 1,348 individuals, 254 were located within the application area (Terratree, 2019). The proponent has indicated that they can commit to avoiding all Priority flora within the application area, given the flexible design of the exploration program.

The application area falls within the mapped boundary of the Priority 3 Banksia Woodlands of the Swan Coastal Plain Ecological Community (PEC) which is also listed as a Threatened Ecological Community (TEC). The flora and vegetation survey identifies that vegetation type 1 and type 2 are representative of the PEC/TEC (Terratree, 2019). DBCA advice provided for the nearby clearing permit CPS 9297/1 (DBCA, 2021) determined that the survey undertaken was not suitable to determine the presence of this PEC/TEC as the datasets provided for the application area are inadequate to identify floristic community types. The small scale of the proposed clearing is unlikely to represent a significant impact to the TEC/PEC. However, given that the application area is located at the core of an extensive occurrence of Banksia Woodlands of the Swan Coastal Plain PEC/TEC in pristine condition, there is potential for secondary impacts due to weeds and dieback (DBCA, 2021).

There were no weed species identified during the survey (Terratree, 2019). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition. The application and surrounding area were mapped as 'uninfested' for Dieback (*Phytophthora cinnamomi*) (Terratree, 2019). Dieback is a major threat to plant biodiversity in the south west of Western Australia because the plant pathogen *P. cinnamomi* kills susceptible plants by attacking their root systems. Dieback has the potential to reduce the understorey species in the area which can lead to an increase of weed species. It is important to limit the spread of dieback and this can be achieved through strict hygiene measures.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on Priority flora and Banksia Woodlands of the Swan Coastal Plain TEC/PEC can be managed by taking steps to minimise the risk of the introduction and spread of weeds and dieback and implementing buffer zones to avoid the clearing of Priority flora.

Conditions

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

- Weed and dieback management condition to prevent the introduction of weeds and dieback into the application area and
- Flora management condition to avoid and retain a 10 metre buffer around all individuals of *Banksia dallaneyi* subsp. *pollosta*.

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

Assessment

The project area is located within the distribution range of the Carnaby's black cockatoo (Terratree, 2023; GIS Database). The flora and vegetation survey (Terratree, 2019) identified suitable foraging habitat for this species. However, no suitable breeding or roosting habitat was identified in the application area (Terratree, 2023). The vegetation within the application area is not likely to represent a significant proportion of foraging habitat for Carnaby's black cockatoos. However, noting that the application area provides good quality foraging habitat on the Swan Coastal Plain, and evidence of foraging was identified within the application area, it is considered to provide significant foraging habitat for Carnaby's cockatoo (Terratree, 2023). The proposed clearing will be undertaken by driving over vegetation and conducting raised blade clearing (Terratree, 2023). This method of clearing will avoid disturbance to the rootstock and maintain key foraging species such as *Banksia* spp., *Hakea* spp. and *Grevillea* spp., for this reason, impacts to Carnaby's black cockatoo from the proposed clearing are not considered to be significant.

A key western swamp tortoise release site is located in the local area (DBCA, 2021). Due to the absence of a targeted wetland survey, it is unknown if the application area contains suitable habitat for the western swamp tortoise. A pre-clearance survey for the western swamp tortoise was conducted for clearing permit CPS 9297/1 which did not find any western swamp tortoises or any aestivation burrows (Spectrum, 2022). However, this survey did not encompass the application area for this clearing permit.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on Carnaby's black cockatoo habitat, and western swam tortoise can be managed by the implementation of a clearing not authorised condition and a fauna management condition.

The applicant may have notification responsibilities under the EPBC Act for impacts to Carnaby's cockatoo and western swamp tortoise and their habitats, as set out in the EPBC Act. The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- Clearing not authorised condition which does not allow the clearing of any standing trees that have a diameter of 10 centimetres or greater;
- Undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat;
- Fauna management condition which requires a fauna spotter to determine the presence of western swamp tortoise, and to engage with DBCA if an individual is found; and
- Authorised activity condition which requires clearing to be undertaken by either driving an off-road vehicle or equipment over vegetation, or raised blade clearing.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 5 December 2023 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

The permit area is within the South West Native Title Settlement area (DPLH, 2024). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. 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.

The application area overlaps the proposed Bidaminna Project area, which is currently subject to assessment under Part IV of the *Environmental Protection Act 1986* (EP Act) (Assessment No. 2355). The Proposal Content Document and supporting information provided to the EPA do not include reference to drilling works or other activities that might constitute implementation of the proposal. The proposed activities do not appear to cause or allow substantial implementation of the Bidaminna Project as proposed. The clearing permit application appears to relate to a separate activity, and if it does relate to the proposal, it is likely to be considered investigative works to inform the proposal.

It is noted that the proposed clearing may impact on Carnaby's black cockatoo, which is a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Climate Change, Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate Change, Energy, the Environment and Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

Other relevant authorisations required for the proposed land use include:

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

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

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a 32,000-hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is surrounded by cleared areas and salt lakes (GIS Database).
Ecological linkage	According to aerial imagery, the application area does not form part of any formal or informal ecological linkages (GIS Database).
Conservation areas	The application area is not located within any known or mapped conservation area. The closest record of a conservation area is the Moore River National Park, located 1.5 kilometres east of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Swan Coastal Plain vegetation complex: 43: Vegetation ranges from a low open forest and low open woodland of *Banksia* species *Eucalyptus todtiana* (Pricklybark) to low woodland of *Melaleuca* species and sedgelands which occupy the moister sites (GIS Database). A flora and vegetation survey was conducted over the application area by Terratree Pty Ltd during October and November 2018. A follow up survey was conducted for clearing permit application for CPS 9297/1 on July 2021. The following vegetation communities were recorded within the survey area (Terratree, 2019): **Type 1:** Open woodland of *Banksia attenuata*, *B. menziesii* and *Eucalyptus todtiana* over shrubland of *Verticordia nitens*, *Adenanthos cygnorum* and *Stirlingia latifolia*. **Type 2:** Open woodland of *Eucalyptus todtiana*, *Banksia menziesii* and *B. attenuata* over closed shrubland of *Allocasuarina humilis*, *Eremaea pauciflora* var. *pauciflora* and *Melaleuca clavifolia*. **Type 3:** Open shrubland of *Adenanthos cygnorum*, *Pericalymma ellipticum* var. *ellipticum* and *Xanthorrhoea preissii* over closed low shrubland of *Patersonia occidentalis*, *Dasypogon bromeliifolius* and *Alexgeorgea nitens*.
Vegetation condition	The vegetation survey (Terratree, 2019) and aerial imagery indicate the vegetation within the proposed clearing area is in Pristine (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix C.
Climate and landform	The application area is located in a winter dominant zone with marked wet winters and dry summers. The annual average rainfall (Gingin) is 737.7 millimetres (BoM, 2024).
Soil description	The soil located within the application area is mapped as soil unit Cb39 (GIS Database). This soil unit is described as subdued dune-swale terrain: chief soils are leached sands. Associated are small areas of other sand soils (Northcote et al., 1960-68).
Land degradation risk	The application area has been mapped as the Bassendean land system (DPIRD, 2024). This land system has an extreme risk of eutrophication, a high risk of wind erosion and a high risk of waterlogging (DPIRD, 2021).
Waterbodies	The desktop assessment and aerial imagery indicated that there are no watercourses that transect the area proposed to be cleared (GIS Database).
Hydrogeography	The application area falls within the Gingin Groundwater Area which contains a mapped groundwater salinity of less than 500 milligrams per litre total dissolved solids which is described as fresh (GIS Database).
Flora	The flora survey recorded one Priority species within the application area (Terratree, 2019). There were no Threatened flora species recorded in the survey area (Terratree, 2019; GIS Database).
Ecological communities	Vegetation communities Type 1 and Type 2 identified during the survey meet the description of the Priority 3 Ecological Community Banksia Woodlands of the Swan Coastal Plain (Terratree, 2019).
Fauna	There were no fauna surveys conducted in the application area. However, the application area is located within the range of Carnaby's black cockatoo (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 - Swan Coastal Plain	1,501,222	579,813	~39	222,917	~15
IBRA Subregion - Perth	1,117,757	466,143	~42	183,164	~16
Local Government - Gingin	319,677	176,727	~55	83,234	~26
Beard vegetation associations - State					
43	79,057	56,660	~72	30,559	~39

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	Total individuals recorded (survey area)	Total individuals in application area
Banksia dallaneyi subsp. *pollosta*	P3	1,348	254 (18.8%)

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Carnaby's black cockatoo	EN	Y	0.4 km	20,897	N/A
Short-tongued bee	P3	Y	6.5 km	10	N/A
Western swamp tortoise	CR	N	40 km	118	Y
Woolybush bee	P3	Y	4.3 km	27	N/A

A.5. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Banksia Woodlands of the Swan Coastal Plain	P3	Y	0 km	17,931	N

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains multiple individuals of a Priority flora species (see section A.3). The application area is mapped as the 'Banksia Woodlands of the Swan Coastal Plain' (Priority 3) Priority Ecological Community (PEC) and two vegetation types identified within the application area belong to the PEC.	At variance	Yes *Refer to Section 3.2.1, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment:	May be at variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
The project area contains habitat for some conservation significant fauna. These habitats are also available outside of the application area.		
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There are no known records of Threatened flora within the application area (GIS Database). A flora and vegetation survey undertaken by Terratree (2019) did not record any species of Threatened flora within the application area.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The application area is mapped within the 'Banksia Woodlands of the Swan Coastal Plain' (Endangered) Threatened Ecological Community (TEC) (GIS Database). Terratree (2019) advise that the overstorey of community Types 1 and 2 are consistent with that of the TEC.	At variance	Yes *Refer to Section 3.2.1, above.*
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The application area falls within the Swan Coastal Plain Bioregion of the Interim Biogeographic Regionalisation for Australia (GIS Database). Approximately 39 per cent of the pre-European vegetation still exists in the Swan Coastal Plain Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Swan Coastal Plain vegetation complex 43 (GIS Database). This vegetation complex has not been extensively cleared as over 72 per cent of the pre-European extent of this vegetation complex remain uncleared (Government of Western Australia, 2019).	Not at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: There are no conservation areas in the immediate vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the Moore River National Park which is located approximately 1.5 kilometres east of the application area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation area.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The application area contains approximately 6.451 hectares of mapped wetlands. These wetlands are labelled as Environmentally Sensitive Areas (GIS Database). These geomorphic wetlands are geographically classified as damplads (Terratree, 2023). DBCA (2021) advised that a dampland does not normally have standing water, but is characterised by being a basin which becomes waterlogged during wet periods. None of the vegetation types recorded during the flora and vegetation survey (Terratree, 2019) represent vegetation species or community types adapted to wetlands. Potential impacts to vegetation growing in association with the watercourse may be minimised by the implementation of a watercourse management condition, as well as an authorised activity condition requiring the proponent to only use a raised blade method of clearing, or driving an off-road vehicle or equipment over vegetation.	May be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment:	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
DPIRD (2021) advised that the application area may be susceptible to land degradation from waterlogging, eutrophication and wind erosion if the area was cleared and the soils exposed. However, given that the potential clearing is away from areas likely to become waterlogged and provided that the 'blade up' method of clearing is utilised, sufficient ground cover is likely to persist to prevent soil loss (DPIRD, 2021).		
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Advice from DPIRD (2021) suggests that the map units present within the application area have an extreme risk of eutrophication and a high risk of waterlogging. These risks are unlikely to increase from the proposed clearing due to the 'blade up' method of clearing proposed by the proponent. Potential impacts to surface or underground water as a result of the proposed clearing may be minimised by the implementation of an authorised activity condition. This requires the proponent to only use a raised blade method of clearing, or driving an off-road vehicle or equipment over vegetation.	At variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The application area intersects two damplands (seasonally waterlogged basins) (GIS Database). However, a site inspection by DPIRD (2021) advised that the proposed clearing of native vegetation is not expected to contribute to flooding on the proposed areas to clear because of the size of the proposed clearing, position in the landscape and the soil types present.	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)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Black Cockatoo WTBC Breeding
- Black Cockatoo FRTBC Breeding
- Black Cockatoo BC Roosts
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- Black Cockatoo Feeding Areas Buffered
- Black Cockatoo Boudin's Distribution
- Black Cockatoo Forest Red Tail Distribution
- Black Cockatoo Carnaby's Distribution
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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4. Glossary

Acronyms:

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

Definitions:

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

T **Threatened species:**

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

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

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

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

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

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

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

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

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

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

Extinct Species:

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

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

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

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

Specially protected species:

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

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

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.