



1. Application details

1.1. Permit application details

Permit application No.: 2959/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Crescent Gold Limited

1.3. Property details

Property:
Mining Lease 38/376
Mining Lease 38/377
Mining Lease 38/318
Miscellaneous Licence 38/75

Local Government Area: Shire of Laverton
Colloquial name: Castaway and Admiral Hill Projects

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
52		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
Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database; Shepherd et al., 2001). 18: Low woodland; mulga (<i>Acacia aneura</i>)	Crescent Gold Limited has applied to clear up to 52 hectares of native vegetation within a boundary of approximately 195 hectares for the development of the Castaway and Admiral Hill pits, waste rock landform, ROM pad and topsoil stockpiles, while existing tracks and mine roads will be upgraded to enable larger vehicle movement access (MBS Environmental, 2008).	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The vegetation condition was derived from a vegetation survey conducted by J & J Tucker Environmental Solutions (2008).

The application area was surveyed by J & J Tucker Environmental Solutions staff in April 2008 (J & J Tucker Environmental Solutions, 2008). The following vegetation types were identified within the application area.

1. Calciphytic Pearl Bluebush Shrublands (CPBS): Dominated by *Acacia aneura*, *Hakea preissii*, *Eremophila oldfieldii* subsp. *angustifolia* scattered tall shrubs over *Maireana sedifolia*, *M. pyramidata* low chenopod shrubland over scattered grasses.

2. Drainage Tract Mulga Shrubland (DRMS): Vegetation composition is highly variable and is largely composed of species common to surrounding vegetation units. Dominated by *Acacia aneura* low forest over highly variable understorey, reflecting species present in adjacent habitats, consisting of shrubs, grasses and herbs.

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 occurs within the East Murchison Interim Biogeographic Regionalisation of Australia (IBRA) sub-region (GIS Database). This sub-region is characterised by internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development (CALM, 2002). It contains salt-lake systems associated with the occluded Paleodrainage system (CALM, 2002). This sub-region has broad plains of red-brown soils and breakaway complexes as well as red sandplains (CALM, 2002). The vegetation is dominated by *Mulga* woodlands often rich in ephemerals, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002). The vegetation described within the application area (J & J Tucker Environmental Solutions, 2008) is typical of the bioregion.

A vegetation survey of the application area identified 34 plant taxa belonging to 19 genera from 17 families (J & J Tucker Environmental Solutions, 2008). Mimosaceae (5 taxa), Chenopodiaceae (5 taxa) and Caesalpiniaceae (5 taxa) families were the most diverse within the survey area (J & J Tucker Environmental Solutions, 2008). The flora found within the application area is typical of the Laverton area and is generally unremarkable (J & J Tucker Environmental Solutions, 2008).

The application area is highly degraded and has suffered disturbance from previous exploration drilling programs. No alien weed species were recorded within the vegetation survey area (J & J Tucker Environmental Solutions, 2008). However during a site visit the assessing officer noted two alien weed species within the application area. These were Wild Melon (*Citrullus lanatus*) and Prickly Paddy Melon (*Cucumis myriocarpus*). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. These species are not listed as a 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Should the permit be granted, it is recommended that appropriate conditions be imposed on the permit for the purpose of weed management.

An area search of the Western Australian Museum's Faunabase conducted by the assessing officer suggests that the application area is diverse in reptile species, particularly Skinks (28) (Western Australian Museum, 2009). The database search found 77 reptile species from 7 families as potentially occurring within the application area, or within a 50 kilometre radius of the application area.

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

Methodology

CALM (2002)
J & J Tucker Environmental Solutions (2008)
Western Australian Museum (2009)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

The assessing officer conducted a search of the Western Australian Museum's online fauna database between the co-ordinates 122.9972°E, 28.0747°S and 121.9419°E, 29.0623°S, representing a 50 kilometre radius around the application area.

This search identified 6 Amphibian, 13 Avian, 20 Mammalian and 77 Reptilian species that may occur within the application area (Western Australian Museum, 2009). Of these, the following species of conservation significance have previously been recorded within the search area: Numbat (*Myrmecobius fasciatus*), Bilby (*Macrotis lagotis*), Crested Bellbird (*Oreoica gutturalis*) and the Princess Parrot (*Polytelis alexandrae*) (Western Australian Museum, 2009).

Coffey Environments (2008) conducted a fauna survey of the application area in May 2008. A desktop search of the Department of Environment and Conservation's (DEC) Threatened Fauna database and the Department of the Environment, Water, Heritage and the Arts (DEWHA) EPBC Act 1999 online database was conducted. The co-ordinates used were similar to those used by the assessing officer above. In addition to those species listed above, the following fauna species of conservation significance were identified through this database search:

Peregrine Falcon (*Falco peregrinus*), Malleefowl (*Leipoa ocellata*), Slender-billed Thornbill (*Acanthiza iredalei iredalei*), Australian Bustard (*Ardeotis australis*), Rainbow Bee-eater (*Merops ornatus*), Great Egret (*Ardea alba*), Oriental Plover (*Charadrius veredus*), Fork-tailed Swift (*Apus pacificus*), Mulgara (*Dasyercus cristicauda*), Banded Hare-wallaby (*Lagostrophus fasciatus fasciatus*), *Branchinella apophysata*, and the Giant Desert Skink (*Egernia kintorei*).

Based on habitat requirements, the following species are most likely to occur within the application area:

The Giant Desert Skink (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is a large burrowing species of skink, found in a variety of desert habitats, on sandy, clay and loamy soils (DEC, 2007). Its preferred habitat is sand flats and clay-based or loamy soils vegetated with spinifex (Coffey Environments, 2008). There have been previous records of the Giant Desert Skink in Laverton in 1967 so it is possible that the vegetation within the application area provides suitable habitat for this species, however no burrows have been recorded within the application area (Coffey Environments, 2008). Given that the vegetation types are well represented throughout the bioregion and the application area is highly disturbed due to historical mining and exploration activities the proposed clearing is unlikely to impact on the availability of significant habitat for this species.

The Bilby (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is a nocturnal marsupial, formerly known to occupy habitats ranging from *Eucalyptus* and *Acacia* woodlands in the wheatbelt of Western Australia to *Triodia* grasslands in the desert regions (DEC, 2009). Bilibies require sandy or loamy soil in which to burrow, with the major habitats they now occupy being mulga scrub and hummock grasslands on sandplains or along drainage or salt lake systems (DEC, 2009). During the fauna survey of the application area no burrows were recorded indicating that the application area does not contain significant habitat for this species.

The Peregrine Falcon (Schedule 4 - Other Specially Protected Fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2006*), is a wide ranging bird that has little habitat specificity apart from an affinity with cliffs, tall trees for nesting, and water (Pizzey and Knight, 1997). The Peregrine Falcon has previously been recorded from Wanjarri Nature Reserve, Honeymoon Well and Mileura (Coffey Environments, 2008). The application area may contain vegetation that provides suitable habitat for this species, however given that there are no cliffs, tall trees or permanent water sources within the application area it is unlikely that it contains significant habitat for this species.

The Australian Bustard (P4 - DEC Priority Fauna List) prefers tussock grassland, *Triodia* hummock grassland, grassy woodland and low shrublands (Garnett and Crowley, 2000). This species has previously been recorded within the bioregion and so it is likely that the application area contains suitable habitat for this species. Given that the Australian Bustard is a wide-ranging nomadic species it is not likely to be dependent on the habitat within the application area.

The Crested Bellbird (P4 - DEC Priority Fauna List) favours the shrub-layer of *Eucalypt* woodland, mallee, *Acacia* shrubland, *Triodia* hummock grassland, saltbush and heath (Garnett and Crowley, 2000). The Crested Bellbird is relatively widespread over most of inland Australia (Garnett and Crowley, 2000). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (52 hectares) in relation to the size of the sub-region (7,847,996 hectares) it is unlikely that the application area contains significant habitat for this species.

The Rainbow Bee-Eater (migratory - JAMBA International Agreement) occurs mainly in open forests, woodlands and shrublands but also occurs in inland and coastal sand dune systems and mangroves in Northern Australia (Western Australian Museum, 2009). This species is an opportunist and is known to inhabit a wide range of habitats (Pizzey and Knight, 1997). This species is likely to occur within the application area, however given that this species does not have a restricted range and the vegetation types that comprise its habitat are well represented throughout the bioregion it is unlikely that the application area contains significant habitat for this species.

A vegetation survey conducted by J & J Tucker Environmental Solutions (2008) recorded two habitat types as occurring within the application area: Calciphytic Pearl Bluebush Shrublands (CPBS) and Drainage Tract Mulga Shrublands (DRMS). The CPBS habitat type is well represented throughout the Murchison Bioregion and is unlikely to contain significant habitat for fauna species, while the DRMS habitat type is likely to contain fauna refugia. However, as the application area contains only 1.5 hectares of DRMS and this habitat type is represented throughout other areas of the Bioregion it is unlikely that the proposed clearing will significantly impact on this fauna habitat type.

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

Methodology Coffey Environments (2008)
DEC (2007)
DEC (2009)
Garnett and Crowley (2000)
Pizzey and Knight (1997)
Western Australian Museum (2009)

(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**
According to available databases, no Declared Rare Flora (DRF) or Priority flora species occur within the

application area (GIS Database).

A desktop database search was carried out using the following;

- Department of Environment and Conservation's (DEC) Threatened (Declared Rare) Flora Database;
- Australian Herbarium Specimen Database for Priority Species;
- DEC's Declared Rare and Priority Flora List; and
- DEC's Threatened Ecological Communities Database (J & J Tucker, 2008).

These searches indicated that 17 species of Priority Flora may occur within the application area, including three annual species: *Vittadinia cervicalis* var. *oldfieldii* (P1), *Goodenia lyrata* (P1) and *Gunniopsis propinqua* (P3) (J & J Tucker, 2008).

A flora survey was conducted over the application area by J & J Tucker staff on 11 April 2008 (J & J Tucker, 2008). This survey involved the survey area being extensively traversed on foot (J & J Tucker, 2008). Different vegetation groups encountered during the survey were described and the vegetation associations were examined for the presence or absence of any DRF and Priority Flora species (J & J Tucker, 2008). No species of DRF and no Priority flora species were recorded during the flora survey (J & J Tucker, 2008). However, limited rainfall in the months prior to the survey (70 millimetres from January to April) meant that most annuals and ephemerals were scarce or absent during the survey (J & J Tucker, 2008).

Vittadinia cervicalis var. *oldfieldii* (P1) is an annual herb, growing 0.1 - 0.3 metres high (Western Australian Herbarium, 2009). Two populations of this species have previously been recorded from Laverton and Merredin (Western Australian Herbarium, 2009).

Goodenia lyrata (P1) is a prostrate herb with lyrate leaves and is associated with red sandy loam and claypans (Western Australian Herbarium, 2009). Previous records indicate that 6 populations of this species have been identified with infrequent abundance (Western Australian Herbarium, 2009). This species has a widespread distribution and has previously been recorded across 3 IBRA Bioregions indicating that the application area is unlikely to contain vegetation that is necessary for the continued existence of this species (Western Australian Herbarium, 2009)

Gunniopsis propinqua (P3) is a prostrate annual herb, 0.03 - 0.1 metres tall with white and pink flowers (Western Australian Herbarium, 2009). This species is associated with stony sandy loam and lateritic outcrops (Western Australian Herbarium, 2009). Records indicate that 15 populations of *G. propinqua* have previously been recorded from across 2 IBRA Bioregions (Western Australian Herbarium, 2009). As this species is relatively widespread it is unlikely that the vegetation contained within the application area is necessary for the continued existence of this species.

Based on the above, the proposed clearing may be at variance to this Principle. However, as the vegetation within the application area is well represented throughout the bioregion, with approximately 100% of this vegetation type remaining (Shepherd et al., 2001) it is unlikely that the vegetation is necessary for the continued existence of any species of Declared Rare or Priority flora.

Methodology J & J Tucker Environmental Solutions (2008)
Western Australian Herbarium (2009)
GIS Database
- Declared Rare and Priority Flora List

(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

A search of available databases reveals that there are no Threatened Ecological Communities (TECs) within the application area (GIS Database). There are no TEC's located within the East Murchison IBRA sub-region (CALM, 2002). J & J Tucker Environmental Solutions (2008) reported that no TEC's were identified during the flora survey of the application area.

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

Methodology CALM (2002)
J & J Tucker Environmental Solutions (2008)
GIS Database
- Threatened Ecological Communities

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposal is not at variance to this Principle

The application area falls within the IBRA Murchison Bioregion. Shepherd et al. (2001) report that approximately

100% of the pre-European vegetation still exists in this Bioregion. The vegetation in the application area is recorded as Beard Vegetation Association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database; Shepherd et al., 2001). According to Shepherd et al., (2001) there is approximately 100% of this vegetation type remaining (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves
IBRA Bioregion – Murchison	28,120,558	28,120,558	~100.0	Least Concern	~1.1
Beard veg assoc. – State					
18	19,892,437	19,890,348	~100.0	Least Concern	~2.1
Beard veg assoc. – Bioregion					
18	12,406,248	12,403,248	~100.0	Least Concern	~0.4

* Shepherd et al. (2001) updated 2005

** Department of Natural Resources and Environment (2002)

Therefore the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

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. (2001)
GIS Database
- Pre-European Vegetation
- Interim Biogeographic Regionalisation for Australia

(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

The application area experiences an average annual rainfall of approximately 232.6 millimetres, according to the nearest recording station located at Laverton approximately 9 kilometres west-south-west of the application area (Bureau of Meteorology, 2009). The application area also experiences an annual pan evaporation rate of approximately 3,200 millimetres (Luke et al., 1987).

There are no permanent watercourses or wetlands within the application area (GIS Database). There are several minor non-perennial watercourses running through the application area (GIS Database). To minimise the impacts to the watercourse environment, management strategies will be applied including;

- Clearing not being undertaken during periods of heavy rainfall;
- Clearly delineating clearing areas with survey pegs and flagging;
- Use of existing haul roads, tracks and disturbed areas wherever possible; and
- Culverts and floodways being installed where haul roads intersect drainage lines to ensure the natural surface flow is maintained (MBS Environmental, 2008).

Vegetation mapping of the application area by J & J Tucker Environmental Solutions (2008) indicates that approximately 1.5 hectares of the native vegetation proposed to be cleared is riparian vegetation. The riparian vegetation is likely to be disturbed due to the construction of haul roads crossing the drainage lines which may alter the watercourses natural regime. To minimise the impact and ensure the natural water flow is maintained it is recommended that culverts and floodways be installed where haul roads intersect drainage lines.

Based on the above, the proposed clearing is at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to vegetation management to reduce the impact to any watercourse or wetland.

Methodology Bureau of Meteorology (2009)
J & J Tucker Environmental Solutions (2008)
Luke et al. (1987)
MBS Environmental (2008)
GIS Database
- Hydrography - Linear

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

Comments Proposal is not likely to be at variance to this Principle

The application area has been surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004). The application area is composed of the following land systems (GIS Database);

- Bevon Land System (approximately 30%);
- Gundockerta Land System (approximately 33%);
- Jundee Land System (approximately 32%); and
- Leonora Land System (approximately 5%).

The Bevon Land System is described as irregular low ironstone hills with stony lower slopes supporting mulga shrublands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'narrow drainage tracts' land unit of the Bevon Land System. The shallow red earth on greenstone of this land unit provides effective protection against soil erosion (Van Vreeswyk et al., 2004). The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in the vegetation surveys conducted over the area (J & J Tucker Environmental Solutions, 2008).

The Gundockerta Land System is described as extensive, gently undulating, calcareous, stony plains, supporting bluebush shrublands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'low rises' and 'saline stony plains' land units of the Gundockerta Land System. The stony mantles of these land units provide effective protection against soil erosion (Van Vreeswyk et al., 2004). The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in the vegetation surveys conducted over the area (J & J Tucker Environmental Solutions, 2008).

The Jundee Land System is described as hardstone plains with ironstone gravel mantles, supporting mulga shrublands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'drainage tracts' land unit of the Jundee Land System. The hardpan earth of this land unit provides effective protection against soil erosion (Van Vreeswyk et al., 2004). The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in the vegetation surveys conducted over the area (J & J Tucker Environmental Solutions, 2008).

The Leonora Land System is described as low greenstone hills and stony plains, supporting mixed stony chenopod shrublands (van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'lower footslopes' land unit of the Leonora Land System. The soils of these land units are not susceptible to erosion due to abundant mantles of quartz, ironstone and greenstone pebbles, local calcrete outcrop and rubble (Van Vreeswyk et al., 2004). The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (J & J Tucker Environmental Solutions, 2008).

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to stockpiling of all cleared topsoil and vegetation for use in rehabilitation.

Methodology J & J Tucker Environmental Solutions (2008)
Van Vreeswyk et al. (2004)
GIS Database
- Rangeland Land System Mapping

(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 application area is located approximately 114 kilometres to the south of De La Poer Range Nature Reserve (GIS Database). At this distance it is not likely that the vegetation within the application area provides a buffer to the conservation area, or is important as an ecological linkage to the conservation area. The proposed clearing is unlikely to have any significant impact on any conservation area.

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

(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 application area is located within Laverton Water Reserve, a Priority 1 Public Drinking Water Source Area (PDWSA) (GIS Database). The provision of the highest quality drinking water is the prime land use value in P1 areas, which are managed with the principle of risk avoidance (DoW, 2009). Water Quality Protection Note 'Land Use Compatibility in Public Water Source Areas' was published in 2004 by the Department of Environment (DoE) to manage and protect the State's water resources. Extractive industry, including construction and mining camps is considered to be compatible within P1 areas. Key guidelines which all extractive industries in PDWSA's are subject to as part of licensing conditions include:

- A minimum of 3 metres of undisturbed soil/rock profile as a buffer between the base level of the excavated area and the maximum anticipated water table; and
- The site is rehabilitated to an environmental condition that ensures the maintenance of background water resource quality and is compatible with the intended end land use (Water and Rivers Commission, 2000).

From a clearing perspective, it is acknowledged that the removal of approximately 52 hectares of native vegetation within an area of 195 hectares which has already suffered disturbance from exploration activities is unlikely to significantly impact on the quality or quantity of the groundwater within the application area.

There are no permanent water bodies or watercourses within the application area (GIS Database). With an average annual rainfall of approximately 232.6 millimetres (Bureau of Meteorology, 2009) and an annual pan evaporation rate of 3,200 millimetres (Luke et al., 1987), there is little surface flow during normal seasonal rains. The proposed clearing may exacerbate surface water runoff during heavy seasonal rainfall events. It is recommended that should a permit be granted, a condition be imposed on the permit directing the Permit Holder not to clear native vegetation unless the purpose for which the clearing is authorised is enacted within 3 months of the clearing taking place.

The application area is located within the Yilgarn Goldfields Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately 1,000 - 3,000 milligrams/Litre Total Dissolved solids (TDS) (GIS Database). Given the size of the area to be cleared (52 hectares) compared to the size of the Yilgarn Goldfields Groundwater Province (29,644,595 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known groundwater dependent ecosystems within the application area (GIS Database).

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

Methodology Bureau of Meteorology (2009)
DoE (2004)
DoW (2009)
Luke et al. (1987)
Water and Rivers Commission (2000)
GIS Database
- Public Drinking Water Source Area
- Groundwater - Provinces
- Groundwater Salinity
- Potential Groundwater Dependent Ecosystems

(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 application area is located within an arid environment which is characterised by short periods of high intensity rainfall, experiencing an average annual rainfall of approximately 232.6 millimetres (MBS Environmental, 2008). The water systems located within and in close proximity to the application area are dry for the majority of the year and only flow during and immediately after significant rainfall (MBS Environmental, 2008).

The application area drains into the Lake Carey catchment area (GIS Database). The relatively small area to be cleared (52 hectares) in relation to the size of the catchment area (11,378,213 hectares) (GIS Database) is not likely to lead to an increase in flood height or duration.

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

Methodology MBS Environmental (2008)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim (WC99/001) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenements have 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 known Aboriginal sites of significance within the application area, however there are three known Aboriginal sites of significance (ID_21890, ID_21891 and ID_16082) within close proximity of 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 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.

No public submissions were received in regard to this Permit application.

Methodology

GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposal is at variance to Principle (f), may be at variance to Principle (c), is not likely to be at variance to Principles (a), (b), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

It is recommended that should a permit be granted, conditions be imposed on the permit with regards to weed management, vegetation management, stockpiling of all cleared topsoil and vegetation for use in rehabilitation, record keeping and permit reporting.

5. References

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- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).
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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.
DMP	Department of Mines and Petroleum
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.