Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8784/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Paddington Gold Pty Ltd**

1.3. Property details

Property: Mining Lease 24/102
Mining Lease 24/155
Mining Lease 24/166
Mining Lease 24/172
Mining Lease 24/265
Mining Lease 24/302
Mining Lease 24/304
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: Mt Pleasant

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
400		Mechanical Removal	Mineral Production and Associated Activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 23 April 2020

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation of the application area is broadly mapped as the following Beard vegetation associations:
125: Bare areas; salt lakes;
468: Medium woodland; salmon gum and goldfields blackbutt; and
540: Succulent steppe with open low woodland; sheoak over saltbush (GIS Database).

A flora and vegetation survey was conducted over the application area by Native Vegetation Solutions (NVS) during June and November, 2019. The following 18 vegetation associations were recorded within the application area and surrounding areas, with 11 being present within the application area (NVS, 2019):

Chenopod Shrubland: Low heath dominated by *Maireana pyramidata, Atriplex vesicaria, Atriplex bunburyana, Lycium australe* and *Cratystylis subspinescens.*

Open *Eucalyptus salmonophloia* woodland[1]: Open woodland dominated by *Eucalyptus salmonophloia* over sclerophyll shrublands including *Eremophila scoparia, Maireana pyramidata, Atriplex vesicaria, Ptilotus obovatus, Atriplex nummularia* subsp. *spathulata* and *Scaevola spinescens.*

***Eucalyptus griffithsii* woodland:** Tree mallee dominated by *Eucalyptus griffithsii* over a sclerophyll shrubland of *Eremophila scoparia, Exocarpos aphyllus, Atriplex vesicaria, Maireana pyramidata, Cratystylis subspinescens* and *Senna artemisioides* subsp. *filifolia.*

***Acacia ramulosa* var. *ramulosa* shrubland:** Scrub dominated by *Acacia ramulosa* var. *ramulosa* over shrubland of *Maireana pyramidata, Ptilotus obovatus, Solanum lasiophyllum, Senna artemisioides* subsp. *filifolia, Dodonaea lobulata* and *Enteropogon ramosus.*

***Tecticornia* Shrubland:** Low heath dominated by *Tecticornia indica* subsp. *bidens, Tecticornia disarticulata, Carpobrotus modestus, Disphyma crassifolium* subsp. *clavellatum* and *Atriplex vesicaria.*

Creekline Vegetation: Heath dominated by *Melaleuca lateriflora* over shrubland of *Acacia ligulata, Cratystylis subspinescens, Atriplex vesicaria, Maireana pyramidata, Acacia tetragonophylla* and *Dodonaea viscosa* subsp. *angustissima.*

***Eucalyptus oleosa* over *Acacia ramulosa* over sclerophyll shrubland:** Open tree mallee dominated by *Eucalyptus oleosa subsp. oleosa* over a sparse shrubland of *Acacia ramulosa* subsp. *ramulosa, Eremophila miniata, Eremophila oldfieldii* subsp. *angustifolia, Atriplex nummularia* subsp. *spathulata, Cratystylis subspinescens* and *Dodonaea viscosa* subsp. *angustissima*.

***Acacia acuminata* shrubland on rocky outcrop:** Heath dominated by *Acacia acuminata* over *Eremophila miniata, Eremophila oldfieldii* subsp. *angustifolia, Atriplex nummularia* subsp. *spathulata, Cratystylis subspinescens* and *Dodonaea viscosa* subsp. *angustissima.*

***Eremophila miniata* shrubland:** Low scrub dominated by *Eremophila miniata* over *Acacia tetragonophylla, Dodonaea viscosa* subsp. *angustissima, Grevillea sarissa* subsp. *sarissa, Cratystylis subspinescens, Eremophila scoparia, Ptilotus obovatus* and *Solanum orbiculatum.*

***Eucalyptus salubris* and *Eucalyptus gracilis* over *Tecticornia* on rocky hill slopes[1]:** Open tree mallee dominated by *Eucalyptus salubris* and *Eucalyptus gracilis* over shrubland of *Acacia kalgoorliensis, Grevillea sarissa* subsp. *sarissa, Eremophila scoparia, Eremophila oppositifolia* subsp. *angustifolia, Atriplex vesicaria, Scaevola spinescens, Tecticornia disarticulata* and *Tecticornia indica* subsp. *bidens.*

***Casuarina pauper* and *Melaleuca lateriflora* over *Tecticornia* on quartz hill:** Dwarf scrub dominated by *Tecticornia disarticulata, Tecticornia indica* subsp. *bidens, Maireana glomerifolia, Frankenia interioris, Frankenia setosa* and *Dodonaea lobulata* with occasional *Casuarina pauper* overstorey.

***Acacia ramulosa* and *Acacia ligulata* shrubland:** Heath dominated by *Acacia ramulosa* subsp. *ramulosa* and *Acacia ligulata* over *Maireana pyramidata, Atriplex bunburyana, Senna artemisioides* subsp. *filifolia, Atriplex vesicaria* and *Dodonaea lobulata.*

***Casuarina* over sclerophyll shrubland:** Scrub dominated by *Casuarina pauper* over *Pittosporum angustifolia, Acacia tetragonophylla, Grevillea acuaria, Cratystylis subspinescens, Eremophila scoparia* and *Eremophila oldfieldii* subsp. *angustifolia.*

***Eucalyptus gracilis* woodland[2]:** Tree mallee dominated by *Eucalyptus gracilis* over shrubland of *Atriplex nummularia* subsp. *spathulata, Atriplex vesicaria, Eremophila scoparia, Acacia erinacea, Cratystylis microphylla* and *Ptilotus helichrysoides.*

***Eucalyptus ravida* woodland over *Tecticornia disarticulata* shrubland[1]:** Open tree mallee dominated by *Eucalyptus ravida* over *Tecticornia disarticulata,* with occasional shrubs of *Eremophila oppositifolia* subsp. *angustifolia, Acacia erinacea* and *Maireana pyramidata.*

***Eucalyptus lesouefii* woodland[2]:** Open low woodland dominated by *Eucalyptus lesouefii* over *Eremophila scoparia, Maireana glomerifolia, Ptilotus helichrysoides* and *Tecticornia disarticulata.*

Transitional *Eucalyptus* woodland[1]: Low forest dominated by numerous *Eucalyptus* species over sclerophyll shrubland of *Pimelea microcephala* subsp. *microcephala, Senna artemisioides* subsp. *filifolia, Eremophila scoparia, Exocarpos aphyllus, Cratystylis microphylla, Scaevola spinescens* and *Maireana sedifolia.*

***Eucalyptus gracilis* over sclerophyll shrubland on rocky hills[2]:** Open tree mallee dominated by *Eucalyptus gracilis,* over sclerophyll shrubland of *Scaevola spinescens, Acacia erinacea, Grevillea acuaria, Senna artemisioides* subsp. *filifolia, Eremophila oppositifolia* subsp. *angustifolia, Eremophila parvifolia* subsp. *auricampa* and *Olearia muelleri.*

Note: [1] Denotes vegetation associations that represent suitable habitat for the Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*, CR) that were excluded from the application area during the assessment; and [2] Denotes vegetation associations that were excluded from the application area when revised.

Clearing Description

Mt Pleasant.
Paddington Gold Pty Ltd proposes to clear up to 400 hectares of native vegetation within a boundary of approximately 1,024 hectares, for the purpose of mineral production and associated activities. The project is located approximately 27 kilometres north-west of Kalgoorlie-Boulder, within the Shire of Kalgoorlie-Boulder.

Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

To:

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

Comment

The vegetation condition was derived from a vegetation survey conducted by NVS (2019).

The proposed clearing is for the expansion of operations in an area already largely disturbed by current and historical mining.

3. Assessment of application against Clearing Principles

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

Comments

Proposal is not likely to be at variance to this Principle

The clearing permit application area is located within the Eastern Goldfields subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Coolgardie Bioregion (GIS Database). The Eastern Goldfields subregion is characterised by undulating plains interrupted by low hills and ridges, supporting mallees, *Acacia* thickets and shrub-heaths on sandplains, and diverse *Eucalyptus* woodlands around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. The subregion is rich in

endemic *Acacia* species (CALM, 2002).

The application area falls on the northern edge of the area known as the Great Western Woodlands, which represents the largest and most intact eucalypt woodland remaining in southern Australia and is one of the best examples of its type in the world (DEC, 2010). The Great Western Woodlands covers a total area of approximately 16 million hectares, and is recognised for its flora and fauna species richness and high number of endemic flora species (DEC, 2010). However, at approximately 400 hectares in size, the clearing permit application area represents less than 0.01 percent of the area covered by the Great Western Woodlands, and the proposed clearing of 400 hectares is unlikely to have any significant impact on the conservation values of the Great Western Woodlands.

A reconnaissance flora and vegetation survey of the application area was conducted by NVS (2019) on 7 June and 5 November 2019. Eighteen major vegetation groups were recorded in the survey area and surrounding areas, comprising mainly of Chenopod shrublands, *Eucalyptus* woodlands, *Acacia* shrublands and *Casuarina* scrub (NVS, 2019). No unique or restricted vegetation communities were identified, and all vegetation types/communities are common, widespread and well represented in the Eastern Goldfields subregion (NVS, 2019). No Threatened or Priority Ecological Communities were identified as potentially occurring in the application area and the field assessments of the application did not record any (Botanica, 2015; NVS, 2019; GIS Database).

A total of 113 flora species from 58 genera and 28 families were recorded within the application area and surrounding areas (NVS, 2019). A desktop assessment identified two Threatened and 49 Priority flora previously recorded within 40 kilometres of the application area (NVS, 2019). Of these species, the majority were determined to be unlikely to occur due to a lack of suitable habitat, however ten Priority species were considered to be possibly occurring and two Priority species were considered likely to occur due to the presence of suitable habitat (Paddington Gold, 2020). No Threatened or Priority flora species were identified during the field assessment of the application area (NVS, 2019). As the field survey was conducted at a sub-optimal time, it is possible that Priority flora species were present and not detected. However, the 12 species identified as possibly occurring are not locally or regionally restricted (Western Australian Herbarium, 1998-) and it is unlikely that the proposed clearing will have a significant impact on the conservation status of these species.

Seven species of weeds were recorded during the field surveys of the application area and surrounding areas; *Asphodelus fistulosus* (Onion Weed), *Carthamus lanatus* (Saffron Thistle), *Centaurea melitensis* (Maltese Cockspur), *Dittrichia graveolens* (Stinkwort), *Xanthium spinosum* (Bathurst Burr), *Salvia verbenaca* (Wild Sage) and *Lysimachia arvensis* (Pimpernel) (Botanica, 2015; NVS, 2019). *Xanthium spinosum* is a Declared Pest according to the *Biosecurity and Agriculture Management Act 2007*. Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. Potential impacts to biodiversity as a result of the introduction of weeds may be minimised by the implementation of a weed management condition.

A desktop assessment identified 120 birds, six amphibians, 32 mammals and 92 reptiles with the potential to occur within the application area, including 12 conservation significant fauna species (Terrestrial Ecosystems, 2019). When considering the fauna habitats present, suitable habitat for four conservation significant fauna species were identified (Terrestrial Ecosystems, 2019). However, the western rosella (*Platycercus icterotis xanthogenys*, P4), central long-eared bat (*Nyctophilus major tor*, P4), fork-tailed swift (*Apus pacificus*, MI) and peregrine falcon (*Falco peregrinus*, OS) are highly mobile species and unlikely to be significantly impacted by the proposed clearing.

The Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*, CR) was identified as potentially occurring in the area (Terrestrial Ecosystems, 2019). In order to reduce potential impacts to the species, areas of suitable habitat where were excluded from the application area (Paddington Gold, 2020; Terrestrial Ecosystems, 2020).

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas (NVS, 2019; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Botanica (2015)
CALM (2002)
DEC (2010)
NVS (2019)
Paddington Gold (2020)
Terrestrial Ecosystems (2019)
Terrestrial Ecosystems (2020)
Western Australian Herbarium (1998-)

GIS Database:
- IBRA Australia
- Pre-European Vegetation

- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers
- Threatened and Priority Flora
- Threatened Fauna

(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 indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

The following three fauna habitats have been recorded within the application area (Terrestrial Ecosystems, 2019):

1. Open eucalypt woodland over sparse shrubs and chenopods;
2. Mixed sclerophyll shrubland and chenopods; and
3. Eucalypt woodland over mixed shrubland and chenopod over scattered grasses of varying densities.

There were also areas present that were completely degraded or cleared of fauna habitat (Terrestrial Ecosystems, 2019). Fauna habitat within the application area ranged from good to degraded, with majority of the habitat showing high levels of degradation from exploration activities and cattle grazing (Terrestrial Ecosystems, 2019). Potential impacts on fauna as a result of the clearing are likely to be low as large areas of similar habitat exist adjacent to the application area (GIS Database; Terrestrial Ecosystems, 2019).

The Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*, CR) was identified as potentially occurring in the area (Terrestrial Ecosystems, 2019). This species is reliant on smooth-barked *Eucalyptus* species, which provide potential suitable habitat for the butterflies host ant (pale-coloured form of the large suger ant, *Camponotus terebrans*). In order to reduce potential impacts to significant habitat for this species, areas of suitable habitat were excluded from the application area (Paddington Gold, 2020; Terrestrial Ecosystems, 2020).

Terrestrial Ecosystems (2019) concluded that potential impacts on vertebrate fauna habitats from the proposed clearing are likely to be low, in a landscape or bioregional context, as vast tracts of similar habitat occurs in adjacent areas. The landforms and habitat types found within the application area are common and widespread in the region (Terrestrial Ecosystems, 2019; GIS Database). The vegetation proposed to be cleared is unlikely to represent significant habitat for fauna in a local or regional context.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Paddington Gold (2020)
Terrestrial Ecosystems (2019)
Terrestrial Ecosystems (2020)

GIS Database:
- Imagery
- Pre-European Vegetation
- Threatened Fauna

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

Comments

Proposal is not likely to be at variance to this Principle

There are no known records of Threatened flora within the application area (GIS Database). Flora surveys of the application area did not record any species of Threatened flora (NVS, 2019).

The vegetation associations within the application area are common and widespread within the region (NVS, 2019; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened (rare) flora.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

NVS (2019)

GIS Database:
- Pre-European Vegetation
- Threatened and Priority 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.

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database).

A flora and vegetation survey of the application area did not identify any TECs (NVS, 2019).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

NVS (2019)

GIS Database:
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

(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.

Comments

Proposal is not at variance to this Principle

The application area falls within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97% of the pre-European vegetation still exists in the IBRA Coolgardie Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 125: Bare areas; salt lakes; 468: Medium woodland; salmon gum and goldfields blackbutt; and 540: Succulent steppe with open low woodland; sheoak over saltbush (GIS Database). Approximately 90-98% of the pre-European extent of each of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019).

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands
IBRA Bioregion – Coolgardie	12,912,204	12,648,491	~97	Least Concern	~16
Beard vegetation associations – WA					
125	3,485,785	3,146,487	~90	Least Concern	~7
468	592,022	583,902	~98	Least Concern	~22
540	202,423	200,158	~98	Least Concern	~27
Beard vegetation associations – Coolgardie Bioregion					
125	545,717	506,802	~92	Least Concern	~6
468	583,357	575,360	~98	Least Concern	~22
540	75,810	73,619	~97	Least Concern	N/A

* Government of Western Australia (2019)
** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

Department of Natural Resources and Environment (2002)
Government of Western Australia (2019)

GIS Database:
- IBRA Australia
- Pre-European Vegetation

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

Comments

Proposal is at variance to this Principle

There are no permanent watercourses or wetlands within the area proposed to clear (NVS, 2019; GIS Database). However, much of the application area is likely to be associated with seasonal flooding (GIS Database). White Flag Lake exists in the southern section of the application area (GIS Database). Salt lakes in the region may be inundated when receiving water from the regional surroundings after prolonged sporadic rainfall. A number of minor drainage lines pass through the application area (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall.

The application area contains one vegetation type that is growing in association with drainage lines: Creekline Vegetation: Heath dominated by *Melaleuca lateriflora* over shrubland of *Acacia ligulata, Cratystylis subspinescens, Atriplex vesicaria, Maireana pyramidata, Acacia tetragonophylla* and *Dodonaea viscosa* subsp. *angustissima* (NVS, 2019). There is also one vegetation type that is growing in association with the salt lake that intersects the southern section of the application area: *Tecticornia* Shrubland: Low heath dominated by *Tecticornia indica* subsp. *bidens, Tecticornia disarticulata, Carpobrotus modestus, Disphyma crassifolium* subsp. *clavellatum* and *Atriplex vesicaria* (NVS, 2019).

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to vegetation growing in association with the watercourse may be minimised by the implementation of a watercourse management condition.

Methodology

NVS (2019)

GIS Database:
- Hydrography, Lakes
- Hydrography, linear

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

Comments

Proposal may be at variance to this Principle

The imagery for the application area is interpreted to be several land units of the Lefroy, Illaarra and Bunyip land systems (DPIRD, 2020). The application are is predominantly alluvial plains with saline red loamy soils, supporting chenopod shrublands with a minor area of plain with gravel mantle supporting *Acacia* (mulga) shrublands with wanderrie grasses (DPIRD, 2020). Land slopes are likely to be less than 1.5% across the majority of the application area, however slopes up to 7% are likely on the low rise in the southwest of the application area (DPIRD, 2020). In the undisturbed state, the soils are not inherently prone to soil erosion (DPIRD, 2020). However, clearing of protective vegetation cover and disturbance of any stony mantles will render them prone to accelerated soil erosion, especially where surface water run-off is not appropriately managed (DPIRD, 2020). The Lefroy soils are also prone to wind erosion after clearing (DPIRD, 2020).

Based on the above, the proposed clearing may be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Methodology

DPIRD (2020)

(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.

Comments

Proposal is not likely to be at variance to this Principle

There are no conservation areas in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land is the former Credo Pastoral Lease which is located approximately 24.5 kilometres north-west of the application area (GIS Database). The proposed clearing is unlikely to impact on the environmental values of any conservation area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GIS Database:
- DPaW Tenure

(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.

Comments

Proposal is not likely to be at variance to this Principle

There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.

The proposed clearing is unlikely to cause deterioration in the quality of underground water.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GIS Database:
- Hydrography, Linear
- Public Drinking Water Source Areas

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

Comments

Proposal is not likely to be at variance to this Principle

The climate of the region is arid to semi-arid, with an average annual rainfall of 200-300 millimetres occurring primarily in winter (CALM, 2002). The nearest weather station is Kalgoorlie-Boulder Airport, approximately 30 kilometres south-east of the application area, with an average rainfall of approximately 266.1 millimetres per year (BoM, 2020).

There are no permanent water courses or waterbodies within the application area (GIS Database). The application area intersects a small section of a saline ephemeral lake system which is typically only briefly inundated following prolonged sporadic rainfall (NVS, 2019). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

BoM (2020)
CALM (2002)
NVS (2019)

GIS Database:
- Hydrography, linear

Planning Instrument, Native Title, previous EPA decision or other matter.

Comments

The clearing permit application was advertised on 3 February 2020 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims (WC2017/001 and WC2017/007) over the area under application (DPLH, 2020). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 four registered Aboriginal Sites of Significance within the application area (DPLH, 2020). 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.

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.

Methodology

DPLH (2020)

4. References

BoM (2020) Bureau of Meteorology Website – Climate Data Online, Kalgoorlie-Boulder Airport. Bureau of Meteorology. http://www.bom.gov.au/climate/data/ (Accessed 19 February 2020).

Botanica (2015) Level 1 Flora and Vegetation Survey Racetrack, Mulgarrie Well & the Mt Jewell Western/ Eastern Haul Road. Report prepared by Botanica Consulting for Norton Gold Fields Limited, April, 2015.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

DEC (2010) A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands. Department of Environment and Conservation, Western Australia.

DPIRD (2020) Advice received in relation to Clearing Permit Application CPS 8784/1. Deputy Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, March 2020.

DPLH (2020) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. http://maps.daa.wa.gov.au/AHIS/ (Accessed 17 March 2020).

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

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, Perth. 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.

NVS (2019) Reconnaissance Flora and Vegetation Survey of the Racetrack, Royal Standard and Golden Funnel Projects. Report prepared by Native Vegetation Solutions for Norton Gold Fields Pty Ltd, December 2019.

Paddington Gold (2020) Additional information received in relation to Native Vegetation Clearing Perth Application CPS 8784/1. Prepared by Paddington Gold Pty Ltd, April 2020.

Terrestrial Ecosystems (2019) Level 1 fauna assessment for the Racetrack, Royal Standard and Golden Funnel project areas. Report prepared by Terrestrial Ecosystems for Native Vegetation Solutions, August 2019.

Terrestrial Ecosystems (2020) Arid Bronze Azure Butterfly technical advice. Report prepared by Terrestrial Ecosystems for Paddington Gold Pty Ltd, April 2020.

Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ (Accessed 16 April 2020).

5. Glossary

Acronyms:

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)
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
DoEE	Department of the Environment and Energy, Australian Government
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)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DoE	Department of the Environment, Australian Government (now DoEE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DoEE)
DWER	Department of Water and Environmental Regulation, Western Australia
EPA	Environmental Protection Authority, Western Australia
EP Act	*Environmental Protection Act 1986*, 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.