

FLORA AND VEGETATION SURVEY OF 456 RAPIDS RD, SERPENTINE

Prepared for

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20th November 2012

Introduction

The purpose of this survey was to undertake an assessment of the flora and vegetation values of 456 Rapids Rd, Serpentine. Field surveys were undertaken on the 16th November, 2011, the 28th September, 2012 and 18th November, 2012 by Ben Croxford.

Vegetation Survey

The entire property has been continuously grazed for many years and thus the majority of the property is pasture however several stands of remnant trees still occur in places and several different vegetation associations were identified. Approximate boundaries of these associations are shown in Figure 1. For each association the vegetation structure was described using classifications as described by Keighery (1994) and a list of associated species was also recorded. The condition of vegetation was classified using the scale adapted from Trudgen, (1991) as described by Keighery (1994) and reproduced in Table 1.

Vegetation Association 1

This association occurred on a sandy rise on the eastern side of the driveway and house and consists of a closed forest of *Eucalyptus marginata*, *Xylomelum occidentale*, *Allocasurina fraseriana*, *Banksia illicifolia*, *Banksia attenuata* and *Banksia menziesii* over a closed grassland / herbland of weeds and pasture species (see fig 2). On the eastern edge are also *Corymbia callophylla* and on the western edge heading off the rise are *Nuytsia floribunda* and *Kunzea glaberescens*. *Adenanthos cygnorum* also occurs on the northwest edge of this

association near the house. There are some *Eucalyptus gomphocephala* and other exotic trees and shrubs alongside the driveway which have apparently been planted. Few native understorey species remain and most of these occurred on the western edge adjacent to the wetland. All understorey have been heavily grazed however a few native perennial herbs and some sedges and rushes (see flora list) were present in low numbers. Several large trees were observed in this area (see fig 3). Vegetation condition is considered good, (see table 1) with obvious disturbance to understorey caused by grazing.

Vegetation Association 2

This association occurs in the low area to the southwest of the house and west of vegetation association 1 and is dominated by a closed heath of *Astartea* sp. with occasional emergent *Corymbia callophylla*, *Melaleuca preissiana* and *Kunzea glabrescens* over a mixed grassland / hermland dominated by weeds and pasture species and numerous native species (see flora list and figs. 4 and 5). A detailed search was made of this area and an attempt was made to locate and identify all species present and it is believed that most have been found however the thicket type vegetation which dominates this area meant that it was difficult to see everywhere. 2 Acacia seedlings from a species within the “*Acacia pulchella*” group of species were located in this area which may be consistent with the priority listed species *Acacia lasiocarpa* var. *bracteolata* “long peduncle variant” See table 3 for GPS locations and Fig 1 for approx. location on map. These plants were small, apparently less than 1 year old and had not yet flowered. Vegetation condition is considered very good, although not obvious in these surveys it is likely that there is disturbance affecting individual species due to selective grazing by sheep such that the structure has probably been altered. There is also a significant presence of weeds in parts but overall the native vegetation cover is very high.

Vegetation Association 3

To the west of vegetation association 2 are some small patches of closed forest of *Corymbia callophylla* with occasional *Nuytsia floribunda* and *Allocasurina fraseriana* over grassland / hermland of weeds and pasture species. Occasional *Jacksonia sternbergiana* were observed but nearly all native understorey was absent with the exception of a few native monocots on the south boundary. Vegetation condition is degraded with severe impact from grazing and probably previous clearing (Fig 6).

Vegetation Association 4

West of vegetation association 3 and extending to the western boundary is an area of *Corymbia callophylla*, *Allocasurina fraseriana* open woodland with occasional *Banksia ilicifolia*, *B. menziesii* and *Eucalyptus marginata* over the occasional *Regelia ciliata* and *Jacksonia sternbergiana* over grassland / hermland of weeds and pasture species with some

remnant monocots persisting, especially on the eastern edge. Vegetation condition is completely degraded with severe impact from grazing and probably previous clearing (Fig 7).

Vegetation Association 5

Approximately halfway along the western boundary is another lower lying area consisting of *Corymbia callophylla*, *Melaleuca preisiana* woodland over grassland / herbland of weeds and pasture species. Occasional shrubs in this vegetation type included *Regelia ciliata*, *Jacksonia sternbergiana* and *Jacksonia furcellata*. This vegetation type is considered degraded but approaches good in small areas around some trees (Fig 8).

A small area on the northern edge (Vegetation type 5A on Fig1) consist of a closed sedgeland of *Lepidosperma longitudinale*, and although a very small area is in excellent condition. 15 *Acacias* consistent with the priority listed species *Acacia lasiocarpa* var. *bracteolata* “long peduncle variant” were present in this area. The plants were clumped into 2 groups containing 5 and 10 plants each (see table 2 for GPS locations and Figure 1 for approximate location).

Vegetation Association 6

To the east of vegetation association 5 is a sandy rise consisting of *Corymbia callophylla*, *Xylomelum occidentale*, *Allocasurina fraseriana*, *Banksia illicifolia*, *Banksia attenuata* and *Banksia menziesii* open forest over occasional *Jacksonia sternbergiana* and *Regelia ciliata* over grassland / herbland of weeds and pasture species (Fig 8). Vegetation condition is considered degraded on the whole but in small areas immediately under trees some remnant native species persist and vegetation condition approaches good. 5 mature plants of an *Acacia* consistent with the priority listed species *Acacia lasiocarpa* var. *bracteolata* “long peduncle variant” was located towards the northwestern corner of this vegetation type.

Vegetation Association 7

On the northern boundary approximately halfway along the property is a closed forest of *Corymbia callophylla* over grassland / herbland of weeds and pasture species (Fig 9). Although the trees are in good condition overall condition is considered degraded with an almost complete absence of native understorey species due to clearing and / or grazing. Of note was the presence of what appears to be a dead *Kingia australis*.

Vegetation Association 8

Also on the northern border but further to the east is a *Corymbia callophylla* closed forest over a closed mixed sedgeland (fig. 10). There are numerous species of sedges and rushes and other low vegetation and only a casual attempt was made to identify species during the November 2011 survey. During the September survey 2012 and again in November 2012 a

detailed search was undertaken an attempt was made to identify all species present. This vegetation type appeared intact with no obvious signs of disturbance however stock has access to it, so it is likely that selective grazing has affected some species. The condition of this vegetation is considered excellent. This vegetation type continues on the adjoining property to the north where it has been fenced off and allowed to regenerate (pers comm. Peter Mason). On the eastern edge of this vegetation type (8A in Figure 1, Fig 11) the closed forest opens up to an open mixed woodland containing *Banksia illicifolia*, *B. menziesii* and *B. attenuata*, *Allocasurina fraseriana*, *Eucalyptus marginata*, *Nuytsia floribunda*, *Corymbia callophylla* and a single *Kingia australis* over a grassland / herbland of weeds and pasture species with only occasional remnant monocots persisting (figure 11). Vegetation condition for this section 8A is considered degraded.

Vegetation Association 9

In the northeast corner of the property and continuing along the eastern edge of the property were more low areas containing a low woodland of *Melaleuca preissiana* and *Corymbia callophylla* over mixed very open sedgeland (in places) and grassland / herbland of weeds and pasture species. *Juncus pallidus* was present in the lowest areas forming small areas of closed sedgeland and also occurred in the drains in this area (fig. 12). This vegetation type was considered degraded.

Vegetation Association 10

To the north of vegetation association 9 were more low areas but containing denser stands of *Melaleuca preissiana* such that they formed a low closed forest over grassland / herbland of weeds and pasture species. Once again *Juncus pallidus* was present in the lowest areas and in the drains in this area. This vegetation type was considered degraded.

Vegetation Association 11

A small area on the southern boundary of the property is lower (than the area containing vegetation type 1) and vegetation here consists of scattered *Melaleuca preissiana* over *Astartea sp.* over a grassland herbland of pasture species and *Juncus pallidus*. This vegetation type was considered degraded.

Vegetation Association 12

Also on the southern boundary and just west of vegetation type 11 is a small patch of vegetation consisting of a closed forest of *Corymbia callophylla* and *Eucalyptus marginata* over occasional *Jacksonia sternbergiana*. 2 Acacias were located towards the south eastern corner of this vegetation type that are consistent with the priority listed species *Acacia lasiocarpa* var. *bracteolata* "long peduncle variant".

The remainder of the property had been “parkland cleared” with the only flora consisting of weed and/or crop species (pasture) with occasional isolated native trees and shrubs and is considered completely degraded.

Limitations of the vegetation survey

Historical clearing and constant grazing of the site meant that most of the vegetation structure was not intact. The understorey in particular was highly degraded, in fact for many of the vegetation associations recognized, the understorey was almost completely devoid of native plants and consisted mostly of and exotic pasture and weed species. The timing of these surveys was such that the majority of native plants would have been flowering and thus easiest to locate and identify but there is always the possibility of missing some plants. Also constant grazing may have meant that some plants that were present were unable to be seen.

FLORA SURVEY

Sixty nine (69) native flowering plant species were recorded in remnant patches of native vegetation in the survey area. All species identified are listed in Table 2, Flora list for 456 Rapids Rd, Serpentine.

A few plants were unable to be identified confidently to a species level, for example 2 forms of *lepidosperma* (a thin leaf / culm form which occurred in several vegetation types and a wide leaf / culm form) both of which are loosely consistent with published descriptions of *L. squamatum* (e.g. in Flora of the Perth Region) but which I understand are currently subject to taxonomic review.

There was also an *Acacia* species present from the “*Acacia pulchella*” group of species which is consistent with published descriptions of the priority listed (P1) *Acacia lasiocarpa* var. *bracteolata* “long peduncle variant”. These plants are located in vegetation types 2 (2 juvenile individuals), vegetation type 5 (15 individuals, mostly mature plants with seed), vegetation type 6 (5 mature individuals with seed) and vegetation type 12 (2 mature individuals with seed). Figure 14 shows a photo of the pressed specimen collected in September and used in an attempt to identify this taxon. An attempt to compare the collected sample with material in the reference collection at the DEC herbarium was unsuccessful as there is no sample of this variety in the reference collection. The other possible species/varieties in the *Acacia pulchella* complex from which this sample appears to belong where examined in the herbarium reference collection but did not seem to be consistent. The difficulty in accurately identifying this species from the material available is highlighted in published descriptions of *A. lasiocarpa* as a group for example Maslin (2001), “The species remains a very polymorphic member of the ‘*A. pulchella* group’. It comprises three varieties which may ultimately be shown to warrant species status; within each variety a number of

variants are recognized". The vast majority of these Acacias were located in degraded areas of remnant vegetation within a paddock subjected to grazing.

It is important to note that some of the species identified at this site were at very low numbers, represented by very few (<5) individuals and some by just 1 single individual.

There were also several cultivated (planted) species in the survey area (for example around the house and driveway), but these did not appear to have become naturalized and these were excluded from the list. An attempt to identify weed and/or pasture species in the survey area was only made where these plants had become naturalized amongst the remnant vegetation. No attempt was made to identify pasture species in the paddocks.

With the possible exception the *Acacia lasiocarpa* variety described above, no Declared Rare Flora or other Priority flora or any other species considered to have other conservation significance were recorded in the survey area. 29 Taxa were identified by the Department of Environment and Conservation in response to a request for information regarding possible rare or priority species in the area around the survey site. Although an attempt to locate all taxa on the site was made a targeted search was made for the species on this list known to occur in vegetation types present. In particular the rare species of Orchid *Caladenia huegelii* which is grows in sandy soil in Jarrah/Banksia woodland (Hoffman and Brown, 1992) and *Drakea elastica* which grows in Banksia woodland usually under *Kunzea glabrescens* (Hoffman and Brown, 1992). The timing of the surveys maximized the chances of locating these species if present but none were observed.

The rare species *Synaphea* sp. Fairbridge farm occurs relatively close geographically to the site but was not seen and vegetation types present at the survey site are not consistent with vegetation types recorded for known nearby locations. Never-the-less a thorough search for this species and other rare/priority species of *Synaphea* known to occur in the area was undertaken however none were found.

A small, annual *Stylidium* was present at this site that was unable to be identified to species level due to insufficient material however it can be confidently said that it is not *Stylidium ireneae* is a priority species reported from the general area.

References

Keighery, B. (1994) *Bushland Plant Survey*. Wildflower Society of Western Australia, Nedlands WA

Trudgen, M. E. (1991) *Vegetation Condition Scale*. Unpublished

Maslin, B.R. (coordinator) (2001). [WATTLE Acacias of Australia](#). CD ROM Publication. (Published by Australian Biological Resources Study, Canberra and Department of Conservation and Land Management, Perth).

Hoffman, N. and Brown, A. (1992). *Orchids of South-west Australia (second edition)*. University of Western Australia Press, Nedlands



0 50 100 150m
 SCALE 1:3000 @ A3
 SCALE 1:1500 @ A1

DATE: 20.11.2012

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LEGEND:

- APPROXIMATE LOCATIONS OF ACACIA LASIOCARPA



NORTH

VEGETATION TYPES

LOT 838 (No. 456)
 RAPIDS ROAD
 SERPENTINE

Figure 2. Vegetation type 1, mixed closed forest (View from near driveway with sandpit in foreground)



Figure 3. Very large *Eucalyptus marginata* southeast of house in vegetation type 1



Figure 4. Vegetation Association 2. Photo from west side looking east.



Figure 5. Vegetation association 2. Photo from east side.



Figure 6. Vegetation Association 3. Photo from east side.



Figure 7. Vegetation Association 4. Photo from southwest.



Figure 8. Vegetation Association 5. Photo from the west.



Figure 9. Vegetation Association 6.



Figure 10. Vegetation Association 7.



Figure 11. Vegetation Association 8.



Figure 12. Vegetation Association 8A.



Figure 13. Vegetation Association 9.



Figure 14. Pressed specimen of *Acacia lassiocarpa*



Figure 15. *Acacia lassiocarpa* 18 November 2012 in vegetation type 5



Table 1. Vegetation Condition Scale reproduced from Keighery (1994)

1 = 'Pristine' Pristine or nearly so, no obvious signs of disturbance
2 = Excellent Vegetation structure intact, disturbance affecting individual species and weeds are non aggressive
3 = Very Good Vegetation structure altered, obvious signs of disturbance
4 = Good Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate to it.
5 = Degraded Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
6 = Completely degraded The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

Table 2 Flora list for 456 Rapids Rd, Serpentine for each vegetation association.

Family	Genus	species	Vegetation Association											
			1	2	3	4	5	6	7	8	9	10	11	12
Anarthriaceae	<i>Anarthria</i>	<i>laevis</i>								X				
Anarthriaceae	<i>Lyginia</i>	<i>barbarta</i>	X							X				
Araceae	* <i>Zantedeschia</i>	<i>aethiopica</i>	X											
Asteraceae	* <i>Cotula</i>	<i>turbinata</i>	X											
Asteraceae	* <i>Arctotheca</i>	<i>calendula</i>	X	X										
Asteraceae	* <i>Carduus</i>	<i>pycnocephalus</i>	X											
Asteraceae	* <i>Hypochaeris</i>	<i>glabra</i>	X	X										
Asteraceae	* <i>Sonchus</i>	<i>oleraceus</i>												
Asteraceae	* <i>Ursinia</i>	<i>anthemoides</i>	X											
Asteraceae	<i>Cotula</i>	<i>coronopifolia</i>		X								X		
Caryophyllaceae	* <i>Petrorhagia</i>	<i>dubia</i>	X											
Casuarinaceae	<i>Allocasurina</i>	<i>fraseriana</i>	X		X	X		X	X					
Colchicaceae	<i>Burchardia</i>	<i>congesta</i>				X		X	X					
Commelinaceae	<i>Cartonema</i>	<i>philydroides</i>	X	X										X
Cyperaceae	<i>Cyathochaeta</i>	<i>avenacea</i>			X			X	X					
Cyperaceae	<i>Ficinia</i>	<i>marginata</i>		X										
Cyperaceae	<i>Lepidosperma</i>	<i>longitudinale</i>					X							
Cyperaceae	<i>Lepidosperma</i>	<i>sp. (narrow leaf)</i>	X			X			X	X				
Cyperaceae	<i>Lepidosperma</i>	<i>sp. (wide leaf)</i>							X					
Cyperaceae	<i>Mesomelaena</i>	<i>tetragona</i>							X					
Cyperaceae	<i>Schoenus</i>	<i>curvifolius</i>							X					
Cyperaceae	<i>Schoenus</i>	<i>Sp.</i>	X	X										
Dasypogonaceae	<i>Dasypogon</i>	<i>bromeliifolius</i>							X					
Dasypogonaceae	<i>Kingia</i>	<i>australis</i>							X	X				
Dasypogonaceae	<i>Lomandra</i>	<i>caespitosa</i>	X			X		X						X
Dasypogonaceae	<i>Lomandra</i>	<i>hermaphrodita</i>	X						X					
Droseraceae	<i>Drosera</i>	<i>erythrorhiza</i>	X					X						
Droseraceae	<i>Drosera</i>	<i>glanduligera</i>		X										
Droseraceae	<i>Drosera</i>	<i>porecta</i>	X											
Droseraceae	<i>Drosera</i>	<i>stolonifera</i>						X						
Fabaceae	* <i>Lotus</i>	<i>angustissimus</i>												

Fabaceae	Acacia	?lasiocarpa					X	X										X
Fabaceae	Acacia	stenoptera		X							X							
Fabaceae	Aotus	gracillima		X														
Fabaceae	Daviesia	physodes																
Fabaceae	Euchilopsis	linearis		X														
Fabaceae	Jacksonia	furcellata						X										
Fabaceae	Jacksonia	sternbergiana			X		X	X										X
Fabaceae	Kennedia	prostrata	X															
Goodeniaceae	Dampiera	linearis						X										
Haemodoraceae	Conostylis	aculeata			X			X		X								
Haemodoraceae	Conostylis	juncea																X
Haemodoraceae	Conostylis	setigera																X
Haemodoraceae	Haemodorum	laxum																X
Haemodoraceae	Haemodorum	spicatum							X									
Haemodoraceae	Phlebocarya	ciliata																X
Haemodoraceae	Phlebocarya	filifolia																X
Iridaceae	*Hesperantha	falcata																
Iridaceae	*Romulea	rosea		X														
Iridaceae	Patersonia	occidentalis																X
Juncaceae	Juncus	pallidus		X												X	X	X
Lobeliaceae	Lobelia	alata		X														
Loranthaceae	Nuytsia	floribunda	X		X													
Myrtaceae	*Eucalyptus	gomphocephala	X															
Myrtaceae	Astartea	sp		X														X
Myrtaceae	Coymbia	callophylla	X	X	X		X		X		X		X					X
Myrtaceae	Eucalyptus	marginata	X				X									X		X
Myrtaceae	Hypocalymma	angustifolium		X														
Myrtaceae	Kunzea	glabrescens	X	X														
Myrtaceae	Melaleuca	preissiana	X	X				X						X	X	X		
Myrtaceae	Regelia	ciliata						X	X	X								
Orchidaceae	*Disa	bracteata		X														
Orchidaceae	Caladenia	flava	X				X		X									
Orchidaceae	Caladenia	latifolia		X														
Orchidaceae	Microtis	media		X														
Orchidaceae	Pterostylis	sanguinea																
Orchidaceae	Pyrorchis	nigricans																
Orchidaceae	Thelymitra	flexuosa																
Orchidaceae	Thelymitra	Sp.																
Orchidaceae	Thelymitra	vulgaris																
Poaceae	*Briza	minor																
Poaceae	*Ehrharta	calycina																
Poaceae	*Ehrharta	longiflora	X	X														
Poaceae	*Eragrostis	curvula		X														
Poaceae	*Hordeum	leporinum																
Poaceae	*Lolium	Sp.																
Poaceae	Austostipa	compressa						X		X								
Polygonaceae	*Acetosella	vulgaris																
Proteaceae	adenanthos	cynorum	X															
Proteaceae	Banksia	attenuata	X							X								
Proteaceae	Banksia	dallanneyi								X	X		X					
Proteaceae	Banksia	ilicifolia	X				X			X			X					
Proteaceae	Banksia	menzesii	X				X											
Proteaceae	Xylomelum	occidentalis	X							X								
Restionaceae	Cytogonidium	leptocarpoides																X
Restionaceae	Desmocladus	fasciculatus																X
Restionaceae	Desmocladus	flexuosus	X				X											
Restionaceae	Hypolaena	exsulca	X															
Stylidiaceae	Stylidium	Sp.		X														

Xanthorrhoeaceae	<i>Xanthorrhoea</i>	<i>brunonis</i>				X	X			X				
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*Denotes an exotic species

Table 3 GPS locations of *Acacia lasiocarpa*

GPS location		Vegetation type	No. of plants
32.37691	115.94027	2	2
32.37472	115.93614	5	5
32.37432	115.93606	5	10
32.37441	115.93723	6	5
32.37729	115.94245	12	2