



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9613/1
Permit type:	Purpose Permit
Applicant name:	Billabong Gold Pty Ltd
Application received:	17 February 2022
Application area:	278 hectares
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 52/1049 Miscellaneous Licence 52/208, 52/231, 52/235
Location (LGA area/s):	Shire of Meekatharra
Colloquial name:	Hermes South Project

1.2. Description of clearing activities

Billabong Gold Pty Ltd proposes to clear up to 278 hectares of native vegetation within a boundary of approximately 427 hectares, for the purpose of mineral production and associated activities. The project is located approximately 171 kilometres north-east of Meekatharra, within the Shire of Meekatharra.

The application is to allow for an expansion of mining operations and development of access road to connect the existing Plutonic Gold mine to this mining proposal.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	22 December 2022
Decision area:	278 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 17 February 2022. DMIRS advertised the application for public comment for a period of 21 days on 15 March 2022, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B) relevant datasets (Appendix F), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation surveys, the clearing principles set out in Schedule 5 of the EP Act (Appendix C), 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;
- potential impacts to conservation significant flora; and
- potential impacts to an ephemeral drainage line, and consequently on surface water flow.

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 conservation significant flora and fauna and the impacts of the clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;

- avoid impacts to riparian vegetation and maintain surface water flow;
- no more than 1,572 individuals of *Eremophila prolata* (P1) to be cleared; and
- no more than 17 individuals of *Maireana prosthocochaeta* (P3) to be cleared.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 - 2 below.

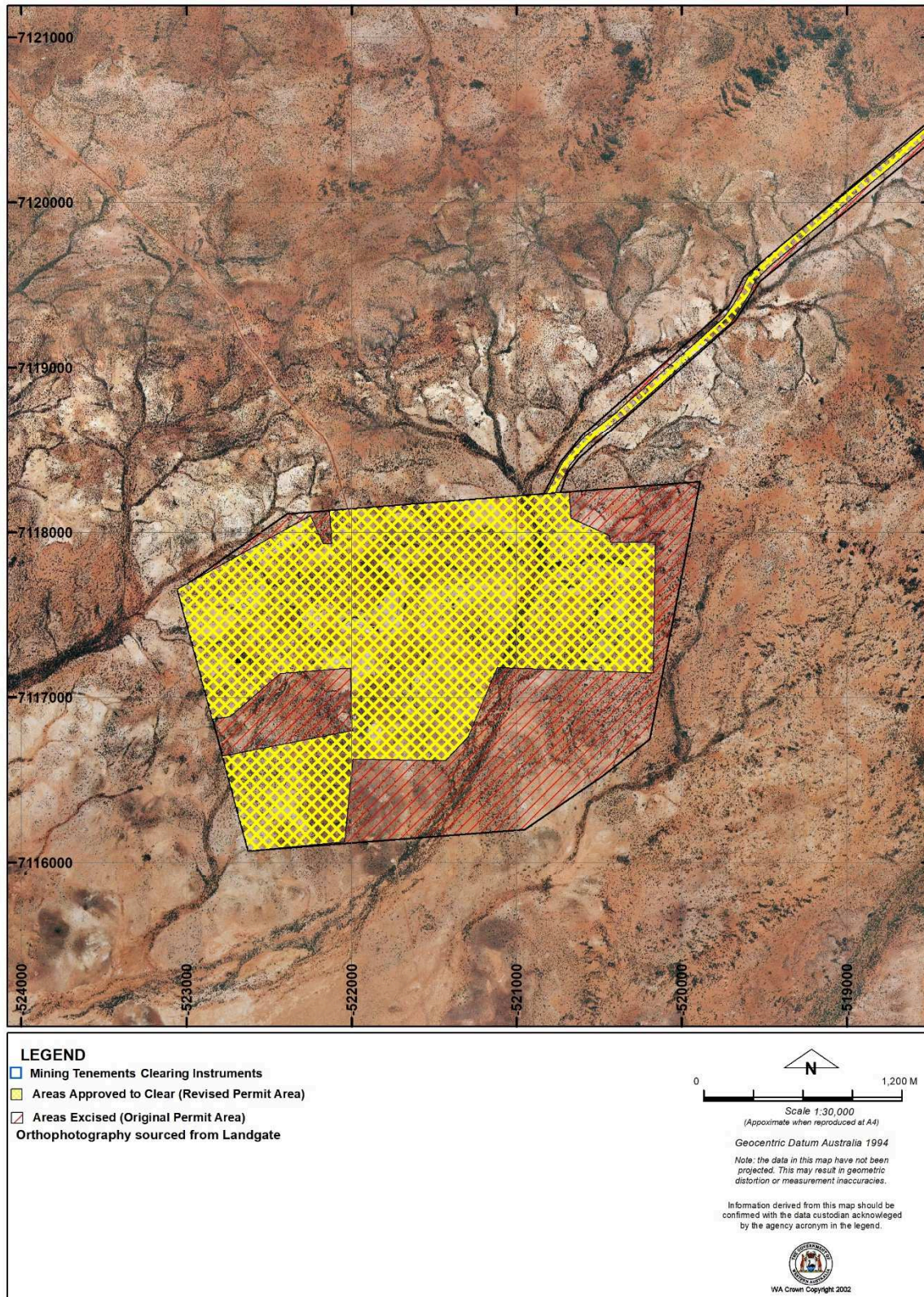


Figure 1. Map of the permit area. The yellow area indicates the area of authorised clearing under the granted clearing permit. The red hatched areas represent areas excised from the original application.



LEGEND

- Mining Tenements Clearing Instruments
 - Areas Approved to Clear (Revised Permit Area)
 - Areas Excised (Original Permit Area)
- Orthophotography sourced from Landgate



Scale 1:50,000
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994
Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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Figure 2. Map of the permit area. The yellow area indicates the area of authorised clearing under the granted clearing permit. The red hatched areas represent areas excised from the original application.

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

During the assessment, and following discussions with DMIRS, the applicant conducted a supplementary flora and vegetation survey over the application area. After analysis of the new survey, the applicant reduced the permit boundary in order to exclude and avoid areas where Priority flora species occur, and also decreased the percentage of impacts on other Priority species where avoidance was not possible to achieve entirely.

Billabong Gold Pty Ltd (2022) has advised of the following additional avoidance and mitigation measures:

- The mine disturbance envelope and haul road alignment are as tight as the project requires to operate effectively. The clearing management procedures will be implemented for ensuring compliance.

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 B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

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

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

Assessment

Two flora and vegetation surveys have been undertaken within the application area and surroundings. These surveys include:

- 1) NVS (2022a) – Detailed flora and vegetation survey – Hermes South Project Area (survey conducted in October 2021 and January 2022);
- 2) NVS (2022b) – Target flora survey – Hermes South Project (Supplementary survey conducted in September 2022)

A total of 97 species within 33 genera and 18 families were found within the survey area, and the most common families were Fabaceae (28 species), Chenopodiaceae (16), Scrophulariaceae (15) (NVS, 2022a).

Seven Priority flora species, including two potential new species, have been initially identified within the survey area, including the permit area and surroundings (NVS, 2022a):

- *Eremophila prolata* - P1;
- *Eremophila congesta* - P1;
- *Maireana murrayana* - P3;
- *Maireana prosthecochoeta* - P3;

- *Sida picklesiana* - P3;
- *Micromyrtus* sp.(potential new species); and
- *Acacia* sp. (potential new species).

The number of individuals of the above species found within the permit area during the detailed flora survey and the potential impacts on some of them were considered to be significant. Therefore, it was deemed necessary to undertake an additional targeted survey and revision of the potential impacts on Priority species.

NVS (2022b) conducted a supplementary survey over the permit area and surroundings, targeting four priority species to ascertain their population size and redefine potential impacts.

The target species were: *Eremophila prolata* - P1, *Maireana prosthecochoaeta* - P3, *Micromyrtus* sp. (potential new species) and *Acacia* sp. (potential new species) (NVS, 2022b). Six quadrats (20 m x 20 m) were established alongside the population boundaries of *Acacia* sp., and the total count was calculated by multiplying the average number of individuals recorded across all quadrats by the total area of mapped potential habitat (NVS 2022b, MBS, 2022).

NVS (2022b) found a further 7,630 individuals of *Eremophila prolata* – P1, 149 individuals of *Maireana prosthecochoaeta* - P3, and approximately 22,212 individuals of *Acacia* sp. (potential new species). All of these records were identified outside the permit area (NVS, 2022b), and therefore, are not going to be impacted by the clearing activities.

No new records of *Micromyrtus* sp. were identified and the previous record from 2021 could not be found, possibly due to grazing or other reasons (NVS, 2022b). Regardless, the revised permit area has been designed to avoid known locations of this species as well as known locations of *Eremophila congesta* - P1 and *Maireana murrayana* - P3 as the 2022 targeted flora survey did not identify any new records for these species (MBS, 2022).

The revised potential impacts to significant flora are highlighted below (MBS, 2022)

Significant Flora Taxon	Total Surveyed Individuals (2021 & 2022)	Potential Impacts of the Revised Permit Area (#/%)	Potential Impacts of the Proposed Project (Mine and Haul road) (#/%)
<i>Acacia</i> sp.	22,212	0 (0)	0 (0)
<i>Eremophila congesta</i> (P1)	15	0 (0)	0 (0)
<i>Eremophila prolata</i> (P1)	16,173	1,945 (12)	1,572 (10)
<i>Maireana murrayana</i> (P3)	1	0 (0)	0 (0)
<i>Maireana prosthecochoaeta</i> (P3)	164	17 (10)	17 (10)
<i>Micromyrtus</i> sp.	1	0 (0)	0 (0)
<i>Myrtaceae</i> sp.	53	0 (0)	0 (0)
<i>Sida picklesiana</i> (P3)	1,381	7 (1)	7 (1)

Approximately 10% of the surveyed populations of *Maireana prosthecochoaeta* and 1% of *Sida picklesiana* will be impacted by the clearing activities after revision of the updated survey, as opposed to the original 23% and 2.2% respectively that would be impacted based on the previous survey (MBS, 2022).

The revised permit area eliminated impacts to *Eremophila congesta*, *Myrtaceae* sp., and the potential new species *Acacia* sp (MBS, 2022). The proponent either excised the areas where these species occur or the new records were identified outside the permit area.

The original Native Vegetation Clearing Permit (NVCP) application proposed the clearing of 278 hectares within a 589 hectares permit area. The revised permit area covers 427.1 hectares and is a reduction of 161.9 hectares to the initial application (MBS, 2022) (Figure 1 - 2).

One weed species (*Bidens bipinnata*) was identified within the survey area. 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.

Conclusion

Based on the above assessment, it is considered that the impacts of the proposed clearing on potential habitats for Priority flora are not likely to be significant if avoidance, mitigation and management measures are implemented.

For the reasons set out above, it is considered that the impacts of the proposed clearing on potential habitats for conservation significant flora species can be managed with conditions to be environmentally acceptable. There is potential for weeds being present within the application area and the proposed clearing has the potential to exacerbate the spread of weeds.

Conditions

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;

- no more than 1,572 individuals of *Eremophila prolata* (P1) to be cleared;
- no more than 17 individuals of *Maireana prosthocochaeta* (P3) to be cleared;

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 15 March 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC1999/013) over the area under application (DPLH, 2022). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2022). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

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

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Detailed flora and vegetation survey	A detailed flora and vegetation survey was undertaken in the entire permit area (NVS, 2022a). The survey was used to inform assessment of clearing principles (a) and (c)
Terrestrial fauna survey	A terrestrial survey was undertaken over the entirety of permit area (Terrestrial Ecosystems, 2022). The survey was used to inform assessment of clearing principles (b).
Supplementary targeted flora survey	A targeted flora survey was conducted within the permit area and surroundings by NVS in September 2022. The results were used to review assessment of clearing principle (a).
Native vegetation clearing permit (NVCP) Revised Impacts Letter	A NVCP Revised Impacts Review was completed by MBS Environmental in December 2022. The information was used to redefine potential impacts and to reduce the permit area.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 171 kilometres north-east of Meekatharra, within the Shire of Meekatharra in the extensive land use zone. The predominant land use in the region is grazing of native pastures, conservation and mining activity.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database)
Conservation areas	Part of the permit area is located within Doolgunna ex-pastoral lease, classified now as unallocated crown land under the Department of Biodiversity, Conservation and Attractions (DBCA) management (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations (GIS Database):</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>);</p> <p>39: Shrublands; mulga scrub.</p> <p>A targeted flora and vegetation survey was conducted over the application area by Native Vegetation Solutions during October 2021 and January 2022 (NVS, 2022a). The following vegetation associations recorded were (NVS, 2022a):</p> <ul style="list-style-type: none"> • Mulga shrubland over Quartz and Ironstone rises • Mulga creekline vegetation • <i>Acacia cuspidifolia</i> over <i>Maireana pyramidata</i> shrubland • <i>Acacia pruinocarpa</i> over <i>Acacia aneura</i> shrubland • Mulga over <i>Eremophila forrestii</i> shrubland • <i>Acacia citrinoviridis</i> over <i>Thryptomene decussata</i> and <i>Dodonaea pachyneura</i> shrubland • Mulga over <i>Senna</i> shrublands • Open mulga shrubland over <i>Eremophila pterocarpa</i> and occasional <i>Eremophila glutinosa</i> • Mulga over <i>Acacia</i> sp. (Possible new species) over <i>Senna pleurocarpa</i> and <i>Eremophila prolata</i> (P1) shrubland
Vegetation condition	<p>The vegetation survey (NVS, 2022a) indicates 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 – 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. <p>Some areas presented existing vehicle tracks due to mine exploration, hence those areas are degraded. However, most the vegetation half metre off these tracks was in a Good to Very Condition (NVS, 2022a).</p>

Characteristic	Details
	The full Keighery (1994) condition rating scale is provided in Appendix E.
Climate and landform	The application area is mapped at the elevation of 580 to 600 meters (GIS Database). The climate of the region is desert, and the annual rainfall average of approximately 233.7 millimetres (BoM, 2022).
Soil description	<p>The soil is mapped in two soil units:</p> <p>Fa7 - described as ranges comprising basic intrusive rocks, conglomerates, and other sediments including dolomite; some valley plains. Soils are frequently shallow and stony and there are areas without soil cover: chief soils are stony shallow earthy loams (Um5.51) along with some (Um6.23) soils. (Um5.52), (Gn2.13), and (Dr2.33) soils occur on the valley plains with (Um5.11) soils on calcrete (kunkar) along the creek lines. The (Um5.11) soils may be associated also with stony (Gc1.12) soils on exposures of dolomite. Occurs on sheet(s): 6 (Northcote 1960-68).</p> <p>BE8 - partially dissected pediments extending out from areas of unit Fa7; there may be a surface cover of gravels. Earthy loams (Um5.3) are dominant; (Gn2.11 and Gn2.12) with red-brown hardpan at shallow depth are also present as well as small areas of (Dr2.72) and (Dr2.52) soils. Occurs on sheet(s): 6,10 (Northcote 1960-68).</p>
Land degradation risk	<p>The application area is located within four land systems (DPIRD, 2022):</p> <ul style="list-style-type: none"> • Beasley Land System: Low ridges, hills and lateritised residuals above stony footslopes and broad, stony lower plains supporting scattered mulga and snakewood-dominated shrublands. • Durlacher Land System: Stony plains, lower tributary drainage plains and low stony rises, supporting scattered tall shrublands of mulga, other acacias and chenopod low shrubs. • Horseshoe Land System: Gently undulating stony plains and low rounded hills based on Proterozoic metamorphic rocks, with somewhat saline drainage foci and alluvial tracts; supports scattered mulga and wait-a-while shrublands with halophytes. • Phillips Land System: Low hills and undulating uplands of crystalline rocks supporting mulga and other acacia-dominated tall shrublands.
Waterbodies	The desktop assessment and aerial imagery indicate that several minor, non-perennial watercourses transect the area proposed to be cleared.
Hydrogeography	The application area is located within the East Murchison Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> . The mapped groundwater salinity is 500 - 1,000 milligrams per litre total dissolved solids which is described as marginal.
Flora	Seven Priority flora species were recorded in numerous locations within the permit area and surroundings (NVS, 2022b)
Ecological communities	There are no mapped Threatened or Priority Ecological Communities (TEC/PEC) within the application area. The nearest TEC (Robinson Range BIF) is located approximately 3.5 kilometres south of the application area (GIS Database).
Fauna	No habitat of conservation significance were recorded in the survey and the likelihood of conservation significant fauna being present in the project area is low (Terrestrial Ecosystems, 2022). The habitat types within the application area are common and widespread both locally and regionally (Terrestrial Ecosystems, 2022).

B.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 - Gascoyne	18,075,219.48	18,067,441.44	99.96	1,855,508.22	10.27
Beard vegetation associations - State					
Veg Assoc No. 18	19,892,306.46	19,843,148.07	99.75	1,317,179.00	6.62
Veg Assoc No. 39	6,613,567.48	6,602,578.44	99.83	795,070.69	12.02
Beard vegetation associations					

- Bioregion					
Veg Assoc No. 18	3,273,579.72	3,271,339.12	99.93	316,154.02	9.66
Veg Assoc No. 39	2,338,128.28	2,337,580.69	99.98	325,615.46	13.93

Government of Western Australia (2019)

B.3. Flora analysis table

Priority flora database analysis of records within 50 kilometres of the application area (NVS, 2022a)



Detailed Flora and Vegetation Survey of the Hermes South Project Area- October 2021

Taxon	Cons_Code	Likelihood of occurring in survey area	Comment, based on survey effort
<i>Dodonaea amplisemina</i>	P4	Unlikely	Possible habitat, however, search thoroughly
<i>Eremophila demissa</i>	P1	Unlikely	No suitable habitat
<i>Eremophila lanata</i>	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Eremophila proliata</i>	P1	Likely	Captured in survey data
<i>Eremophila</i> sp. Meekeatharra (D.J. Edinger 4430)	P1	Unlikely	Possible habitat, however, search thoroughly
<i>Eucalyptus semota</i>	P1	Unlikely	Possible habitat, however, search thoroughly
<i>Euphorbia sarcostemmoides</i>	P1	Unlikely	Possible habitat, however, search thoroughly
<i>Goodenia berringinensis</i>	P4	Possible	Possible habitat, however, search thoroughly
<i>Hemigenia virescens</i>	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Homalocalyx echinulatus</i>	P3	Unlikely	No suitable habitat
<i>Indigofera fractiflexa</i> subsp. <i>augustensis</i>	P2	Unlikely	Possible habitat, however, search thoroughly
<i>Maireana murrayana</i>	P3	Likely	Captured in survey data
<i>Maireana prosthecochaeta</i>	P3	Likely	Captured in survey data
<i>Pityrodia iphthima</i>	P1	Unlikely	No suitable habitat
<i>Prostanthera ferricola</i>	P3	Unlikely	No suitable habitat
<i>Ptilotus actinocladius</i>	P1	Unlikely	Possible habitat, however, search thoroughly
<i>Ptilotus lazaridis</i>	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Ptilotus luteolus</i>	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Rhodanthe sphaerocephala</i>	P1	Unlikely	Possible habitat, however, search thoroughly
<i>Seringia exastia</i>	T	Unlikely	No suitable habitat
<i>Thryptomene</i> sp. Leinster (B.J. Lepschi & L.A. Craven 4362)	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Tribulus adelacanthus</i>	P3	Unlikely	Possible habitat, however, search thoroughly
<i>Verticordia jamiesonii</i>	P3	Unlikely	No suitable habitat
<i>Wurmbea</i> sp. Denham Pool (F. Hort et al. 2216)	P1	Unlikely	No suitable habitat

Likely – suitable habitat, close (<10km) records and/or field survey completed in sub-optimal season, suggest species is likely to occur
Possible- suitable habitat, record(<50km) and/or field survey completed in sub-optimal season.
Unlikely- Lack of suitable habitat and/or no records(<50km) and for field survey completed in optimal season, suggests species is unlikely to occur

B.4. Fauna analysis table

Assessment of the likelihood of significant fauna species being found in the project area (Terrestrial Ecosystems, 2022).

Table 6. Conservation species recorded in database searches for the region

Species	DBCA Schedule / Priority	Status under Commonwealth EPBC Act	Comment on the potential presence of a species
Night Parrot <i>Pezoporus occidentalis</i>	Critically Endangered	Endangered	Highly unlikely to be in the project area, due to a lack of suitable habitat and lack of records. The potential for impacting on this species is therefore very low.
Princess Parrot <i>Polytelis alexandrae</i>	Priority 4	Vulnerable	May infrequently be seen in the region, however, clearing vegetation is unlikely to impact on this species.
Pilbara Leaf-nosed Bat <i>Rhinonicteris aurantia</i>	Vulnerable	Vulnerable	Highly unlikely to be in the project area, due to a lack of suitable habitat and lack of records. The potential for impacting on this species is therefore very low.
Grey Falcon <i>Falco hypoleucos</i>	Vulnerable	Vulnerable	Highly unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore very low.
Malleefowl <i>Leipoa ocellata</i>	Vulnerable	Vulnerable	No mounds were recorded, and it is highly unlikely to be in the project area due to a lack of suitable habitat and presence of feral fauna. The potential for impacting on this species is therefore very low.
Fork-tailed Swift <i>Apus pacificus</i>	IA	Migratory	May very infrequently be seen in the region, however, clearing vegetation is unlikely to impact on this aerial species.
Grey Wagtail <i>Motacilla cinerea</i>	IA	Migratory	Highly unlikely to be present in the project area. The potential for impacting on this species is therefore low.
Yellow Wagtail <i>Motacilla flava</i>	IA	Migratory	Highly unlikely to be present in the project area. The potential for impacting on this species is therefore low.
Peregrine Falcon <i>Falco peregrinus</i>	OS		May infrequently be seen in the region, however, clearing vegetation is unlikely to impact on this species.

Appendix C. 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> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>Eight Priority flora species were recorded within and adjacent to the permit area. (MBS, 2022, NVS, 2022b). Two species of interest were detected in the application area as they have the potential to be new species (NVS, 2022a). However, the known locations of these species have been excluded from the revised permit area (MBS, 2022).</p> <p>No Threatened or Priority Ecological Communities were identified within the application area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The project area lacks significant understorey and leaf litter, and its adjacent areas have similar fauna habitats condition and abundance (Terrestrial Ecosystems, 2022). Therefore, the fauna assemblage that is present in the project area will also be present and abundant in the adjacent areas, which makes the proposed development unlikely to have a significant impact on the vertebrate fauna considering a broader scale (Terrestrial Ecosystems, 2022).</p> <p>Feral cats, cattle and possibly wild dogs and foxes are the most significant threat to vertebrate fauna in the project area (Terrestrial Ecosystems, 2022).</p> <p>As conservation significant fauna are unlikely to be present, they are highly unlikely to be significantly impacted during any potential vegetation clearing or development.</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>There are no known records of Threatened flora within the permit area (GIS Database). A flora survey of the application area did not record any species of Threatened flora (NVS, 2022a) and the vegetation proposed to be cleared is not expected to support any species of Threatened flora (GIS Database).</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>There are no known Threatened Ecological Communities (TECs) located within the application area (GIS Database). The nearest TEC (Robinson Range BIF - banded ironstone formation) is located approximately 3.5 kilometres south of the application area (GIS Database). The vegetation proposed to be cleared is not considered necessary for the maintenance for this TEC.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area falls within the Gascoyne IBRA bioregion (GIS Database). The broad vegetation associations have not been extensively cleared as approximately 99% of the pre-European extent of the vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). The vegetation within the application area is not significant as a remnant of native vegetation (GIS Database).</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>Principle (h): <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>A portion of the application area, the haul road, is located within the Doolgunna ex-pastoral lease, which is currently an unallocated crown land under management of the Department of Biodiversity, Conservation and Attractions (DBCA) (GIS Database). However, based on the results of the surveys (NVS, 2022a; MBS, 2022), and the relatively small area of clearing for a haul road, the proposed clearing of native vegetation is unlikely to impact on significant environmental values of the DBCA managed unallocated crown land or other conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p>Principle (f): <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>No permanent watercourses or wetlands are recorded within the area proposed to clear. Broad ephemeral drainage lines are present in the survey area; however, they are only likely to flow following major rainfall events.</p> <p>Considering the design of the project, the proposed haul road has the potential to impede sheet flow leading to water starvation of downslope vegetation and water ponding upslope (DPIRD, 2022). As the vegetation associated with this ephemeral drainage line may be cleared, it is recommended to maintain surface water flow or reinstate downstream into existing natural drainage lines.</p> <p>Potential impacts to an ephemeral drainage line can be managed through vegetation management condition, which includes avoiding clearing riparian vegetation and maintaining surface water flow.</p> <p>Therefore, the proposed clearing is unlikely to significant impact vegetation growing in association with any watercourse or wetland.</p>	At variance	No
<p>Principle (g): <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 mapped soils in the application area are basically consisting of intrusive rocks, conglomerates, and other sediments (Northcote 1960-68). Soil Mapping Units (SMUs) across the proposed areas is defined as SMU1 – Reddish brown loam over hardpan (SignificantENV, 2021). These type of soils present gravelly to cobbly strewn land surface which protects the surface soils from excessive wind and water erosion. The soil cover thickness varies from 15 to 50cm (SignificantENV, 2021). The land systems are generally represented by low hills and undulating uplands of crystalline rocks and stony plains (Northcote 1960-68). Therefore, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p>Principle (i): <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 nor permanent watercourses or wetlands within the area proposed to clear (GIS Database).</p> <p>Given the majority of the proposed area comprises sparse vegetation, open areas, and areas previously degraded by old mining activities, the proposed clearing is unlikely to impact surface or ground water quality (GIS Database, 2022).</p>	Not likely to be at variance	No
<p>Principle (j): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>Given that multiple drainage lines run through the application area, and that the proposed road may impede water flow, the proposed clearing may contribute to water ponding. However, the application area is located within a desert climate region with</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
annual rainfall averaging approximately 233.7 millimetres (BoM, 2022). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall. Therefore, the application area is unlikely to cause, or significantly exacerbate, the incidence or intensity of flooding.		

Appendix D. Vegetation condition rating scale

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

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

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

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

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

Appendix E. Photographs of fauna habitats

Photos from fauna habitats survey undertaken by Terrestrial Ecosystems in February 2022 (Terrestrial Ecosystems, 2022)



Photo 1: Mixed *Acacia* shrubland



Photo 2: Mixed *Acacia* shrubland



Photo 3: Mulga creekline



Photo 4: Mulga creekline



Photo 5: Mulga woodland over shrubs and stony soils



Photo 6: Mulga woodland over shrubs and stony soils



Photo 7: Open Mulga woodland over scattered mixed shrubs



Photo 8: Open Mulga woodland over scattered mixed shrubs



Photo 9: Disturbed habitat



Photo 10: Disturbed habitat

Appendix F. Sources of information

F.1. GIS databases

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

- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- WA Now Aerial Imagery

Restricted GIS Databases used:

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

F.2. References

- Billabong Gold Pty Ltd (2021) Clearing Management Procedures – Ground Disturbance Permit Procedure. Prepared by Superior Gold Inc for the subsidiary Billabong Gold Pty Ltd, August 2021.
- Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- Department of Planning, Lands and Heritage (DPLH) (2022) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 31 August 2022).
- Department of Primary Industries and Regional Development (DPIRD) (2022) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (Accessed August 2022).
- 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.
- MBS (2022) RFI NVCP Revised Impacts Letter Final – Flora and vegetation surveys. Letter prepared for Billabong Gold Pty Ltd by MBS Environmental, December 2022
- NVS (2022a) Detailed Flora and Vegetation Survey of the Hermes South Project Area - October 2021, Unpublished Report Prepared for Billabong Gold Pty Ltd (Superior Gold Inc.) by NVS, February 2022.
- NVS (2022b) Target Threatened Flora Search of the Hermes South Project Area – September, 2022. Unpublished Report Prepared for Billabong Gold Pty Ltd (Superior Gold Inc.) by NVS, December 2022.
- Significant ENV, 2021, *Hermes South Project – Soil Characterisation Study*. Prepared for Billabong Gold Pty Ltd by Significant Environmental Services, November 2021.

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.