



1. Application details

1.1. Permit application details

Permit application No.: 6418/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Green Swamp Agriculture Pty Ltd

1.3. Property details

Property: Lot 10 on Deposited Plan 69432, Kununurra
Local Government Authority: Shire of Wyndham East Kimberley

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20.18		Mechanical Removal	Agriculture

1.5. Decision on application

Decision on Permit Application: Refusal
Decision Date: 14 August 2015

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
Mapped Beard vegetation association 59 is described as grasslands, high grass savanna sparse tree; bauhinia and coolabah over mitchell, blue and tall upland grasses (Shepherd et al, 2001).	The clearing of 20.18 hectares of native vegetation within Lot 10 on Deposited Plan 69432, Kununurra for the purpose of agriculture.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The description of the vegetation was determined via aerial imagery and a biological survey undertaken by Kinhill Pty Ltd (2000).
Mapped Beard vegetation association 916 is described as grasslands, high grass savanna woodland; grey box, Eucalyptus confertifolia and E. foelscheana over spinifex, white and tall upland grass on sandy plain on limestone (Shepherd et al, 2001).			

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 at variance to this Principle**
The application is to clear 20.18 hectares of native vegetation within Lot 10 on Deposited Plan 69432, Kununurra for the purpose of agriculture.

A total of six woodland communities were recorded within Lot 10. Five of the woodland communities are Eucalyptus microtheca and Excoecaria parvifolia woodlands which vary in the density of trees and dominance of understorey species, especially grasses. The sixth vegetation community is a Melaleuca nervosa woodland (Kinhill Pty Ltd, 2000).

The amended footprint area will impact upon a discreet soil type 'Aquitaine Clay'. This soil type is poorly represented in conservation estate with a majority of occurrences located within land used for, or proposed for agriculture. This soil type is defined by cracking clay with very hydromorphic attributes. The Department of Parks and Wildlife (Parks and Wildlife, 2015a) has advised that a buffer of vegetation surrounding this soil type is required to maintain its characteristics.

Twenty four priority flora species have been recorded within the local area (20 kilometre radius). Of these the area under application may provide suitable habitat for three Priority 1 flora species, one Priority 2 flora species and one Priority 3 flora species (Parks and Wildlife, 2015b). The first Priority 1 flora species is found on cracking clay, the second Priority 1 flora species is found on black soils and swamps, the third Priority 1 flora species is found within black clay and grassland, the Priority 2 flora species is found on black clay and the Priority 3 flora species is found on sand, sandy clay within swamps or creek beds (Western Australian Herbarium, 1998-). The area under application contains cracking clays/black soil plains and seasonally inundated areas.

During a biological survey undertaken in 1999 the abovementioned Priority 2 and Priority 3 flora species and an additional Priority 1 flora species were recorded within Lot 10 and could potentially occur within the application area (Kinhill Pty Ltd, 2000).

One rare flora species has been recorded within the local area (20 kilometre radius). Given the mapped and observed vegetation type, this species has the potential to occur within the area proposed to be cleared (Parks and Wildlife, 2015b).

Four fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been identified in the local area (20 kilometre radius) being; *Cristilabrum isolatum* (land snail), *Cristilabrum spectaculum* (land snail), *Ordtrachia elegans* (land snail) and *Rhinonictoris aurantia* (Orange Leafnosed-bat) (Parks and Wildlife 2007-). Five Priority 4 fauna species have also been recorded within the local area (20 kilometre radius), being; *Ardeotis australis* (Australian bustard), *Burhinus grallarius* (bush stone-curlew), *Erythrura gouldiae* (gouldian finch), *Heteromunia pectoralis* (pictorella mannikin) and *Phaps histrionica* (flock bronzewing) (Parks and Wildlife 2007-). The bush stone-curlew and Australian bustard were recorded within Lot 10 during a Biological Survey undertaken in 1999 (Kinhill Pty Ltd, 2000).

Although suitable habitat for these fauna species may be located within the area under application, given the extent of comparable habitat within the local and regional area, the vegetation under application is not likely to represent significant fauna habitat.

As the vegetation under application may support rare or priority flora and occurs on a poorly represented soil type in conservation estate, it is likely to contain a high level of biological diversity and is therefore at variance to this principle.

Methodology

References:

- Parks and Wildlife (2007-)
- Parks and Wildlife (2015a)
- Parks and Wildlife (2015b)
- Kinhill Pty Ltd (2000)
- Western Australian Herbarium (1998-)

GIS Databases:

- SAC Bio Datasets - accessed March 2015

(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

Four fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been recorded in the local area (20 kilometre radius) being; *Cristilabrum isolatum* (land snail), *Cristilabrum spectaculum* (land snail), *Ordtrachia elegans* (land snail) and *Rhinonictoris aurantia* (orange leaf nosed-bat) (Parks and Wildlife, 2007-).

The orange leaf nosed bat is restricted to caves and horizontal mine shafts with stable, warm and humid microclimates (Department of the Environment, 2015a). Given this, suitable habitat for this species is unlikely to be located within the area under application.

Five Priority 4 fauna species have been recorded within the local area (20 kilometre radius) being; *Ardeotis australis* (Australian bustard), *Burhinus grallarius* (bush stone-curlew), *Erythrura gouldiae* (gouldian finch), *Heteromunia pectoralis* (pictorella mannikin), *Phaps histrionica* (flock bronzewing) (Parks and Wildlife, 2007-). The bush stone-curlew and Australian bustard were recorded within Lot 10 during a Biological Survey undertaken in 1999 (Kinhill Pty Ltd, 2000).

Bush stone-curlews roost and nest in grassy woodlands of buloke, gum or box with low, sparse grassy or herb understorey. This vegetation type is well represented in the local area.

Australian Bustards are found in tussock grassland, Triodia hummock grassland, grassy woodlands, low shrublands and structurally similar artificial habitats, such as croplands and golf-courses (Department of the Environment, 2015b). This vegetation type is well represented in the local area.

The fauna habitat within the area under application is well represented within the local and regional area. The local area (20 kilometre radius) is highly vegetated with approximately 90 per cent vegetation cover remaining. Given this, the clearing as proposed is not likely to have an impact on significant fauna habitat or the movement of fauna across the landscape.

The clearing as proposed is not likely to be at variance to this principle.

- Methodology** **References:**
- Department of the Environment (2015a)
 - Department of the Environment (2015b)
 - Parks and Wildlife (2007-)
 - Kinhill Pty Ltd (2000)
- GIS Databases:**
- SAC Bio Datasets - accessed March 2015

(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**

One rare flora species has been recorded within the local area (20 kilometre radius). This species is found on dark grey clay, black soils within sites that are waterlogged in summer and inundated after rain (Western Australian Herbarium, 1998-).

A portion of the area under application is mapped as 'Aquitaine clay' which is identified by cracking clays with very hydromorphic attributes, seasonally inundated for long periods. This Land unit is considered highly unsuitable for agricultural use due to its shallow water table and tendency to accumulate gravel and sand from adjoining areas. This soil type is prone to inundation and is characteristically treeless (Parks and Wildlife, 2015a).

The proposed clearing area has been amended to avoid the watercourse and 'Aquitaine clay' soil type. However, a review of the aerial imagery suggests that there may still be a portion of the application area that overlaps with the mapped 'Aquitaine clay' soil type in the northwest (Parks and Wildlife, 2015b). Therefore, the above mentioned rare flora species has the potential to occur within the area proposed to be cleared.

The clearing as proposed may be at variance to this principle.

- Methodology** **References:**
- Parks and Wildlife (2015a)
 - Parks and Wildlife (2015b)
 - Western Australian Herbarium (1998-)
- GIS Databases:**
- SAC Bio Datasets - accessed March 2015

(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**

No threatened ecological communities (TECs) have been recorded within the local area (20 kilometre radius).

Given the above, the vegetation proposed to be cleared is not likely to comprise or be necessary for the maintenance of a TEC and the proposed clearing is not likely to be at variance to this principle.

- Methodology** **GIS Databases:**
- SAC Bio Datasets - accessed March 2015

(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 area under application is located within the Victoria Bonaparte Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 98 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2014).

The area under application is located within the Shire of Wyndham-East Kimberley which retains approximately 98 per cent pre-European vegetation (Government of Western Australia, 2014).

Digital aerial imagery indicates that the local area (20 kilometre radius) surrounding the area under application retains approximately 90 per cent vegetation cover.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

Given the vegetation representations outlined above, the area under application is not likely to be a significant remnant in an extensively cleared area and the clearing as proposed is not likely to be at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DPaW Managed Lands (%)
IBRA Bioregion				
Victoria Bonaparte	1,870,996	1,847,137	98	16
Shire				
Shire of Wyndham-East				
Kimberley	11,189,120	11,016,018	98	13
Beard Vegetation Association within Bioregion				
59	138,636	120,695	87	12
916	82,331	82,287	99	31

Methodology

References:

- Commonwealth of Australia (2001)
- *Government of Western Australia (2014)

GIS Databases:

- NLWRA, Current Extent of Vegetation Remaining

(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 may be at variance to this Principle

Numerous minor watercourses (non-perennial) are located within 20 meters of the area under application. The application area contains 'Aquitaine clay' which is identified by cracking clays with very hydromorphic attributes, seasonally inundated for long periods (Parks and Wildlife, 2015a).

Given the close proximity to the mapped watercourses and as portions of the area under application are subject to regular seasonal inundation through the natural drainage regime, the vegetation under application may contain riparian vegetation.

The clearing as proposed may be at variance to this principle.

Methodology

References:

- Parks and Wildlife (2015a)

GIS Databases:

- Hydrology, linear

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

Comments

Proposal may be at variance to this Principle

Several minor watercourses (non-perennial) are located within 20 meters of the area under application.

A portion of the area under application is mapped as 'Aquitaine clay' which is identified by cracking clays with very hydromorphic attributes, seasonally inundated for long periods. This Land unit is considered highly unsuitable for agricultural use due to its shallow water table and tendency to accumulate gravel and sand from adjoining areas. This soil type is prone to inundation and is characteristically treeless (Parks and Wildlife, 2015a).

Given the soil type present, clearing the vegetation under application may cause water erosion predominantly associated with run off during storm events, particularly during periods when vegetation cover is low (DAFWA, 2005).

The applicant has proposed extending the northern levy, in order to manage surface water runoff from this area (Boshammer, 2015). As detailed information on the construction of this levy has not been provided, the effectiveness of this management action cannot be determined.

Given the soil type present, clearing the vegetation under application is not likely to cause significant wind erosion.

As the application area is subject to regular seasonal inundation through the natural drainage regime, clearing the vegetation under application as proposed may contribute towards land degradation in the form of

exacerbated waterlogging.

Given the above the clearing may be at variance to this principle.

Methodology References:
- Boshammer (2015)
- DAFWA (2005)
- Parks and Wildlife (2015a)

GIS Databases:
- Soils, statewide

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal is not likely to be at variance to this Principle**
Two conservation reserves are located within 10 kilometres of the proposed clearing. Gooming Conservation Park is located approximately three kilometers east of the application area and Ngamoowalem Conservation Park is located approximately three kilometers west of the application area.

The application area is aligned north-south, is approximately 150 metres wide and is adjacent to land that is cleared for agricultural purposes. The land to the west of the application area retains native vegetation for approximately two kilometres. Given this, clearing the vegetation under application is not likely to further impact on the movement of fauna through the landscape.

Given the distance to conservation reserves, clearing the vegetation under application is not likely to increase the spread of weeds into these reserves.

Given the above, the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Databases:
-Parks and Wildlife Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal may be at variance to this Principle**
A portion of the area under application is mapped as 'Aquitaine clay' which is identified by cracking clays with very hydromorphic attributes, seasonally inundated for long periods (Parks and Wildlife, 2015a). This Land unit is considered highly unsuitable for agricultural use due to its shallow water table and tendency to accumulate gravel and sand from adjoining areas. This soil type is prone to long periods of inundation and is characteristically treeless (DAFWA, 2005).

Given the soil type present, clearing the vegetation under application may cause water erosion, predominantly associated with run off during storm events (DAFWA, 2005), and deterioration of surface water quality through increased sedimentation.

The applicant has proposed extending the northern levy, in order to manage surface water runoff from the area (Boshammer, 2015). As detailed information on the construction of this levy has not been provided, the effectiveness of this management action cannot be determined.

Samples from shallow bores within the southern part of Lot 10 recorded salinity levels between 3000 – 7000 milligrams per liter total dissolved solids which is considered to be moderately saline to saline (DAFWA, 2005). Sodium (alkali) hazard of rising groundwater is of possible concern within the local area as the interaction with clays may cause reduced permeability (DAFWA, 2005). Given this and the presence of Aquitaine clay soil types, the application area may cause deterioration in water quality in the form of exacerbated salinity.

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

Methodology References:
- Boshammer (2015)
- DAFWA (2005)

GIS Databases:
- Hydrology, linear
- Groundwater salinity

(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 may be at variance to this Principle

Flood events occur within the Shire of Wyndham-East Kimberley during the wet season, December to March. The northern portion of the area under application is mapped as 'Aquitaine clay' which is identified by cracking clays with very hydromorphic attributes, seasonally inundated for long periods (Parks and Wildlife, 2015a).

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

Methodology References:
- Parks and Wildlife (2015a)

Planning instruments and other relevant matters.

Comments On 4 August 2006 the CEO of the (then) Department of Environment and Conservation (DEC) gave an undertaking to grant a clearing permit for the proposed clearing of 1186 hectares of native vegetation adjacent to the application area for agriculture (CPS 880/1).

An appeal against this undertaking was lodged on the grounds that:

- a condition which ensured the applicant's commitment to retain a further 10 – 15 per cent of native vegetation as wildlife corridors was not included on the permit; and
- a condition which required agreed buffers of vegetation to be retained around the site, to be maintained for conservation, had not been included on the permit.

The Minister for the Environment upheld this appeal requiring that:

- the applicant reduce the application area to 1153 hectares of native vegetation, which would provide adequate landscape and protection buffers as committed to by the applicant; and
- a weed control condition be added to the clearing permit.

In making the determination the Minister noted the applicant's commitment to retain an additional 10 percent to 15 percent of the total Lot. The current application area includes the area that the applicant committed to retain under CPS 880/2 for landscape protection, to protect significant habitat for priority flora and vegetation communities.

The applicant initially applied to clear 23 hectares of native vegetation including an area that contained a watercourse as well as additional area mapped as 'Aquitaine clay', which is poorly represented in conservation estate. The applicant amended the application area to exclude the watercourse and approximately four hectares of the area mapped as 'Aquitaine clay'.

The Department of Agriculture and Food Western Australia (DAFWA, 2005) provided advice for the clearing outlined in CPS 880/1 noting the significant land degradation potential of the identified 'Aquitaine clay' soil type. DAFWA advise that the larger agricultural development (CPS 880/1) may be acceptable given the commitment to retain a native vegetation buffer around the development. The current application (CPS 6418/1) is within the area previously retained for landscape protection.

The Shire of Wyndham-East Kimberley (2015) has advised that Lot 10 is zoned Rural Agriculture 1 under the Town Planning Scheme. At present, no planning application has been received regarding Lot 10. Therefore the Shire is not in a position to support the clearing of native vegetation on the Lot. In general the Shire would consider the zone objective in assessing a proposal on the site and support such uses compatible with agriculture and surrounding uses.

The area under application is located within the Canning- Kimberley Groundwater Area and the Ord Irrigation Surface Water District under the *Rights in Water and Irrigation Act 1914*. A permit to 'interfere with bed and banks of a watercourse' and a 'license to take water' may be required from the Department of Water (DoW).

Methodology References:
- DAFWA (2005)
- Shire of Wyndham-East Kimberley (2015)

4. References

- Boshammer (2015) Advice received in relation to Clearing Permit application CPS 6418/1 Green Swamp Agriculture. Received 28 April 2015. DER Ref: A901059.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DAFWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref IN25334.
- Department of the Environment and Heritage (2005) Australian Threatened Species – Bush stone-curlew (*Burhinus grallarius*). Australia.
- Department of the Environment (2015a). *Rhinonictis aurantia* (Pilbara form) in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: <http://www.environment.gov.au/sprat>.
- Department of the Environment (2015b). Taxon Summary – Australian Bustard. Australia.

Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2014. WA Department of Parks and Wildlife, Perth.

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

Kinhill Pty Ltd (2000) Biological Survey - Green Location, Kununurra. Prepared for Ord River District Co-operative Ltd and Twynam Group DoE TRIM ref: HD25238.

Parks and Wildlife (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed February 2015.

Parks and Wildlife (2015a) Additional advice for Green Swamp Agriculture Clearing Permit CPS 6418/1. Department of Parks and Wildlife. Western Australia. DER Ref: A914229

Parks and Wildlife (2015b) Advice for Green Swamp Agriculture Clearing Permit CPS 6418/1. Department of Parks and Wildlife. Western Australia. DER Ref: A870712

Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth

Shire of Wyndham East Kimberley (2015) Advice for Clearing Permit CPS 6418/1. Western Australia. DER Ref:A865835

Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed February 2015).