



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8988/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Trigg Mining Ltd

1.3. Property details

Property: Exploration Licence 38/3065

Local Government Area: Shire of Laverton

Colloquial name: Lake Throssell Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 24 September 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 (GIS Database):
24: Low woodland; *Allocasuarina cristata*;
125: Bare areas; Salt lakes; and
676: Succulent steppe; samphire.

No recent flora and vegetation surveys have been conducted over the application area, however previous regional studies have described the following vegetation for Lake Throssell (Environment Australia, 2001):

- The lake floor is mostly vegetated with a variety of halophytic plants, including *Atriplex nana*, *A. vesicaria*, *Tecticornia indica*, *T. pruinosa*, *Maireana amoena*, *M. carnosa*, *M. platycarpa*, *M. pyramidalis*, *M. tomentosa*, *Sclerolaena eurotioides*, *S. patentiuspis*;
- *Eucalyptus comitae-vallis* and *E. subglauca* form stands on sand ridges near the lake;
- *E. comitae-vallis* also grows in palaeodrainage lines to the south of the lake;
- Small stunted trees of *Casuarina pauper* (to 6 metres) with a few *Eremophila miniata*, *Acacia* sp. and *Senecio lautus* are scattered over the (mostly bare) dunes in the lake; and
- Low woodlands of *C. pauper* (to 12 metres) with *Acacia aneura*, *Pittosporum phillyraeoides*, *E. miniata*, *Ptilotus obovatus*, grasses and forbs surround the lake.

Clearing Description Lake Throssell Project.
Trigg Mining Limited proposes to clear up to 9.76 hectares of native vegetation within a boundary of approximately 1,873 hectares, for the purpose of mineral exploration and associated activities. The project is located approximately 200 kilometres northeast of Laverton, within the Shire of Laverton.

Vegetation Condition Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

To:

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

Comment The vegetation condition was derived from the assessment of recent aerial imagery, and information provided by Trigg Mining Ltd (Trigg Mining, 2020; GIS Database).

The proposed clearing is for exploration for sulphate of potash within the Exploration Licence, which overlaps Lake Throssell. Trigg Mining plan to carry out an aircore drilling exploration program through the licence.

Vegetation clearing is required to establish temporary access tracks, drill lines (traverses) and drill pads for the program along the shores of the lake, into the salt pans. The proponent has indicated that clearing is expected to be kept to a minimum, as the vegetation is sparse and the specific access requirements are flexible. The tracks, drill lines (no more than 2-2.5 metres wide) and drilling locations will be actively positioned to avoid vegetation assemblages as much as possible, within the significantly wider sections of the operating corridor (up to ~350 metres in width) of the clearing permit application area (totalling an area of 1,873 hectares).

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 Central subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Great Victoria Desert Bioregion (GIS Database).

The Central subregion is characterised by arid active sand-ridge desert landscapes with extensive plains and dune fields of deep Quaternary aeolian sands overlying Permian strata of the Gunbarrel Basin. Landforms consist of salt lakes and major valley floors with lake derived dunes. Occasional outcropping (breakaways), clay pans and quartzite hills are key landform features (CALM, 2002; DBCA, 2020a).

Vegetation is primarily a Tree steppe of *Eucalyptus gongylocarpa*, Mulga and *E. youngiana* over hummock grassland dominated by *Triodia basedowii* on the Aeolian sands. The Acacia dominates colluvial soils with *Eremophila* and *Santalum* spp., halophytes are confined to edges of salt lakes and saline drainage systems (CALM, 2002).

The application area covers parts of the shores and islands of Lake Throssell, an elongated hypersaline sumpland, which stretches approximately 50 kilometres northeast-southwest. Lake Throssell is representative of wetland systems having a complex arrangement of wetland types, from large saline gypsum claypans to small fresher claypans and surrounded by sand dunes and gypsum rises (up to 10 metres). The lake floor consists of sand, silt and clay and is covered by a hard crust of crystalline gypsum and salt (Environment Australia, 2001; DBCA, 2020a).

The vegetation within the application area consists of a largely intact landscape of Beard vegetation associations 24, 125, 676, which are common within the bioregion. Approximately 99% of the pre-European vegetation extents for each of these associations remain in the State (Government of Western Australia, 2019; GIS Database).

No Threatened Ecological Communities or Priority Ecological Communities have been recorded within the vicinity of the application area (GIS Database). Flora, vegetation and fauna surveys have not been conducted over the application area, and little is known of the specific wetland habitat types.

A total of 192 fauna and flora taxa have been recorded for the lake and immediate surrounds within the DBCA database (DBCA, 2020a). Additionally, previous regional studies were reviewed, and desktop searches of available databases were conducted with a 40 kilometre radius buffer set around the application area (Blueprint Environmental, 2020; DEC, 2009; Environment Australia, 2001; GIS Database).

The desktop search recorded a total of 121 vascular flora taxa within 40 kilometres of Lake Throssell (DBCA, 2007-). No Threatened or Priority flora species are known to occur within 40 kilometres of the application area (DAWE, 2020; DBCA, 2007-; Environment Australia, 2001). One plant species considered endemic to the area, *Sclerolaena x georgei*, was previously recorded on the edge of Lake Throssell (DBCA, 2007-; Western Australian Herbarium, 1998-).

A total of 87 native vertebrate fauna species, including 62 bird species, 23 reptile species and 2 mammal species have been recorded within 40 kilometres of Lake Throssell. The fauna habitats and landform types found within the application area are well represented locally around the lake and regionally within the Yeo Lake / Lake Throssell system (DAWE, 2020; DBCA, 2007-; GIS Database).

No introduced plant species (weeds) are recorded for the area (DAWE, 2020; DBCA, 2007-). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Care should be taken to ensure that weeds are not introduced into the area as the result of clearing activities required to access the lake. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The clearing is largely within areas fringing the main lake body, however quite diverse vegetation community types will be intersected within the application area (DBCA, 2020a). The proposed clearing of up to 9.76 hectares for the purpose of mineral exploration will be managed within a significantly larger application area of approximately 1,873 hectares. Vegetation around the lake is sparse and disturbance to vegetation habitats shall be minimised through active avoidance by project vehicles within the larger corridor (up to ~350 metres in

width), when picking access routes (no more than 2-2.5 metres wide) and drill locations (Trigg Mining, 2020).

Should more extensive disturbance activities be proposed for the project in the future, a Level 2 fauna survey (detailed) and a detailed flora survey would need to be conducted to determine the significance of impacts from mineral exploration or mining operations on the habitat and biodiversity likely to be present at Lake Throssell.

The vegetation associations, fauna habitats and landform types found within the application area are well represented in surrounding areas (DEC, 2009; Environment Australia, 2001; 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 Blueprint Environmental (2020)
CALM (2002)
DAWE (2020)
DBCA (2007-)
DBCA (2020a)
DEC (2009)
Environment Australia (2001)
Government of Western Australia (2019)
Western Australian Herbarium (1998-)

GIS Database:

- IBRA Australia
- Pre-European Vegetation
- Satellite imagery
- 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**

No recent fauna or habitat surveys have been conducted over the application area.

Based on the habitat descriptions from previous regional studies (DEC, 2009; Environment Australia, 2001; DBCA, 2020a) and a detailed review of aerial imagery (GIS Database) the following habitat types are likely to be represented within the application area:

- Lake floor (salt lake, lagoon, clay pan);
- Saline littoral lake and drainage lines vegetation (sapphire flats, succulent steppe);
- Low open-shrubland; and
- Sand dune islands and sand ridges.

The surrounding region is largely uncleared and these habitat types are well represented along the lake and locally within the Yeo Lake / Lake Throssell system (Blueprint Environmental, 2020; DEC, 2009; Environment Australia, 2001; GIS Database).

Desktop searches of available databases recorded 87 native vertebrate fauna species, including 62 bird species, 23 reptile species and two mammal species as occurring within 40 kilometres of the application area (Blueprint Environmental, 2020; DBCA, 2007-). Of these, three species are of conservation significance:

- *Anilius margaretae* (buff snouted blind snake (Lake Throssell))(P2) is considered endemic to the lake and is a poorly-known species (DBCA, 2007-; DBCA, 2020a);
- *Amytornis striatus* subsp. *striatus* (Striated Grasswren)(P4) is distributed throughout the arid and semi-arid regions of the state, in association with spinifex grass (DBCA, 2007-); and
- *Leipoa ocellata* (Malleefowl) (VU) has known distribution throughout the south-west of the State. It has been recorded within 10 kilometres of the application area (DBCA, 2007-).

The buff snouted blind snake has been recorded from several locations within Lake Throssell. However the small dispersed area of proposed clearing is unlikely to significantly reduce habitat availability for the species.

The sparse vegetation of the application area, located along the shores of a salt lake, is unlikely to provide suitable habitat for malleefowl mounds. If mounds are encountered however, they should be avoided, reported, and a 50 metre buffer established around them (DBCA, 2020b). The proponent has incorporated these management commitments within its project Environmental Management Plan (Trigg Mining, 2020).

Several other fauna species of conservation significance (mostly migratory and water birds) have the potential to occur within the application area. None are likely to be specifically dependant on the fauna habitats within

the application area however, as they have broad distribution ranges within Western Australia and/or nomadic habits (DAWE, 2020; DBCA, 2007-).

The surface of the lake is usually dry, and there is no information on waterbird usage of Lake Throssell (Environment Australia, 2001), however waterbird breeding events in the lake are likely to follow wetting events in the region. Disturbance activities should not be conducted after such events, in order to minimise the potential to impact breeding success (DBCA, 2020a).

The proposed clearing of up to 9.76 hectares for the purpose of mineral exploration will be managed within a significantly larger application area of approximately 1,873 hectares. Vegetation around the lake is sparse and disturbance to vegetation habitats can be minimised through active avoidance by project vehicles within the larger corridor, when picking access routes and drill locations (Trigg Mining, 2020).

The fauna habitats and landform types found within the application area are well represented in surrounding areas (Blueprint Environmental, 2020; DAWE, 2020; GIS Database). The area proposed to be cleared is unlikely to represent a 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 Blueprint Environmental (2020)
DAWE (2020)
DBCA (2007-)
DBCA (2020a)
DBCA (2020b)
DEC (2009)
Environment Australia (2001)
Government of Western Australia (2019)
Trigg Mining (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 (rare) flora within the application area (GIS Database). A flora survey has not been conducted over the application area, however desktop searches of available databases, did not identify any species of Threatened flora within 40 kilometres of the application area (Blueprint Environmental, 2020; DAWE, 2020; DBCA, 2007-).

The vegetation associations within the application area are common and widespread within the region (DEC, 2009; Environment Australia, 2001; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora.

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

Methodology Blueprint Environmental (2020)
DAWE (2020)
DBCA (2007-)
DEC (2009)
Environment Australia (2001)

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).

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

Methodology 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 Great Victoria Desert Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Great Victoria Desert Bioregion (Government of Western Australia, 2019).

The application area is broadly mapped as Beard vegetation associations 24: Low woodland; *Allocasuarina cristata*; 125: Bare areas; salt lakes; and 676: Succulent steppe; samphire (GIS Database). Over 90% of the pre-European extent of each of these vegetation associations remains uncleared at the state level, and approximately 99% at the 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 – Great Victoria Desert	21,794,222	21,784,887	~99	Least Concern	8
Beard vegetation associations – WA					
24	263,147	263,128	~99	Least Concern	1
125	3,485,785	3,146,487	~90	Least Concern	9
676	2,063,413	1,963,881	~95	Least Concern	14
Beard vegetation associations – Great Victoria Desert Bioregion					
24	226,362	226,362	~99	Least Concern	-
125	225,180	225,108	~99	Least Concern	18
676	206,634	206,522	~99	Least Concern	14

* 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 (GIS Database).

The application area covers parts of the shores and islands of Lake Throssell, a large elongated hypersaline sumpland, which stretches approximately 50 kilometres northeast-southwest. The lake is fed by direct precipitation and localised intermittent drainages, the longest of which drains from the west (less than 10 kilometres). The lake is internally draining and its surface is usually dry with only rare and episodic inundation (Environment Australia, 2001; GIS Database).

The proposed clearing of up to 9.76 hectares for the purpose of mineral exploration will be managed within a significantly larger application area of approximately 1,873 hectares. Vegetation around the lake is sparse and disturbance to fringing vegetation can be minimised through active avoidance by project vehicles within the larger corridor, when picking access routes and drill locations (Trigg Mining, 2020; GIS Database). The activity

is unlikely to result in any significant impact to the vegetation associated with the shores of the lake, or associated drainage lines.

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

Methodology Environment Australia (2001)
Trigg Mining (2020)

GIS Database:
- Imagery
- 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 is not likely to be at variance to this Principle

The DPIRD rangeland survey mapping has no information for the application area. However, based on the similarities in geology with previously mapped areas, the application may occur on landforms similar to the Carnegie land system (DPIRD, 2020).

The Carnegie system is described as salt lakes and fringing level to gently sloping plains with saline alluvium and low sand dunes above surrounding saline plains. The lack of slope renders most of the system generally not susceptible to soil erosion except at lake margins where wind erosion may be exacerbated by loss of stabilising vegetation (DPIRD, 2020).

The nature of vegetation disturbance along the lake margins will be very sporadic and limited to a few narrow access tracks (2-2.5 metres wide), which will be immediately rehabilitated upon completion of the exploration program (Trigg Mining, 2020).

The proposed clearing of up to 9.76 hectares of sparse vegetation within an application area of approximately 1,873 hectares, is unlikely to result in appreciable land degradation.

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

Methodology DPIRD (2020)
Trigg Mining (2020)

GIS Database:
- Landsystem Rangelands

(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 within the application area. The nearest DBCA (formerly DPaW) managed land is the Yeo Lake Nature Reserve, located approximately 13 kilometres to the south at its nearest point (DEC, 2009; GIS Database). The proposed clearing is unlikely to impact on the environmental values of any DBCA managed lands.

The application area is on the shores of Lake Throssell, which is classified as an Environmentally Sensitive Area (ESA) as it is part of the Yeo Lake/Lake Throssell wetland system and is listed in the National Directory of Important Wetlands (DEC, 2009; Environment Australia, 2001; GIS Database). Lake Throssell was also listed in the EPA Red Book as a potential conservation area, a recommendation which has not been implemented (GIS Database).

The Lake Throssell ESA covers a total area of approximately 32,000 hectares (Environment Australia, 2001) and the proposed clearing of up to 9.76 hectares of sparse vegetation within an application area of approximately 1,873 hectares, is unlikely to impact on the environmental values of the Lake Throssell ESA.

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

Methodology DEC (2009)
Environment Australia (2001)

GIS Database:
- DPaW Tenure
- Clearing Regulation ESAs

(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).

The application area is located immediately adjacent to Lake Throssell, a large intermittent hypersaline salt lake, fed by direct precipitation and two localised intermittent drainage lines. Lake Throssell and its associated drainage lines are usually dry, only flowing briefly immediately following significant rainfall (Environment Australia, 2001). The proposed clearing is unlikely to result in significant changes to surface water quality.

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 Environment Australia (2001)

GIS Database:

- Hydrography, Lakes
- 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 in the region is arid, with summer and winter rain averaging approximately 236mm, mostly falling in the first half of the year (BoM, 2020).

The application area is located on the shores and islands to Lake Throssell, a large intermittent hypersaline salt lake, fed by direct precipitation and two localised intermittent drainage lines, the longest of which drains from the west (less than 10 kilometres). The lake is internally draining and its surface is usually dry with only rare and episodic inundation (Environment Australia, 2001; GIS Database). 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)
Environment Australia (2001)

GIS Database:

- Hydrography, lakes
- Hydrography, linear

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

Comments

The clearing permit application was advertised on 17 August 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 is one native title claim (WC2004/003) over the area under application (DPLH, 2020). 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. 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

- Blueprint Environmental (2020) Lake Throssell Desktop Flora and Fauna Assessment. Report prepared for Trigg Mining Ltd, by Blueprint Environmental Strategies Pty Ltd, September 2020.
- BoM (2020) Bureau of Meteorology Website – Climate Data Online, Laverton. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 16 September 2020).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DAWE (2020) EPBC Act Protected Matters Search Tool. Department of Agriculture, Water and the Environment. <https://www.environment.gov.au/epbc/protected-matters-search-tool> (Accessed 01 September 2020).
- DBCA (2007-) NatureMap: Mapping Western Australia's Biodiversity, Department of Biodiversity, Conservation and Attractions. <https://naturemap.dbca.wa.gov.au/> (Accessed 01 September 2020).
- DBCA (2020a) Advice received in relation to CPS8988/1. Principal Coordinator Wetlands, Species and Communities Program. Department of Biodiversity, Conservation and Attractions, Western Australia, September 2020.
- DBCA (2020b) Advice received in relation to PoW ID 85863 and 85888. Conservation Office Development Management, Goldfields Region, Department of Biodiversity, Conservation and Attractions, Western Australia, March 2020.
- DEC (2009) Resource Condition Report for A Significant Western Australian Wetland: Yeo Lake. Department of Environment and Conservation, Western Australia.
- DPIRD (2020) Advice received in relation to Clearing Permit Application CPS 8988/1. Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, September 2020.
- DPLH (2020) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <http://maps.daa.wa.gov.au/AHIS/> (Accessed 21 September 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.
- Environment Australia (2001) A Directory of Important Wetlands in Australia, Third Edition. Environment Australia, Canberra.
- 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.
- Trigg Mining (2020) Lake Throssell Project Environmental Management Plan (Drilling): TGM-F-005 v1. Trigg Mining Ltd, July 2020.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> (Accessed 21 September 2020).

5. 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
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
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)
DoE	Department of the Environment, Australian Government (now DAWE)
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
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DAWE)
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

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.