

# ***Vegetation Survey:***

***Baandee North Rd,***

***SLK 23 – SLK 28.68***

***RE: CPS 8590/1***



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***12/9/2019***

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## Executive Summary:

This report is the third and final Vegetation Survey on Baandee North Road, in the Shire of Kellerberrin, in response to a Clearing Permit Application (CPS8590/1), by the Shire of Kellerberrin. This report covers the final section of the road from SLK 23 to SLK 28.68. GPS co-ordinates are from; 31° 23.066's, 117° 57.093'e on the southern end to 31° 20.040's, 117° 56.056'e, to the northern end of the survey area. The survey clearly identified 3 different vegetation types, which are separately detailed below.

SLK 23 to SLK 24.07 is generally a mildly sloping mallee ecosystem growing on white sandy soils over clay. A mix of mallee Eucalypt species with very good secondary storey and understorey species present. The road reserve remnant extends approximately 20 metres either side of the constructed road. Vegetation health is described as Very Good to Excellent. This section is marked yellow in the map below.

SLK 24.07 to SLK 24.52 is a short belt of break of slope systems, with an Acacia, Allocasuarina overstorey, and diverse secondary storey. Understorey is healthy with some agricultural weeds present. General health of the section is described as Very Good to Excellent. Most of this section occurs within an oddly shaped remnant of 190 hectares covering land either side of the road for 1.5 km. There is also a cross roads within this remnant area, Baandee Nth Rd intersecting with Baandee North Cross Rd and Arthur Rd, on the north west corner of the remnant. Soils are white to yellow sand over gravel. This section is marked as red in the map below.

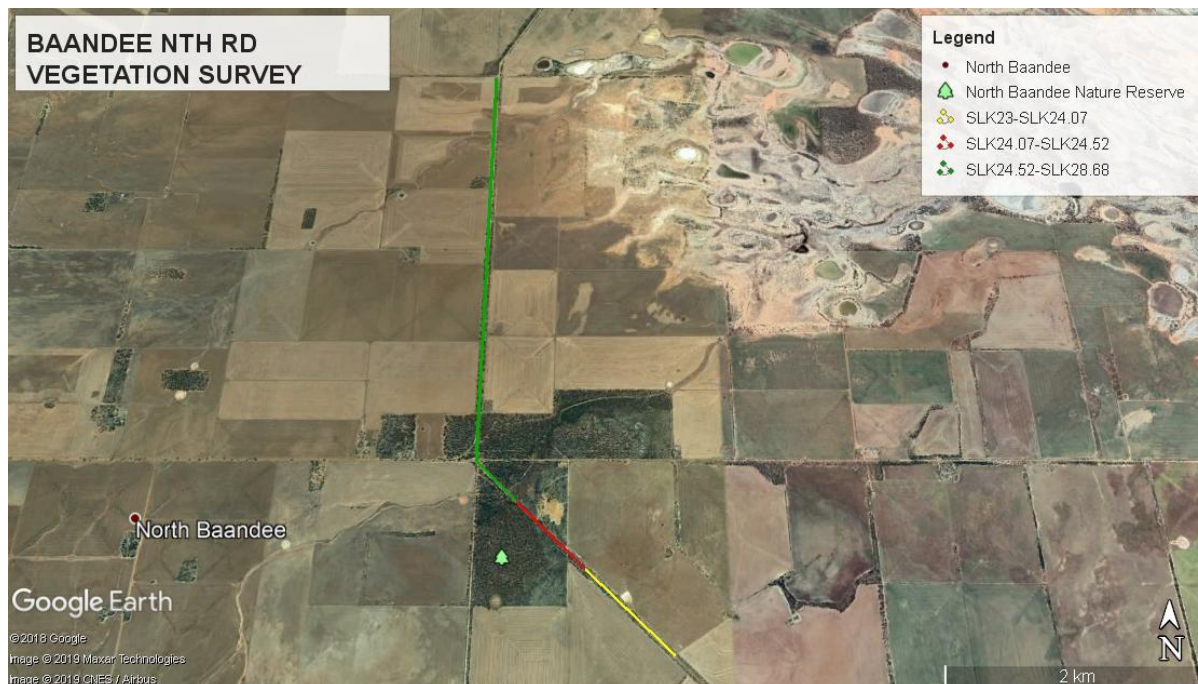
SLK 24.52 to SLK 28.68 becomes Eucalypt woodlands on flat red clay soils, with minimum second storey species and a healthy mix of understorey species. General health of the remnant is very good but only the first 900 metres is within the remnant. The rest is roadside verge and extends approximately 20 metres either side of the constructed road. The area within the remnant has slightly more second storey species within it, but more weeds. This is explained by the fact that a thin strip of Eucalyptus loxophleba ssp lissophloia, a mallee, with associated Acacia acuminata buffers the change of soils from sandy to clay and coincides with a drainage line running through the remnant.

Particular emphasis was placed on the Threatened Environmental Community of Wheatbelt Woodlands (TEC) which is marked as green in the map below. This section is definitely identifiable as a TEC and will therefore be required to be referred to the Federal Department of Environment, before any further progress can be made via Department of Biodiversity, Conservation and Attractions.

It is approximately the final 4 km of the section until the Shire border. The patch is approximately 20 metres wide either side of the road and is about 16 hectares. I would estimate approximately 1-1.5 hectares will be cleared, depending on engineering avoidance strategies.

It comprises Salmon, Gimlet and Morrel, with a sparse but healthy understorey of Chenopods, Boree and Acacia. Its' condition rating is Very Good.

No Threatened or Priority species were found in the survey area.



#### METHODOLOGY:

The road was driven by vehicle to determine the overall vegetation type. Periodically, we stopped and recorded the species present and then moved on. Any unusual or unknown plants were also recorded for later identification. Specimens were taken of unknown plants and later identified on desktop. Three individual specimens were sent to the DBCA Herbarium for identification, having been unable to identify on the desktop. The sections identified on the map above in red, yellow and green are separated by soil type and corresponding vegetation type. Extensive sections of the road were walked to ensure that all species were found. Where the vegetation extended further than the road reserve, within the remnant, the walked survey extended to fifty metres beyond the road reserve.

Descriptions of vegetation health are recorded in accordance with the Keighery scale of assessment. More detailed engineering and precise clearing areas are to be found in associated documents relevant to this application.

A query was made to the database of DBCA and the WA Museum joint Nature Map for a list of species which may be found within a 20 km radius of the survey site. All species with a Priority or Threatened status were extracted from the database and are reproduced below. Particular emphasis was placed on this list and a thorough search was conducted during the survey to make sure that these listed species were not present. None of the species on the list were found.

# NatureMap Species Report

Created By Guest user on 18/09/2019

Current Names Only Yes  
 Core Datasets Only Yes  
 Method 'By Circle'  
 Centre 117° 55' 59" E, 31° 21' 56" S  
 Buffer 20km  
 Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	703	2295
Priority 1	3	4
Priority 2	6	20
Priority 3	7	32
Priority 4	3	5
Rare or likely to become extinct	6	53
<b>TOTAL</b>	<b>728</b>	<b>2409</b>

Name ID	Species Name	Naturalised	Conservation Code
<b>Rare or likely to become extinct</b>			
1.	4402 <i>Boronia adamsiana</i> (Barbalin Boronia)		T
2.	14412 <i>Grevillea dryandroides</i> subsp. <i>hirsuta</i>		T
3.	33917 <i>Idiosoma nigrum</i> (Shield-backed Trapdoor Spider)		T
4.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T
5.	5962 <i>Melaleuca sciotostyla</i> (Wongan Melaleuca)		T
6.	13497 <i>Philotheca basistyla</i>		T
<b>Priority 1</b>			
7.	20814 <i>Baeckea</i> sp. <i>Tampia Hill</i> (J.C. Anway 327)		P1
8.	20309 <i>Eucalyptus leptophylla</i> var. <i>floribunda</i>		P1
9.	7649 <i>Scaevola tortuosa</i> (Tortuous-stem Scaevola)		P1
<b>Priority 2</b>			
10.	14160 <i>Acacia sclerophylla</i> var. <i>pilosa</i>		P2
11.	19464 <i>Aluta aspera</i> subsp. <i>localis</i>		P2
12.	44574 <i>Amanita grandis</i>		P2
13.	44575 <i>Amanita inculta</i>		P2
14.	14751 <i>Jacksonia rubra</i>		P2
15.	6356 <i>Leucopogon amplexans</i>		P2
<b>Priority 3</b>			
16.	14048 <i>Acacia ancistrophylla</i> var. <i>perarcuata</i>		P3
17.	3486 <i>Acacia phaeocalyx</i>		P3
18.	43940 <i>Austroparmelina macrospora</i>		P3
19.	16026 <i>Cryptandra dielsii</i>		P3
20.	31598 <i>Cryptandra stellulata</i>		P3
21.	16868 <i>Synaphea constricta</i>		P3
22.	1355 <i>Thysanotus tenuis</i>		P3
<b>Priority 4</b>			
23.	3441 <i>Acacia merrickiae</i>		P4
24.	33902 <i>Aganippe castellum</i> (Tree-stem Trapdoor Spider)		P4
25.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4

## CLIMATE:

The preceding 12 months have been drier than average with a short winter rainfall period between June and August. Rainfall events have been single digit recording mainly, with very little runoff and minimal stored soil moisture from the season before. As a result, annual species were sparse on the ground and not as prolific as dry senesced material from previous years would suggest is the norm. The more delicate genus such as orchids and some annuals were very hard to find. Only species which we found were recorded, but in a better year I would expect to be able to record many more annual species.

## RESULTS:

### SLK 23 to SLK 24.07: Very Good:

Generally, a mildly sloping mallee ecosystem growing on white sandy soils over clay. A mix of mallee Eucalypt species with very good secondary storey and understorey species present. The road reserve remnant extends approximately 20 metres either side of the constructed road. Overstorey density is approximately 70% overall, with a 30% mid storey cover and 50% ground cover of annuals, sedges, saltbush and grasses.

Vegetation health is described as Very Good. There is a general scattering of agricultural weeds in this section, especially in bare areas and disturbed sections. Some historical disturbances such as spoon runoff drains also detract from it being classified up to excellent. This section is marked yellow in the map below. It is 1.1 km long and of consistent health and makeup. Although there is a preponderance of Eucalypts in the species makeup, all species are mallees and do not qualify as Threatened Environmental Communities under the Federal TEC regulations.

### SLK 24.07 to SLK 24.52: Very Good/Excellent:

A short belt of break of slope systems, with an Acacia, Allocasuarina overstorey, and diverse secondary storey. Understorey is healthy with some agricultural weeds present. General health of the section is described as Very Good to Excellent. The overstorey density is approximately 40% with a very dense mid storey coverage of 80% on the road reserve. Ground cover is varied with some agricultural weed but mostly, endemic species cover approximately 80% of the ground with a diverse range of annuals, sedges and grasses.

Most of this section occurs within an oddly shaped remnant of 190 hectares covering land either side of the road for 1.5 km. There is also a cross roads within this remnant area, Baandee Nth Rd intersecting with Baandee North Cross Rd and Arthur Rd, on the north west corner of the remnant. Soils are white to yellow sand over gravel. This section is marked as red in the map below. The vegetation type extends either side of the road into the remnant and the demarcation line between it and the eucalypt woodland extends roughly on a north-east, south-west line. The remnant is also vested to two different Government entities. Kellerberrin Shire has vesting of the lighter sandy land for the purposes of gravel extraction, but that landform also extends into the Conservation area, which is controlled by Department of Biodiversity, Conservation and Attraction. There is a proposal to change the

vesting from gravel extraction to conservation as an offset to the clearing proposed in a previous permit (CPS8253/1). Again, further details are embedded in other documents which will form part of the application bundle.

#### **SLK 24.52 to SLK 28.68: Good to Very Good:**

Eucalypt woodlands on flat red clay soils, with minimum second storey species and a healthy mix of understorey species. General health of the remnant is very good but only the first 900 metres is within the remnant. The rest is roadside verge and extends approximately 20 metres either side of the constructed road. The area within the remnant has slightly more second storey species within it, but far more weeds. This is explained by the fact that a thin strip of *Eucalyptus loxophleba* ssp *lissophloia*, a mallee, with associated *Acacia acuminata* buffers the change of soils from sandy to clay and coincides with a drainage line running through the remnant. The weed burden through this area is a result of flooding through the flat valley floor in wet years carrying weed seed with it.

Particular emphasis was placed on the Threatened Environmental Community of Wheatbelt Woodlands (TEC) which is marked as green in the map below. This section is definitely identifiable as a TEC and will therefore be required to be referred to the Federal Department of Environment, before any further progress can be made via Department of Biodiversity, Conservation and Attractions.

It is approximately the final 4 km of the section until the Shire border. The patch is approximately 20 metres wide either side of the road and is about 16 hectares. I would estimate approximately 1-1.5 hectares will be cleared, depending on engineering avoidance strategies.

It comprises Salmon, Gimlet and Morrel, with a sparse but healthy understorey of Chenopods, Boree and Acacia. Its' condition rating is Very Good. The average canopy cover of the Eucalypt woodland is 50%. Most woodland trees are mature and little or no young Eucalypt recruitment is obvious. Driving the road, sees alternating strips of Salmon Gum, Gimlet and Red Morrel with associated secondary and understorey species. Secondary storey species are sparse at less than 10%. Ground cover species are also sparse, with mostly some annuals and saltbush species present at about 20% cover. Weeds make up the rest of the ground cover. In a normal winter, ground cover percentages would increase dramatically.

Sprinkled through this mosaic, *Eucalyptus loxophleba* ssp *lissophloia* and *Eucalyptus kochii* ssp *plennissima* also occur in strips. These species are not included as TEC species, but do not detract from the overall TEC rating of the patch as a whole. Although sparse, the lower storeys are consistent with a density of Eucalypts which is at its' probable bole density limit. Agricultural weeds are also present, especially in small areas where the Eucalypt density is low. They do not impact the health of the patch. At either end of the patch, *Eucalyptus Capillosa* appears, consistent with a change of soil type transitioning out of the woodland soils.

GENUS	SPECIES	COMMON NAME
Acacia	hemetiles	tan wattle
Acacia	erinaceae	Prickly wattle
Amphipogon	caracinus	greybeard grass
Atriplex	vesicaria	bladder saltbush
Atriplex	semibaccatta	creeping saltbush
Austrostipa	elegantissima	
Enchylaena	tomentosa	ruby saltbush
Eremophila	ionanthe	purple
Eremophila	decipiens	
Eremophila	oppositifolia ssp angustifolia	
Eucalyptus	horistes	oil mallee
Eucalyptus	subangusta ssp subangusta	
Eucalyptus	erythronema	red flowering gum
Eucalyptus	tenera	yellow flowering gum
Eucalyptus	moderata	lemon flowering gum
Eucalyptus	capillosa	Mallee white gum
Exocarpus	aphylla	leafless ballart
Grevillea	paniculata	vanilla bush
Lepidosperma	brunonianum	sedge
Maireana	brevifolia	Bkuebush
Melaleuca	pauperiflora	
Olearia	muellerii	goldfields daisy
Olearia	eremicola	Mauve daisy
Santalum	acuminatum	quandong
Hemigenia	cilliata	
Waitzia	acuminata	
Acacia	coolgardiensis	
Acacia	acuminata (narrow phyllode)	jam
Acacia	neurophylla	wodjil
Allocasuarina	acutivalvis	black sheoak
Allocasuarina	campestris	tammar
Amphipogon	caricinus	Greybeard grass
Austrostipa	elegantissima	grass
Baeckea	Sp koonadgin	
Dianella	revoluta	flax
Dodoneaea	adenophora	Hop bush
Drosera	macrantha	sundew
Ericomyrtus	serpllifolius	
Eremophila	Sp (herbarium)	
Grevillea	hookeriana	black toothbrush
Grevillea	paradoxa	vanilla bush
Hakea	scoparia	

Lawrencella	rosea	pink everlasting
Lepidospermum	sp	sedge
Leptospermum	erubescens	Tee tree
Melaleuca	hamata	brushwood
Melaleuca	cordata	Purple pom poms
Persoonia	quinquenervis	
Petrophile	brevifolia	Yellow
Thryptomene	Sp (herbarium)	
Thysanotus	patersonii	Climbing lilly
Santalum	acuminatum	quandong
Santalum	spicatum	sandalwood
Verticordia	crysantha	Yellow
Waitzia	acuminata	orange waitzia
Acacia	hemetiles	tan wattle
Acacia	acuminata	jam
Acacia	erinacea	Prickly wattle
Acacia	merallii	
Atriplex	vesicaria	Bladder saltbush
Atriplex	semibaccatta	creeping saltbush
Enchylaena	tomentosa	ruby saltbush
Dodonaea	adenophora	Hop bush
Eucalyptus	loxophleba ssp lissophloia	oil mallee
Eucalyptus	salubris	gimlet
Eucalyptus	salmomophloia	salmon gum
Eucalyptus	kochii ssp plennisima	oil mallee
Eucalyptus	longicornis	red morrel
Eucalyptus	capillosa	white gum (tree form)
Eremophila	Oppositifolia ssp angustifolia	Purple eremophila
Maireana	brevifolia	bluebush
Maireana	georgii	
Melaleuca	pauperiflora	boree
Olearia	muellerii	goldfields daisy
Ptilotus	exaltatus	Purple mulla mulla
Rhagodia	preissii	
Scaevola	spinescens	maroon bush
Sclaerolaena	sp	
Senna	artemisioides	

## DISCUSSION:

The section of Baandee North Road between SLK 23 and 28.68 was surveyed according to the methodology explained earlier. The whole length of the survey area involved a Road Reserve vested in the Shire of Kellerberrin. It was uniformly approximately 20 metres wide on either side of the road and consisted of 3 distinct vegetation types.



From SLK 23 to SLK 24.07 was a diverse Eucalypt mallee ecosystem with a consistent, healthy second and understorey matrix. Agricultural weeds were present but not at a density which affected the health of the overall patch. No Eucalypt woodland species were present in this section and no Threatened or Priority species were found. Vegetation condition is described as Very Good.

From SLK 24.07 to SLK 24.52 a small area of Allocasuarina and Acacia woodland dominated both sides of the road. In Very Good health, it contained a diverse mix of species at both secondary and understorey levels. No Threatened or Priority species were found. As much of this ecosystem is contained within a broader remnant vested with the Shire of Kellerberrin for the purpose of gravel extraction (R33419), the overall Reserve was not fully surveyed. This Reserve is subject to a proposed offset plan and if acceptable will need to be surveyed at a later date to describe the overall Vegetation types and condition contained therein. This subsequent survey does not need to be conducted during the Spring survey period, due to the nature of the survey. Nor does it impinge on this survey, as the offset is for a different clearing permit application.

From SLK 24.52 to SLK 28.68, the vegetation changes abruptly to red valley floor clays and is representative of typical Wheatbelt Woodlands vegetation. Vegetation condition is described as Very Good. It may be classified as a Threatened Environmental Community under Federal Environmental laws and will need to be referred to the Federal Department of Environment and Mines. The WA Department of Water and Environmental Regulation have a bilateral agreement where the local WA DWER may assess the site on behalf of the Federal Department. If this is allowed, the original clearing permit application may have to be withdrawn and the site assessed under the bilateral agreement under a new permit application.

#### **CONCLUSION:**

This section of Baandee North Road was surveyed as three distinct vegetation associations. Uniformly 20 metres wide either side of the road, the remnant vegetation was found to be in very good condition or better, throughout.

The third and longest vegetation type, from SLK 24.52 to 28.68 was determined to be Wheatbelt Woodland for the purposes of Federal Legislation protecting it as a Threatened Ecological Community. As such it will need to be referred to the Federal Department of Environment and Energy, for them to determine whether the road works proposed are a controlled action under that legislation.

A list of Priority and Declared Rare flora was generated from the Naturemap database, administered by the Department of Biodiversity, Conservation and Attractions and the WA Museum. This is the standard database to enquire about protected native flora species. The reproduced table earlier in this document lists the species to be especially aware of when surveying. None of the species listed were found in this survey.

END

