



1. Application details

1.1. Permit application details

Permit application No.: 438/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Department of Agriculture WA

1.3. Property details

Property: LOT 203 ON PLAN 27929 (Lot No. 228 DURACK WYNDHAM 6740)
LOT 228 ON PLAN 169265 (Lot No. 228 DURACK WYNDHAM 6740)
Local Government Area: Shire Of Wyndham-East Kimberley
Colloquial name: Frank Wise Institute

1.4. Application

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

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 59: Grasslands, high grass savanna sparse tree; bauhinia & coolabah over Mitchell, blue & tall upland grasses.	Lot 203: Open savanna woodland dominated by Bauhinia cunninghamii and Corymbia confertiflora over grasslands dominated by Sorghum timorense, Themeda triandra and Chrysopogon fallax (DAWA, 2002). Vegetation communities within Lot 203 are comprised of between 10 and 30% weed species (of all species recorded on site) and a large part of the block has been previously cleared and cultivated, and subsequently used as a dump for sugarcane (DAWA, 2002; DoE Site Visit, 2006).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The description of the vegetation under application was obtained from a survey report by staff at the Department of Agriculture WA (2002) (DoE TRIM ref: IN19904) and verified by a site visit on 10 January 2006 (DoE TRIM ref: KND960).
Beard vegetation association 59: Grasslands, high grass savanna sparse tree; bauhinia & coolabah over Mitchell, blue & tall upland grasses.	Lot 228: Very open woodland of Corymbia confertiflora with Bauhinia cunninghamii over Atalaya hemiglaucata and Ehretia saligna, with a grass understorey dominated by Sorghum timorense, Themeda triandra and Chrysopogon fallax. There is a minor blacksoil depression supporting an open shrubland of Terminalia oblongata with some Bauhinia cunninghamii, Melaleuca viridifolia, Acacia farnesiana, over a grass understorey of Ophiuros exaltatus and Dichanthium.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The description of the vegetation under application was obtained from a survey report by staff at the Department of Agriculture WA (2002) (DoE TRIM ref: IN19904) and verified by a site visit on 10 January 2006 (DoE TRIM ref: KND960).

The vegetation within Lot 228 comprises between 15 and 20% weed species (of all species recorded onsite) and there has been some previous grazing disturbance (DAWA, 2002, DoE Site Visit, 2006).

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 vegetation to be cleared in Lot 228 has been previously cleared and used as a sugarcane dump and includes at least 7 weed species. Lot 203 had 5 weed species with some minor disturbance from horses and cattle in the past (DoE Site Visit, 2006; DAWA, 2002). The area is not considered to have a high level of biodiversity (CALM, 2005). The proposed clearing is unlikely to be at variance to this principle.

Methodology DAWA, 2002
DoE Site Visit, 2006
CALM Advice, 2005

(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**

There are five fauna species listed as threatened (Schedule 1) and two Schedule 4 fauna (listed in the Wildlife Conservation Notice, February 2005) and nine Priority listed fauna that have been recorded within a 50km radius of the area proposed for clearing (CALM, 2005).

Rhinonictis aurantius (Orange Leaf-nosed Bat) listed as threatened (Schedule 1) was recorded within 7km of the area. It roosts in caves and is sensitive to human disturbance. Given that the proposal area does not contain caves and has been partly disturbed in the past, it is unlikely that this species would utilise habitats that exist within the proposal area (CALM, 2005).

It is possible that the notified area contains habitat suitable for one or more of the threatened or Priority fauna listed including the following:

- Falco peregrinus (Peregrine Falcon, S4). This species is uncommon and prefers areas with rocky ledges, cliffs, watercourses, open woodland or margins with cleared land;
- Ardeotis australis (Australian Bustard, P4). This species is uncommon and may occur in open or lightly wooded grasslands; and
- Phaps histrionica (Flock Bronzewing, P4). This species is gregarious and occurs in treeless or sparsely wooded grassy plains within reach of open water.

Whilst it is likely that habitats that constitute the proposal area would be utilised by a range of fauna, to some degree, CALM regional advice is that it would not be considered to be 'significant', since the surrounding landscape appears to have been extensively developed or otherwise disturbed (CALM, 2005; DoE Site Visit, 2006).

This proposal is therefore not likely to be at variance to this Principle.

Methodology CALM Advice, 2005
DoE Site Visit, 2006

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

Comments **Proposal may be at variance to this Principle**

No Declared Rare or Threatened Flora have been found within the area proposed for clearing (CALM, 2005).

A total of 76 records of Priority flora have been recorded within a 50 kilometre radius of the proposal area. Of these, 8 records occur within 10 kilometres of the proposal area (CALM, 2005).

One record each of three Priority flora *Desmodium flagellare* (P1), *Goodenia durackiana* (P1) and *Fimbristylis laxigulumis* (P2) have been recorded from within a kilometre of the proposal area (CALM, 2005; DAWA, 2002).

Desmodium flagellare (P1) is a spreading annual herb which grows in cracking clay. *Goodenia durackiana* (P1) is an erect short-lived annual herb which flowers between March and May and grows in black clay associated with grassland (CALM, 2005). The field survey was undertaken in July and November which is not a suitable

time of the year to maximise the chances of finding these species.

Fimbristylis laxiglumis (P2) is a tufted annual grass-like herb which flowers in April and grows in black clay (Florabase, 2005). There is a swampy area within Lot 203 created from artificial drainage run-off and is perennially wet (DoE Site Visit, 2006). A targeted survey of the swampy area was undertaken as part of the field survey and *Fimbristylis laxiglumis* was not found (DAWA, 2002).

The next closest records are one each of *Echinochloa kimberleyensis* (P1) and *Ficus lilliputiana* forma *pilosa* (P4), which occur approximately 7.5 kilometres from the proposal area (CALM, 2005).

Echinochloa kimberleyensis is an annual grass-like herb which occurs in black soils associated with swamps, while *Ficus lilliputiana* forma *pilosa* occurs on sandstone associated with rock crevices by water, escarpments, ledges and outcrops. It is unlikely that either of these species occur within the notified area due to different soil requirements than the clay present within the proposal area (CALM, 2005).

CALM advises that April is suggested as a suitable time of year to confirm the presence of *Goodenia durackiana* and *Fimbristylis laxiglumis* (CALM, 2005).

The applicant will be expected to carry out a targeted pre-clearance survey for the Priority flora *Desmodium flagellare* (P1) and *Goodenia durackiana* (P1) on Lot 203. This will be placed as a condition on the permit.

If Priority species are found during a pre-clearance targeted survey there will be a 100m buffer retained around any plants. If Priority species are found this principle may be at variance, however a condition has been imposed to manage this possible outcome.

Methodology CALM Advice, 2005
DoE Site Visit, 2006
DAWA site survey and report, 2002
GIS database: Declared Rare and Priority Flora List - CALM 13/08/03
Florabase, 2005

(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 records of Threatened Ecological Communities (TEC) within 30km of the proposed clearing and no TEC's were identified during the site survey (CALM, 2005).

The EPA has identified some vegetation community types as important in the context of biodiversity conservation for Ord Stage 2 (EPA, 2000). None of these significant vegetation types were found within the proposal area.

This proposal is not likely to be at variance to this principle.

Methodology EPA Bulletin 998, 2000
CALM, 2005
DAWA site survey and report, 2002
GIS databases:
- Threatened Ecological Communities - CALM 15/07/03
- Environmentally Sensitive Areas - DoE 22/10/04

(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 State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with a current extent below 30% of the pre-European settlement extent (Department of Natural Resources and Environment, 2002).

reserves/CALM-area (ha) *	Pre-European extent (ha) *	Current %*	Remaining Status**	Conservation managed land	% in
IBRA Bioregion - Victoria Bonaparte	1,888,102	1,870,115	~99	Least concern	0
Shire of Wyndham East Kimberley Beard vegetation association		No information available			
- 59	128,603	128,603	~100	Least concern	9.8

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

The vegetation of the site is a component of Beard Vegetation Association 59 (Hopkins et al, 2001), of which there is ~100% of the pre-European extent still remaining (Shepherd et al, 2001). Vegetation complexes within this application are above 30% representation, therefore the vegetation type is of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment, 2002).

Methodology Hopkins et al, 2001
Shepherd et al, 2001
Department of Natural Resources and Environment, 2002
GIS Database: Pre-European Vegetation - DA 01/01

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

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

The area under application is not situated within a wetland or watercourse and is not located within a wetland of ecological significance. However the area is ~300m from an ANCA Wetland (Lake Kununurra) which is listed as an Environmentally Sensitive Area (ESA).

The proposed clearing is approximately 300m from the Ord River at its nearest point, and the Frank Wise Research Institute infrastructure is already located between the river and the area under application (DoE Site visit, 2006; CALM, 2005). No riparian dependent vegetation will be removed or impacted by the proposed clearing and CALM thus advises that this set-back is considered adequate (CALM, 2005).

There is one area of artificial wetland created by irrigation drainage located within Lot 203. This area is heavily infested with introduced *Urochloa mutica* (Para grass) which is highly invasive in wet or seasonally flooded sites (Smith, 2002). It is recommended that this grass be controlled to prevent further infestation in and around the Ord River.

This proposal is not likely to be at variance to this principle.

Methodology CALM Advice, 2005
DoE Site Visit, 2006
Smith, 2002
Department of Environment and Heritage website - Wetlands of National Importance.
GIS database:
- ANCA wetlands - CALM 08/01
- RAMSAR Wetlands - CALM 21/10/02
- Hydrography, linear - DoE 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 Office of the Commissioner of Soil and Land Conservation has provided a report stating that the proposed clearing is not likely to cause appreciable on site or off site land degradation, subject to the implementation of appropriate management strategies including:

- installation of suitable drainage control and disposal measures;
- suitable drop-down structures being provided to any sub-drains; and,
- maintenance of buffer zones between irrigation areas and an existing gully (DAWA, 2005).

There is also an undertaking to ensure no tailwater will leave the block and all water will be recycled (G. Plunkett, pers. com, 2006) and this is expected to minimise potential for offsite erosion.

The proposed clearing is therefore unlikely to be at variance to this principle.

Methodology DAWA Advice, 2005
DoE Site Visit, 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 likely to be at variance to this Principle

One National Park, three Nature Reserves, an arboretum and freehold townsite lots managed by CALM are located within the wider local area. The nearest CALM managed area is Hidden Valley National Park, located approximately 11.4 kilometres south east of the notified area. It appears to be higher in the landscape and sufficiently distanced from the area under application so would appear to be unaffected by this proposal to clear (CALM, 2005).

Lakes' Kununurra and Argyle, are listed both as Nationally Important Wetlands and Ramsar sites, and are

situated approximately 15 kilometres to the south. Although the area under application is within 300 metres of the Ord River, it is sited downstream from the aforementioned Nationally Important Wetlands and Ramsar wetlands.

Notwithstanding the above, the Ord River broadens into the Ord River Floodplain which is listed as Nationally Important Wetland (The Wetlands Policy of the Commonwealth Government of Australia, Environment Australia 1997). The proposed clearing is approximately 300m from the Ord River at its nearest point, and the Frank Wise Research Institute infrastructure is already located between the river and the area under application (DoE Site visit, 2006; CALM, 2005). No riparian dependent vegetation will be removed or impacted by the proposed clearing and CALM thus advises that this set-back is considered adequate (CALM, 2005).

This clearing proposal is unlikely to impact the biodiversity values of the identified Nationally Important Wetlands and Ramsar sites, when considered in the context of episodic weather events that are typical for the region, which are likely to yield a far greater impact on the Ramsar site. This assessment is made in context of; the run-off that occurs because of landscape scale changes in the catchment (of the Dunham River and Parry Creek in particular), the changed water regime affecting the Ord River due to damming, the comparative size of the proposal in a landscape context, the distance of the proposal from the Ramsar site, the degree of nutrient runoff from the existing development of 'Ord Stage One', and the proponent's undertaking that there will be no water discharged from the site (CALM, 2005).

This proposal is not likely to be at variance to this Principle.

Methodology GIS database: CALM Managed Lands and Water - CALM (01/06/04)
CALM, 2005

(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 in a Public Drinking Water Source Area.

Water levels in the groundwater monitoring bores located in the eastern half of Lot 203 are between 8-8.5m below natural surface with a significant hydraulic gradient to the incised channel of the Ord River (Permit Application, 2002). Modelling has predicted that the groundwater in this section of the Ivanhoe Plain is free draining and unlikely to cause a salinity hazard in the future (Kinhill, 2000).

Proposed clearing is not expected to impact on groundwater tables or the quality of surface water if clearing is managed in accordance with advice provided by the CSLC to mitigate the impacts of run-off (DAWA, 2005).

The development of this irrigation proposal presumes full tailwater retention and recycling on site (DoE Site Visit, 2006; EPA, 2001).

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

Methodology GIS database:
- Public Drinking Water Source Areas (PDWSA's) DoE (29/11/04)
- Hydrography, Linear - DoE 01/02/04
Permit Application, 2002
DoE Site Visit, 2006
EPA Bulletin 1016, 2001

(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 mean annual rainfall is ~800mm with seasonal rainfall events that can result in localised flooding. Onsite and offsite drainage will be carefully managed for the proposed irrigation activities to ensure full tailwater recycling (G. Plunkett, pers. comm, 2006). If drainage is managed by best practice standards as stated the proposed clearing is not likely to exacerbate the incidence of flooding and unlikely to be at variance to this principle.

Methodology GIS database: Rainfall, mean annual - BOM 30/09/01
G. Plunkett, pers.comm, 2006

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

Comments
The proposed area for clearing is zoned Rural 1 in the Shire Town Planning Scheme which is congruous with the intended land use after clearing (extensive agriculture and/or horticulture retained at viable plot sizes) (SWEK, 2003).

Environmental Protection Authority Bulletin 970 (2000): Kununurra-Wyndham Area Development Strategy (KWADS) (WAPC) CRN145595. Recommendations from the EPA when assessing the KWADS include the need for irrigated agriculture to be in line with ecologically sustainable development principles. Environmental issues associated with Ord Stage 1, including rising water table, loss of biodiversity of the plains and export of nutrients and other contaminants need to be recognised and plans for their effective management should be incorporated into future irrigated agricultural proposals. The proposed development will incorporate such requirements by employing a more water efficient irrigation system (including tailwater retention on site and level basin irrigation technology), and retaining adjacent native vegetation buffers where possible. These aspects of the proposed development are thus consistent with the KWADS as a local planning guide.

This proposal was initially submitted to the Commissioner for Soil and Land Conservation through the Notice of Intent to Clear process in 2002 (TRIM ref:CRN207016). At this time an Interdepartmental Working Group set up to review incoming proposals suggested it be referred to the EPA due to the size and location of the proposed clearing and due to the possible existence of Priority flora in the proposal area. The EPA did not assess the proposal deeming it manageable under the Part V clearing regulations and it has been resubmitted through the current clearing permit process (TRIM ref: KNI1291). CALM and DAWA were consulted again for their advice through this process and all advice and recommendations incorporated in this assessment. Conditions have been developed to ensure Priority flora are protected.

Two submissions were prepared in response to the NOIC process and submitted to the Commissioner for Soil and Land Conservation. These submissions, while not submitted through this process, have been taken into consideration when assessing this proposal.

The proposed area lies within the Ord River and Tributaries Proclaimed Surface Water Catchment area. The proponent divert water under agreement with the Ord Irrigation Cooperative who have a licence to draw water from the Ord River and any further irrigation would be managed through this licence.

The boundaries of five Aboriginal Sites of Significance intersect the proposed area for clearing. The DoE recommends consulting with local indigenous groups about the impact of the proposed clearing on these registered sites. Aboriginal Site of Significance will need to be managed in accordance with requirements under the Aboriginal Heritage Act, 1972 and with the Department of Indigenous Affairs.

The proposal does not require any other approvals under Part V of the Environmental Protection Act 1986. The area under proposal is within the Ord Irrigation Cooperative's channel supply service area and is thus under the OIC's water licence with the DoE under the Rights in Water and Irrigation Act 1914. The allocation available is adequate for this potential development. The DAWA has indicated they will be installing a tailwater return system to bring them into line with current best practice targets.

Methodology

SWEK Town Planning Scheme No. 7, 2003
 EPA Bulletin 970, 2000
 Wyndham Area Development Strategy (KWADS) (WAPC) CRN145595
 GIS Database:
 ~ Aboriginal Sites of Significance - DIA 28/02/03;
 ~ Register of Heritage Places - DPI 14/7/03

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Horticulture	Mechanical Removal	128	Grant	<p>The assessing officer has assessed the proposal against the clearing principles and recommends this permit be granted with the inclusion of a condition to undertake a targeted search for Priority Flora prior to clearing.</p> <p>The proponent should also undertake to maintain the existing remnant native vegetation wherever possible adjacent to the application to clear (specifically adjacent to Lot 203) to act as a buffer, corridor and habitat for wildlife.</p> <p><i>Urochloa mutica</i> (Para grass) is highly invasive in wet or seasonally flooded sites (Smith, 2002). It is recommended that this grass be controlled to prevent further infestation in and around the Ord River.</p> <p>The proponent should also implement management strategies as suggested by the CSLC that include: installation of suitable drainage control and disposal measures; suitable drop-down structures being provided to any sub-drains; and maintenance of buffer zones between irrigation areas and an existing gully.</p> <p>It is expected that the proponent implement best practice irrigation techniques including high water use efficiency and full tailwater recycling methods. This would bring the development into line with the EPA's recommendations for future irrigation development in the region.</p>

5. References

- CALM Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref IN25182.
- DAWA (2002) Application for Clearing Permit. DoE TRIM ref: IN19904
- DAWA Land degradation assessment report (2005). Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref KNI575.
- Department of Environment (2006) Site Visit. DoE TRIM ref: KND960.
- 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.
- Environmental Protection Authority (2000) Bulletin 970: Kununurra-Wyndham Area Development Strategy.
- Environmental Protection Authority (2000) Bulletin 988 Ord River Irrigation Area Stage 2 (M2 Supply Channel), Kununurra, Part 1 - Biodiversity Implications.
- Environmental Protection Authority (2001) Bulletin 1016 Ord River Irrigation Area Stage 2 (M2 Supply Channel), Kununurra, Part 2 - Management.
- 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.
- 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.
- Smith, N.M. (2002) Weeds of the Wet/Dry Tropics of Australia, A Field Guide, Environment Centre NT

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)