Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1948/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **The Griffin Coal Mining Company Pty Ltd**

1.3. Property details

Property: Coal Mining Lease 12/752
Local Government Area: Shire of Collie
Colloquial name: Ewington Mine - coal conveyor

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
8		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	Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia, and are a useful tool to examine the vegetation extent in a regional context. One Beard Vegetation Association is present within the areas proposed to be cleared: **3:** Medium forest; jarrah-marri (GIS Database, Shepherd *et al.*, 2001). The area under application has also been surveyed by Heddle *et al.* (1980) (GIS Database). The survey identified two vegetation complexes: - **Collie complex** - an open forest of jarrah - Marri - sheoak with an understorey varying with the proportion of sand and gravels in the soil. Understoreys on gravel substrates contain *Banksia grandis*, *Persoonia longifolia*, *Leucopogon capitellatus* and *Hakea lissocarpha*. Sandy substrates support understoreys of *Daviesia incrassata*, *Xylomelum occidentale* and *Dasypogon bromeliifolius*; and - **Cardiff complex** - an open Banksia woodland of *Banksia attenuata - B. ilicifolia* and *Nuytsia floribunda* with a variable understorey reflecting soil moisture. Drier soils accommodating *Kunzea ericifolia*, *Calothamnus* spp., *Jacksonia furcellata* and *Bossiaea eriocarpa*. While moister soils contain understoreys with *Pericalymma ellipticum*, *Adenanthos obovatus* and *Hypocalymma angustifolium* (GIS Database, Ecologia Environmental Consultants, 1991). Due to the soil types within the application area, it is more likely that the area under application is more representative of the Collie complex. The vegetation survey conducted by Mattiske Consulting (1991) (as cited in Griffin-EMP, 2004) subdivided the Collie Basin complexes into 11 site vegetation types. Of those 11 vegetation types, 4 occur within the proposed clearing area. These are: **B:** Open woodland of *Eucalyptus marginata - Melaleuca preissiana - Nuytsia floribunda - Xylomelum occidentale* with occasional stands of *Banksia attenuata* over low shrubs and sedges on seasonally moist grey sands; **J:** Open woodland to open forest of *Eucalyptus marginata - Corymbia calophylla - Banksia ilicifolia* with some *Allocasuarina fraseriana*, *Xylomelum occidentale* and *Nuytsia floribunda* over low understorey of shrubs and sedges on deep gray sands on lower to mid valley slopes; **P:** Open forest of *Eucalyptus marginata - Allocasuarina fraseriana* with scattered *Banksia grandis* and *Persoonia longifolia* over mixed shrub layer on deep grey sands on mid to upper valley slopes; and **S1:** Open forest of *Eucalyptus marginata - Corymbia calophylla* with some *Banksia grandis* and *Persoonia longifolia* over low understorey of shrubs and sedges on sandy-gravels (Mattiske *et al.*, 1991 as cited in Griffin-EMP, 2004).
Clearing Description	The Griffin Coal Mining Company Pty Ltd (from this point forward referred to as Griffin) has applied to clear up to 8 hectares of native vegetation within a total application area of approximately 10 hectares. The proposed clearing is for the purposes of mineral production, namely a conveyor, haul pack road and utility and maintenance access (Griffin, 2007). The proposed clearing area is located approximately 7.6 kilometres east of Collie townsite (GIS Database). The proposed clearing is located between the operating Ewington I and Ewington II Griffin mines. Griffin has developed an Environmental Management Programme (EMP), for the Ewington I Open-Cut Mine, which they will implement for this clearing as well (Griffin, 2007). The Griffin-EMP (2004) outlines a number of commitments which Griffin will undertake during clearing:

	- minimise clearing; - define clearing limits prior to construction; - staged clearing and progressive rehabilitation; - initial logging will be undertaken by the Forest Products Commission (FPC) and all economically viable timber will be able to be recovered; - some vegetation of particular value in rehabilitation, such as hollow logs and stumps, will be stockpiled separately.
Vegetation Condition	**Excellent:** Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994). to **Good:** Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).
Comment	The vegetation condition is derived from the vegetation description provided in Griffin-EMP (2004), and a site visit. A site visit was conducted on 20/08/2007, by the assessing officer, other officers from the Department of Industry and Resources (DoIR) and representatives of Griffin. Proposed clearing areas were walked, and issues discussed, including the possible translocation of species, and better implementation of the site EMP.

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 proposed clearing is located within the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion, and on the border of the Northern and Southern Jarrah Forest sub-regions (GIS Database). The Jarrah Forest IBRA bioregion is dominated by a duricrusted plateau of the Yilgarn craton, and characterised by jarrah-marri forest on laterite gravels and, in the eastern part, by marri-wandoo woodlands on clayey soils (McKenzie *et al.*, 2002). The Northern Jarrah Forest sub-region has moderate species richness (400-600 per square kilometre) (Williams and Mitchell, 2001). Rare features of this subregion are the extensive native forest cover, however, the biota is patchy, considering geological and geomorphic uniformity (Williams and Mitchell, 2001). Hearn *et al.* (2002) state that the rare features of the Southern Jarrah Forest are similar to the Northern Jarrah Forest, that being the extensive native forest cover, but that the biota is patchy considering geological and geomorphic uniformity.

Flora (Mattiske *et al.*, 1991 as cited in Griffin-EMP, 2004) and fauna (Griffin-EMP, 2004) surveys were conducted over the whole Ewington area, including the application area. The results reported a total of 56 families, 168 genera and 271 plant taxa (Mattiske *et al.*, 1991 as cited in Griffin-EMP, 2004), and 9 species of mammals, 4 frogs, 17 reptiles and 54 birds (Griffin-EMP, 2004). Based on these results, it would appear that the application area is typical of the Bioregion. The vegetation and habitat types occurring within the application area are well represented in the region (GIS Database, Griffin-EMP, 2004). These surveys also indicated that the application area has been impacted by weeds, disease, stock grazing and other impacts from the nearby mining activities.

The proposed clearing area has been surveyed by Glevan Consulting (2007) for *Phytophthora* dieback occurrence. The survey found that, of the 47.8 hectares surveyed, 38.7 hectares were dieback infested while 9.1 hectares remained uninfested (Glevan Consulting, 2007). As dieback may impact on the biodiversity of the area, Griffin-EMP (2004) outlines numerous commitments to prevent and minimise the spread of dieback, such as:

- all machinery and equipment will be clean prior to entering DEC land and upon the commencement of work in the uninfested, uninterpretable and unprotectable areas;
- site works will be undertaken under 'no soil movement conditions' (dry soil) in the uninfested, uninterpretable and unprotectable areas;
- dieback boundaries will be reviewed where operations commence more than 3 years after demarcation in the field;
- all equipment will be clean when moving between relevant hygiene categories;
- the minimum clean down standard will be the removal of all soil and plant material. This will be carried out by either brushing, compressed air blow downs or high pressure water jet wash down;
- for wash down purposes a hardstand will be used. The hardstand will be free of soil and material before wash down commences and before machinery exists the hardstand. Strategic locations will be sited to enable cleaned objects (boots, vehicles, plant or equipment) to enter uninfested areas without becoming reinfested;
- runoff from the hardstand will be contained in a sump sloping away from the uninfested area or contained at the site in a plastic liner and allowed to evaporate. Remaining residue will be disposed of within an infested area;
- vegetation, topsoil and shallow overburden from each hygiene category will be stockpiled and reused only within the category from which it originated. The stockpile will be located such that run-off will not run into a higher hygiene category;
- uninfested material will be placed on the higher elevations during rehabilitation;
- each topsoil and shallow overburden stockpile will be signposted indicating infestation status and the words 'keep off';
- regular surveys will be undertaken to assess the effectiveness of the control measure; and
- to enforce hygiene management, Griffin will work in collaboration with DEC Wellington District Manager to ensure access to uninfested areas within the mining area is constrained by appropriate methods. The need for sign posting will be evaluated in consultation with the relevant authorities.

Weeds are also a problem in the area, as the vegetation survey of the whole Ewington leases has found that weed species comprised 6% (or 16 taxa) of the total flora recorded (Griffin-EMP, 2004). As the areas adjacent to the proposed clearing area have been cleared and utilised for agricultural purposes, spreading of weeds is a concern due to the potential for weeds to compete for habitat with native flora. Griffin-EMP (2004) states that Griffin recognises the hygiene issues associated with weeds and currently implements hygiene measures at all operating mine-sites. The commitments made include:
- management of weed hygiene will work in conjunction with dieback hygiene management procedures
- all machinery and equipment will be cleaned by manual brushdown, compressed air or water when entering or leaving top soiled areas
- regular site inspections will be conducted
- eradication programmes will be implemented as required to ensure weed infestations are avoided (Griffin-EMP, 2004).

It is likely that the impacts of weeds, disease, stock grazing and impacts from nearby mining activities will have had a deleterious effect on the biodiversity within the application area. Therefore, the area may not be representative of an area of outstanding biodiversity in the Bioregion and may not have a higher diversity of species than the remaining native vegetation in the local area.

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

Methodology

Bennett (2007).
Glevan Consulting (2007).
Griffin-EMP (2004).
Hearn *et al*. (2002).
McKenzie *et al*. (2002).
Williams and Mitchell (2001).
GIS Database:
- Heddle Vegetation Complexes - DEP 21/06/95.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia (subregions) - EA.
- Mattiske Vegetation - CALM 24/3/98.
- Pre-European Vegetation - DA 01/01.

(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 at variance to this Principle

The proposed clearing lies in the Collie Basin, well within the major zoogeographic region of the mesic South West Western Australia (Ecologia Environmental Consultants, 1991).The South-West Region is of considerable environmental significance with a high degree of endemism as well as numerous species which are rare or with restricted geographic distributions (Ecologia Environmental Consultants, 1991). The fauna present within the application area is typical of the Jarrah Forest of the Darling Range (Ecologia Environmental Consultants, 1991).

A survey by Ecologia Environmental Consultants (1991) covered the whole Ewington Open Cut Coal Mine project area, which included the area under this clearing permit application. The findings were that the project area is potentially home to approximately 96 bird species, 23 native and 8 introduced mammals, 48 reptiles and 7 amphibians (Ecologia Environmental Consultants, 1991).

Another recent survey focused on the Ewington conveyor belt only (Bancroft *et al*., 2007). A part of this survey was a literature search, finding that 213 vertebrate species may occur within the areas proposed to be cleared, of which there were 29 species of conservation significance. A relative risk assessment identified five conservation significant species that were of high (relative) risk along the proposed conveyor route:
- *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo);
- *Calyptorhynchus latirostris* (Carnaby's Cockatoo);
- *Calyptorhynchus baudinii* (Baudin's Cockatoo);
- *Isoodon obesulus fusciventer* (Quenda); and
- *Macropus irma* (Brush Wallaby) (Bancroft *et al*., 2007).

The relative risk of impact to all other species is considered to be negligible, negligible-low, low, or low-moderate (Bancroft *et al*., 2007).

No conservation significant species were observed directly along the proposed Ewington conveyor route (Bancroft *et al*., 2007). There was indirect evidence of Quenda (diggings) throughout the route and surrounding areas. No evidence of Black-Cockatoo feeding or nesting was found. However, 24 potential nesting trees (i.e. those exceeding the 600 mm diameter at breast height (DBH) minimum) were recorded within the proposed clearing area (Bancroft et al., 2007). Up to 17 primary potential nesting trees (more than 700mm DBH) were found within the proposed clearing area (Bancroft *et al*., 2007). While no data were collected from the surrounding woodland, it is highly likely that this density of potential primary nest trees is similar throughout the Ewington block (Bancroft *et al*., 2007).

The relative risk assessment of the conservation significant species highlights several species that are of greatest concern. Effectively these are species that are most likely to occur along the conveyor route and/or are most likely to be significantly impacted by the proposed operations:

The Forest Red-tailed Black-Cockatoo is listed as Schedule 1 (Vulnerable) under the *WA Wildlife Conservation Act 1950*, and is of concern, because clearing has greatly reduced the available breeding and feeding habitat (Bancroft *et al*., 2007). Feral bees and Galahs also compete with *C. banksii naso* for nesting hollows. The range of this subspecies is closely tied to the distribution of Marri (*Corymbia calophylla*) (Bancroft *et al*., 2007).

The Carnaby's Cockatoo is listed as Endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act), and as Schedule 1 (Endangered) under the *WA Wildlife Conservation Act 1950*. This type of Cockatoo occurs in the south-west of WA, approximately south-west of a line between the Murchison River (near Kalbarri) and Cape Arid National Park (east of Esperance) (Bancroft *et al*., 2007). Land clearing and degradation has reduced available breeding sites (tree hollows) and fragmented breeding and feeding sites. Feral bees, galahs and corellas out-compete *C. latirostris* for nesting hollows (Bancroft *et al*., 2007).

The Baudin's Cockatoo is listed as Vulnerable under the EPBC Act and as Schedule 1 (Endangered) under the *WA Wildlife Conservation Act 1950*. This type of Cockatoo occurs in the deep south-west of WA, approximately south-west of a line between Morangup (near Bullsbrook) and Waychinicup National Park (east of Albany) (Bancroft *et al*., 2007). Birds generally breed in the Karri, Marri and Wandoo forests, in the southern parts of the species' range and move north to the Darling Range and Swan Coastal Plain during autumn and winter (non-breeding periods) (Bancroft *et al*., 2007). Clearing for agriculture and logging has removed nesting and feeding trees for this species (Bancroft *et al*., 2007).

In general, hollows of sufficient size to support Black-Cockatoos do not form until trees are at least 230 years old, and the majority of nests are found in 300-500 year old trees (Bancroft *et al*., 2007). In some cases artificial nest hollows (or nest boxes) have been used with great success (Bancroft *et al*., 2007). Loss of feeding grounds, nesting trees and competition from bees and Corellas have increased the importance of available nesting hollows. Hollows present are of significance to the conservation of Black Cockatoo species.

The Quenda is listed as a Priority 5 species by DEC, and is of concern because habitat clearing and fragmentation, fire and predation by foxes, cats, and domestic dogs threaten this species (Bancroft *et al*., 2007). This species occurs in the south-west of WA (Bancroft *et al*., 2007; WA Museum, 2007).

The Brush Wallaby is listed as Priority 5 by the DEC, and is of concern because it is threatened by habitat clearing and fragmentation, predation by foxes and illegal hunting (Bancroft *et al*., 2007). *M. irma* occurs in the south-west of WA, from approximately Geraldton to Esperance (Bancroft *et al*., 2007; WA Museum, 2007).

The Bancroft *et al*. (2007) report identifies 10 management recommendations:
1) Limit loss of habitat by restricting the clearing and keeping the area of infrastructure to a minimum. Also, prevent degradation of vegetation surrounding study areas by increasing the awareness of personnel and restricting access to areas of significant vegetation;
2) Where possible, conduct clearing operations outside the breeding season for Black-Cockatoos;
3) Consider the implementation and monitoring of nesting boxes for Black-Cockatoos;
4) Limiting speed limits for areas of high wildlife activity;
5) Road killed fauna should be reported to site environmental personnel. Any fauna suspected of being of conservation significance should be reported to the relevant conservation authority (e.g. DEC office at Collie);
6) Manage the spread of Dieback (*Phytophthora cinnamomi*);
7) Consider the use of felled or cleared vegetation as habitat enhancement in rehabilitation sites;
8) Feral fauna, particularly cats and foxes, should not be encouraged. Feral animal control strategies should be implemented where necessary;
9) To adopt the precautionary principle, lighting should be directed away from natural habitats so that light-spill is minimised; and
10) Consider providing signage to indicate important fauna or habitats.

Griffin (2007) has stated that they are committed to undertaking these recommendations.

It can be seen from the above that the proposed clearing area is important habitat for the Quenda and the Black Cockatoos.

Based on the above, the proposed clearing is at variance to this Principle. The assessing officer recommends conditions be placed on any granted permit to offset the loss of habitat.

Methodology

Bancroft *et al*. (2007).
Ecologia Environmental Consultants (1991).
WA Museum (2007).

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

Comments

Proposal is at variance to this Principle

There are no records of threatened flora species within the areas proposed to be cleared (GIS Database). The nearest recorded flora of conservation significance is the Priority 4 *Pultenaea skinneri*, located approximately 5 kilometres south-east of the proposed clearing area (GIS Database).

A survey of the proposed clearing area was conducted by Bennett Environmental Consulting on the 10 and 25 October 2007 (Bennett, 2007). No Declared Rare Flora were recorded during the survey. One Priority 4 species (*Stylidium plantagineum*) was located during this survey (Bennett, 2007). Approximately 15 plants of this species will be removed for the proposed construction (Bennett, 2007). Scattered plants were also recorded throughout the vegetation unit, outside of the area proposed to be cleared (Bennett, 2007). This species is known from the Collie, Harvey and Nannup areas, and from the Stirling Range National Park, and it is thought that it may be more widespread than currently known, as it only flowers after fire (Bennett, 2007).

Based on the above, the proposed clearing is at variance to this Principle. However, DEC (2007) advice states that the removal of approximately 15 plants of *S. plantagineum* is unlikely to constitute a significant impact on the taxon, given Bennett (2007) comment that the plants were not just restricted to the proposed clearing area. The proponent has consulted with the DEC for advice regarding the possible translocation of the *S. plantagineum* plants which will be impacted by the proposed clearing (DEC, 2007). The assessing officer recommends that conditions relating to the introduction and/or spread of dieback and weeds be included on any permit granted.

Methodology

Bennett (2007).
DEC (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 (TECs) in the vicinity of the proposed clearing area (GIS Database). The nearest endorsed TECs are located approximately 45 kilometres west from the clearing permit application area (GIS Database).

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

Methodology

GIS Database:
- Threatened Ecological Communities - CALM.

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

Comments

Proposal is not likely to be at variance to this Principle

The proposal is located within the Jarrah Forest IBRA bioregion, and on the border of the Northern and Southern Jarrah Forest IBRA sub-regions (GIS Database). The proposed clearing is located within the Intensive Land-use Zone (GIS Database, Shepherd *et al*., 2001). The table below outlines the pre-european and current extent of vegetation within these regions.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion - Jarrah Forest	4,506,675	2,426,080	53.8	Least concern	14 (25.5)
IBRA Subregion - Southern Jarrah Forest	2,607,875	1,308,940	50.2	Least concern	16.8 (32.8)
IBRA Subregion - Northern Jarrah Forest	1,898,799	1,117,139	58.8	Least concern	10.0 (16.9)
Local Government Area - Collie	172,072	161,845	94.1	Least concern	N/A
Beard veg assoc. - State					
3	2,661,197	1,863,967	70.0	Least concern	18.5 (26.2)
Beard veg assoc. - Bioregion					
3	2,390,535	1,661,219	69.5	Least concern	16.3 (23.3)
Beard veg assoc. - Southern Jarrah subregion					
3	1,482,495	913,332	61.6	Least concern	18.7 (30.2)
Beard veg assoc. - Northern Jarrah subregion					
3	908,040	747,887	82.4	Least concern	12.4 (15.0)

Locally, the surrounding areas have been cleared for mining and associated infrastructure. However, based on the figures above, the proposed clearing area is not considered to be a significant remnant of native vegetation within an extensively cleared area.

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

Methodology Shepherd *et al*. (2005).
GIS Database:
- Clearing Regulations - Schedule One Areas - DOE 10/03/05
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia (subregions) - EA.
- 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

The application area slopes up gently from south to north, and does not cross any drainage lines (GIS Database, Bancroft *et al*., 2007). There are no permanent wetlands within the areas applied to clear (GIS Database). The nearest watercourse is a minor, perennial watercourse, approximately 250 metres west of the proposed clearing areas (GIS Database).

The closest area of inundation is approximately 920 metres south of the proposed clearing (GIS Database).

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

Methodology Bancroft *et al*. (2007).
GIS Database:
- Geodata, Lakes - GA 28/06/02.
- Hydrogeology, Statewide - DOW.
- Hydrography, linear (medium scale, 250k GA).
- Hydrography, linear (hierarchy) - DOW.
- Hydrography, linear (course scale, 1M GA).
- Hydrography, linear - DOE 1/2/04.

- Hydrography, Lakes (course scale, 1M GA).

(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 Ewington area (where this proposal is located) is characterised by low relief laterite ridge and hill landscapes (Griffin-EMP, 2004). The proposed clearing is located on marine and continental sedimentary rock (sand and sandstone), over extensive and deep aquifers (GIS Database). The geology of the area is recognised as sandy, alluvium forming terraces to Nakina Formation locally laterized (GIS Database, Geological Survey Western Australia, 1982). This type of sub-soil is prone to erosion if vegetative cover is removed. Griffin-EMP (2004) outlines that Griffin will conduct regular visual inspections of areas susceptible to erosion, and initiate remedial action as required. This action may include:
- repair and stabilisation of affected areas;
- earthworks and excavation to deepen and further define the drainage path;
- lining the drainage channel where the above actions are ineffectual; or
- installing breakwaters along the drainage path (Griffin-EMP, 2004).

The groundwater within the application area is fresh, at less than 500 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the small size of the proposed clearing, salinisation is not likely to occur.

Other management measures utilised to prevent land degradation include:
- rationalisation of access through the closure of redundant tracks;
- restriction of access through fencing;
- rehabilitation of disturbed areas;
- employee education; and
- weed and feral animal control (Griffin-EMP, 2004).

Based on the above, the proposed clearing may be at variance to this Principle. The assessing officer recommends that conditions be placed on any permit granted to minimise potential land degradation.

Methodology

Geological Survey Western Australia (1982).
Glevan Consulting (2007).
Griffin-EMP (2004).
GIS Database:
- Geology, 250K - DOIR 21/12/01.
- Geology, Statewide - DMPR 01/12/99.

(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 may be at variance to this Principle

The proposed clearing is located within the Collie State Forest (GIS Database). This state forest is managed for multiple purposes, including conservation. The Ewington mining area (within which this application area is located) is also a part of the Comprehensive, Adequate and Representative (CAR) Informal Reserve (EPA, 2003).

The *Collie Coal (Griffin) Agreement Act 1979* (WA) permits Griffin entry into State Forest for the purposes of exploration, clearing of timber and undergrowth and mining. A condition of this Act is that Griffin will give prior notice to the Conservator of Forests (now the Forest Products Commission (FPC)) that clearing is to take place. Griffin (2007) has provided a letter from the FPC which indicates that FPC are currently and will continue to be involved in the salvage of saleable timber resources within areas of State Forest covered by the Ewington Mining lease and clearing permits.

The nearest System 6 conservation reserve is located some 8 kilometres north of the proposed clearing (GIS Database). It is unlikely that the proposed clearing will have any significant impacts on this System 6 reserve.

Based on the above, the proposed clearing may be at variance to this Principle. The assessing officer recommends that conditions be placed on any permit granted to minimise environmental impacts on conservation areas.

Methodology

Griffin (2007).
Griffin-EMP (2004).
GIS Database:
- CALM Managed Lands and Waters - CALM 1/07/05.
- System 6 Conservation Reserves - DEP 06/95.

(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 may be at variance to this Principle

GIS Database records do not identify any potential groundwater dependent ecosystems within or surrounding the area under application (GIS Database).

The proposed clearing area was not identified as a salinity risk area (GIS Database). The groundwater within the area under application is fresh, at less than 500 milligrams per litre of TDS (GIS Database). Groundwater quality is unlikely to be impacted by the relatively small area of proposed clearing.

There are no permanent watercourses or wetlands within the areas applied to clear (GIS Database). The nearest watercourse is a minor, perennial watercourse, approximately 250 metres west of the proposed clearing areas (GIS Database). As it is unlikely that water flows through the areas under application, it is unlikely that the proposed clearing activity will significantly impact on the quality of surface water in the area.

The proposed clearing area is located within the Wellington Dam Catchment Area (Public Drinking Water Source Area) (GIS Database). The Griffin-EMP (2004) states that Griffin will:
- conduct regular inspection of the drainage areas, and should erosion or excessive turbidity be identified, remedial action will be initiated;
- repair and stabilisation of affected areas;
- earthworks and excavation to deepen and further define the drainage line;
- lining of drainage channel;
- installing breakwaters along the drainage path;
- creation of holding dams, where silt will be settled out of suspension, before being discharged into surrounding drainage lines.

Based on the above, the proposed clearing may be at variance to this Principle. However the Department of Water (DoW, 2007) has advised that as more than 10% of the PDWSA remains uncleared, it has no objection to the granting of the clearing permit. The assessing officer recommends that conditions be placed on any permit to minimise impacts on the quality of surface and underground water.

Methodology

DoW (2007).
Griffin-EMP (2004).
GIS Database:
- Salinity Risk LM 25m - DOLA 00
- Salinity Mapping LM 25m - DOLA 00
- Public Drinking Water Source Areas (PDWSAs) - DOW

(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 within the Wellington Dam Collie River Catchment area (GIS Database). The limited amount of clearing proposed (8 hectares) in comparison with the extent of the catchment area of the Wellington Dam Collie River Catchment (which is approximately 282,910 hectares) (GIS Database), is unlikely to result in incremental increases in peak flood height or flood peak duration.

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

Methodology

GIS Database:
- Hydrographic Catchments - Catchments - DOW.

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

Comments

There is a native title claim over the area under application (WC98_058) (GIS Database). This claim has been registered with the National Native Title Tribunal. 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 (ie. 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 recorded Aboriginal Sites of Significance within the areas proposed to be cleared (GIS Database). A number of heritage surveys have been conducted over and surrounding the areas proposed to be cleared (Griffin, 2007). 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 application area is located within the Wellington Dam Catchment Area, a Public Drinking Water Source Area (PDWSA) (GIS Database), and falls within Zone D under the *Country Areas Water Supply Act 1947* (DoW, 2007). The Department of Water (DoW, 2007) has advised that clearing permits are generally granted in Zone

D, as long as more than 10% of the land in question remains uncleared. Due to the extent of the state forest, the DoW has no objection to the grant of the clearing permit (DoW, 2007).

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

DoW (2007).
Griffin (2007).
GIS Database:
- Aboriginal Sites of Significance - DIA
- Native Title Claims – DLI

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Production	Mechanical Removal	8	The proposal has been assessed against the Clearing Principles, and is considered to be at variance to principles (b) and (c), may be at variance to principles (g), (h), and (i), and not likely to be at variance to principles (a), (d), (e), (f) and (j). It is recommended that conditions be placed on any permit granted to, prevent dieback and weed spread, offset impact on fauna habitat, minimise erosion, and to record areas cleared and to report clearing on an annual basis.

5. References

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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 (updated 2005), Western Australia.

Williams, K. and Mitchell, D. (2001) *Jarrah Forest 1 (JF1 - Northern Jarrah Forest subregion)*, in Bioregional Summary of the 2002 Biodiversity Audit for Western Australia, Department of Conservation and Land Management, Western Australia.

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.