



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6603/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: GPM Resources Pty Ltd

1.3. Property details

Property: Mining Leases: 24/11, 24/43, 24/99, 24/121, 24/122, 24/135, 24/326, 24/469, 24/854, 24/869, 24/870, 24/871, 24/886, 24/887 and 24/888
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: Kalgoorlie North Gold Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
114		Mechanical Removal	Mineral Production and associated infrastructure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 13 August 2015

2. Background

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The clearing permit application area has been broadly mapped as Beard vegetation association: 2903: Medium woodland; Salmon gum, goldfield blackbutt, gimlet & *Allocasuarina cristata* (GIS Database).

A flora and vegetation survey was conducted by Alexander Holm and Associates (Holm) during 2012 and 2014 over the broader North Kalgoorlie Project area, which includes the current clearing permit application area (Excelsior Gold, 2015).

The following vegetation communities were recorded within the application area, grouped according to landform types (Holm, 2015):

Land Unit 1b: Low hills on mafic or ultra mafic metamorphosed rocks

GNEW: Woodlands or shrublands. Woodlands (6 - 14 metres) are very scattered (Projected Foliar Cover (PFC) 1 - 3%) and dominated by *Eucalyptus clelandii*, *E. griffithsii*, other *Eucalyptus* spp. and *Casuarina obesa* with scattered (PFC 10 - 15%) undershrubs dominated by *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens*, *Acacia erinacea*, *Eremophila* spp., *Dodonaea lobulata*, and *Ptilotus obovatus*.

GHAS: Shrublands (to 5 metres) are scattered to moderately close (PFC 15 - 25%) and dominated by *Acacia burkittii*, *A. quadrimarginea*, *Dodonaea lobulata*, *Scaevola spinescens* and *Senna artemisioides* subsp. *filifolia*, sometimes with isolated emergent eucalypt or *Casuarina obesa* small trees.

Land Unit 2a: Low rises, occasional minor breakaways and gently undulating plains on laterite

GHW, SIAS: Vegetation is predominantly scattered to moderately close (PFC 10 - 30%) shrublands to 4 metres dominated by *Acacia burkittii*, *A. quadrimarginea*, *A. tetragonophylla*, *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens*, *Dodonaea lobulata*, *Eremophila* spp., and *Ptilotus obovatus*, often with isolated emergent small eucalypt or *Casuarina obesa* trees.

BRXS: Upper duricrust/minor breakaway sites support isolated to moderately close (PFC <2.5 - 30%) mixed shrublands (to 2 metres) co-dominated by *Acacia erinacea*, *Grevillea acuarina* and site specific species such as *Melaleuca lateriflora*, *Dodonaea stenozyga*, *Phebalium filifolium*, *Cryptandra graniticola*, *Westringia* spp., and *Ptilotus helichrysoideus* with emergent small eucalypt and *Casuarina obesa* trees.

Land Unit 2b: Low rises and gently undulating plains on basalt or metamorphosed rocks

GEHW, PECW: Woodlands (5 - 12 metres) are very scattered (PFC 2 - 5%) dominated by *Eucalyptus clelandii*, *E. gracilis*, *Eucalyptus yilgarnensis* and other *Eucalyptus* spp., with scattered (PFC 10 - 25%) understoreys dominated by *Atriplex nummularia*, *Maireana* spp., *Senna artemisioides* subsp. *filifolia*, *Dodonaea lobulata*, *Eremophila scoparia* and other species, *Scaevola spinescens* and *Ptilotus obovatus*.

GHAS, CEAS, SCJS: Shrublands (to 3 - 4 metres) are scattered to moderately close (PFC 15 - 30%) and dominated by *Acacia burkittii*, *A. hemiteles*, *A. quadrimarginea*, *A. erinacea*, *Casuarina obesa*, *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens* and *Eremophila* spp.

GEHS: Hummock grasslands (*Triodia irritans*) (PFC 15 - 25%) with very scattered (PFC 5%) *Eucalyptus griffithsii*, *E. oleosa* subsp. *oleosa* and *E. yilgarnensis* (5 - 10 metres) with scattered (PFC 5 - 15%) undershrubs including *Dodonaea stenozyga*, *Eremophila parvifolia* subsp. *auricampa* and *Westringia rigida*. mixed *T. epactia* hummock / tussock grassland.

Land Unit 4a: Loamy plains with eucalypt woodlands

PECW, PEBW, PESW, PEXW, PXHS: Predominantly very scattered (PFC 1 – 5%) woodlands (5 – 20 metres) frequently dominated by *Eucalyptus salmonophloia*, less common dominants or co-dominants are *E. ravidata*, *E. transcontinentalis*, *E. gracilis* and *Casuarina obesa*. Scattered to moderately close (PFC 5 – 30%) understoreys dominated by halophytic species such as *Atriplex bunburyana*, *A. nummularia*, *Maireana sedifolia*, *M. pyramidata*, *M. georgei*, *M. triptera* and *Frankenia interioris* var. *interioris*; other common shrubs are *Senna artemisioides* subsp. *filifolia*, *Eremophila scoparia*, *E. interstans* subsp. *interstans* and *Ptilotus obovatus*.
PEAW, PEEW: Less frequently, understoreys have fewer or no halophytes and are dominated by *Senna artemisioides* subsp. *filifolia*, *Dodonaea lobulata*, *Eremophila* sp. Mt Jackson, other *Eremophila* sp., *Scaevola spinescens*, *Ptilotus obovatus* and occasionally *Acacia burkittii*.

Land Unit 4b: Loamy plains with acacia tall shrublands

PEAW: Very scattered to moderately close (PFC 5 – 25%) Shrublands (up to 5 metres) dominated by *Acacia aptaneura*, *A. ramulosa*, *A. burkittii*, *A. hemiteles*, *A. tetragonophylla*, *Senna artemisioides* subsp. *filifolia*, *Scaevola spinescens*, *Eremophila* spp. and *Ptilotus obovatus* with isolated or emergent small trees of *Casuarina obesa* and occasionally *Eucalyptus* spp.

Land Unit 6a: Drainage tracts with shrublands or sparse woodlands

PXHS, PSAS: Shrublands or sparse woodlands. Shrublands are low (<1 metre), very scattered to moderately close (PFC 5 – 30%) and dominated by *Atriplex bunburyana*, *A. nummularia*, *Maireana pyramidata* and other *Maireana* spp.

DRAT: Scattered to close (PFC 10 – 70%) tall shrublands (to 4 metres) dominated by *Eremophila scoparia*, *E. oldfieldii*, *Acacia burkittii*, *A. erinacea* and *Ptilotus obovatus*, with isolated emergent small *Eucalyptus* and *Casuarina obesa* trees.

PECW, PESW, PEAW: Woodlands (4 - 15 metres) are very scattered (PFC 2 – 3%) and dominated by *Casuarina obesa*, *Eucalyptus salmonophloia*, *E. ravidata* and other *Eucalyptus* spp. with very scattered to close (PFC 5 – 40%) shrub layers dominated by *Atriplex bunburyana*, *Maireana pyramidata*, other *Maireana* spp., *Sclerolaena* spp., *Eremophila* spp. and *Ptilotus obovatus*.

Land Unit 7: Groves/Drainage foci

DRXT: Vegetation is closed (PFC 50 – 100%) woodlands (10 - 15 metres) dominated by *Eucalyptus ravidata*, *E. salmonophloia*, *E. gracilis* and *E. griffithsii* with very few under shrubs such as *Senna artemisioides*, *Dodonaea lobulata*, *Acacia erinacea* and *Pimelia microcephala* or closed (PFC >50%) under shrubs of *Acacia burkittii* (to 4 metres). Also closed (PFC 50 – 100%) *Acacia burkittii* thickets (to 5 metres) with emergent eucalypt trees.

Clearing Description	Kalgoorlie North Gold Project. GPM Resources Pty Ltd (GPM) proposes to clear up to 114 hectares of native vegetation within a boundary of approximately 613 hectares, for the purposes of mineral production and mining-related infrastructure. The project is located approximately 46 kilometres north-northwest of Kalgoorlie, within the City of Kalgoorlie-Boulder.
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 a vegetation survey conducted by Alexander Holm and Associates (Holm, 2015). The proposed clearing is for the extension of the existing Zorastrian open-pit gold mine, the development of a new open pit to mine the nearby Zorastrian Central gold deposit, and the extension of an existing haul road (Excelsior Gold, 2015).

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 application area is located within the Eastern Murchison subregion of the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). The Eastern Murchison subregion is characterised by broad plains of red-brown soils and breakaway complexes as well as red sandplains. The vegetation of this subregion is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (CALM, 2002).

Flora and vegetation surveys were conducted by Alexander Holm and Associates (Holm) over the application area and surrounding areas, during 2012 and 2014 (Holm, 2015). Landforms within the survey area were typically low rises, low hills and gently undulating plains, and vegetation was generally acacia shrublands/woodlands and eucalypt and *Casuarina obesa* woodlands over either chenopods, or non-chenopodiaceous shrubs (Holm, 2015). A total of 289 flora species, from 49 families were recorded within the survey area (Holm, 2015).

No Threatened flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within or in close proximity to the application area, and none were found during the survey (GIS Database; Holm, 2015).

Several Priority flora species have the potential to occur within the application area, based on known distributions (Holm, 2015). Only one of these species, *Allocasuarina eriochlamys* subsp. *grossa* (Priority 3) was recorded during the flora survey, represented by a single plant which was located outside of the clearing permit application area (Holm, 2015).

The vegetation condition within the application area ranges from Good to Excellent with parts of the application area previously disturbed by historical mining activities and more recent mineral exploration activities (Holm, 2015).

The application area falls within the Mt Veters pastoral lease (GIS Database), and previous vegetation disturbance has occurred from pastoral activities, including weed invasion in some areas (Holm, 2015). A total of 22 weed species were recorded during the flora surveys, including *Carthamus lanatus* (Saffron thistle) which is a declared plant under 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 proposed clearing may be minimised by the implementation of a weed management condition.

A Level 1 fauna survey was conducted over the application area and adjacent areas by Bamford Consulting Ecologists (Bamford) in March 2012, comprising of a desktop review and a reconnaissance field survey (Bamford, 2012). The desktop survey identified 295 fauna species with the potential to occur within the survey area, including six frog, 86 reptile, 166 bird, 27 native mammals and 10 introduced mammal species. The field survey recorded a total of 58 native fauna species, including two frog, five mammal, six reptile, and 45 bird species (Bamford, 2012). Five introduced mammal species were also recorded during the field survey. Bamford (2012) reported that the fauna assemblage within the survey area was typical of the region.

The desktop survey identified 16 fauna species (mostly birds) of conservation significance, with the potential to occur within the survey area (Bamford, 2012). Although no fauna species listed as either threatened species under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or protected under the *Western Australian Wildlife Conservation Act 1950* (WC Act) were recorded during the survey, it was considered that some may occur within the survey area (Bamford, 2012). Three bird species considered to be of local conservation significance were recorded within the survey area: Yellow-plumed Honeyeater, *Lichenostomus ornatus*; Purple-crowned Lorikeet, *Glossopsitta porphyrocephala*; and Gilbert's Whistler, *Pachycephala inornata*. Although recognised as having declined in distribution, these species remain well represented within the Great Western Woodlands, and are unlikely to be significantly impacted by the proposed clearing (Bamford, 2012).

Malleefowl (*Leipoa ocellata*) (listed as Vulnerable under the EPBC Act and the WC Act) previously inhabited much of the Goldfields region, however their range and abundance is now greatly reduced and there are few recent records in the region (Bamford, 2012). Targeted searching of suitable habitat did not record any signs of malleefowl within the survey area (Bamford, 2012).

The Murchison Bioregion remains largely uncleared (Government of Western Australia, 2014), and the landforms, vegetation associations and fauna habitat types found within the application area are well represented within the region (Bamford, 2012; Holm, 2015; 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)
Bamford (2012)
Government of Western Australia (2014)

- GIS Database:
- IBRA WA (Regions - Sub Regions)
 - Pre-European Vegetation
 - Threatened and Priority Flora
 - Threatened Ecological Sites Buffered

(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 Level 1 fauna and habitat survey was conducted over the application area and surrounding areas in March 2012 (Bamford, 2012). The survey comprised a desktop search of relevant fauna databases and a field reconnaissance survey.

Bamford (2012) identified the following six main fauna habitat types within the broader survey area:

1. Ironstone ridges with *Acacia* spp. (including *Acacia aneura*), *Grevillea nematophylla* and areas of *Casuarina pauper* and Eucalypt woodland;
2. Greenstone hills, stony rises and rocky ridges supporting Eucalypt woodlands, with *Acacia* shrubland and *Casuarina pauper*;
3. Stony lower slopes and adjacent stony plains supporting Eucalypt woodlands – particularly *E. lesouefii* and mixed chenopod and *Eremophila* spp. shrublands;
4. Drainage tracts with mixed Eucalypts including *Eucalyptus salmonophloia*, *E. salubris* woodlands on clay flats;
5. Loam plains supporting open Salmon Gum (*Eucalyptus salmonophloia*) woodland; and
6. Clay / loam flats supporting mixed Eucalypt woodland and chenopod shrublands.

The ironstone ridges (1) and greenstone hills (2) fauna habitat types were considered to be of highest conservation significance. Although these habitat types occur outside of the application area and the broader survey area, they are relatively restricted in the region and may support conservation significant species (Bamford 2012).

Opportunistic fauna observations were conducted at nine sites spread across the survey area, representing the six main habitat types. Targeted searches for conservation significant fauna were also conducted, by traversing areas of suitable habitat. Bamford (2012) considered that several fauna species of conservation significance may reside within or pass through the survey area. However, the majority of these species are highly mobile and are unlikely to be specifically dependant on the habitats within the application area (Bamford 2012).

The majority of fauna habitats found within the application area are relatively common and widespread in the region (Bamford, 2012; GIS Database). Bamford (2012) concluded that potential impacts to fauna are generally likely to be minor, and although some restricted fauna habitats may be considered locally significant, the vegetation proposed to be cleared is unlikely to represent significant habitat for fauna in a regional context.

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

- Methodology** Bamford (2012)
 GIS Database:
 - Bardoc 50cm Orthomosaic - Landgate 2012
 - Pre-European Vegetation

(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

A flora survey of the application area did not record any species of Threatened flora (Holm, 2015). The vegetation associations recorded within the application areas are well represented in surrounding areas (GIS Database; Holm, 2015), 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** Holm (2015)
 GIS Database:
 - Declared Rare and Priority Flora List
 - Pre-European Vegetation

(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 a 100 kilometre radius of the application area (GIS Database).

Surveys of the application area did not identify any TECs (Holm, 2015).

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

Methodology Holm (2015)
GIS Database:
- Threatened Ecological Sites Buffered

(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 area applied to be cleared is located within the Murchison IBRA bioregion (GIS Database). There is approximately 99% of pre-European vegetation remaining within the bioregion (Government of Western Australia, 2014).

The application area is broadly mapped as Beard vegetation association 2903: Medium woodland; Salmon gum, goldfield blackbutt, gimlet & *Allocasuarina cristata* (GIS Database). Approximately 96% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2014). Hence, the vegetation proposed to be cleared does not represent a significant remnant of vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW managed lands
IBRA Bioregion - Murchison	28,120,586	28,044,823	~ 99	Least Concern	7.7
Beard vegetation association - State					
2903	28,308	27,330	~ 96	Least Concern	0
Beard vegetation association - Bioregion					
2903	28,295	27,317	~ 96	Least Concern	0

* Government of Western Australia (2014)

** 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 (2014)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- 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 or in close proximity to the application area (GIS database).

Three minor seasonal watercourses pass through the application area (GIS Database). Seasonal watercourses in the region are dry for most of the year, only flowing briefly following significant rainfall events (Excelsior Gold, 2015).

DAFWA (2015) advise that the drainage tracts within the application area are likely to be susceptible to potential erosion. Removal of vegetation and stony surface mantles may result in an increase in runoff and may increase sediment loads in surface water flows, however the impacts on any watercourses are likely to be minimal.

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to vegetation associated with these watercourses, and vegetation downstream from the application area, may be minimised by the implementation of a watercourse management condition.

Methodology DAFWA (2015)
Excelsior Gold (2015)
GIS Database:
- Geodata, 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 falls within the Bevon, Gundockerta, Bunyip, Gumland and Illaara land systems (GIS Database).

These land systems have been mapped and described by the Department of Agriculture and Food (DAFWA). The Bevon land system consists of low ironstone hills with stony lower slopes supporting mulga shrublands (DAFWA, 2015). The Gumland land system consists of level to gently inclined pedepains with halophytic shrubs under eucalypt woodland (DAFWA, 2015). The Bunyip land system is described as gilgaied drainage tracts with mixed halophytic shrubland, occasionally with black oak overstorey (DAFWA, 2015). The Illaara land system is described as plains with ironstone gravel or calcrete mantles supporting eucalypt woodland and mulga-casuarine shrubland (DAFWA, 2015). The Gundockerta land system has been mapped as gently undulating calcareous stony plains supporting Maireana shrubland (DAFWA, 2015).

DAFWA (2015) advise that, due to the soil types and topography of the application area, accelerated soil erosion may occur where vegetation is cleared or protective stony mantles are disturbed.

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

Methodology DAFWA (2015)
Excelsior Gold (2015)
GIS Database:
- 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

The nearest conservation area is the former Goongarrie pastoral lease, which is located approximately 20 kilometres northwest of the application area, at its nearest point, and is managed by the Department of Parks and Wildlife (GIS Database). The proposed clearing is unlikely to have any impacts on the environmental values of this or any other 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

The Broad Arrow Dam Public Drinking Water Source Area (PDWSA) is located approximately 3.5 kilometres south of the clearing permit application area, at its nearest point (GIS Database). At this distance the proposed clearing is unlikely to have any impact on the PDWSA. There are no permanent watercourses or wetlands within the application area (GIS Database). Three minor seasonal watercourses pass through the application area (GIS Database). These drainage lines are dry for most of the year, only flowing briefly immediately following significant rainfall (Excelsior Gold, 2015). Management practices will be implemented to minimise the risk of erosion and potential impacts to surface water quality (Excelsior Gold, 2015).

The proposed clearing is unlikely to result in increased sedimentation of any watercourse, or cause deterioration in the quality of surface or underground water.

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

Methodology Excelsior Gold (2015)

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, with a low average rainfall of approximately 250-300 millimetres per year (CALM, 2002). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (Excelsior Gold, 2015).

There are no permanent water courses or waterbodies within the application area (GIS Database). Three minor seasonal water courses pass through the application area (GIS Database). Temporary localised flooding may occur during 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 CALM (2002)
Excelsior Gold (2015)
GIS Database:
- Hydrography, linear

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

The clearing permit application was advertised on 15 June 2015 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this application.

There are no registered native title claims over the area under application (DAA, 2015). However, the mining tenement 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 located within or in close proximity to the application area (GIS Database). 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 Environment Regulation, the Department of Water, and the Department of Parks and Wildlife, 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 DAA (2015)
GIS Database:
- Aboriginal Sites of Significance

4. References

- Bamford (2012) Fauna Assessment of the Excelsior Gold Bardoc Project. Report prepared for Alex Holm and Associates on behalf of Excelsior Gold Ltd, by Bamford Consulting Ecologists, May 2012.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DAA (2015) Aboriginal Heritage Enquiry System. Department of Aboriginal Affairs. <http://maps.dia.wa.gov.au/AHIS2/>
- DAFWA (2015) Advice from the Commissioner of Soil and Land Conservation for Clearing Permit 6603/1. Department of Agriculture and Food, Western Australia, July 2015.
- 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.
- Excelsior Gold (2015) Kalgoorlie North Gold Project. Zorastrian Mines and Haul Road Extension. Excelsior Gold Limited, May 2015.
- Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, Perth.
- Holm (2015) Environmental Assessment: Kalgoorlie North Gold Project. Report prepared for Excelsior Gold Ltd, by Alexander Holm and Associates, January 2015.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
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
s.17	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T	Threatened species: Specially protected under the <i>Wildlife Conservation Act 1950</i> , listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora). Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo <i>Calyptorhynchus latirostris</i> is specially protected under the <i>Wildlife Conservation Act 1950</i> as a threatened species with a ranking of Endangered. <u>Rankings:</u> CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild. EN: Endangered - considered to be facing a very high risk of extinction in the wild. VU: Vulnerable - considered to be facing a high risk of extinction in the wild.
X	Presumed Extinct species: Specially protected under the <i>Wildlife Conservation Act 1950</i> , listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).
IA	Migratory birds protected under an international agreement: Specially protected under the <i>Wildlife Conservation Act 1950</i> , listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice. Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
S	Other specially protected fauna: Specially protected under the <i>Wildlife Conservation Act 1950</i> , listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
P1	Priority One - Poorly-known species: Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
P2	Priority Two - Poorly-known species: Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and

appear to be under threat from known threatening processes.

P3

Priority Three - Poorly-known species:

Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities 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 localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

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 do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
- (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

P5

Priority Five - Conservation Dependent species:

Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.