SHIRE OF WESTONIA

FLORA SURVEY OF DADDOW ROAD

GRAVEL PIT EXTENSION

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FLORA SURVEY OF DADDOW ROAD GRAVEL PIT EXTENSION SITE.

RECONNAISANCE SURVEY CONDUCTED 23.10.18

DETAILED SURVEY CONDUCTED 23.09.19

CPS 8598/1

INTRODUCTION:

The Shire of Westonia contracted Santaleuca Consulting to carry out a flora survey on a remnant vegetation block on Daddow Road, in the Shire of Westonia in September 2018.

The centre of the working area is at the coordinates: 31°03.741'S, 118°38.372'E.

The remnant was adjacent to a gravel pit which is still in use, but virtually exhausted of any useful gravel and therefore needed to be expanded. The survey to be conducted was on an area where the Shire wishes to clear remnant vegetation to extend the gravel pit. The Shire has applied for a clearing permit, number CPS 8598/1, which is still open.

On 23rd of October, 2018 a reconnaissance survey was completed in the remnant immediately to the east of the existing gravel pit. Subsequent to this survey the Department of Water and Environmental Regulation (DWER) informed the Shire that a reconnaissance survey would not be sufficient for the granting of a clearing permit and that a Detailed Survey would be required.

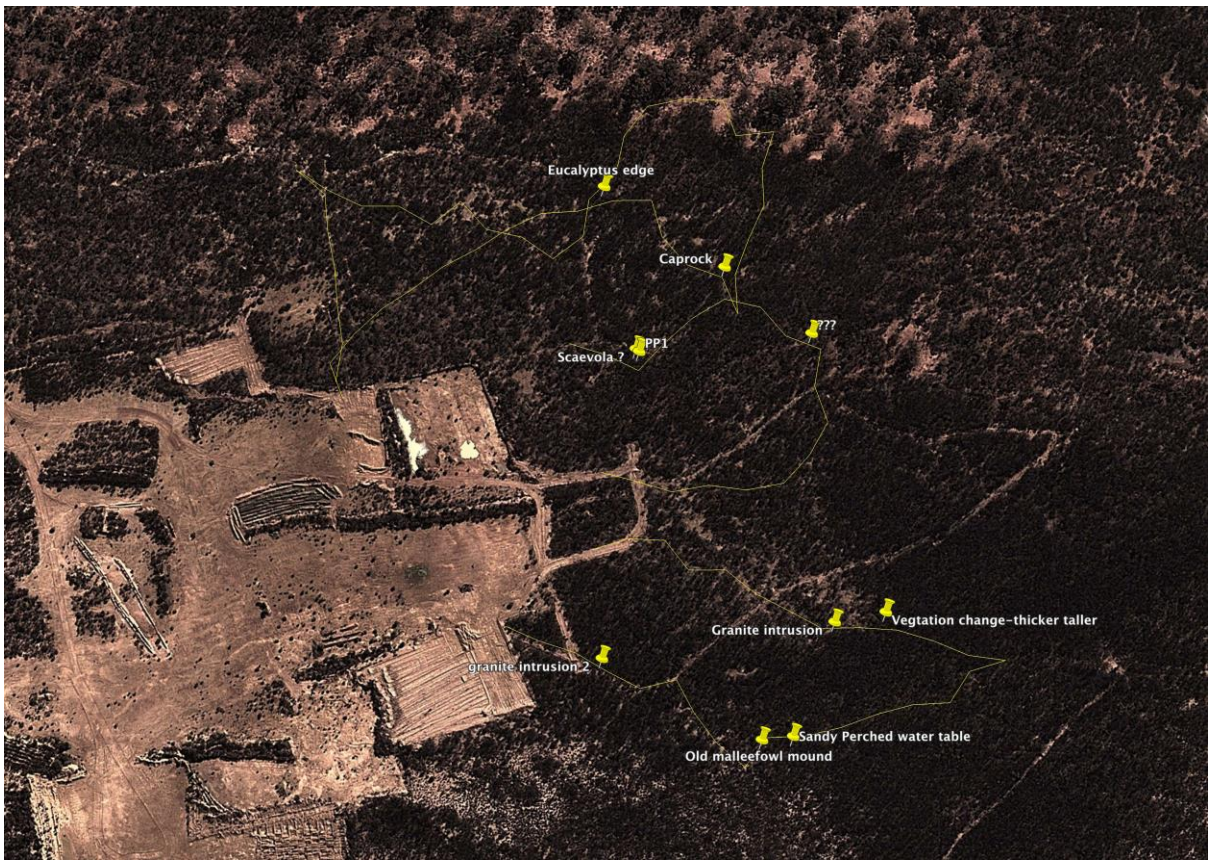
The initial survey was wide ranging, covering approximately 25 hectares. The purpose of the survey was to survey the existing flora, search for any rare or priority flora from a list provided by DWER and also to scope the soil types to identify the best possible site for gravel extraction. As the site was far too big to warrant the expense of a Detailed Survey, it was decided to adjust the clearing application permit footprint to a more manageable 5 hectares and conduct a Detailed Survey of the adjusted footprint in the spring of 2019.

On the 23rd September 2019 the detailed survey was conducted with the aid of Dylan Copeland, the NRM consultant working with the Shire of Westonia. A complete list of species found at the site is published further on in the report, but no priority or rare plants were found. From the reconnaissance survey conducted in 2018, we were able to target the most likely area for gravel extraction from the wider area surveyed. The approximately 5 hectares selected should yield the highest gravel extraction rates compared to the overall area surveyed initially, based on flora species signatures. Deep gravel deposits exhibit a standard set of flora, which when identified, almost always show a gravel deposit.

RECONNAISANCE SURVEY: 23.10.2018

This survey was wide ranging to the east of existing gravel extraction activities and covered an area of approximately 25 hectares. No rare or priority species were found during this survey, except at the extreme south-east corner where an abandoned mallee fowl nest was

found. This was found in mallee and sedge scrub land and well away from the eventual gravel extraction site. See map below. The top of the map is north.

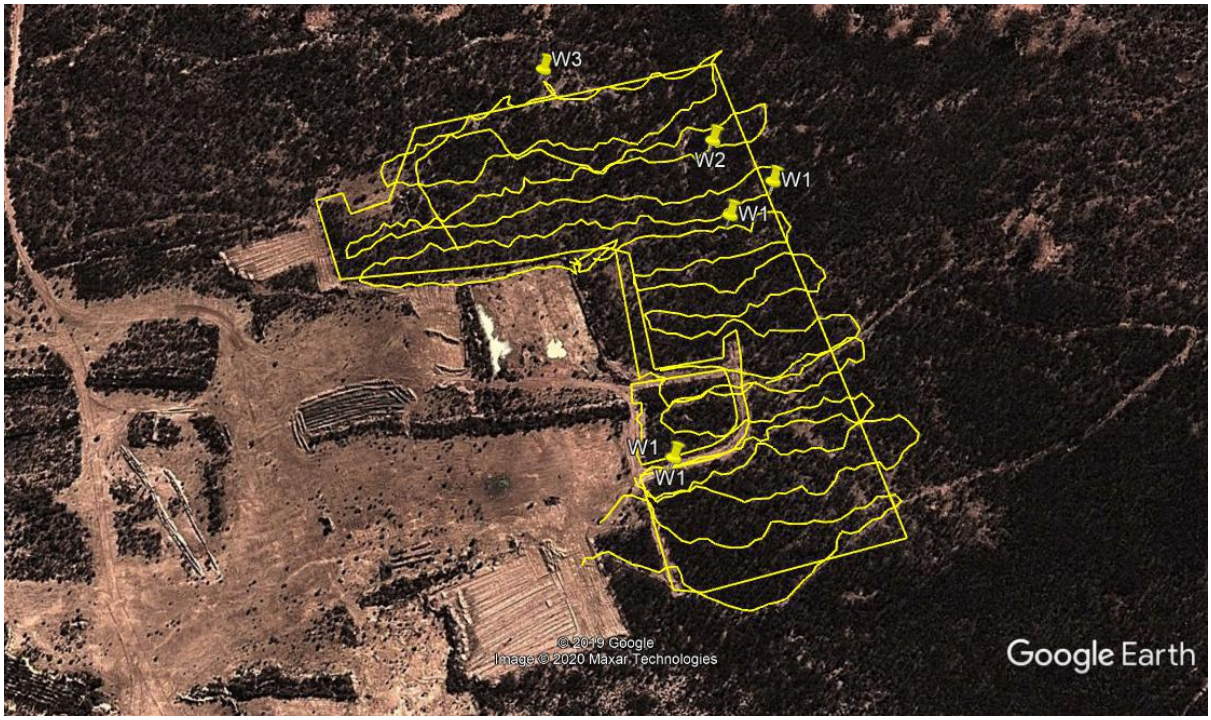


The most significant aspect of the above map is the intrusion of granite at the extremities of the search area. Flora species such as Eucalypts to the north, sandy perched water table soil to the south-east dominated by sedges and various granite intrusions around the perimeter of the search area, determined our eventual Detailed Survey site. The pins on the map with question marks were species which were not immediately determined, or could be confused with species on the rare and priority list. Samples of these species were collected and sent to the WA Herbarium for identification. They were all common species which had enough taxonomic variability about them to be double checked, but were all identified as standard examples of species with no special conservation status.

The pin with Scaevola attached also exists within a small pocket of red clayey loam soils alongside Santalum spicatum (Sandalwood) and Eucalyptus loxophleba ssp lissophloia, and determines the eastern most extent of the gravel resource in this north east sector.

After correspondence from DWER that a Reconnaissance Survey was an inadequate survey methodology for their requirements, the decision was made to carry out a Detailed Survey on a targeted 5 hectare area over the most concentrated area of gravel soils in the Spring of 2019. This is the first time that a Reconnaissance Survey has not been accepted by DWER in my career of surveying. The clearing application footprint was amended to a manageable 5 hectares.

DETAILED SURVEY: 23.9.19



The map above shows the amended survey area and attendant revised clearing permit footprint. Traverses were carried out at approximately 10 metre intervals. As can be seen on the map, the density and mature nature of the vegetation disallowed easy access and therefore, the traverses were not always uniformly 10 metres. With good visibility of 20 metres, all species of plants which were here were seen and identified. The traverses were carried on past the footprint on each occasion to ensure no neighbouring areas had plants within them which could be on the priority list.

With the added information gleaned from the Reconnaissance Survey, a very comprehensive list of species was compiled. The pins on the map are species collected for later identification, which were not immediately identified, all of which were able to be identified using a desktop search of the WA Herbarium database.

CLIMATE:

The wheatbelt generally had well below average rainfall for the year, in the order of 100mm below average. Although winter rain was enough to grow average to below average crops, the understorey species, especially annuals were scarce. Rainfall in 2018 was also below average. We have had the advantage of surveying this site twice in two successive dry years and believe that we have identified everything which exists, in the clearing footprint especially. The Reconnaissance survey would have found any priority species outside the clearing footprint in the previous year.

DADDOW ROAD SITE:

The site at Daddow Road in the Shire of Westonia, as can be seen from both traverse maps, has a long historical record of gravel extraction. It is the main source of gravel for the Eastern sector of the Shire.

The site is a predominantly red sandy, loam gravel, underlain with white calcareous rock. As the history of the site has expanded operations, it has crept outwards, until the ideal gravel depth has depleted and then expanded in different directions to identify the ideal areas for gravel extraction. The vegetation type is typical *Allocasuarina acutivalvis, Acacia neurophylla* dominated shrubland to 5 metres in height. The overstorey is very mature woodland with a coverage of approximately 70%. Mid storey cover is diverse with a coverage of 30%. The understorey is sparse at 25% coverage, with very little annual cover, partly due to the dry years preceding the survey. There are however, young mid storey species which add to the understorey mix. Senescence values are mainly from old mature branches and dead mature trees, especially Sheoak and Acacia species, which account for most of the 25% senesced material on the ground.

It is contained within a 420 hectare remnant vegetation block in an L shape. It is surrounded by farmland, and other significant remnants within a 10 kilometre radius. It is privately owned and the clearing permit application has the support of the owner.

The larger block of remnant within which the clearing application is contained is a highly variable remnant, in terms of soil types, ecosystems and species.

DETAILED SURVEY, 23.9.19

East – west traverses were conducted throughout the clearing envelope area and beyond by some 20 metres. In October 2018 a reconnaissance survey was conducted, which would have captured any unusual flora further afield.

The aim was to document all flora within the survey area and especially search for any priority or rare flora which may have been present. A search was made of the Nature Map database, administered by DBCA with particular emphasis on species which may be present within a 20 km radius of the site. The list of species which may be present are reproduced below.

NATURE MAP SEARCH RESULTS:

Current Names Only
Yes
Core Datasets Only
Yes
Method
'By Circle'
Centre
Buffer
Group By

118° 38' 28" E,31° 03' 45" S
20km
Conservation Status
Conservation Status Species Records
Non-conservation taxon 756 2351
Other specially protected fauna 1 4
Priority 1 7 16
Priority 2 5 52
Priority 3 10 57
Priority 4 5 22
Protected under international agreement 1 1
Rare or likely to become extinct 11 160
TOTAL 796 2663
Name ID Species Name Naturalised Conservation Code 1Endemic To Query Area
Rare or likely to become extinct
1. 12263 *Acacia lobulata* T
2. 24092 *Dasyurus geoffroii (Chuditch, Western Quoll)* T
3. 7262 *Eremophila resinosa (Resinous Eremophila)* T
4. 7280 *Eremophila virens (Campion Eremophila)* T
5. 7282 *Eremophila viscida (Varnish Bush)* T
6. 5567 *Eucalyptus brevipes (Mukinbudin Mallee)* T
7. 11294 *Eucalyptus crucis subsp. crucis (Silver Mallee)* T
8. 24557 *Leipoa ocellata (Malleefowl)* T
9. 24168 *Macrotis lagotis (Bilby, Dalgyte, Ninu)* T
10. 5962 *Melaleuca sciotostyla (Wongan Melaleuca)* T
11. 13082 *Myriophyllum lapidicola* T
Protected under international agreement
12. 41323 *Actitis hypoleucos (Common Sandpiper)* IA
Other specially protected fauna
13. 25624 *Falco peregrinus (Peregrine Falcon)* S
Priority 1
14. 7473 *Dampiera scaevolina* P1
15. 13226 *Drosera grievei* P1
16. 7179 *Eremophila adenotricha (Glandular-haired Eremophila)* P1
17. 7062 *Glossostigma trichodes* P1
18. 20260 *Grevillea squiresiae* P1
19. 33758 *Hemigenia dulca* P1
20. 34243 *Tecticornia sp. Lake Wallambin (K.A. Shepherd KS 1157)* P1
Priority 2
21. 12248 *Acacia ascendens* P2
22. 14852 *Eremophila complanata* P2
23. 23462 *Goodenia granitica* P2
24. 16047 *Hakea rigida* P2
25. 19207 *Stylidium chiddarcoopingense* P2 Y
Priority 3
26. 14623 *Acacia crenulata* P3
27. 14068 *Acacia cylindrica* P3
28. 14152 *Acacia undosa* P3
29. 20613 *Baeckea sp. Elsewhere Road (M.E. Trudgen 5420)* P3

30. 5472 *Calytrix plumulosa* P3
31. 14458 *Hibbertia graniticola* P3 Y
32. 5032 *Lasiopetalum fitzgibbonii* P3

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.
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Name ID Species Name Naturalised Conservation Code 1**Endemic To Query Area**
33. 19227 *Lechenaultia galactites* P3
34. 14506 *Leucopogon sp. Yanneymooning (F. Mollemans 3797)* P3
35. 12442 *Verticordia mitodes* P3

Priority 4
36. 16027 *Darwinia sp. Chiddarcooping (S.D. Hopper 6944)* P4
37. 11758 *Eucalyptus caesia subsp. caesia (Caesia)* P4
38. 11823 *Eucalyptus caesia subsp. magna (Silver Princess)* P4
39. 31763 *Lepidosperma lyonsii* P4
40. 48135 *Thinornis rubricollis (Hooded Plover, Hooded Dotterel)* P4

During the Detailed Survey none of the species listed above were found. Neither were any other species found which were protected which are not on this list. The full list of species found at the site is reproduced below.

DADDOW ROAD GRAVEL PIT EXTENSION FLORA SURVEY, KELLERBERRIN. 23.10.18

GENUS	SPECIES	COMMON NAME
Acacia	acuaria	
Acacia	acuminata var narrow leaf	Jam
Acacia	consanguinea	
Acacia	hemetiles	Tan wattle
Acacia	neurophylla	Wodjil
Acacia	stereophylla	
Allocasuarina	acutivalvis	Black sheoak
Alyxia	buxifolia	Dysentry bush
Amphipogon	caracinnus	Perennial grass
Astroloma	serratifolium	
Austrostipa	elegantissima	Elegant speargrass
Austrostipa	scabra	Speargrass
Borya	constricta	Pincushion
Calandrinia	eremaea	Succulent
Chamelaucium	ciliatum	Wax flower
Dampiera	wellsiana	
Dianella	revoluta	Flax

Dodonea	viscosa	Hop bush
Drosera	macrantha ssp macrantha	Climbing sundew
Ecdiocolea	monostachya	Sedge
Enchylaena	tomentosa	Ruby saltbush
Eremophila	clarkei	
Eremophila	oppositifolia	
Eremophila	ionantha	mauve eremophila
Eucalyptus	loxophleba ssp lissophloia	Oil mallee
Exocarpus	aphyllus	Leafless ballart
Grevillea	paradoxa	
Hakea	scoparia	
Hibbertia	glomerosa	Guinea flower
Hysterobaeckea	setifera ssp meridionalis	
Keraudrenia	velutina	Firebush
Lawrencella	rosea	Everlasting
Maireana	brevifolia	Bluebush
Melaleuca	hamata	Brushwood
Melaleuca	radula	mauve myrtle
Olearia	muelleri	Goldfields daisy
Phebalium	tuberculosum	
Rhodanthe	citrinus	Everlasting annual
Santalum	spicatum	Sandalwood
Scaevola	spinescens	Maroon bush
Senna	artemisioides	
Senna	pleurocarpa ssp angustifolia	
Thelmytra	aff macrophylla	Blue sun orchid
Thysanotus	manglesianus	Climbing fringed lilly
Thysanotus	speckii	Short fringed lilly
Trachymene	ornata	
Waitzia	acuminata	Golden waitzia
Waitzia	suavolens	Poached egg waitzia

DISCUSSION:

With both a Reconnaissance and Detailed Survey conducted over 2 years at this site, a comprehensive species list was compiled in accordance with the requirements of a Permit Application to Clear (CPS 8598/1), from the Department of Water and Environmental Regulation.

The purpose of the Permit is to extract gravel from remnant vegetation adjacent to an existing gravel pit on private land. The Permit Application is for 5 hectares of native vegetation to be cleared. The existing gravel pit is approximately 20 hectares and the remnant vegetation surrounding this is approximately 420 hectares.

The species mix within the clearing envelope is a very standard list which occurs in red gravel soils in the central and eastern wheatbelt. No unusual vegetation types or associations were noted. Species which were not endemic to gravel soils such as Eucalyptus loxophleba ssp lissophloia, were outside the extremity of the area and delineate a change of soil from which no usable gravel will be found. These species were recorded during the Reconnaissance phase of the survey and therefore were excluded from the final clearing envelope application.

No species were found of special conservation value, priority or rare species detailed in the Nature Map report.

In conclusion, the site exhibits a standard gravel botanical mix of species, which has traditionally yielded good quantities of quality gravel. I have found no species which would put the application at variance with the need to protect species with special conservation status. I have found no special vegetation associations within the clearing envelope or in the wider environs where the Reconnaissance Survey was conducted.