



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8966/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Tianye SXO Gold Mining Pty Ltd

1.3. Property details

Property: Mining Lease 77/186
Mining Lease 77/224
Mining Lease 77/352
Mining Lease 77/424
Mining Lease 77/408
Mining Lease 77/721
Miscellaneous Licence 77/281

Local Government Area: Shire of Yilgarn

Colloquial name: Leviathan and Victoria Vinto La Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
66		Mechanical Removal	Mineral production and associated activities.

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 10 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 association: **1068**: Yilgarn; Medium woodland; salmon gum, morrel, gimlet & *Eucalyptus sheathiana* (GIS Database).

Flora and vegetation surveys were conducted over the application area by Stantec Australia Pty Ltd (Stantec) during April and August, 2020. The following vegetation associations were recorded within the application area (Stantec, 2020a):

EIEsuMpA?vOmAm: *Eucalyptus longicornis* and *E. salubris* woodland over *Melaleuca pauperiflora* high shrubland over *Atriplex ? vesicaria*, *Olearia muelleri* and *Acacia merrallii* low open shrubland. This vegetation association accounts for approximately 62% of the survey area.
Associated species: *Exocarpos aphyllus*, *Maireana radiata*, *Atriplex ? nummularia* subsp. *spathulate*, *Austrostipa elegantissima*, *Eremophila ionantha*, *Ptilotus exaltatus*, *Sclerolaena diacantha*, *Eremophila scoparia*, *Maireana ? trichopteran*, *Templetonia ceracea*; and

EsuEsMpOmAmTc: *Eucalyptus salmonophloia* and *E. salubris* open forest over *Melaleuca pauperiflora* high shrubland over *Olearia muelleri*, *Acacia merrallii* and *Templetonia ceracea* open shrubland. This vegetation association accounts for approximately 10% of the survey area.
Associated species: *Atriplex ? vesicaria*, *Santalum acuminatum*, *Sclerolaena diacantha*, *Sclerolaena diacantha*, *Exocarpos aphyllus*.

Completely degraded vegetation accounts for the remaining 28% of the survey area.

Clearing Description

Leviathan and Victoria Vinto La Project.
Tianye SXO Gold Mining Pty Ltd (Tianye) proposes to clear up to 66 hectares of native vegetation within a boundary of approximately 181 hectares, for the purpose of mineral production and associated activities. The project is located approximately 15 kilometres north of Marvel Loch, within the Shire of Yilgarn.

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (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 Stantec (2020a).

The proposed clearing is for the development of two small scale open pit operations to extract and process gold from Leviathan and Victoria Vinto La deposits, with ore being processed on site through the existing Marvel Loch Processing Plant (Tianye, 2020). The Project consists of four open pits, associated waste rock dumps (WRDs) and other mining infrastructure (Tianye, 2020). Existing haul roads and the Run of Mine (ROM) pad at the Marvel Loch Processing Plant will be utilised for the Project (Tianye, 2020). The Project requires realignment of the Tianye SXO Gold Mining Pty Ltd's Cornishman to Marvel Loch haul road and Water Corporation's freshwater pipeline (Tianye, 2020).

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 Southern Cross (COO2) subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Coolgardie Bioregion (GIS Database). The Southern Cross subregion is described as having subdued relief, comprising of gently undulating uplands dissected by broad valleys with bands of low greenstone hills. The valleys include chains of salt lakes. Diverse Eucalyptus woodlands (*Eucalyptus salmonophloia*, *E. salubris*, *E. transcidentalis* and *E. longicornis*), rich in endemic species also occur around these salt lakes, as well as on the low greenstone hills, valley alluvials and broad plains of calcareous soils (CALM, 2002).

The Southern Cross subregion is largely uncleared, with land used for grazing, areas of Unallocated Crown Land and mining (CALM, 2002). Where previous logging (for fuel and mineshafts) was undertaken, these areas are now regenerating (Tianye, 2020). Approximately 61% of the native vegetation within the survey area is considered to be in "Excellent" condition, approximately 11% in "Very Good" to "Good" condition and approximately 28% is considered to be in a "Completely Degraded" condition (Tianye, 2020). One introduced flora species (*Centaurea melitensis*) was identified. This taxon is neither listed as a Declared Plant Pest listed under Section 22 of the *Biosecurity and Agriculture Management Act 2007* nor a Weed of National Significance identified by the Commonwealth Government. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Flora and vegetation surveys of the application area were undertaken by Stantec in Autumn and Spring 2020. Stantec (2020a) identified two vegetation types within the survey area. The vegetation in the survey area was broadly represented by low to mid height Eucalyptus woodlands to open forest over tall shrubland, with *Melaleuca pauperiflora* a characteristic species (Stantec, 2020a). Vegetation type EIEsuMpA?vOmAm was the most extensively recorded vegetation type within both the Leviathan and the Victoria Vinto La areas (Stantec, 2020a). Vegetation type EsuEsMpOmAmTc was represented only within the Victoria Vinto La area (Stantec, 2020a). The field survey resulted in the identification of 38 vascular flora taxa (including subspecies, varieties and forms) representing 15 families and 23 genera recorded from the survey area (Stantec, 2020a). The dominant plant family was Myrtaceae, comprising 10 species, while Eucalyptus was the most frequently recorded genus (Stantec, 2020a).

No threatened or priority flora species were recorded during the surveys (Stantec, 2020a). Two species were considered 'possible' to occur within the survey area. These species; *Goodenia heatheriana* (P1) and *Hemigenia sp. Newdegate* (P1) have respectively been recorded 2.21 km and 2.42 km from the survey area, however despite suitable habitat being identified, were not recorded during the field survey (Stantec, 2020a). These two species are considered likely to exist in the surrounding environment. Two priority flora species were recorded in the targeted survey; *Rinzia fimbriolata* (P1) approximately 20 individuals and *Stenanthemum bremerense* (P4) approximately 94 individuals (Stantec, 2020b). Both species were found in the Victoria Vinto La area and no significant flora were found in the Leviathan area (Stantec, 2020b). *Rinzia fimbriolata* (P1) is listed with the West Australian Herbarium as occurring on well-drained soils of brown sandy loam, as well as clays with quartz pieces; and *Stenanthemum bremerense* (P4) is listed as occurring on orange-brown sandy loam, orange-red gravelly loam, skeletal red loam, laterite, ironstone, as well as the top or sides of outcrops and breakaways (Western Australian Herbarium, 1998-). Both species, however, were recorded on sandy clay loam on stony rises in areas that had been previously disturbed from clearing (Stantec, 2020b). 50% of the *Rinzia fimbriolata* (P1) individuals identified and more than 30% of the *Stenanthemum bremerense* (P4) individuals identified occur outside of the proposed clearing area. Given small numbers of the remaining individuals of these species to be cleared and with the implementation of a flora management condition, it is unlikely that the proposed clearing will impact the conservation status of these Priority species.

Based on the assessment by Stantec (2020a), no significant ecological communities had buffers that were coincident with the Project area. Neither of the vegetation types identified and described within the survey area correspond with Commonwealth or State-listed TECs, however, both vegetation types were considered representative of the P3 Priority Ecological Community (PEC); 'Parker Range Vegetation Complexes' (Stantec, 2020a). The 'Parker Range Vegetation Complexes' are described as:

"*Hakea pendula* Tall Shrubland dominant. *Eucalyptus sheathiana* with *E. transcidentalis* and/or *E. eremophila* woodland on sandy soils at the base of ridges and low rises; *E. longicornis* with *E. corrugata* and *E. salubris* or *E. myriadena* woodland on broad flats; *E. salmonophloia* and *E. salubris* woodland on broad flats; *Allocasuarina acutivalvis* and *A. corniculata* on deeper sandy soils of lateritic ridges; *E. capillosa* subsp.

polyclada and/or *E. loxophleba* over *Hakea pendens* thicket on skeletal soils on ridges (laterites, breakaways and massive gossanous caps); and *Callitris glaucophylla* low open woodland on massive greenstone ridges” (DBCA, 2020).

The vegetation types of the Survey Area were found to have affinities with Communities 2 and 3 of the PEC, according to the PEC vegetation descriptions by Gibson and Lyons (1998). The buffer of this PEC is currently mapped approximately 12 km south-southwest of the Survey Area (DBCA, 2020). The proposed clearing represents approximately 0.16% of the PEC. It is unlikely that the relatively small amount of clearing will significantly impact the values and conservation status of the ‘Parker Range Vegetation Complexes’ PEC.

A fauna assessment was undertaken by Stantec (2020a). Of the 245 species of vertebrate fauna identified during the desktop assessment, 18 species are listed as being of significance, comprising four mammals, 13 birds and one reptile. Additionally, four invertebrates of significance have been recorded as potentially occurring within the survey area (Stantec, 2020a). The likelihood for species of significance occurring in the survey area was assessed and ranked (Stantec, 2020a). No species of significance are confirmed to occur within the survey area (Stantec, 2020a). The habitat present in the application area is not likely to support a high level of fauna diversity.

The Banded Ironstone Formations (BIF) of Western Australia are known to support high numbers of endemic flora and searches for this geology were incorporated into the targeted survey effort (Stantec, 2020b). None of the substrates traversed in the Survey Area resembled Banded Ironstone Formation (Stantec, 2020b)

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas and are not considered restricted (Government of Western Australia, 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

CALM (2002)
DBCA (2020)
Gibson and Lyons (1998)
Government of Western Australia (2019)
Stantec (2020a)
Stantec (2020b)
Tianye (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

A fauna survey was completed by Stantec in April 2020. One broad fauna habitat was identified, being ‘Eucalyptus Woodlands’ (Stantec, 2020a). Stantec (2020a) describes the Eucalypt Woodland fauna habitat as gently undulating terrain, dominated by a woodland of *Eucalyptus salmonophloia* and *E. salubris* over *Melaleuca sp.*, *Allocasuarina sp.*, and *Acacia sp.* shrubs. Stantec (2020a) noted the habitat ranged from relatively open areas dominated by mature tall Eucalypts to densely vegetated areas with immature Eucalypts, regenerating after fire and that Mallee forms of the Eucalypts also occurred within the Eucalypt Woodland habitat.

Stantec’s (2020a) assessment identified 245 species of vertebrate fauna during the desktop assessment, 18 species are listed as being of significance, comprising four mammals, 13 birds and one reptile. Additionally, four invertebrates of significance have been recorded as potentially occurring within the survey area. The likelihood for species of significance occurring in the survey area was assessed and ranked. No species of significance are confirmed to occur within the survey area. Three species were considered likely to occur, comprising the Malleefowl (*Leipoa ocellata*) (Vu), the Western Rosella (inland pop.) (*Platycercus icterotis xanthogenys*) (P4) and the Tree-stem trapdoor spider (*Aganippe castellum*) (P4). Additionally, one species, the Peregrine Falcon (*Falco peregrinus*) was considered possible to occur.

The Eucalyptus woodlands fauna habitat was identified as important to species of significance (Stantec,

2020a). Stantec (2020a) noted that the large hollow bearing trees provide important habitat for the Western Rosella (*Platycercus icterotis xanthogenys*) (inland pop.) (P4) and the Peregrine Falcon (*Falco peregrinus*). Additionally, the thick vegetation at some sites may also serve as suitable foraging habitat for the Western Rosella. Stantec (2020a) also noted that sandy loam soils of depressions with *Allocasuarina acutivalvis* within the Eucalyptus woodlands habitat may support the Tree-stem trapdoor spider, however there are no records of the species in this habitat. Malleefowl was considered likely to occur within the survey area and a targeted survey was therefore undertaken to identify any signs of the species (Stantec, 2020a). No mounds or observations of Malleefowl individuals or tracks were noted during the field survey (Stantec, 2020a), however this could be due to the field survey being performed outside of the recommended survey season for birds (EPA, 2016).

Given that no species of significance were recorded in the application area during the survey and the occurrence of similar suitable habitat in nearby areas for species that may occur in the application area from time to time, the proposed clearing is considered unlikely to significantly impact fauna habitat.

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

Methodology EPA (2016)
Stantec (2020a)

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**
Flora surveys of the application area conducted by Stantec (2020a and 2020b) in Autumn and Spring did not record any species of Threatened flora.

The vegetation associations within the application area are common and widespread within the region (Government of Western Australia, 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 Government of Western Australia (2019)
Stantec (2020a)
Stantec (2020b)

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 the application area (GIS Database).

A flora and vegetation survey of the application area did not identify any TECs within the application area (Stantec, 2020a).

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

Methodology Stantec (2020a)

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 likely to be 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 association Yilgarn 1068: Medium woodland; salmon gum, morrel, gimlet & *Eucalyptus sheathiana* (GIS Database). Approximately 52% and 54% of the pre-European extent of this vegetation association remains uncleared at the state and bioregional level, respectively (Government of Western Australia, 2019).

Whilst the land to the west and east of the application area has been extensively cleared for agriculture, the vegetated tract of land the application area occurs within is not part of a significant ecological linkage within the landscape, nor is it required to maintain ecosystem services or ecological values within the landscape. 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 (and post clearing%)
IBRA Bioregion – Coolgardie	12,912,204.35	12,648,491.39	~97%	Least Concern	16% (16%)
IBRA Subregion – Southern Cross	6,010,832.78	5,773,838.44	~96%	Least Concern	24% (24%)
Local Government – Shire of Yilgarn	560,337.37	288,490.95	~51%	Least Concern	9% (17%)
Beard vegetation associations – WA					
1068	268,900.45	142,088.42	~52%	Least Concern	6%
Beard vegetation associations – Coolgardie Bioregion					
1068	193,988.20	104,804.17	~54%	Least Concern	7% (13%)
Beard vegetation associations – Southern Cross Subregion					
1068	193,988.20	104,804.17	~54%	Least Concern	7% (13%)

* Government of Western Australia (2019)

** Department of Natural Resources and Environment (2002)

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

There are no watercourses or wetlands within the area proposed to clear (Tianye, 2020; GIS Database).

The survey area occurs within the Lake Julia sub-catchment of the Swan-Avon River catchment (GIS Database). Numerous ephemeral watercourses and lakes occur within proximity to the survey area, however, none of these intersect the survey area (Tianye, 2020). A band of lakes occurs from approximately 5 km (extending to 14 km) north of the Leviathan project area (Tianye, 2020). The nearest Ramsar site is in excess of 150 km from the survey area (GIS Database).

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

Methodology Tianye (2020)

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 application area lies within the Garratt (0.65%) and Greenmount land systems (99.35%) (Tianye, 2020; GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development).

The Garratt land system is described as lower slopes and footslopes adjacent to salt lakes in the eastern Zone of Ancient Drainage. Soils are loamy earths (mostly calcareous), hard cracking clay and alkaline shallow duplex soils (Pringle et al, 1994).

The Greenmount land system consists of gently undulating rises to rolling low hills in the eastern Zone of Ancient Drainage. Soils are loamy earths (mostly red, calcareous and clayey and stoney), supporting Eucalypt woodlands (Pringle et al, 1994).

Both land systems have a moderate to extreme surface salinity risk and a high to extreme risk of wind and water erosion (DPIRD, 2020). The proposed clearing of up to 66 hectares of native vegetation within a boundary of approximately 181 hectares, for the purpose of mineral production may cause land degradation. However, with a staged clearing management condition and the applicant's commitment to retain the topsoil for use in rehabilitation and the implementation of erosion control measures, land degradation risks can be minimised to an acceptable level.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology DPIRD (2020)
Pringle et al. (1994)
Tianye (2020)

GIS Database:

- Landsystem Rangelands
- Soils, Statewide

(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 Yellowdine Nature Reserve which is located approximately 19 kilometres east of the application area (GIS Database). The application area does not provide a buffer or ecological link to the Yellowdine Nature Reserve. 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). 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 semi-arid, characterised by hot summers and cool winters (BoM, 2020). The area has a low average rainfall of approximately 305 millimetres per year (BoM, 2020). There are no permanent water courses or waterbodies within the application area (GIS Database). Temporary localised flooding may occur briefly following heavy rainfall events (BoM,2020). 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)

GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear

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

Comments

The clearing permit application was advertised on 27 July 2020 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. One submission was received in relation to this application raising no objections to the clearing proposal.

There is one native title claim (WC2017/007) over the area under application (DPLH, 2020). This claim has been registered with the National Native Title Tribunal 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, 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, Southern Cross Airfield Weather Station. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 26 August 2020).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
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- 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.
- DPIRD (2020). NRInfo. Natural Resource Information for Western Australia. Department of Primary Industries and Regional Development. <https://maps.agric.wa.gov.au/nrm-info/> (Accessed 27 August 2020).
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- EPA, Environmental Protection Authority (2016) Technical Guidance: Sampling methods for Terrestrial vertebrate fauna. Environmental Protection Authority, Perth, Western Australia.
- Gibson, N. and Lyons, M. N. (1998) Flora and Vegetation of the Eastern Goldfields Ranges: Part 3. Parker Range. Journal of the Royal Society of Western Australia 81: 119-129.
- 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.
- Pringle, H. J. R., Van Vreeswyk, A. M. E. and Gilligan, S. A. (1994) An inventory and condition survey of the north-eastern Goldfields, Western Australia. Department of Agriculture Western Australia, Perth, W.A.
- Stantec (2020a) Leviathan and Victoria Vinto La Detailed Flora and Vegetation Survey and Level 1 Fauna Report. Prepared by Stantec Australia Pty Ltd for Tianye SXO Pty Ltd – Southern Cross Operations, July 2020.
- Stantec (2020b) Leviathan and Victoria Vinto La Targeted Flora Survey Memo Final. Prepared by Stantec Australia Pty Ltd for Tianye SXO Pty Ltd – Southern Cross Operations, August 2020.
- Tianye (2020) Application to Clear Native Vegetation (Purpose Permit) Supporting Documentation – Leviathan and Victoria Vinto La. Tianye SXO Gold Mining Pty Ltd - Southern Cross Operations, July 2020.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> (Accessed 8 September 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	<i>Environmental Protection Act 1986</i> , 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.