



1. Application details

1.1. Permit application details

Permit application No.: 977/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: MR Benjamin Harry Cox

1.3. Property details

Property: LOT 736 ON PLAN 208434 (House No. 111 COXALL MUNGLINUP 6450)
Local Government Area: Shire Of Ravensthorpe
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
73		Mechanical Removal	Grazing & Pasture

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 Association 47 - Shrublands; tallerack mallee -heath (Hopkins et al., 2001; Shepherd et al., 2001).	The vegetation covered by this application is Mallee and Tallerack shrublands with <i>Nyctasia floribunda</i> and a variety of both understorey and canopy <i>Banksia</i> species throughout. Chittick exists on some of the ridges. Other understorey species such as <i>Xanthorrhoea</i> sp., a variety of species from the <i>Papilionacea</i> family and <i>Adenanthos</i> species as well as <i>Melaleuca</i> and <i>Allocasurina</i> species were present (Doe site visit TRIM ref AD274).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation is in excellent condition with an intact structure and no obvious signs of weed invasion. The only disturbance to the vegetation on site was caused by cattle tracks through some of the area (Doe site visit TRIM ref AD274).

3. Assessment of application against clearing principles

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

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The Southwest Australian Floristic Region (SWAFR) is listed among 25 global biodiversity hotspots-those regions on Earth richest in endemic species under threat (Hopper and Gioia, 2004).</p> <p>Additional to the site existing within the SWAFR, the diversity of the vegetation under application is high in its own right, particularly when compared to the local area (DoE site visit).</p> <p>The original application was at variance to this Principle as the vegetation covered by it is in excellent condition and along with the vegetation bordering the Oldfield River has the highest apparent terrestrial plant diversity in the local area.</p> <p>The negotiated area of 9 hectares is not likely to be at variance to this Principle as over 100 hectares of vegetation will remain on the property. As such the area to be cleared represents a small percentage of the biodiversity present.</p>
Methodology	<p>Site visit (DoE TRIM ref AD274), Hopper and Gioia (2004)</p> <p>GIS Database: -Ravensthorpe 1.4m Orthomosaic - DLI 02</p>

(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

It was suggested in a submission from a conservation group that the proposed clearing will increase fragmentation of this intact bushland area. This fragmentation is likely to alter the edge to area ratio, which is known to impact on the quality and long-term viability of the remaining 'ribbons' of vegetation.

The vegetation is diverse and intact and as such would provide habitat for fauna. This vegetation is likely to be significant due to the cleared nature of the surrounding area. A Kangaroo and many birds were seen during the DoE site visit.

Knowledge of the native fauna in the Oldfield catchment is mostly limited to the more common species. Mammals known to occur on the sandplain include, the Honey Possum, Pygmy Possum, Southern Bush Rat, Common Dunnart, Echidna, Grey Kangaroo and the Western Brush Wallaby and Emu. The Southern Brown Bandicoot has also been recorded in a number of areas (Craig, 1998).

The Oldfield River, only 2.5km away, is an important vegetated corridor linking the coastal strip with the large tracts of natural bushland in the upper reaches of the catchment (Craig, 1998).

Given the above information, it is considered that the original application may be at variance to this Principle. The negotiated area of 9 hectares, is however not likely to be at variance to this Principle as it represents less than 10% of the vegetation on the property.

Methodology Submission from a conservation group (TRIM ref HD26730), site visit (DoE TRIM ref AD274), Craig (1998)
GIS Database:
-Ravensthorpe 1.4m Orthomosaic - DLI 02

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

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

Two occurrences of the Declared Rare Flora (DRF) species *Conostylis lepidospermoides* are listed within 10km (one 4km SW and one 7km SW) of the area under application. The *Conostylis lepidospermoides* is a rhizomatous, tufted perennial, grass-like or herb, 0.17-0.36 m high, which is found on grey or yellow-brown sand over laterite (FloraBase). The sandy soils on the site may provide the correct habitat for this DRF species and other *Conostylis* sp. were seen during the DoE site visit.

Without a flora survey of the area it is not possible to determine if the DRF *Conostylis lepidospermoides* is present. However, the information available suggests it is possible so it is considered that the original application may be at variance to this Principle.

As the negotiated area to be cleared is much smaller than in the original application the chance of the DRF being present is reduced making it not likely to be at variance to this Principle.

Methodology Site visit (DoE TRIM ref AD274), DAWA (2006), FloraBase (2006)
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

The closest Threatened Ecological Community (TEC) is listed to occur 31km west of the site. As the area under application is not listed as a TEC, this proposal is unlikely to be at variance to this Principle.

Methodology 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 likely to be at variance to this Principle

The application is located in the Esperance Sandplains Bioregion within the Shire of Ravensthorpe. The extent of native vegetation remaining in these areas is 52.7% and 59.5% respectively (Shepherd et al., 2001).

The vegetation of the area proposed to be cleared is a component of Beard Association 47 (Hopkins et al., 2001) of which 35% (Shepherd et al., 2001) of the pre-European extent is remaining, and therefore of a 'depleted' status for biodiversity conservation (Department of Natural Resources and Environment, 2002).

Within the Oldfield catchment approximately 20% of the farmland remains as remnant bush (Craig, 1998).

Much of the lower half of the catchment has been cleared for agriculture, but only 35% of the total catchment has been cleared (Brearley, 2005).

On this property which is approximately 850 hectares, almost 150ha are presently covered by native vegetation. If the 73 hectares of vegetation covered by the original application is cleared, then less than 10% of the property will be covered by native vegetation.

Within a 10km radius of the area under application 20-30% is covered by native vegetation.

The proposed clearing is within the EPA's Position Paper No 2 Agricultural Region, within which the Environmental Protection Authority (EPA) do not support any further clearing of native vegetation for agricultural purposes (EPA, 2000).

Given the above information it is considered that the original proposal may be at variance to this Principle.

The negotiated area of 9 hectares is not likely to be at variance to this Principle as over 100 hectares of vegetation will still be present on the property.

Methodology Department of Natural Resources and Environment (2002), Hopkins et al. (2001), Shepherd et al. (2001), JANIS (1997), Craig (1998), Brearley (2005)
GIS Database:
-Ravensthorpe 1.4m Orthomosaic - DLI 02

(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 area cover by the original application lies adjacent to a yate swamp on the southern border of the eastern section. The swamp is just over 50m from the proposed clearing, which is considered a reasonable buffer. However, there may be indirect impacts on the swamp through hydrological changes if the proposed clearing takes place.

The Oldfield River runs 2.5km south west of the area under application and joins with the Munglinup River 8km before reaching the Southern Ocean 26km south.

There are some concerns that the Oldfield river is being degraded through the effects of eutrophication, loss of riparian vegetation and sedimentation as a result of clearing (Craig, 1998).

The Oldfield River is naturally saline, although salinity levels are thought to be elevated through extensive clearing in the catchment (Craig, 1998).

As clearing in the catchment has resulted in some degradation of the Oldfield River in the past, and the area under application is only 2.5km away, it is likely that clearing of 73 hectares of native vegetation on sandy soils will negatively impact the watercourses in this catchment to some degree. As such, it is considered that the original application may be at variance to this Principle.

However, the negotiated area is only 9 hectares and lies over 1km from the yate swamp. It is still 2.5km from the Oldfield River but it is considered that the reduction in the area proposed to be cleared reduces the potential impacts on the watercourse and as such is not likely to be at variance to this Principle.

Methodology Craig (1998)
GIS Database:
-Hydrography, linear - 01/02/04

(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 following advice was provided by the Department of Agriculture Western Australia (DAWA, 2006) through the Commissioner for Soil and Land Conservation:

- The proposed area has a low to moderate rating for Phosphorus export risk, and thus eutrophication.
- The proposed area has a moderate to high risk of wind erosion. The majority of the site has a moderate risk of wind erosion that can be managed using practices that focus on maintaining groundcover above 50%.
- Water erosion risk is associated with variation in slope. 85% of the area has a moderate risk of water erosion with slopes equal or less than 3%. The remainder of the area has slopes of greater than 3% and have a high risk. The water erosion risk can be managed by focusing on maintenance of ground cover.
- The area under application is part of the Munglinup land system. This system was assessed as having a

moderate salinity risk in 2000 and a high risk by 2020 and 2050. A small portion of the area notified to clear has low-lying areas with the potential to develop shallow watertable. The removal of native vegetation is likely to increase recharge to the watertables as the soil types are mainly shallow to deep sandy duplex soils which have highly permeable top soils with high recharge potential. The increase in recharge may contribute (though not significantly when compared to the highly cleared local area) to the currently rising watertable which are causing groundwater discharge and associated salinity to develop on the hillsides and also in the drainage lines.

-In summary DAWA suggested that the proponent prepare a management plan to demonstrate how the vegetation would be cleared and a perennial agricultural system established and maintained on the area. The Commissioner's conclusion was that the original proposed clearing is likely to be at variance with this Principle for salinity, wind erosion and water erosion.

Through a negotiated outcome the area to be cleared is now 9 hectares. As such, the impact of this clearing on land degradation will also be reduced. Additionally, the proponent indicated that the intention is to plant perennial tagasaste plants in the area, which should further reduce the risk of erosion, eutrophication and salinity.

Methodology DAWA (2006)

(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 at variance to this Principle

Within a 10km radius of the area under application there is one CALM managed reserve. It is called East Naernup Nature Reserve and lies 3.3km north east of the site.

The wide buffer of vegetation along the Oldfield River 2.5km south west of the site exists within a number of Crown Reserves. It is not known who or what management exists for these areas.

The vegetation covered by this application is likely to provide a linkage between the river and the CALM Reserve to the north east as the vegetation corridor it is part of has less than 1km separating the remnants.

From a vegetation representation perspective, the benchmark of 15% representation in conservation reserves (JANIS, 1997) has been met for the Beard Vegetation Association 47 (Hopkins et al., 2001) with 54% in reserve (Shepherd et al., 2001).

Given the information above and the cleared nature of the local area, it is likely that the vegetation under the original application contributes to an ecological linkage between reserves and as such may be at variance to this Principle.

The negotiated area allows for a reasonable vegetated corridor in the south western portion of the property that is linked to a significant remnant of over 100 hectares which will contribute to an ecological linkage to the Reserve, as such is not at variance to this Principle.

Methodology JANIS (1997), Hopkins et al. (2001), Shepherd et al. (2001)
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 within a proclaimed, gazetted or declared area under the Rights in Water and Irrigation Act 1914.

The proposed clearing is likely to increase recharge to the watertable as the soil types are mainly shallow to deep sandy duplex soils which have highly permeable top soils with high recharge potential's. The increase in recharge may contribute to the currently rising watertable (DAWA, 2006).

The proposed clearing may also lead to increased eutrophication of the yate swamp near the area under application.

While the impacts of the original proposal are difficult to quantify, it is considered that it may be at variance to this Principle.

The negotiated area of 9 hectares is substantially less than the original application. as such, it is considered that the smaller area is not likely to be at variance to this Principle.

Methodology DAWA (2006)
GIS Databases:
-The Public Drinking Water Source Area (PDWSA)s - DOE 09/08/05
-Hydrography linear - DOE 1/2/04

(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 at variance to this Principle**
Given the low gradient and undulating nature of the landscape (DoE site visit) and the low rainfall in the area (525 - 475 mm per annum (DAWA, 2006)) the proposed clearing will not cause, or exacerbate, the incidence or intensity of flooding.

DAWA (2006) advised that the proposed clearing has no to very low risk of flooding.

Methodology DAWA (2006), site visit (DoE TRIM refAD274)

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

Comments
A submission received from a conservation group outlined that the proposed clearing will increase fragmentation of the intact bushland area. These comments have been considered and included within the assessment.

It should be noted that in 1998 the Oldfield Catchment was declared one of the focus catchments of the South Coast Region, a scheme providing extra assistance to land-holders for fencing and rehabilitation in the catchment through Landcare agencies (Brearley, 2005). A sum of \$114,620 was provided by the National Heritage Trust (NHT) for works to be carried out. While other catchments have also received funding for revegetation and fencing works, the assessing officer advises that this has been considered in the assessment of this application.

Methodology Conservation group submission (TRIM ref HD26730), Brearley (2005)

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Grazing & Pasture	Mechanical Removal	73	Grant 9ha	<p>The original proposal was at variance with Clearing Principles (a) for biodiversity and (g) for land degradation. May be at variance with (b) fauna habitat, (c) significant flora, (e) extensively cleared area, (f) wetlands, (h) conservation areas/connectivity and (i) surface and underground water.</p> <p>On this basis, Departmental Officers negotiated with the applicant to modify the proposal to 9ha of clearing which is considered to be not at variance or not likely to be at variance with the Clearing Principles. The 9ha now in question consists of vegetation which is slightly more disturbed, connectivity can be retained and the wetland has an adequate buffer. The remaining vegetation will be fenced and protected from livestock as a condition of the Permit.</p>

5. References

Brearley, A (2005) Ernest Hodgkin's Swanland, Estuaries and Coastal Lagoons of South-western Australia. National Trust of Australia, WA.

Craig, G. F (1998) Oldfield Catchment 1998: A report prepared for the Oldfield Landcare Group. Natural Heritage Trust.

DAWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref IN25920.

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.

FloraBase (2006) Descriptions by the Western Australian Herbarium, CALM. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Friday, 19 May 2006.

Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.

Hopper, S. D and Gioia, P (2004) The Southwest Australian Floristic Region: evolution and Conservation of a Global Hot spot of Biodiversity. *Annu. Rev. Ecol. Evol. Syst.* 35:623-50.

JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.

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

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.

6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoE)