Vegetation and Vascular Flora of Burroloo Well Nature Reserve; Chittering Shire

Greg Keighery
Department of Conservation and Land Management
Wildlife Research Centre, P.O. Box 51, Wanneroo
Western Australia, 6065.

Compiled June 2003

Vegetation and Vascular Flora of Burroloo Well Nature Reserve

Greg Keighery
Department of Conservation and Land Management
Wildlife Research Centre, P.O. Box 51, Wanneroo
Western Australia, 6065.

Introduction

Burroloo Well Nature Reserve (number 42) is a small 11 hectare reserve which is located south of Bindoon on the Great Northern Highway. It was originally gazetted as a reserve for travelers and Stock in 1895.

The location of the reserve and the major features (dams, tracks) are shown on Figure 1A. A transect across the reserve shows it to consist of a central creekline flanked by two hill slopes.

Methods

The reserve was surveyed by foot traverse on 4 June 2001, and the vegetation described. Since many species especially the herbs were not in flower at this period it is estimated that the flora list is 70% complete.

Vegetation

Structural vegetation of the area has been mapped in Figure 1C. Along the north western hillslopes on lateritic brown loam an open low woodland of *Eucalyptus marginata* subsp *thalassica* over low heath is found, labelled J on the map. Despite recovering from past heavy grazing this community has few weeds.
Downslope of the Jarrah near the central track a band of Powder bark and Wandoo (*Eucalyptus accedens*) is found, but this was too small to map.

The majority of the reserve is covered in a medium dense low to tall woodland of *Eucalyptus calophylla* over tall *Xanthorrhoea preissii* shrubland over low dense sedges (*Tetraria octandra* and *Cyathochaeta*

avenacea). This community has been varyingly impacted by weed invasion following grazing (especially SW corner) and hydrological change (creekline).

Currently along the central drainage line there are scattered Marri a stand of Flooded Gum (*Eucalyptus rudis*) over a Tall shrubland of *Acacia saligna* over a low closed sedgeland of *Cyathochaeta avenacea*. This is labelled S on map 1C.

Vascular Flora

Table one lists the vascular flora of Burroloo Well Nature Reserve under the plant communities recorded for the reserve in Figure 1. The records are listed under capital M (*Eucalyptus calophylla* open forest), S (Sedgelands of Cyathochaeta), J (jarrah low woodland), PW/M (Stand of Powderbark wandoo and Marri on the eastern side of the reserve and D records of plants found along tracks or around the dam are listed under these areas of disturbance.

Discussion

There is evidence that considerable hydrological change has occurred along the central creekline since clearing. The CTRC report (DCE, 1983) states on page 67 "Gravelly spoils near the creekline carry a shrub layer which includes white Myrtle and fuschia Grevillea. There are thickets of stinkwood and Wattle in the centre of the Reserve and a dense stand of Swishbush at the southern end." While the north-east side of the creekline retains the Myrtle and fuschia Grevillea the thickets of Stinkwood, Wattle and Swishbush are gone replaced by sedges. Along the sedgeland away from the there are remains of Marri and Xanthorrhoea Stumps and other dead shrubs indicating that considerably more water is entering the reserve from the surrounding cleared land (see Figure 1 B).

Chittering Shire has about 16% remaining remnant vegetation (Angell, 2000) and the area around the reserve has an emerging serious salinity problem (Angell, 2000). However, the reserve is high in the landscape and most of the water is coming from a very small area of cleared land, perhaps exacerbated by a large gravel pit (Figure 1B) and judging from the number of frogs calling along the creek and well the water is still fresh.

Removal of water before it enters the reserve rather than from the well would be the best option or alternatively a small dam on the boundary

feeding to the well via a channel or pipe would also help. Probably use of the water from the well is the worst option since the excess water is impacting the reserve upstream of the well.

A total of at least 306 species of vascular plant taxa have been recorded from within the boundaries of the Nature Reserve (table 1), a very considerable species richness. Of these 73 are naturalised aliens, reflecting the long use of the area, especially as several are common garden plants (Asparagus, Pelargonium and Fig) along the track to the well. The most serious weeds are probably *Sparaxis bulbifera* (Iridaceae), *Watsonia bulbillifera* (Iridaceae) and the annual grasses. There are some very interesting records in the native species:

Schoenus sp nov (Keighery 16049) a winter flowering sedge perhaps ?related to *Schoenus clandestinus* and recorded from near the creekline on the northern section of the reserve. This species does not match other material at PERTH.

Fuschia Grevillea (*Grevillea bipinnatifida*). The population in Burroloo is a very attractive prostrate glaucous leaved form of this species growing in the same area as the *Schoenus*. According to the recent review of *Grevillea* by Olde and Marriott (1995) this form occurs between Bullsbrook and Northam, but normally has smaller leaves and less showy flowers than the Burroloo Well population.

References

Angell, K. (2000) Salinity Survey in the Shire of Chittering. Agriculture Western Australia

Department of Conservation and Environment (1983). Conservation Reserves for Western Australia; The Darling System - System 6. Department of Conservation and Environment.

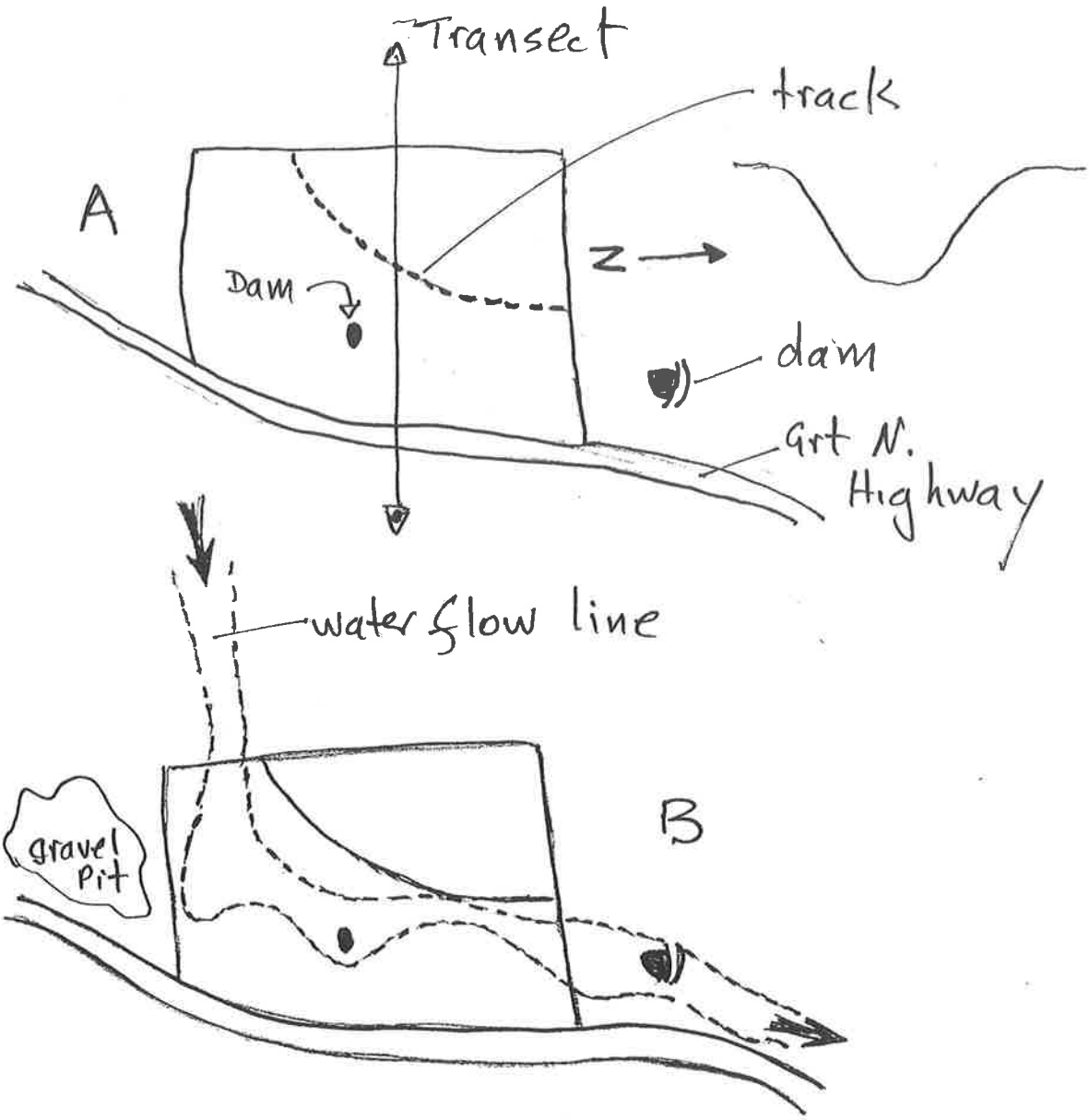
Olde, P and Marriott, N. (1995) The Grevillea Book, Vol. 2. Kangaroo Press, Sydney.

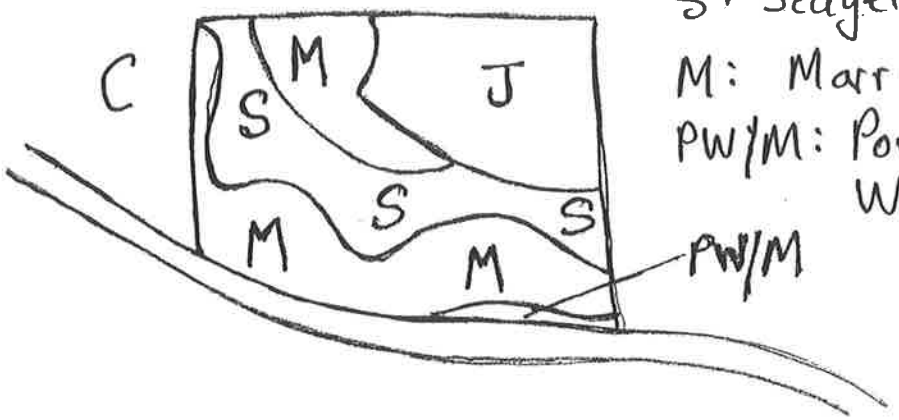
Figure one

1A: Features of Burroloo Well Nature Reserve

1B: Waterflow features of Burroloo Well Nature Reserve

1C: Vegetation map of Burroloo Well Nature Reserve





J: Jarrah
S: Sedgeland
M: Marri
PW/M: Powerbark Wandoo / Marri

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	

TABLE ONE
FLORA OF BURROLOO WELL NATURE RESERVE.

Key

Column 1 **Family group** (listed alphabetically)

Column 2 **Plant Taxa** (species, sub-species and varieties)
(listed alphabetically in family groups which are also listed alphabetically)
* Weed species
ms manuscript name (shown after the name)

Column 3&4 **Vegetation Unit**
Marri = Bushland upland areas dominated by *Eucalyptus calophylla*
Wetland = Bushland wetland areas dominated by dominated by *Sedges*
J = Bushland areas dominated by *Eucalyptus marginata.*
P. Wandoo = Bushland upland areas dominated by *Eucalyptus accedens*
D = Disturbed areas

Family group	Plant Taxon	Vegetation Unit					
		M	Wet	J	P.W ando	D	
Adiantaceae							
	Cheilanthes austro-tenuifolia	•		•	•	•	
Aizoaceae							
*	Carpobrotus edulis					•	
	Macarthuria australis			•			
Amaranthaceae							
	Alternanthera nodiflora		•				
	Ptilotus manglesii	•		•	•		
	Ptilotus polystachyus	•		•			
	Ptilotus drummondii	•					
Anthericaceae							
	Arthropodium capillipes	•	•	•	•		
	Arthropodium preissii		•				
	Borya scirpoidea	•		•	•		
	Caesia micrantha	•		•	•		
	Caesia occidentalis		•				
	Chamaescilla versicolor	•		•	•		
	Corynotheca micrantha	•					
	Laxmannia sessiliflora ssp. australis	•		•	•		
	Sowerbaea laxiflora	•	•	•			
	Thysanotus manglesii	•					

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
	Thysanotus patersonii				•		
	Thysanotus sparteus				•		
	Tricoryne elatior	•		•			
Apiaceae							
	Actinotus leucephalus			•			
	Centella cordifolia		•				
	Daucus glochidiatus	•			•		
	Eryngium pinnatifidum subsp. pinnatifidum	•		•			
*	Foeniculum vulgare					•	
	Homalosciadium homalocarpum	•		•			
	Hydrocotyle diantha		•				
	Platysace compressa				•		
	Trachymene pilosa	•		•	•		
	Xanthosia candida	•		•	•		
Asparagaceae							
*	Asparagus officinalis	•					
Asteraceae							
*	Arctotheca calendula	•		•	•	•	
*	Aster subulatus		•			•	
	Asteridea pulverulenta				•		
*	Carduus pycnocephalus		•				
*	Cirsium vulgare		•			•	
*	Conyza albida		•			•	
	Cotula coronopifolia		•				
*	Cotula turbinata					•	
	Craspedia variabilis			•			
*	Dittrichia graveolens		•				
	Gnaphalium gymnocephalum	•					
	Hyalosperma cotula			•	•		
*	Hypochaeris glabra	•	•	•		•	
	Lagenifera huegelii	•		•			
	Millotia myosotidifolia			•	•		
	Olearia paucidentata	•		•	•		
	Podolepia lessonii			•			
	Podotheca angustifolia			•			
	Quinetia urvillei			•	•		
	Rutidosis multiflora			•			
	Senecio ?hispidulus	•		•			
	Senecio sp			•	•		
	Senecio lautus					•	
	Siloxerus humifusus				•		

Family group	Plant Taxa	Vegetation Unit					
		Mar ri	Wetl and	Ja	P. Wan doo	D	
*	Sonchus asper	•	•			•	
	Sonchus hydrophilus		•				
*	Sonchus oleraceus	•	•			•	
*	Ursinia anthemoides	•		•	•	•	
	Waitzia citrina			•			
	Waitzia suaveolens			•			
*	Vellereophyton dealbatum		•			•	
Brassicaceae							
*	Rhaphanus raphanistrum					•	
Caesalpiniaceae							
	Labichea punctata			•	•		
Campanulaceae							
	Wahlenbergia preissii	•			•		
*	Wahlenbergia capensis	•	•				
Callitrichaceae							
*	Callitriche stagnalis		•				
Caryophyllaceae							
*	Cerastium glomeratum	•	•		•		
*	Petrorhagia velutina	•	•				
*	Silene gallica var. quinquevulnera					•	
*	Spergula arvensis					•	
Casuarinaceae							
	Allocasuarina humilis			•	•		
Centrolepidaceae							
	Aphelia cyperoides			•			
	Centrolepis aristata		•	•			
	Centrolepis drummondiana	•			•		
Chenopodiaceae							
*	Atriplex prostrata		•			•	
Colchicaceae							
	Burchardia multiflora		•				
	Burchardia congesta	•		•	•		
	Wurmbea tenella			•			
Crassulaceae							
*	Crassula alata					•	

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
	Crassula colorata	•		•			
*	Crassula decumbens	•				•	
*	Crassula natans		•			•	
Cyperaceae							
	Baumea juncea		•				
	Baumea rubiginosa		•				
	Chorizandra enodis		•				
	Cyathochaeta avenacea	•	•				
*	Cyperus congestus					•	
*	Cyperus eragrostis					•	
*	Cyperus tenellus			•		•	
	Isolepis cernua			•			
	Isolepis marginata	•		•			
	Isolepis oldfieldiana			•			
*	Isolepis prolifera					•	
	Lepidosperma longitudinale		•				
	Lepidosperma squamatum			•	•		
	Lepidosperma tenue			•	•		
	Mesomelaena graciliceps	•		•			
	Mesomelaena tetragona		•				
	Schoenus clandestinus			•			
	Schoenus sp (GJK 16049)	•					
	Tetraria octandra	•		•	•		
	Trichcostularia neesii			•	•		
Dasypogonaceae							
	Lomandra caespitosa	•		•			
	Lomandra nigricans	•					
	Lomandra sericea			•	•		
	Lomandra suaveolens			•	•		
Dilleniaceae							
	Hibbertia commutata	•		•	•		
	Hibbertia huegelii			•			
	Hibbertia hypericoides			•	•		
	Hibbertia lasiopus			•			
	Hibbertia racemosa				•		
Droseraceae							
	Drosera erythrorhiza	•		•	•		
	Drosera glanduligera			•			
	Drosera macrantha subsp. macrantha	•	•				
	Drosera menziesii	•					

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
	subsp. penicillaris						
	Drosera rostulata	•					
Epacridaceae							
	Astroloma pallidum			•			
	Conostephium preissii			•			
	Leucopogon ?oxycedrus			•			
	Leucopogon propinquus			•			
	Styphelia tenuiflora				•		
Euphorbiaceae							
*	Euphorbia peplus		•				
	Phyllanthus calycinus	•	•	•	•		
Fumariaceae							
*	Fumaria capreolata	•				•	
Gentianaceae							
*	Centaurium erythraea		•			•	
Geraniaceae							
*	Erodium botrys						•
	Geranium solanderi	•					
*	Pelargonium domesticum	•					
Goodeniaceae							
	Dampiera linearis			•			
	Goodenia sp		•				
	Lechenaultia biloba			•	•		
	Scaevola phlebopetala	•		•			
	Verrauxia reinwardtii	•		•			
Haemodoraceae							
	Anigozanthos manglesii			•	•		
	Conostylis aculeata			•			
	Conostylis candicans	•					
	Conostylis setigera				•		
	Haemodorum paniculatum			•	•		
	Haemodorum	•		•			
	Haemodorum spicatum				•		
Haloragaceae							

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
	Gonocarpus cordiger			•	•		
	Haloragis brownii		•			•	
Hypoxidaceae							
	Hypoxis occidentalis	•	•				
Iridaceae							
*	Freesia X refracta					•	
*	Gladiolus caryophyllaceus	•		•			
	Orthrosanthus laxus	•		•	•		
	Patersonia occidentalis			•			
	Patersonia occidentalis (Swamp Form)		•				
*	Moraea flaccida		•			•	
*	Romulea rosea	•		•	•	•	
*	Sparaxis bulbifera	•	•	•		•	
*	Watsonia bulbillifera	•	•			•	
Juncaceae							
*	Juncus bufonius		•				
	Juncus pallidus		•			•	
	Juncus pauciflorus		•				
	Luzula meridionalis	•					
Juncaginaceae							
	Triglochin lineare		•				
Lamiaceae							
*	Stachys arvensis	•				•	
Lauraceae							
	Cassytha racemosa	•			•		
Lobeliaceae							
	Isotoma hypocratiformis	•		•			
	Lobelia alata				•	•	
	Lobelia tenuior		•				
*	Monopsis debilis			•			
Loganiaceae							
	Phyllangium paradoxum		•	•			
Loranthaceae							
	Nuytsia floribunda		•				
Lythraceae							

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
	Lythrum hyssopifolia			•		•	
Mimosaceae							
	Acacia acuminata	•					
	Acacia barbinervis	•			•		
	Acacia extensa		•				
	Acacia huegelii				•		
	Acacia pulchella			•			
	Acacia saligna	•	•			•	
	Acacia stenoptera				•		
	Acacia squamata	•		•			
Moraceae							
*	Ficus carica		•				
Myoporaceae							
	Myoporum capparoides		•				
Myrtaceae							
	Astartea aff. fascicularis		•				
	Baeckea camphorosmae	•		•	•		
	Calothamnus sanguineus			•			
	Calothamnus quadrifidus			•			
	Calytrix angulata		•				
	Eucalyptus accedens			•	•		
	Eucalyptus calophylla	•	•		•	•	
	Eucalyptus marginata subsp. thalassica	•		•			
	Eucalyptus rudis subsp. rudis		•				
	Eucalyptus wandoo			•			
	Hypocalymma angustifolium	•	•				
	Kunzea ericifolia		•				
	Leptospermum erubscens	•		•			
*	Leptospermum laevigatum					•	
	Melaleuca ? incana	•	•	•			
	Melaleuca viminea		•				
	Verticordia densiflora		•	•			
Olacaceae							
	Olax benthamiana				•		
Onagaraceae							
	Epilobium billardierianum			•	•		
	Epilobium hirtigerum				•		

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
Orchidaceae							
	Caladenia sp				•		
	Caladenia flava	•		•			
	Cyrtostylis ??huegelii	•	•		•		
	Cyanicula sp	•					
	Diuris sp			•			
	Eriochilus dilatatus			•			
	Leporella fimbriata			•	•		
	Leptoceras menziesii	•					
	Pyrorchis nigricans	•			•		
	Microtis media subsp. media	•					
*	Monadenia bracteata	•		•			
	Prasophyllum		•	•			
	Pterostylis?nana	•					
	Pterostylis recurva	•		•			
	Pterostylis vittata	•		•			
	Thelymitra sp			•	•		
Orobanchaceae							
	Orobanche sp	•					
Oxalidaceae							
	Oxalis perennans	•			•		
*	Oxalis pes-caprae	•				•	
*	Oxalis purpurea					•	
Papilionaceae							
	Bossiaea eriocarpa			•	•		
	Bossiaea spinescens	•					
	Daviesia decurrens			•	•		
	Daviesia hakeoides	•		•	•		
	Daviesia preissii	•		•			
	Daviesia triflora			•			
	Gompholobium marginatum	•		•	•		
	Hovea trisperma			•			
	Isotropis cuenifolia			•			
	Jacksonia sternbergiana	•		•	•		
	Kennedia prostrata	•		•	•		
*	Lotus angustifolius		•	•	•	•	
*	Lupinus consentinii	•		•		•	
*	Lupinus angustissimus	•				•	
	Nemcia capitata	•		•	•		
	Sphaerolobium	•					
*	Trifolium campestre	•				•	

Family group		Plant Taxa	Vegetation Unit					
			Marri	Wetland	Ja	P. Wandoo	D	
	*	Trifolium dubium	•		•			
	*	Trifolium repens	•				•	•
	*	Vicia sativa subsp. nigra					•	
		Viminaria juncea		•				
Philydraceae								
		Philydrella pygmaea	•					
Phormiaceae								
		Dianella revoluta	•		•	•		
		Stypandra glauca	•		•	•		
Poaceae								
		Agrostis avenacea		•				
	*	Aira cupaniana	•		•		•	
		Amphipogon ??laguroides	•		•			
		Amphipogon turbinatus				•		
	*	Anthoxanthum odoratum		•			•	
	*	Avena barbata	•				•	
	*	Briza maxima	•	•	•		•	
	*	Briza minor		•	•		•	
	*	Bromus diandrus	•				•	
		Danthonia ??occidentalis	•		•			
	*	Digitaria sanguinalis					•	
	*	Ehrharta calycina					•	
	*	Ehrharta longiflora					•	
	*	Eragrostis curvula	•				•	
	*	Lolium rigidum		•			•	
		Microlaena stipoides	•					
		Neurachne alopecuroidea	•		•	•		
		Stipa sp	•		•	•		
	*	Vulpia myuros			•			
Polygalaceae								
		Comesperma sp			•			
Polygonaceae								
	*	Rumex crispus		•			•	
Portulacaceae								
		Calandrinia sp	•					
		Calandrinia corrigioloides				•		
					•			
Primulaceae								

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
*	Anagallis arvensis	•	•	•		•	
Proteaceae							
	Adenanthos meisneri	•		•	•		
	Dryandra lindleyana subsp. lindleyana	•		•	•		
	Dryandra sessilis				•		
	Dryandra squarrosa			•	•		
	Grevillea bipinnatifida	•			•		
	Grevillea pilulifera	•		•	•		
	Grevillea synaphea	•		•	•		
	Grevillea vestita	•			•		
	Hakea lissocarpha	•		•	•		
	Hakea prostrata	•		•	•		
	Hakea undulata			•	•		
	Petrophile striata	•	•				
	Stirlingia latifolia		•				
	Synaphea petiolaris	•		•	•		
Restionaceae							
	Desmocladus asper	•		•	•		
	Desmocladus fasiculatus	•					
	Hypolaena exsulca		•				
	Lepyrodia muirii		•				
Rubiaceae							
*	Galium aparine	•					
	Opercularia vaginata	•		•			
Rutaceae							
	Philotheca spicata	•		•			
Scrophulariaceae							
	Gratiola peruviana		•				
*	Parentucellia latifolia			•	•	•	
Solanaceae							
*	Solanum americanum		•			•	
*	Solanum nigrum		•			•	
Stackhousiaceae							
	Stackhousia pubescens	•		•			
	Trpterococcus brunonis	•		•			
Sterculiaceae							

Family group	Plant Taxa	Vegetation Unit					
		Marri	Wetland	Ja	P. Wandoo	D	
*	Brachychiton populneus	•				•	
	Thomasia sp			•			
Stylidiaceae							
	Levenhookia pusilla			•			
	Levenhookia stipitata			•			
	Stylidium brunonianum			•			
	Stylidium calcaratum			•			
	Stylidium dichotomum	•					
	Stylidium piliferum			•			
	Stylidium repens				•		
Thymeleaceae							
	Pimelea imbricata			•			
Tremandraceae							
	Tetratheca hispidissima			•	•		
Violaceae							
	Hybanthus calycinus	•					
Xanthorrhoeaceae							
	Xanthorrhoea preissii	•	•	•	•	•	
Zamiaceae							
	Macrozamia riedlei	•			•		