

TOOTANELLUP NATURE RESERVE; FLORA AND VEGETATION

GREG KEIGHERY
Science Division
Department of Parks and Wildlife
August 2013

SUMMARY

A total of 376 native taxa and 50 weeds were recorded from Tootanellup Nature Reserve. This included six priority taxa: *Eryngium muirii* (P2), *Amblysperma minor* (*Trichocline* sp Treeton (Bk & NG 564)-P2), *Schoenus natans* (P4), *Tribonanthes* sp Lake Muir (GK & NG 2134) (p3), *Hemigenia microphylla* (P3) and *Ornduffia submersa* (P3).

The reserve contains a series of clay flats and claypans typical of those recorded in the Lake Muir Reserves. A potentially new form of Ferricrete community dominated by *Melaleuca cuticularis* was also recorded.

Introduction

Tootanellup Nature Reserve is located SE of Frankland and approximately 6 km NE of Rocky Gully. The reserve was surveyed over two days in November 2011 with the assistance of Jannine Liddelow of Frankland District as part of the pre controlled burn plans for this reserve and Randall Road Reserve.

Biological Values

Flora

A total of 376 native taxa and 50 weeds were recorded from the reserve (Table 1). This number could be expected to increase with further survey in other seasons. The diversity of soils and wetlands present in the reserve are reflected in the rich diversity of native species recorded. It is expected that we recorded 80% of the expected flora.

This included six priority taxa: *Eryngium muirii* (P2), *Amblysperma minor* (*Trichocline* sp Treeton (Bk & NG 564)-P2), *Schoenus natans* (P4), *Tribonanthes* sp Lake Muir (GK & NG 2134) (p3), *Hemigenia microphylla* (P3) and *Ornduffia submersa* (P3).

Vegetation Descriptions

The Reserve has a diverse array of vegetation communities, with four eucalypt woodlands

1. Jarrah-Marri open woodland on sand

2. Jarrah-Marri forest to woodland on laterite

3. Yate tall open woodland

4. Wandoo woodland

The other major vegetation community are the wetlands. These were combined under Wetland Mosaic; comprising

a: Wet heath dominated by *Melaleuca lateritia*

b: *Melaleuca preissiana* and *Melaleuca raphiophylla* woodlands,

c: heath on clay flats (Over rich dense herbs and sedges) and

d: *Melaleuca cuticularis* low open woodland over wet heath.

e: *Melaleuca cuticularis* low open woodland over *Melaleuca spathulata*/M. spp heath

Vegetation types a, c and d contain clay pan pools with aquatic herbs, grasses and sedges. These communities were sampled using permanently marked 100m² quadrats with the data being held at Frankland District. The flora of the wetland mosaic is similar to that recorded in the Byenup-Muir Reserves (Gibson and Keighery, 2000).

Vegetation type e occurs on massive ironstone, and appears to be an intact example of a community previously recorded in Kululinup Nature Reserve in the Lake Muir Recovery Catchment, however, here the examples were severely affected by sheet flooding and salinity. This ironstone community is probably a new form of ironstone community, most of which are listed as threatened at State and federal level (Three Springs Ferricretes, GinGin Ironstones, Busselton Ironstones, Scott River Ironstones).

There are similar communities north east of Frankland towards Kojonup (Appendix 1) It would be preferable to burn the reserve either when the wetland communities were dry or too damp to carry a hot fire.

References

Gibson, N., and Keighery, G.J. (2000). Flora and Vegetation of the Byenyp – Muir reserve system, south west Western Australia. CALMScience 3: 323-402.

Appendix 1: Kojonup to Frankland Road Quadrat Description

Quadrat FRANK01

2 Km. N. intersection with Homebush entrance, 3.6 km. n. of Boyup Brook to Cranbrook Road, Kojonup to Frankland Road

GPS location (GDA94):

Date Sampled: 19/07/2012

Site description: Poorly drained gently sloping to east wet flat. Black-greyloamy sand over ironstone. Litter 90% cover; 10% bare ground.

Vegetation condition: Excellent-Very Good.

Vegetation Description: *Melaleuca preissiana* low open Woodland, over *Allocasuarina lehmanniana*, *Melaleuca viminea* and *Kunzea recurva* tall shrubland over *Hakea varia*, *Isopogon buxifolius* *Xanthorrhoea?brevistylis* Open Heath, over *Borya scirpoidea* Herbland, and *Anarthria laevis* and *Harperia lateriflora* Very Open Sedgeland.

Taxa in quadrat

Trees: *Melaleuca preissiana*

Shrubs: *Acacia saligna*, *Acacia stenoptera*, *Acacia* sp, *Allocasuarina lehmanniana*, *Astartea* sp Lake Muir., *Hakea sulcata*, *Hakea varia*, *Hibbertia stejllaris*, *Hypocalymma angustifolium*, *Isopogon buxifolius*, *Kunzea recurva*, *Leptomeria pauciflora*, *Melaleuca viminea*, *Viminaria juncea*, *Verticordia densiflora*, *Xanthorrhoea? brevistylis*

Grasses: *Neurachne alopecuroidea*

Herbs: *Arthropodium capillipes*, *Borya scirpoidea*, *Burchardia multiflora*, *Caesia micrantha*, *Chaemascilla versicolor*, *Craspedia variabilis*, *Dampiera alata*, *Drosera tubaestylis*, **Hypochaeris glabra*, *Lagenophora huegelii*, *Patersonia occidentale* var *occidentale*, *Prasophyllum parviflorum*, *Ptilotus manglesii*, **Sonchus oleraceus*, *Stylidium spathulatum*

Sedges: *Anarthria laevis*, *Harperia lateriflora*, *Lepidosperma terete*, *Lepidosperma squamatum*, *Mesomelaena tetragona*, *Schoenus rigens*, *Tetraria capillaris*

Taxa adjacent to quadrat

Trees: *Mellauca cuticularis*, *Eucalyptus occidentalis*, *Banksia littoralis*

Shrubs: *Callitris pyramidalis*

Table 1: Tootanellup Nature Reserve Flora List

Habitat Code: 1: Yate Flats, 2 - Disturbed, 3 – Jarrah Woodlands, 4 –Claypans, 5 – Wetland mosaic, 6 – Wandoo woodlands.

* Naturalised/ Scientific name						
	1	2	3	4	5	6
ADIANTACEAE						
Cheilanthes austrotenuifolia	+					
AMARANTHACEAE						
Amaranthus nodiflora				+		
Ptilotus manglesii			+			
ANTHERICACEAE						
Arthropodium capillipes	+		+			
Arthropodium preissii				+	+	
Borya laciniata						+
Borya scirpoidea						+
Borya sphaerocephala						+
Caesia micrantha			+			
Caesia occidentalis	+				+	
Chamaescilla corymbosa var corymbosa	+		+			
Chamaescilla spiralis						+
Johnsonia lupulina			+			
Laxmannia minor	+					+
Agrostocrinum hirsutum			+			
Sowerbaea laxiflora	+		+			+
Thysanotus manglesianus			+			+
Thysanotus patersonii						+
Thysanotus tenellus					+	+
Tricoryne elatior					+	
Tricoryne humilis			+		+	
APIACEAE						
Centella cordifolia					+	
Daucus glochidiatus	+					+
Homalosciadium homalocarpum			+			+
Hydrocotyle alata					+	+
Hydrocotyle pilifera					+	+
Hydrocotyle diantha			+		+	
Eryngium muirii ms				+		
Eryngium pinnatifidum subsp. minor ms				+		+
Schoenolaena tenuior				+		

Trachymene pilosa			+			
Xanthosia candida			+			+
Xanthosia huegelii			+			
ASPHODELEACEAE						
Bulbine semibarbata					+	
Asteraceae						
Amblysperma minor				+		
* Arctotheca calendula	+	+	+			
Angianthus preissianus	+					+
Asteridea nivea						+
Blennospora drummondii					+	+
Brachyscome pusilla/iberidifolia		+				
* Carduus pycnocephalus		+				
* Conyza sumatrensis		+		+		
* Cotula bipinnata		+			+	
Cotula coronopifolia		+		+		
* Cotula turbinata		+				
* Dittrichia graveolens		+				+
Gnephosis tenuissima						+
Euchiton gymnocephalus					+	
Euchiton collinus						+
Hyalosperma simplex				+	+	
* Hypochaeris glabra	+	+	+		+	+
Lagenifera huegelii	+		+			
Millotia tenuifolia			+			+
Olearia paucidentata			+			
Podolepis gracilis				+		
Podotheca angustifolia			+			
* Helichrysum luteo-album		+	+			
Quinetia urvillei						+
Rhodanthe citrina			+			
Rhodanthe pyrethrum				+		
Siloxerus humifusus					+	
Siloxerus multiflorus					+	+
* Sonchus oleraceus		+	+			+
* Vellereophyton dealbatum		+				+
BRASSICACEAE						
Lepidium rotundum						+
CAMPANULACEAE						
Wahlenbergia multicaulis						+
Wahlenbergia preissii			+		+	
CARYOPHYLLACEAE		+	+			
* Cerastium glomeratum		+	+		+	+
* Petrorhagia velutina		+				

* <i>Spergula rubra</i>					+	
CASUARINACEAE						
<i>Allocasuarina huegeliana</i>						+
<i>Allocasuarina humilis</i>			+			+
<i>Allocasuarina lehmanniana</i>						+
CENTROLEPIDACEAE						
<i>Aphelia cyperoides</i>	+			+	+	+
<i>Brizula drummondii</i>	+			+	+	
<i>Brizula nutans</i>				+		
<i>Centrolepis aristata</i>	+		+		+	+
<i>Centrolepis drummondii</i>			+			
<i>Centrolepis glabra</i>				+		
<i>Centrolepis pilosa</i>			+			+
<i>Centrolepis polygyna</i>				+		
COLCHICACEAE						
<i>Burchardia congesta</i>			+			+
<i>Burchardia monantha</i>					+	
<i>Burchardia multiflora</i>					+	
<i>Wurmbea dioica</i> subsp. <i>Claypan</i> (GK)				+		
CHENOPODIACEAE						
* <i>Atriplex prostrata</i>		+				
CRASSULACEAE						
<i>Crassula colorata</i> var. <i>colorata</i>			+		+	+
<i>Crassula exserta</i>						+
* <i>Crassula natans</i> subsp. <i>minus</i>				+		
<i>Crassula pedicellosa</i>	+				+	
<i>Crassula peduncularis</i>						+
CUPRESSACEAE						
<i>Callitris pyramidalis</i>					+	
CUSCUTACEAE						
* <i>Cuscuta epithymum</i>						+
CYPERACEAE				+	+	
<i>Baumea juncea</i>				+		
<i>Baumea rubiginosa</i>				+		+
<i>Chorizandra enodis</i>				+		+
<i>Cyathochaeta avenacea</i>					+	+
* <i>Cyperus tenellus</i>			+	+		
<i>Gahnia ancistrophylla</i>						+
<i>Gahnia trifida</i>					+	
<i>Isolepis cernua</i> var. <i>setiformis</i>						+
<i>Isolepis cernua</i> var. <i>cernua</i>				+		

Isolepis fluitans				+		
* Isolepis marginata			+			+
Isolepis ?producta				+		
Lepidosperma angustatum			+			+
Lepidosperma longitudinale	+				+	
Lepidosperma ?tenue	+		+			
Lepidosperma sp 1					+	
Lepidosperma sp 2					+	
Mesomelaena stygia			+			
Mesomelaena tetragona					+	
Schoenus bifidus				+		+
Schoenus natans				+		
Schoenus elegans				+	+	
Schoenus plumosus						+
Schoenus subflavus			+			
Schoenus tenellus				+		
Schoenus subbulbosus			+			+
Schoenus sp.				+		
Tetraria capillaris						+
Tetraria octandra			+			+
DASYPOGONACEAE						
Chamexeros serra						+
Dasypogon bromeliifolius			+		+	
Lomandra caespitosa	+		+		+	
Lomandra collina			+			
Lomandra micrantha			+			+
Lomandra nigricans			+			
Lomandra purpurea			+		+	+
Lomandra sonderi			+			
Lomandra suaaveolens			+			+
DILLENACEAE						
Hibbertia ?commutata			+		+	
Hibbertia cunninghamii			+		+	
Hibbertia racemosa			+		+	
Hibbertia stellaris					+	
Hibbertia subvaginata			+		+	
DROSERACEAE						
Drosera erythrorhiza	+		+		+	+
Drosera gigantea						+
Drosera glanduligera				+	+	+
Drosera macrantha			+			+
Drosera menziesii subsp. menziesii					+	+
Drosera rostulata					+	+
EPACRIDACEAE						
Andersonia caerulea			+		+	

Astroloma baxteri						+
Astroloma ciliatum						+
Astroloma pallidum			+			
Leucopogon australis			+			
Leucopogon capitellatus			+		+	
Leucopogon conostephioides			+		+	
Leucopogon parviflorus			+		+	
Leucopogon ?pendulus			+			
Lysinema pentapetalum			+			
Leucopogon verticillatus			+			
Sphentoma capitatum					+	
EUPHORBIACEAE						
Poranthera microphylla			+		+	
GENTIANACEAE						
* Centaurium erythraea		+				
* Cicendea filiformis				+		
GERANIACEAE						
Geranium solanderi			+			
GOODENIACEAE						
Anthotium humile				+		
Dampiera alata					+	
Dampiera linearis			+		+	
Dampiera teres			+			+
Goodenia caerulea			+			+
Goodenia mimuloides				+		
Goodenia micrantha				+	+	
Goodenia pulchella						+
Lechenaultia formosa						+
Scaevola phlebopetala			+			
Velleia trinervis				+	+	+
HAEMODORACEAE						
Anigozanthos bicolor						+
Conostylis aculeata			+			
Conostylis laxiflora			+		+	+
Conostylis setigera						+
Haemodorum laxum			+		+	
Haemodorum simplex				+		
Haemodorum sparsiflorum				+	+	
Tribonanthes longipetala						+
Tribonanthes australis				+		
Tribonanthes sp. Lake Muir				+		
HALORAGACEAE						
Glischrocaryon aureum			+			

HYDATELLACEAE						
Trithuria bibracteata				+		
Trithuria submersa				+		
HYPOXIDACEAE						
Hypoxis occidentalis						+
IRIDACEAE						
Patersonia juncea						+
Patersonia occidentalis			+			
* Romulea rosea var rosea		+				+
* Romulea rosea var australis		+		+		+
ISOETACEAE						
Isoetes drummondii				+		
JUNCACEAE						
* Juncus articulatus		+			+	
* Juncus bufonius					+	+
* Juncus capitatus			+		+	+
Juncus radula				+		
Juncus pallida					+	
Luzula meridionalis			+			
JUNCAGINACEAE						
Triglochin lineare				+		
Triglochin nana			+			
LAMIACEAE						
Hemigenia microphylla					+	
* Mentha pulegium		+				
LAURACEAE						
Cassytha racemosa			+		+	+
LENTIBULARIACEAE						
Polypompholyx multifida	+			+	+	
Polypomphylx tenella	+			+	+	
Utricularia menziesii				+		
LINDSAEACEAE						
Lindsaea linearis	+		+			
LOBELIACEAE						
Lobelia gibbosa			+			
* Monopsis simplex					+	
LOGANIACEAE						

Logania campanulata			+			
Logania serpyllifolia				+		
Phyllangium paradoxum	+			+		+
LORANTHACEAE						
Ameyema miquelii	+					
Nuytsia floribunda			+			
LYTHRACEAE						
* Lythrum hyssopifolium		+		+		
MALVACEAE						
			+		+	
MENYANTHACEAE						
Ornduffia albiflora				+		
Ornduffia submersa				+		
MIMOSACEAE						
Acacia alata			+			+
Acacia cyclops		+				
Acacia extensa					+	
Acacia huegelii			+			
Acacia incurva	+				+	+
Acacia nervosa	+		+		+	+
Acacia pulchella var glaberrima	+				+	+
Acacia saligna	+				+	
Acacia stenoptera			+			+
MYRTACEAE						
Actinodium cunninghamii					+	
Astartea pink weeping				+	+	
Astartea small white					+	
Calothamnus lateralis					+	
Calothamnus sangiuneus			+			+
Calothamnus schaueri					+	+
Calytrix flavescens			+			
Darwinia vestita						+
Eucalyptus calophylla			+			
Eucalyptus decipiens					+	
Eucalyptus occidentalis	+				+	
Eucalyptus rudis					+	
Eucalyptus wandoo						+
Eucalyptus marginata subsp. marginata			+			
Hypocalymma angustifolium					+	+
Kunzea micrantha					+	+
Kunzea ?recurva					+	
Melaleuca cuticularis				+	+	
Melaleuca carrii				+		

Melaleuca lateritia				+	+	
Melaleuca lateriflora subsp. lateriflora					+	
Melaleuca raphiophylla				+	+	
Melaleuca leptoclada				+	+	
Melaleuca seriata				+	+	
Melaleuca spathulata				+	+	
Melaleuca thymoides			+			
Melaleuca viminea				+	+	
Pericalymma ellipticum				+	+	
Taxandria juniperina	+				+	
Verticordia densiflora			+			+
Verticordia plumosa					+	
OLACACEAE						
Olax benthamiana			+			
ONAGRACEAE						
Epilobium billarierianum					+	
Orchidaceae						
Caladenia flava	+		+			+
Caladenia latifolia			+			
Caladenia longicauda	+		+			+
Caladenia nana subsp. nana						+
Caladenia reptans						+
Caladenia marginata	+					+
Cyanicula gemmata						+
Cryptostylis robusta					+	
Diuris corymbosa			+			+
Diuris laxiflora	+					
Elythranthera brunonis	+		+		+	+
Elythranthera emarginata	+				+	+
Eriochilus dilatatus			+		+	
Leptoceras menziesii			+			
Leporella fimbriata			+		+	
Lyperanthus serratus			+			
Microtis atrata				+		
Microtis media			+		+	+
Microtis orbifolia				+		
* Monadenia bracteata					+	+
Prasophyllum sp					+	
Prasophyllum fimbria						+
Prasophyllum parvifolium			+			
Pterostylis aff. nana	+				+	+
Pterostylis barbata	+					
Pterostylis recurva			+		+	+
Pterostylis vittata			+		+	+
Pyrorchis nigricans					+	
Thelymitra crinita			+			+

Thelymitra flexuosa			+			+
Thelymitra vulgaris	+				+	
Orobanchaceae						
* Orobanche minor					+	+
Papilionaceae						
Bossiaea eriocarpa			+			
Bossiaea linophylla			+			+
Bossiaea ornata			+			+
Bossiaea praetissima					+	
Chorizema ?aciculare						+
Daviesia cordata						+
Daviesia incrassata						
Daviesia preissii					+	+
Eutaxia virgata					+	
Gastrolobium ?melanopetalum					+	
Gastrolobium praemorsum						+
Gompholobium capitatum			+			
Gompholobium knightianum			+			+
Gompholobium marginatum			+			+
Gompholobium polymorphum					+	
Gompholobium ovatum			+			
Gompholobium preissii	+		+		+	+
Gompholobium scabrum					+	
Gompholobium tomentosum			+			
Hovea chorizemifolia			+			+
Hovea trisperma subsp. trisperma			+			
Isotropis cuneifolia			+			+
Kennedia coccinea						
Kennedia prostrata			+			
* Lotus angustissimus	+	+			+	
* Lotus suaveolens		+			+	
* Ornithopus compressus		+			+	
* Ornithopus sativus		+				+
Pultenaea ericifolia						+
Pultenaea reticulata					+	
Sphaerolobium medium			+			
* Trifolium campestre						+
* Trifolium dubium		+		+		
Viminaria juncea				+	+	
Philydraceae						
Philydrella pygmaea						+
Phormiaceae						
Dianella brevicaulis					+	+
Dianella revoluta var. revoluta			+		+	+
Stypandra glauca						+

Pittosporaceae						
Billardiera fusiformis			+			+
Marianthus candidus			+			+
Marianthus tenuis			+			
Pronaya fraseri						+
Poaceae						
* Aira cupaniana		+		+	+	+
Amphipogon debilis			+			
Amphipogon turbinatus					+	
Rytidosperma occidentalis			+			+
Rytidosperma setacea						+
Austrostipa compressa			+			+
Austrostipa pycnostachya			+		+	+
Austrostipa teretifolia				+		
* Briza maxima		+			+	
* Briza minor		+	+			+
Deyeuxia quadriseta					+	+
Dichelachne crinita			+		+	
* Holcus lanatus		+			+	
Lachnagrostis filiformis				+	+	
* Lolium rigidum		+				+
Microlaena stipoides			+			
Neurachne alopecuroidea	+		+			+
* Poa annua			+			+
Poa drummondiana		+			+	
Tetrarrhena laevis						+
* Vulpia myuros			+		+	
		+				+
Polygalaceae						
Comesperma calymega			+			
Comesperma ciliatum						+
Comesperma flavum					+	
Comesperma virgatum			+			
Polygonaceae						
* Acetosella vulgaris		+				
* Rumex conglomeratus		+			+	
Muehlenbeckia adpressa			+			
Primulaceae						
* Anagallis arvensis var. arvensis		+				
* Anagallis arvensis var. caerulea		+				+
Samolus junceus				+		
Proteaceae						
Banksia grandis			+			
Banksia littoralis					+	

Conospermum capitatum			+		+	
Dryandra armata						+
Dryandra bipinnatifida			+			
Dryandra lindleyana			+			+
Grevillea brownii					+	
Hakea lissocarpa			+			+
Hakea prostrata			+			+
Hakea ruscifolia			+		+	+
Hakea sulcata			+		+	
Hakea varia				+	+	
Persoonia longifolia			+			
Petrophile media			+			
Petrophile squamata						+
Petrophile serruriae						+
Synaphea floribunda			+			
Synaphea gracillima						+
Synaphea petiolaris			+			+
Ranunculaceae						
Clematis pubescens	+					+
Restionaceae						
Anarthria laevis					+	
Anarthria prolifera					+	
Desmocladius fasciculatus			+		+	+
Harperia lateriflora						
Hypolaena exsulca			+			
Leptocarpus tenax						
Lepyrodia muirii				+	+	
Loxocarya cinerea			+			
Lyginia barbata			+			
Meeboldina canus				+		
Meeboldina co-angustata				+		
Meeboldina scariosa				+		
Tremulina tremula				+		
Rubiaceae						
* Galium murale						+
Opercularia apiciflora			+		+	
Opercularia hispidula			+			
Opercularia vaginata	+		+		+	+
Rutaceae						
Boronia ramosa subsp. anethifolia					+	
Boronia spathulata						+
Santalaceae						
Leptomeria cunninghamii	+				+	
Santalum acuminatum						+

Scrophulariaceae						
Gratiola pubescens				+		
* Parentucellia latifolia						+
* Parentucellia viscosa						+
Selaginellaceae						
Selaginella gracillima					+	
Solanaceae						
* Solanum nigrum		+			+	
Stackhousiaceae						
Stackhousia pubescens			+			+
Tripterococcus brunonis					+	
Stylidiaceae						
Levenhookia pusilla			+		+	+
Levenhookia stipitata			+		+	
Stylidium assimile					+	+
Stylidium brunonianum						+
Stylidium androsaceum		+			+	+
Stylidium carnosum						+
Stylidium crassifolium					+	
Stylidium ecorne					+	
Stylidium emarginatum				+		
Stylidium guttatum					+	
Stylidium innundatum					+	
Stylidium lepidium					+	
Stylidium perpusillum						
Stylidium petiolare				+		+
Stylidium pulchellum					+	
Stylidium repens var. repens			+			
Stylidium schoenoides			+			
Stylidium spathulatum					+	+
Thymelaeaceae						
Pimelea angustifolia					+	
Pimelea ciliatum			+			
Pimelea suaveolens subsp. suaveolens			+			+
Tremandraceae						
Platytheca galioides					+	
Tetratheca setigera			+		+	
Violaceae						
Hybanthus floribundus subsp. floribundus			+			+
Xanthorrhoeaceae						

Xanthorrhoea gracilis					+	+
Xanthorrhoea preissii			+			+
Zamiaceae						
Macrozamia fraseri			+			+