Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1713/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: M36/80
Local Government Area: Shire Of Leonora
Colloquial name: Mt Mclure Gold Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
25		Mechanical Removal	Mineral Production

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The vegetation in the application area is mapped at a 1:250,000 scale as Beard Vegetation Association 39: Shrublands; Mulga scrub (Hopkins *et al*., 2001; Shepherd *et al*., 2001). Pringle *et al*. (1994, as cited in Outback Ecology, 2006) described the land system of the Success Pit as: stony plains with quartz mantles supporting *Acacia-Eremophila* shrublands. A flora and vegetation survey of the Mt McClure Project area was conducted in 1990, which included the Success Pit area (Outback Ecology, 2006). A total of 33 vegetation units were identified within the survey area, and the Success Pit is located within the following two vegetation units: *Acacia aneura* (Mulga; fine and horizontal branching variants) Low Open Woodland; and *Acacia aneura* (Mulga) Low Woodland over *Eremophila pungens*, *Ptilotus obovatus* Low Shrubland.	View Gold Pty Ltd has applied to clear up to 25 hectares of vegetation within a total application area of approximately 75 hectares. The clearing permit application is for the expansion of the existing Success Pit, located 50 kilometres northeast of Leinster. The pit expansion will be approximately four hectares in size. In addition, the construction of two small waste landforms and a temporary ore pad on the eastern side of the pit will have a maximum footprint of approximately 12 hectares. A possible southern extension of the current waste landform on the western side of the pit will only occur in the unlikely event that the pit cannot be backfilled. This extension would be up to seven hectares in size (Outback Ecology, 2006). Vegetation will be cleared by mechanical means. Topsoil will be removed and stockpiled for later use in revegetation (Outback Ecology, 2006).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). To Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The vegetation condition is based on the Keighery (1994) vegetation condition scale and from aerial and ground photography (GIS Database; Outback Ecology, 2006) as well as an assessment provided by Outback Ecology (2006). The vegetation surrounding the Success pit is generally in a degraded condition due to previous mining and exploration activities, combined with the effects of grazing (Outback Ecology, 2006). Arimco Mining (Australian Resources Limited) mined the Success orebody as a 45 metre deep open pit between June 1993 and April 1994 (Outback Ecology, 2006). The Success Pit is currently an inactive pit.

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The clearing permit application area is located within the Eastern Murchison (MUR1) Interim Biogeographic Regionalisation of Australia (IBRA) subregion (GIS Database). The biodiversity values of the Eastern Murchison IBRA subregion were assessed by Cowan (2001). The proposal is not located within any of the ecosystems at risk listed for the IBRA subregion (Cowan, 2001).

The proposed clearing is located within the Yandal Pastoral Lease and adjacent to an inactive mine site. Aerial and ground imagery provided by the proponent as well as other aerial imagery available to the Department of Industry and Resources (DoIR) show that the proposed clearing area has been disturbed by past mining activities (GIS Database; Outback Ecology, 2006). Much of the proposed clearing area is considered to be in a degraded state due to past mining and exploration activities and the effects of grazing (Outback Ecology, 2006).

The vegetation of the proposed clearing area is dominated by open Mulga (*Acacia aneura*) Scrub to Open Low Woodland, which is common and widespread in the region (Outback Ecology, 2006). Considering the degraded state of the vegetation within the application area, the native vegetation is unlikely to represent higher biodiversity than the surrounding undisturbed vegetation.

A large population of the Priority 4 species *Eremophila pungens* occurs to the east of the existing Success Pit (Outback Ecology, 2006). The proposed clearing will necessitate the removal of approximately 50 plants of this species (Outback Ecology, 2006). However, recent surveys indicate that local populations are in excess of 4,500 plants (Outback Ecology, 2006).

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

Methodology

Cowan (2001)
Outback Ecology (2006)
GIS Database:
Interim Biogeographic Regionalisation of Australia (Subregions) EA 18/10/00

(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 fauna of conservation significance have been recorded within the proposed clearing area (GIS Database); however, based on existing records several species could potentially occur within the clearing permit area.

Ninox Wildlife Consulting undertook fauna assessments in the Bronzewing and Mt McClure project areas in 1989 and 1993. No species listed under the Environmental Protection and Biodiversity Conservation Act 1999 or the WA Wildlife Conservation Notice 2006 were recorded (Ninox Wildlife Consulting 1989; 1993). The following species of conservation significance may occur in the proposed clearing area based on known distributions and habitat preferences: the Princess Parrot, the Mulgara, the Peregrine Falcon, the Long-tailed Dunnart and the Lesser Stick-nest Rat (Outback Ecology, 2006).

The Princess Parrot *Polytelis alexandrae* (listed by DEC as Priority 4, taxa in need of monitoring) is highly nomadic and has a sporadic occurrence throughout the arid interior of Australia. It occurs on red dessert sandplains and is known from the Gibson, Great Victoria and Great Sandy Deserts (Pizzey & Knight, 1997). It favours habitats of Mulga over Spinifex, *Casuarina* and *Eucalyptus camaldulensis* (Cowan 2001). These habitats do not occur in the application area.

Halpern, Glick, Maunsell (HGM) undertook Mulgara *Dasycercus cristicauda* (Schedule 1, fauna that is rare or likely to become extinct, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006') trapping in 1997 in the areas around Charlie's Well, Sister's Well and the Wanjarri border; following the discovery of the Mulgara at nearby Mount Joel. These locations were selected for trapping as they occur within the Bullimore Land System, which is recognised as containing suitable Mulgara habitat (HGM, 1997). Evidence of Mulgaras in the form of live animal captures, scats, tracks and diggings was recorded at all three trapping locations (HGM, 1997). These three locations are at least 15 kilometres from the proposed clearing area, and the area proposed to be cleared is not part of the Bullimore Land System.

The preferred habitat for the Mulgara is open Mulga woodlands (*Acacia aneura*) over mature hummock grasslands (*Triodia basedowii*). Sandplains and dune systems with sandy loams are necessary to enable burrowing (HGM, 1997). There is also evidence to suggest that colonies of Mulgara coincide with watered areas such as paleo-drainage lines (HGM, 1997). The proposed clearing area does not represent suitable habitat for Mulgara due to the absence of *Triodia basedowii* hummock grassland and the lack of major drainage lines. Open Mulga shrubland/woodland is widespread in the local area (Outback Ecology, 2006), and the degraded vegetation surrounding the Success Pit is unlikely to represent significant habitat for the Mulgara.

The Peregrine Falcon *Falco peregrinus* (Schedule 4, other specially protected fauna, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006'), a wide ranging bird, has little habitat specificity apart from an affinity with cliffs, tall trees for nesting, and water (Pizzey & Knight, 1997). Given the lack of cliffs, tall trees or perennial watercourses within the project area, the proposal is unlikely to affect this species.

The Long-tailed Dunnart *Sminthopsis longicaudata* (Priority 4, taxa in need of monitoring) inhabits rocky outcrops, rocky scree areas and breakaways, with associated vegetation including hummock grasslands and Acacia woodlands (Strahan, 1995). There are no rocky outcrops or breakaways in the proposed clearing areas. It is unlikely that the Long-tailed Dunnart utilises the degraded habitat of the proposed clearing area.

The Lesser Stick-nest Rat *Leporillus apicalis* (Presumed Extinct) is now almost certainly extinct (DEH, 2007; Strahan, 1995), and given the degraded nature of the application area, it is very unlikely that the species occurs in the proposed clearing area.

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

Methodology

Cowan (2001)
DEH (2007)
HGM (1997)
Ninox Wildlife Consulting (1989)
Ninox Wildlife Consulting (1993)
Outback Ecology (2006)
Pizzey & Kinight (1997)
Strahan (1995)
GIS Database:
Threatened Fauna - CALM 30/09/05

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

Comments

Proposal may be at variance to this Principle

No Declared Rare Flora (DRF) have been recorded within the proposed clearing area (GIS Database).

A search of the Department of Environment and Conservation's (DEC) Threatened Flora Database was undertaken in December 2004 by Outback Ecology to identify DRF or Priority Flora species in the Bronzewing - Mt McClure area. The database search was conducted for the co-ordinates $27^0$00' - $28^0$00' S and $120^0$00' - $121^0$00' E (covering an area of approximately one million hectares, including the area applied to clear). No DRF species records were identified from the search; however, ten Priority Flora species were recorded: *Calytrix verruculosa* (P1), *Baeckea* sp. Melita Station (P3), *Calytrix erosipetala* (P3), *Calytrix praecipua* (P3), *Calytrix uncinata* (P3), *Parmeliopsis macrospora* (P3), *Grevillea inconspicua* (P4), *Hemigenia exilis* (P4), *Eremophila pungens* (P4) and *Acacia balsamea* (P4) (Outback Ecology, 2006).

Of these ten species, four species occur near or within the proposed clearing area: *Calytrix uncinata* (located within the Wanjarri Nature Reserve approximately eight kilometres northwest), *Baeckea* sp. Melita Station (3.2 kilometres south-southeast), *Grevillea inconspicua* (22 kilometres southeast) and *Eremophila pungens* (50 plants within the clearing area) (Outback Ecology, 2006).

A botanical assessment was conducted of the Bronzewing tenements in February 1993 by Ecologia Environmental Consultants. During the survey by Ecologia, no DRF species, Priority Species or other species of significance were located (Outback Ecology, 2006). Based upon known populations, one Priority 4 species, *Grevillea inconspicua* was assumed to occur in the project area (Outback Ecology, 2006). The species habitat preference includes; loam, gravel, rocky outcrops, creeklines and along drainage lines (WA Herbarium, 2007). Due to the lack of suitable habitat surrounding the Success Pit, it was concluded that *Grevillea inconspicua* was unlikely to be present (Ecologia, 1993 as cited in Outback Ecology, 2006).

In December 2006, Outback Ecology conducted a walkover survey of the areas proposed to be cleared around the Success Pit, with particular focus on identifying *Eremophila pungens* and *Baeckea* sp. Melita Station. Approximately 50 plants of *Eremophila pungens* were located within the proposed clearing footprint; however, no *Baeckea* sp Melita Station or *Calytrix uncinata* plants were located (Outback Ecology, 2006b).

Based on a local population of in excess of 4500 *Eremophila pungens* (Outback Ecology, 2006a), DEC previously approved the removal of 774 plants for the development of the Venus Pit, 13 kilometres south-southwest (Outback Ecology, 2006a). DEC has advised that with regards to this clearing application, the removal of 50 *Eremophila pungens* plants would not represent a significant threat to the survival of the species (DEC, 2007).

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

Methodology

DEC (2007)
Ecologia (1993)
Outback Ecology (2006)
Outback Ecology (2006a)
Outback Ecology (2006b)
WA Herbarium (2007)
GIS Database:
Declared Rare and Priority Flora List - CALM 01/07/05

(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 (TEC's) in the IBRA Eastern Murchison subregion (GIS Database; Cowan 2001). The nearest known TEC is approximately 95 kilometres southwest of the application area (GIS Database). No TEC's have been identified by previous botanical surveys within the clearing permit area, or in the vicinity of the area (Outback Ecology, 2007).

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

Methodology

Cowan (2001)
Outback Ecology (2007)
GIS Database:
Threatened Ecological Communities - CALM 12/04/05

(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 proposed to be cleared does not form a significant remnant of native vegetation. The vegetation association proposed to be cleared is classified as Beard vegetation association 39, Shrublands; Mulga scrub (GIS Database). According to Shepherd *et al*. (2001), approximately 1,148,411 hectares or 100% of Beard vegetation association 39 remains (see below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in reserves/CALM-managed land*
IBRA region – Eastern Murchison (MUR1)	28,120,558	28,120,558	~100%	Least concern	~1.1%
Shire of Leonora	No Information Available	No Information Available			
Beard vegetation association – Shrublands; Mulga scrub. - 39	1,148,411	1,148,411	~100%	Least concern	~0.0%

* Shepherd *et al.* (2001)
** Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes **(Department of Natural Resources and Environment 2002)**	
Presumed extinct	Probably no longer present in the bioregion
Endangered*	<10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area
*** or a combination of depletion, loss of quality, current threats and rarity gives a comparable status**	

Although the percentage of land in reserves or the Department of Conservation and Land Management (CALM) managed land is very low for Beard vegetation association 39, the regional extent is approximately 100% uncleared, and therefore does not pose a threat to the conservation of this vegetation association.

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

Methodology

Department of Natural Resources and Environment (2002)
Shepherd *et al*. (2001a)
GIS Database:
Pre European Vegetation DA 01/01

(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 permanent watercourses in the vicinity of the application area, but two minor, non perennial watercourses traverse the proposed clearing area (GIS Database). Only after heavy rainfall would water flow along these shallow, ephemeral watercourses. No riparian vegetation was identified during the vegetation survey (Outback Ecology, 2006).

During significant rainfall events, an existing bund serves to divert water away from the Success Pit and along the drainage line (Outback Ecology, 2006). Due to the current proposed expansion of the pit, the bund will have to be repositioned, but will continue to divert water to the north and into a larger drainage line running to the east (Outback Ecology, 2006).

Given the lack of riparian vegetation in the clearing area, the non perennial nature of the local watercourse and the establishment of diversion bunds, it is unlikely that the proposed clearing will affect environments associated with a watercourse or wetland.

Base on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

Outback Ecology (2006)
GIS Database:
Hydrography, Linear - DoE 1/2/04
Rivers 250K - GA
Topographic Contours, Statewide - DOLA 12/09/02

(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 proposed clearing area is located within the Bevon and Felix land systems (GIS Database). The area is characterised by a gently inclined to level plain, stony ironstone mulga shrubland and an abundant ironstone gravel mantle (Pringle *et al*., 1994). The soils are typically shallow red earth on greenstone (Pringle *et al*., 1994). The land unit on which the proposal is located is characterised by a very low erosion hazard (Pringle *et al.,* 1994).

The proposed clearing is unlikely to exacerbate land degradation such as water logging and water erosion given the low annual rainfall and minimal surface water flow in the application area. With low average annual rainfall (approximately 210 mm) and high annual evaporation rates of 3,600 mm (GIS Database), recharge to groundwater would be low, effectively minimising the risk of salinisation.

Parts of the area proposed to be cleared are in a degraded condition due to previous mining activities and grazing.

Management practices aimed at minimising erosion at the Success Pit include:

- where required, steps will be taken to minimise erosion, for example culverts and spoon drains will be installed along roads; and
- where possible, topsoil and vegetation mulch will be directly transferred for use in rehabilitation (View Resources, 2006).

Given the very low erosion hazard of the proposed clearing area, the low rainfall and high evaporation rates of the area, the already disturbed nature of the area and the management practices indicated, it is unlikely that the proposed clearing will cause appreciable land degradation.

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

Methodology

Pringle *et al.* (1994)
View Resources (2006)
GIS Database:
Evaporation Isopleths - BOM 09/98
Mean Annual Rainfall Surface (1975 - 2003) DoW
Rangeland Land Systems Mapping – DA

(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 Wanjarri (A Class) Nature Reserve, covering an area of approximately 53,000 hectares, is located approximately eight kilometres northwest of the proposed area to be cleared at Bronzewing - Mt McClure (GIS Database). There are no other conservation areas nearby (GIS Database).

The proposed clearing area is not likely to act as a significant remnant, buffer, or ecological linkage to the Wanjarri Nature Reserve given that the area has been historically disturbed by mining activities and the surrounding landscape has not been extensively cleared.

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

Methodology GIS Database:
CALM Managed Lands and Waters - CALM 01/07/05

(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 proposed clearing is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

Groundwater within the area under application is brackish at between 1600 - 2100 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database; Outback Ecology, 2006). Given the size of the proposed clearing and the already saline nature of the groundwater, the quality of the groundwater is unlikely to be impacted by the proposed clearing activity.

Dewatering of the Success Pit will occur with approximately 7.2 ML of groundwater to be piped to, and disposed into the Challenger Pit located to the south of Success (Outback Ecology, 2006). This is likely to lead to a temporary groundwater drawdown effect (localised cone of depression) surrounding the pit during the life of the mine (Outback Ecology, 2006). DoIR is satisfied with View Resources management provisions for this activity. Impacts of the dewatering will fall outside the scope of the clearing process and will be addressed in the Mining Proposal which must be approved by DoIR.

At the Success Pit, surface drainage flows to the east and southeast toward Lake Darlot (Outback Ecology, 2006). There are a number of drainage lines within the immediate vicinity of the pit and waste landform, all of which are shallow and ephemeral in nature (Outback Ecology, 2006). The proposed clearing is unlikely to cause deterioration in the quality of surface water.

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

Methodology Outback Ecology (2006)
GIS Database:
Groundwater Salinity, Statewide - DoW Properties
Hydrography, Linear - DoE 1/2/04
Public Drinking Water Source Area - DoE 7/2/06
Rivers 250K - GA

(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 average annual rainfall at Lawlers (the closest meteorological recording station to the area applied to be cleared) is 208.2 mm (Outback Ecology, 2006). Average annual evaporation in the proposed clearing area is approximately 3,600 mm (GIS Database). It is therefore expected that there would be little surface water flow during normal seasonal rains.

There are no permanent watercourses in the vicinity of the application area, but two minor, non perennial watercourses traverse the proposed clearing area (GIS Database).

There are a number of drainage lines within the immediate vicinity of the pit and waste landform, all of which are shallow and ephemeral in nature (Outback Ecology, 2006). In significant rainfall events, an existing bund around the mine pit serves to divert water away from the Success Pit and along the drainage line (Outback Ecology, 2006). Due to the current proposed development, the bund will have to be repositioned, but will continue to divert water to the north and into a larger drainage line running to the east (Outback Ecology, 2006).

The clearing of 25 hectares within the Lake Carey Catchment (17,580,539 hectares) (GIS Database) is unlikely to result in an increase in flooding incidence or intensity.

Based on the above, the proposed clearing if not likely to be at variance to this principle.

Methodology Outback Ecology (2006)
GIS Database:
Evaporation Isopleths - BOM 09/98
Hydrographic Catchments - Subcatchments - DoW

Hydrography, Linear - DoE 1/2/04
Mean Annual Rainfall Surface (1975 - 2003) DoW
Rivers 250K - GA

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There are no Native Title Claims over the area under application (GIS Database).

There are no known Sites of Aboriginal Significance within the area applied to clear (GIS Database). Sites of Aboriginal Significance do occur within two kilometres of the area applied to clear (GIS Database). Advice from the Department of Indigenous Affairs (DIA, 2006) to the Kalgoorlie DoIR office states that the potential waste dump does not appear to impact any recorded Aboriginal sites. An archaeological survey has been undertaken over the application area and no archaeological sites or cultural materials were located. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

The proposed expansions of the Bronzewing - Mt McClure Project are subject to the *Mining Act 1978* approval process. It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water 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

DIA (2006)
GIS Database:
Aboriginal Sites of Significance - DIA 04/07/02
Native Title Claims - DLI 19/12/04

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	25	**Assessment against the ten clearing principles identified that the proposed clearing is not at variance to principle e, not likely to be at variance to a, b, d, f, g, h, i, j, and may be at variance to principle c.** **The assessing officer recommends that the permit be granted subject to the following condtions.** **1. The Permit Holder shall record the following for each instance of clearing:** **a) the location where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system;** **b) the size of the area cleared in hectares;** **c) the method of clearing;** **d) the purpose of clearing; and** **e) the dates on which the area was cleared.** **2. The Permit Holder shall provide a report to the Director, Environment, Department of Industry and Resources by 31 March each year for the life of the permit setting out the records required under condition 1 of this permit in relation to clearing carried out between 1st January and 31st December the previous year.**	

5. References

DEC (2007) Biodiversity advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch. Department of Industry and Resources (DoIR), received April 2007. Biodiversity Coordination Section, Department of Environment and Conservation, Western Australia.

DEH (2006) Species Profile and Threats Database: *Leporillus apicalis* - Lesser Stick-nest Rathttp://www.deh.gov.au/biodiversity/threatened/species/index.html

Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

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.

DIA (2006) Sites of Aboriginal Significance advice for land clearing. Advice to Kalgoorlie DoIR Office, received 4th December 2006. Department of Indigenous Affairs, Western Australia.

HGM (1997) Barwidgee Pastoral Lease Mulgara (*Dasycercus cristicauda*) Survey. Unpublished Report dated November 1997.

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

Ninox Wildlife Consulting (1989) The Vertebrate Fauna of a Proposed Gold Mine Near Mt McClure WA. Unpublished Report.
Ninox Wildlife Consulting (1993) Vertebrate Fauna Assessment of the Proposed Bronzewing Gold Project. Unpublished Report.
Outback Ecology (2006) Application for an Area Permit to Clear Native Vegetation at the Bronzewing - Mt McClure Project: - Success Pit Cutback and Waste Landform. Unpublished Report dated December 2006.
Outback Ecology (2006a) Report on the distribution of *Eremophila pungens* (P4) within the Bronzewing - Mt McClure Gold Project. Unpublished Report dated September 2006.
Outback Ecology (2006b) View Gold Pty Ltd Purpose Permit Clearing Application (CPS 1713/1) Flora Survey. Unpublished Report dated December 2006.
Pizzey, G. and Knight, F. (1997) Field Guide to the Birds of Australia. Angus & Robertson, Sydney.
Pringle H.J.R., Van Vreeswyk A.M.E., and Gilligan S.A. (1994) An inventory and condition survey of rangelands in the north eastern Goldfields, Western Australia. Department of Agriculture, Technical Bulletin No. 87.
Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
Strahan, R. (1995) The Mammals of Australia. Reed Books, NSW.

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1	**Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	**Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	**Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	**Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	**Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	**Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.