



1. Application details

1.1. Permit application details

Permit application No.: 1830/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Yarra Yarra Catchment management Group (Inc.)

1.3. Property details

Property: LOT 3701 ON PLAN 154910 (BURAKIN 6497)
 LOT 524 ON PLAN 135760 (BURAKIN 6467)
 LOT 229 ON PLAN 132429 (BURAKIN 6467)
 LOT 402 ON PLAN 135217 (BURAKIN 6467)
 LOT 107 ON PLAN 132181 (House No. 9026 RABBIT PROOF FENCE BURAKIN 6467)
 LOT 897 ON PLAN 132181 (BURAKIN 6467)
 LOT 149 ON PLAN 132427 (BURAKIN 6467)
 LOT 263 ON PLAN 229460 (House No. 4033 HOSPITAL BURAKIN 6467)
 LOT 898 ON PLAN 229460 (BURAKIN 6467)
 LOT 2425 ON PLAN 203265 (BURAKIN 6467)
 LOT 2410 ON PLAN 203265 (BURAKIN 6467)
 LOT 380 ON PLAN 135214 (BURAKIN 6467)
 LOT 1394 ON PLAN 229751 (BURAKIN 6467)

Local Government Area: Shire Of Wongan-Ballidu
 Colloquial name:

1.4. Application

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

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: 142 - Medium woodland, York Gum and Salmon Gum; 1024 - Shrublands, mallee and Casuarina thicket (Shepherd et al. 2001)	The Yarra Yarra Catchment Management Group propose the installation of a 20 km long 30 m wide deep drain across thirteen Lots in the Shire of Wongan Ballidu covering 44 ha of native vegetation within an area of 80 ha. The proposed deep drain will connect with a previously installed drainage line to the north which flows into Lake Hillmer. In order to connect the proposed and existing drains a deep drain will be dug across cleared and cropped land.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Description and condition of the vegetation under application was determined from the Site Inspection (2007). As vegetation is either in 'very good' or 'degraded' condition with a predominance of vegetation in 'degraded' condition an overall rating of 'degraded' is reached.
Heddele Vegetation Complex: No information available (Heddele et al. 1980)	Vegetation within the area under application can be described as being in either 'good' or 'degraded' condition.		
	Areas in 'good' condition are only found in a remnant patch of Mallee Woodland		

at the far northern extent of the area under application. This area is however small, approximately 1.3 ha, and heavily salt affected with salt scaring present on the soil surface. Vegetation in this remnant is declining with the death of shrubs and an expanding cover of chenopods in areas along its northern and southern boundaries.

Areas in 'degraded' condition include patches of Mallee-Salmon/York Gum Woodland along Rabbit Proof Fence Road and areas of chenopod herbland. Areas of chenopod herbland have low floristic diversity and are dominated by one or two species. These areas have likely been cleared in the past and since become salt affected, resulting in recolonisation by a depauperate flora suited to the soil conditions. In areas of Mallee-Salmon/York Gum Woodland in the centre of the area under application trees are declining, resulting in an opening of the canopy. This is most likely due to elevated salt levels in the soils. These areas have reduced floristic diversity particularly at the middle and ground storey levels with no germination of either trees or shrubs evident and an expanding ground cover of chenopods.

No introduced weeds were noted in any of the areas under application, however some native chenopod species have become weedy as a result of clearing and vegetation decline.

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

During Site Inspection (2007) the area under application was observed to be in either 'good' or 'degraded' condition with the only area of 'good' condition vegetation being at the northern extent of the area under application covering 1.3 ha. The remainder of the area under application is in 'degraded' condition. The area under application supports Mallee-Salmon/York Gum woodland and chenopod herbland. Soils in all areas are salt affected and vegetation across much of the application site is chenopod regrowth following past clearing and soils have been heavily disturbed by past attempts to drain rising groundwater.

Considering the condition of the land and vegetation within the application area this area is unlikely to support high floristic diversity and represents poor quality habitat for fauna, thus clearing is unlikely to be at variance to this principle.

Methodology

References:

- Site Inspection (2007)

(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

Database searches indicate that eighteen indigenous fauna taxa of significance are recorded within a 50 km radius of the area under application.

During Site Inspection (2007) the area under application was observed to support Mallee-Salmon/York Gum woodland and chenopod herbland in either 'good' or 'degraded' condition, with the majority in 'degraded' condition. Soils in all areas are salt affected and vegetation across much of the application site is chenopod regrowth following past clearing and soils have been heavily disturbed by past attempts to drain rising groundwater. Considering this the area under application is unlikely to be significant habitat for most species of conservation significance.

Considering the area under application is unlikely to provide significant habitat for fauna of conservation significance clearing is unlikely to be at variance to this principle.

Methodology References:

- Site Inspection (2007)
- GIS Databases:
- SAC Bio datasets 12/07/2007

(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

There are twenty one taxa of Declared Rare Flora (DRF), seventeen taxa of Priority 1, thirteen taxa of Priority 2, thirty eight taxa of Priority 3 and eight taxa of Priority 4 mapped within a 50 km radius of the area under application. The closest DRF, *Eremophila vernicosa*, is located 1.3 km north of the northern extent of the application and the nearest priority flora, *Grevillea tenuiloba*, is located 420 m east of the southern extent of the area under application.

During Site Inspection (2007) soils within the area under application were observed to be pale red sandy clays supporting Mallee-Salmon/York Gum woodland and chenopod herbland. Given the vegetation complexes, topography and soil type required by the above listed flora of conservation significance the area under application is considered unsuitable for all of these taxa (Western Australian Herbarium 1998; Brown et al. 1998). In addition the presence of chenopod herbs indicates salty waterlogged conditions making the area under application further unsuitable for these species.

Considering the vegetation complexes, topography and soil type within the area under application are unsuitable for all taxa of conservation significance, clearing is unlikely to be at variance to this principle.

Methodology References:

- Brown et al. (1998)
- Western Australian Herbarium (1998)
- Site Inspection (2007)
- GIS Databases:
- SAC Bio datasets 26/11/2007

(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 at variance to this Principle

No Threatened Ecological Communities are located within a 50 km radius of the area under application. Thus clearing is not considered to be at variance to this principle.

Methodology GIS Databases:

- SAC Bio datasets 12/07/2007

(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 Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia, 2001).

Beard vegetation associations 142 and 1024 have less than the recommended target of 30%, with 26.5% and 9.4% respectively remaining of their pre-1750 extent, and both vegetation associations have low representation within the reserve system, with 1.2% and 0.9% respectively reserved.

Further the extent of pre-1750 vegetation remaining locally in the Shire of Wongan-Ballidu is extremely low, with only 5.2% remaining and within the Wheatbelt bioregion only 15.4% of the pre-1750 vegetation extent remains.

Although Beard vegetation associations 142 and 1024 are below the recommended target for retention of 30% of pre-1750 vegetation extent and the vegetation extent in the Shire of Wongan Ballidu and Wheatbelt bioregion have been severely reduced, the majority of the vegetation under application is in 'degraded' condition with only a small area at the northern extent, covering approximately 1.3 ha, being in 'good' condition with this area declining in condition with evidence of rising groundwater salinity. Areas in 'degraded' condition are also unlikely to be representative of either Beard vegetation associations 142 or 1024 as the majority of areas appear to be chenopod recolonisation following past clearing.

Submission (2007e) concludes that no poorly represented vegetation associations have been identified within the area of drainage or downstream that may potentially be impacted by the proposed clearing and drain installation.

Although the Shire and wider Wheatbelt has been extensively cleared, the area under application is not considered to support vegetation associations that are representative of under represented vegetation associations and no under represented vegetation associations are likely to be negatively impacted by the proposed clearing and drain installation. Given this, clearing and drain installation is unlikely to affect areas deemed to be significant as remnants of native vegetation and thus clearing is not likely to be at variance to this principle.

	Pre-European area (ha)	Current extent (ha)	Remaining % % in managed land	reserves/DEC-
Avon Wheatbelt **	9,517,117	1,468,711	15.4	-
Shire of Wongan-Ballidu *	333,908	17,454	5.2	-
Hedde vegetation complex				
No information available	-	-	-	-
Beard vegetation associations **				
142	711,281	188,532	26.5	1.2
1024	742,968	69,885	9.4	0.9

* (Shepherd et al. 2001)

** (Shepherd, 2006)

Methodology

References:

- Commonwealth of Australia (2001)
 - Shepherd et al. (2001)
 - Shepherd (2006)
 - Submission (2007e)
- ##### GIS Databases:
- Pre-European Vegetation - DA 01/01
 - Hedde Vegetation Complexes - DEP 21/06/95
 - Interim Biogeographic Regionalisation of Australia - EA 18/10/00
 - Dalwallinu Kalannie 1.4m Orthomosaic - DLI00/01
 - Koorda 1.4m Orthomosaic - Landgate03

(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**

The southern 3.7 km of the area under application is proposed to deepen the drainage line of a significant stream. The following 4.7 km of the proposed drainage line runs parallel to this stream and approximately 300 m to the west. The western and northern arms of the area under application are located within the drainage line of a minor non-perennial watercourse. The central area of the area under application is subject to inundation.

Although clearing as proposed will occur within a watercourse the vegetation within these areas of the application site are dominated by chenopod herbland in 'degraded' condition which has resulted from historic clearing and high groundwater levels which have lead to surface salinity (Site Inspection 2007).

Despite the vegetation condition, the proposed clearing occurs within a watercourse, as such clearing may be at variance to this principle.

Methodology

References:

- Site Inspection (2007)
- ##### GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC

- EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04
- EPP, Lakes - DEP 1/12/92

(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 majority of the area under application is located within soils associated with gently undulating plains with broad shallow drainage depressions and a wide range of loamy yellow earths. In the broad shallow drainage depressions loamy duplex soils occur, together with some grey leached earths.

The southern third of the area under application, from the point where the southern arm of the proposed drain crosses Rabbit Proof Fence Road, covers two soil types, these being areas associated with broad flat valleys with small clay pans and salt-lake remnants in some localities, chief soils are hard alkaline yellow soils underlain by acid lateritic clays below depths of from 2 to 4 ft (Northcote et al. 1960-68).

At the far southern tip of the area under application are soils associated with gently undulating to rolling terrain with some ridges and uneven slopes, with the variable presence of lateritic outcroppings, chief soils are hard alkaline yellow mottled soils and hard alkaline red soils, either of which may be dominant locally. Acid lateritic strata are common in this soil type below 4-5 ft (Northcote et al. 1960-68).

During Site Inspection (2007) the entire span of the area under application was observed to support pale red sandy clays with evidence of rising salinity in the form of salt scaring and a dominance of chenopod herbs. DAFWA (2007a) advise the salinity risk would naturally be high within the area under application. During Site Inspection (2007) the majority of land within the area under application was observed to be in 'degraded' condition. Some areas also had ditches and drains already dug in attempts to control rising salinity.

The majority of vegetation within the area under application is in 'degraded' condition being either chenopod herbland or a small patch of Mallee-Salmon/York Gum Woodland. The small patch of Mallee Woodland occupying approximately 1.3 ha at the far northern extent of the application is in 'good' condition (Site Inspection 2007).

DAFWA (2007a) advise that wind erosion risk is low and as the proposed drain will be double levied so the risk of water erosion risk is considered to be low.

Given the area under application already shows obvious signs of salinity impact, the 'degraded' condition of the majority of the vegetation within the application area and the low risk of wind or water erosion clearing is not considered likely to exacerbate land degradation. Thus clearing is not considered likely to be at variance to this principle.

Methodology

References:

- Site Inspection (2007)
 - Northcote et al. (1960-68)
 - DAFWA (2007a)
- GIS Databases:**
- Soils, Statewide - DA 11/99

(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 is not likely to be at variance to this Principle

The nearest conservation area to the site under application is Nature Reserve 33854 (19.5 ha in size) located 2.2 km east from the northern arm of the application site (Submission 2007d). Kirwan Nature Reserve is also 3 km south east of the applications southern extent.

No Land for Wildlife sites or areas covered by Conservation Covenants are affected by clearing of the areas under application (Submission 2007a and Submission 2007b).

The area under application does not support vegetation that is part of an ecologically significant linkage.

During Site Inspection (2007) lands within the area under application were observed to be degraded and heavily affected by salinity. Vegetation within the area under application was mainly in 'degraded' condition with only a small area at the far northern extent, occupying approximately 1.3 ha of the greater 44 ha of vegetated area under application, being in 'good' condition and even this area is declining with evidence of rising salinity.

Given the heavy salinisation within the area under application, the proximity of the nearby Nature Reserves and condition of the vegetation within the area under application, clearing is considered unlikely to increase groundwater levels or salinisation within either the area under application or the nearby Nature Reserves. Considering this clearing is unlikely to impact on the environmental values of nearby conservation areas and is not likely to be at variance to this principle.

Methodology References:
- Submission (2007a)
- Submission (2007b)
- Submission (2007d)
GIS Databases:
- 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 southern 3.7 km of the area under application is proposed to deepen the drainage line of a significant stream. The following 4.7 km of the proposed drainage line runs parallel to this stream and approximately 300 km to the west. The western and northern arms of the area under application are located within the drainage line of a minor non-perennial watercourse. The central portion of the area under application is subject to inundation.

DAFWA (2007a) advise that naturally the area under application is at high risk of salinity and is located in a depression in the landscape in a shallow drainage channel. During Site Inspection (2007) evidence of salinity was observed within all areas of the application site.

DAFWA (2007a) advise that eutrophication risk is low onsite and offsite.

During Site Inspection (2007) the area under application was observed to be in either 'good' or 'degraded' condition with those areas in 'good' condition being Mallee woodland occupying approximately 1.3 ha of the applications total area. The remainder of the area under application is in 'degraded' condition and consists of chenopod herbland that has likely colonised the area following past clearing and small patches of Mallee-Salmon/York Gum Woodland which are salt affected and support an expanding ground cover of chenopods with numerous tree deaths. Given the poor condition of the vegetation clearing is unlikely to cause or exacerbate eutrophication of ground or surface waters or exacerbate rising salinity.

Given that eutrophication risk is low, that the area under application is already heavily affected by rising salinity and that vegetation within the application area is mainly 'degraded' with clearing unlikely to exacerbate groundwater salinity, clearing is considered unlikely to be at variance to this principle.

Methodology References:
- DAFWA (2007a)
GIS Databases:
- EPP, Areas - DEP 06/95
- Groundwater Salinity, Statewide - DOW
- Salinity Risk LM 25m - DOLA 00
- Public Drinking Water Source Areas (PDWSAs) - DOW
- Hydrographic Catchments - Subcatchments - DOW
- Hydrography, linear - DOE 1/2/04
- Hydrography, linear (hierarchy) - DOW
- Isohyets - BOM 09/98
- Evaporation Isopleths - BOM 09/98
- EPP, Lakes - DEP 1/12/92
- EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04

(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 likely to be at variance to this Principle**

DAFWA (2007a) advise that the area under application is low in the landscape and has poor drainage, thus waterlogging and flooding risk would naturally be high onsite and offsite. During Site Inspection (2007) the area under application was observed to have salt scaring across its entire area indicating that the water table is already high within the application site and local area.

During Site Inspection (2007) the area under application was observed to be in either 'good' or 'degraded' condition with those areas in 'good' condition being Mallee woodland occupying approximately 1.3 ha of the applications total area. The remainder of the area under application is in 'degraded' condition and consists of chenopod herbland that has likely colonised the area following past clearing and small patches of Mallee-Salmon/York Gum Woodland which are salt affected and support an expanding ground cover of chenopods with numerous tree deaths. Given the poor condition of the vegetation clearing is unlikely to exacerbate rising groundwaters leading to flooding. Clearing is thus not likely to be at variance to this principle.

Methodology References:

- DAFWA (2007a)
- Site Inspection (2007)

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

Comments

Following clearing and the installation of the deep drain and joining drain to link the area under application with the existing drain to the north, waters will drain northwards. Eight kilometres to the north along the proposed drainage line are areas subject to inundation along with non-perennial lakes that flow into Lake Hillman which is located 18 km to the north of the application site. Further to the north Lake Hillman connects by a major river to Lake De Courcy then in succession to Lake Goorly and Mongers Lake, which flows into the Yarramonger River. The Yarramonger River then flows north for approximately 93 km before turning south and running parallel to the coast where it becomes the Coonderoo River, Moore River North Branch and finally the Moore River. However the area receives 300-350 mm of rainfall annually, is subject to 2400-2600 mm of evaporation annually and Lake Hillman has a large surface area for evaporation. Thus in a usual year evaporation will greatly exceed rainfall and deep drain runoff, so Lake Hillman is unlikely to overflow into the lake and river system to the north, where the drains hypersaline waters would affect saline and freshwater systems in these reaches. Only following a substantial rainfall event greater than that which occurred in 1999 is the lake and river system north of Lake Hillman likely to flow.

Given the area receives 300-350 mm of rainfall annually, is subject to 2400-2600 mm of evaporation annually and Lake Hillman has a large surface area for evaporation, in a usual year evaporation will greatly exceed rainfall and drain runoff from the local area. Thus clearing is unlikely cause or exacerbate flooding in Lake Hillman.

Submission (2007e) conclude that the volume of water entering Lake Hillman should not have any significant effect on the lake. However the salt load that will be generated by the drain will be significant. Lake Hillman although saline, as indicated by bare bed and surrounding samphire vegetation, is not so saline that a crust has formed across the bed. The installation of the deep drain which will increase the flow of saline waters into Lake Hillman may cause rapid degradation of the lake or at least some parts of it. Thus monitoring of the downstream impacts is recommended.

Although a dataset for Acid Sulphate Soils (ASS) is not available for the area under application the proposed drain construction has the potential to disturb Sulphides in the soil profile, which may result in saline acid sulphate soils that could have impacts downstream at and beyond the discharge point of the drain. Water quality (in particular acidification) will require careful monitoring to ensure that there are no significant impacts on the environment.

Submission (2007e) state that the construction of the proposed drain may encourage farmers to connect into it with further deep drains within this catchment. The potential for this is quite high, as the catchment is reasonably large with large areas of flat saline valley floors. The cumulative impact of these farm scale connections and the resultant increase in saline and possibly acid flows into the main drain has not been assessed.

Submission (2007e) strongly recommend that Yarra Yarra Catchment Management Group undertake an Environmental Impact Assessment of the combined drainage proposals of the whole Yarra Yarra Catchment, including expected future farm scale drainage.

DAFWA (2007) advise that the water erosion risk is low as the drain will be double levied and the grade is low.

Four kilometres north of the area under application and 350m east of the existing deep drain that flows into Lake Hillman is approximately 40 ha of Unallocated Crown Land of Beard vegetation type 1024 which contains suitable habitat for the Major Mitchells Cockatoo (*Cacatua leadbeerteri*). An additional 77 ha of Beard vegetation type 1024 surrounds this UCL. Cumulatively the 107 ha of Beard vegetation type 1024 potentially affected by the drain represents approximately 0.1% of this vegetation association (Submission 2007d). Despite this, Submission (2007e) concludes that no conservation estate or other public land with remnant vegetation, fauna and ecological communities and/or poorly represented vegetation associations were identified within the area of drainage or downstream of the drainage works that are potentially at risk of being impacted. Thus the 107 ha of habitat suitable for the Major Mitchells Cockatoo is unlikely to be negatively affected by the proposed clearing and drain installation.

Despite no conservation estate or other public land with remnant vegetation, fauna and ecological communities and/or poorly represented vegetation associations being identified most indigenous mammal species are incapable of crossing the deep drainage channel as it is currently designed and thus the system will represent a physical barrier to local fauna movement.

Notice of Intent to Drain (NOID) licences have been provided by the owners of the land on which the joining drain will be located. This drain will join the northern extent of the area under application with the existing drain to the north (Submission 2007f).

The Shire of Wongan-Ballidu do not object to the proposed installation of the deep drains stating the proposed

drainage system is considered part of regional farming and therefore planning approval is not required (Shire of Wongan-Ballidu 2007).

Notice Of Intent to Drain has been obtained from all property owners on which the proposed deep drain will be installed (DAFWA 2007b).

The area under application falls within the Environmental Protection Authorities Position Statement No. 2 agricultural area. There is a general presumption against clearing within the agricultural area for agricultural purposes.

Methodology

References:

- Shire of Wongan-Ballidu (2007)
- DAFWA (2007a)
- DAFWA (2007b)
- Submission (2007c)
- Submission (2007e)
- Submission (2007f)

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Drainage	Mechanical Removal	80.57	The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing may be at variance to principle (f) and is not or not likely to be at variance to any of the remaining principles.

5. References

- Brown A., Thomson-Dans C. and Marchant N., (1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- Department of Agriculture and Food Western Australia. (2007a). RE: Application for clearing permit CPS 1830/1, Yarra Yarra Catchment Management Group. Perth, Western Australia. TRIM Ref. DOC29093.
- Department of Agriculture and Food Western Australia. (2007b). CPS 1830 Yarra Yarra Catchment Management Group: All Notification Of Intent to Drain responses received by DAFWA. TRIM Ref. DOC31265.
- 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.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). Adapted from: 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- 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.
- Shire of Wongan Ballidu. (2007). RE: Application to clear native vegetation under the Environmental Protection Act 1986. Wongan Hills, Western Australia. TRIM Ref. DOC22724.
- Site Inspection. (2007). Site Inspection Report, Department of Environment and Conservation (DEC). Perth, Western Australia. TRIM Ref. DOC40286.
- Submission. (2007a). RE: Land for Wildlife sites affected by the Yarra Yarra Catchment Management Group deep drain installation. TRIM Ref. DOC30896.
- Submission. (2007b). RE: Conservation Covenant sites affected by the Yarra Yarra Catchment Management Group deep drain installation. TRIM Ref. DOC31024.
- Submission. (2007c). RE: Additional properties affected by saline waters from the proposed deep drain. TRIM Ref. DOC31250.
- Submission. (2007d). Advice from the Avon-Mortlock District Manager regarding impacts of the proposed Yarra Yarra Deep Drain on local areas of conservation significance. TRIM Ref. DOC35915.
- Submission. (2007e). Advice from the Avon-Mortlock District hydrologist regarding the installation of a deep drain on local hydrology and areas of conservation significance. TRIM Ref. DOC41084.
- Submission. (2007f). NOID Licences for properties, Ninghan Location 1874 and Ninghan location 259. TRIM Ref. DOC41026.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 7 November 2007).

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
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 DEC)

