

MRREC BUSHLAND MANAGEMENT PLAN 2016

Lot 508, Margaret River



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On-ground surveying conducted by Ann Matei and Tracy Skippings.

Prepared for Margaret River Regional Environment Centre Inc. (MRREC).

MRREC BUSHLAND MANAGEMENT PLAN

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1 VISION

A vision for the MRREC bushland is that:

The bushland of Lot 508 is in good ecological health. It is a good example of urban bushland that has been restored to a condition of health and resilience. Populations of diverse, indigenous plant species are in abundance and exotic plants (weeds) have been removed. The bushland is valued by local residents, visitors and town planners as part of an urban vegetation system that is integral to our sense of place, wellbeing and natural heritage.

2 AIMS

Overarching aims of the bushland management plan are to:

1. Restore the bushland of Lot 508 to good ecological health, and maintain this status.
2. Create a local example of effective 'natural' weeding and fuel reduction methods.

3 BACKGROUND

3.1 LOCATION

The MRREC bushland is situated at Lot 508 between Clarke Road, Railway Terrace, Betts Street and the Margaret River State Emergency Service. The address of the site is 41 Clarke Road, Margaret River WA 6285.

3.2 VESTING AND MANAGEMENT

Reserves 50552 and 39689, situated within Lot 508 are vested with the Shire of Augusta-Margaret River, which has granted a ten-plus-ten year lease of the site to Margaret River Regional Environment Centre Inc. (MRREC) who will manage the site bushlands in accordance with this bushland management plan.

3.3 INDIGENOUS CULTURE

The Margaret River (Wooditchup) region is part of Wardandi Noongar traditional lands. Lot 508 is within the catchment area of Yalgardup Creek, which feeds into the Margaret River. Rivers are generally listed as indigenous sacred sites, yet Lot 508 is not particularly near the river, and is therefore not included within a DIA listed river site. There are no known specific listings from the Department of Indigenous Affairs (DIA) website on Lot 508.

3.4 HISTORY

In the early days of settlement some of the properties opposite the reserve were used as a horse terminus when this was the main form of transport. A shed was later constructed on the site as a railway storage goods shed, and railway lines can still be found on the property. The shed has been used as a recycling station, and by the Margaret River Lions Club for their garage sales.

3.5 BUSHLAND CONDITION

The bushland of the site is generally in poor to fair condition, depending on which area of bush is being examined. The bushland of the site is divided into two sections by asphalt: a North West section, adjacent to Clarke Road and Betts Street (which includes a built wetland), and a South West section, adjacent to Railway Terrace and Betts Street – see 'Overview' Map in Appendices. As can be seen in the bushland condition maps in the appendices of this document, bushland in the North West section is, on average, of fair condition (40-60% native vegetation), with small pockets of bushland in good condition (60-80% native vegetation), and poor condition (0-40% native vegetation) around the edges due to the 'edge effect'. Bushland of the South West section is mostly in poor condition, with pockets of fair to good bushland.

Marris are a dominant tree species, along with some Blackbutt and Peppermint. There are examples of Xanthorrhoea grasstrees near the wetland, Macrozamia, Acacia, and other flowering species amongst the many understorey species – see Native Plant Species List in the appendices.

Of note: The 'North West' section of the bushland is a wetland area, and contains a minor stream – a rivulet perhaps – running through this section of the bushland towards the pool that is adjacent to Betts Street. As a natural feature of the bushland, this is an ideal point to concentrate conservation activities around, and to exclude potentially invasive practices, such as paths and burns, from.

4 ATTRIBUTES AND STRATEGIES

The attributes of the bushland of Lot 508 include that it is part of an urban bushland network, that it provides some habitat and fodder for native fauna, that it provides a visual, aesthetic amenity, and that it has the potential to be an educational example of 'natural' bush-care techniques. The table below illustrates stressors to these attributes, the plans objectives to be achieved in regards to the attributes, the priorities identified within the objectives, and the strategies to be employed to achieve them.

	Attributes	Stressors	Objectives	Priorities	Strategies
Urban Bushland Network and Biodiversity.	The bushland of Lot 508 forms part of a variably interconnected urban bushland system.	Edge effect and weed invasion. Discontinuity.	Maintain the bushland as part of the urban bushland network.	Restore the bush to health so that is a more valuable part of the network.	Follow plan to restore bushland health.
Fauna Habitat	The site and its bushland has provided habitat and fodder for several native species including ducks, lizards, kangaroos, frogs, bandicoots and cockatoos.	Surrounding Roads/ Discontinuity. Feral Animals.	Maintain the bushland as native fauna habitat and fodder.	Restore the bush to health so that is a more valuable for native fauna habitat and fodder.	Follow plan to restore bushland health.
Aesthetics	Local residents, and students walking to school, enjoy the visual aesthetics and beauty of the bushland.	Weeds and rubbish.	Maintain and improve the aesthetic of the MRREC bushland.	Remove weeds and rubbish, and restore the bush to optimal health.	Invite local residents to join MRREC Bushland Restoration Group in working on the bushland.
Example of Bushland Restoration Project	The site is relatively close to the town centre, so as to be accessible to the public, schools, TAFE and university. The bushland is in a condition that provides ample opportunity for demonstration of remedial practices.	Challenging workload. Potential burning regimes that may not be beneficial for biodiversity attributes.	Restore the bushland to optimal health in such a way as to demonstrate effectiveness of 'natural' and conservative bushland management practices.	Begin a bushland restoration project that is consistent with our objectives. Reduce 'fuel load' in a manner compatible with biodiversity.	Undertake weeding, and other bush restoration, programs. Undertake 'cool' mosaic burn during winter (for biodiversity and fuel-load reduction) and follow up weeding. Undertake complementary 'fuel reduction' strategies.

5 ACTIONS

Strategic actions to achieve the bushland management plan's aims are explained below:

5.1 ESTABLISH MRREC BUSHLAND RESTORATION GROUP

- MRREC will organise a small group of its members to run a program of bush restoration and weed removal on the site. The group will be responsible for implementation of the actions designated in this plan.

Action: *MRREC Committee to establish MRREC Bushland Restoration Group.*

5.2 WEED REDUCTION AND MONITORING

- Strategically and regularly removing weeds, allowing indigenous bushland the space to regenerate – see weeding schedule in Appendices.
- Ongoing weed and condition monitoring of the reserve (useful for renewing priorities for bush regeneration) i.e. which weeds to target and other activities.
- Dispose of weeds in a thoughtful manner, by small burns and composting.

Action: *MRREC Bushland Restoration Group to conduct weed reduction and monitoring activities.*

5.3 PLANTING AND SEED COLLECTION

- Purchase Replacement Plants: Funding application with SWCC or other organisation. 1500 plants estimated by botanist Ann Matei.
- Local provenance (within 5 kms radius) seed collection for future propagation e.g. Bosseae (Spring), Acacias, Billardierias, Leucopogons and more.

5.4 FUEL REDUCTION AND REGENERATIVE MOSAIC BURNING

A first step in managing fire on Lot 508 will be initial fuel load reduction by hand e.g. hand slashing and removal of weeds. This will remove and reduce a lot of the current fuel load. The next step could be a series of carefully planned 'cool' winter/spring trickle/mosaic burns and regular follow up hand weeding.

- Undertake manual reduction of fuel load by hand – i.e. removal and/or compression of sticks/dead branches and dry understorey near bushland floor. Some of this material can be burned in small piles on site. (Note: Some dead understorey is suitable for home fire use during winter, and can be removed from site. Pruning of lower branches to separate canopy from ground cover is appropriate to minimize fire-train.)

Action: *MRREC Bushland Restoration Group,*

- Establish very small-scale regenerative trickle/mosaic burning and follow-up weeding actions in selected pockets of the bushland, at appropriate and safe time of year (all relevant safety considerations will be taken into account when planning and implementing this action). Due to regular weeding activities of the group, some of the site's bushland is already improving significantly in condition, and fuel load is being reduced, thus not all areas of the bush require burning, especially not near the more fragile wetland area. The group could work with a local bushfire brigade to ensure safety and foster culture of small scale multi-purpose burning. (Mosaic burning by the Denmark Weed Action Group, in heavily weed infested bush, plus regular follow-up hand weeding, was found to be effective in restoring bushland to optimal health in Morgan Road Reserve, Denmark WA. – see Mosaic Burning Pic's in Appendices).

Action: *MRREC Bushland Restoration Group, MRREC, Local Bushfire Brigade.*

5.5 SUNDRY

- There are several small tracks from Railway Terrace through to the Shed area. Tracks in bushland contribute to the 'edge effect', the invasion of bushland by weed species. It has been suggested to block off most of the small tracks with branches/brushing. If necessary, temporary fencing and signage could be established.

Action: *MRREC Bushland Restoration Group*

6 RESOURCES

6.1 HUMAN RESOURCES

Human resources available, or potentially available, to contribute to actions in the bushland of Lot 508 include:

- MRREC volunteer team: A small committed group of supervised/trained volunteers – 2-4 hours per week/fortnight.

6.2 EQUIPMENT

Equipment to be used for actions in the bushland of Lot 508 includes:

- Hand weeding tools (garden forks, spades, buckets, secateurs, rubbish bags, pruning saws.etc.).

6.3 FUNDING

Funding available, or potentially available, to be used for actions in the bushland of Lot 508 include:

- General MRREC funds.
- Land-care grants (potential)

7 APPENDICES

7.1 ACKNOWLEDGMENTS

The author of this report would like to thank the following contributors to the Management Plan: Ann Matei (Botanist), Tracy Skippings (MRREC), Rick Ensley (Landcare worker/subcontractor to AMR Shire), and Diane Harwood (Denmark Weed Action Group).

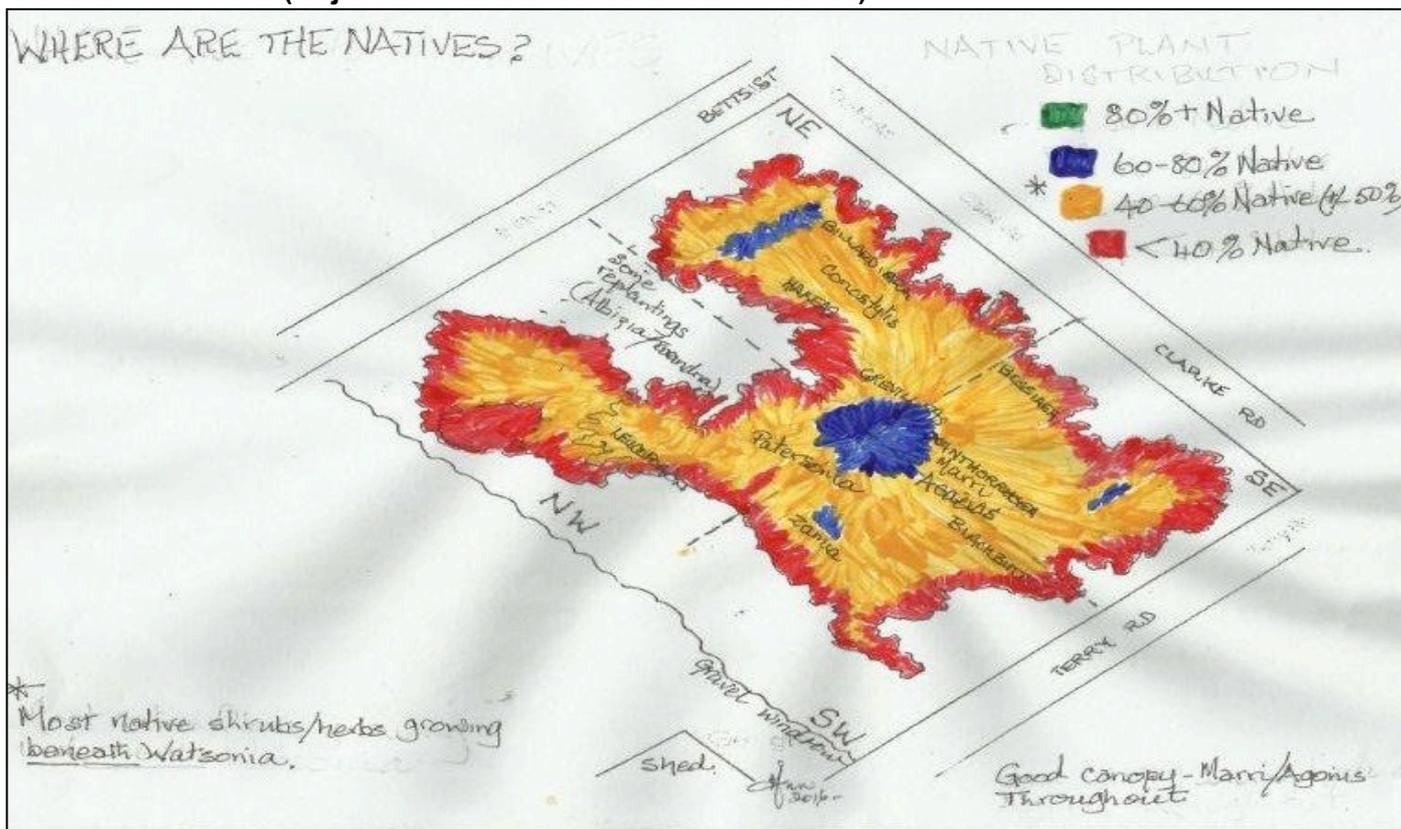
7.2 MAPS

7.2.1 Overview Map

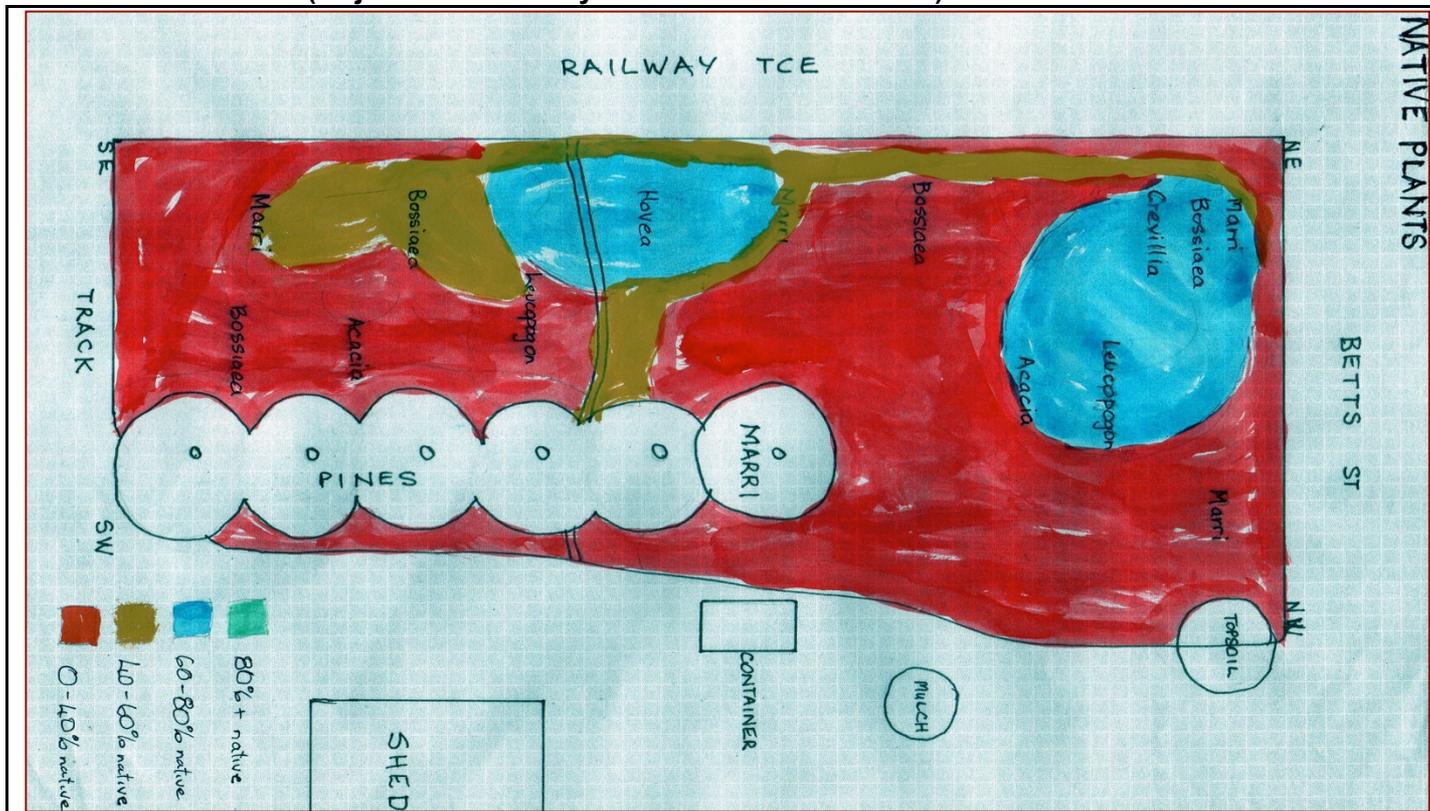


7.2.2 Bushland Condition Maps

North West Section (Adjacent to Clarke Road and Betts Road)



South West Section (Adjacent to Railway Terrace and Betts Road)



Key - Bushland Condition of Lot 508

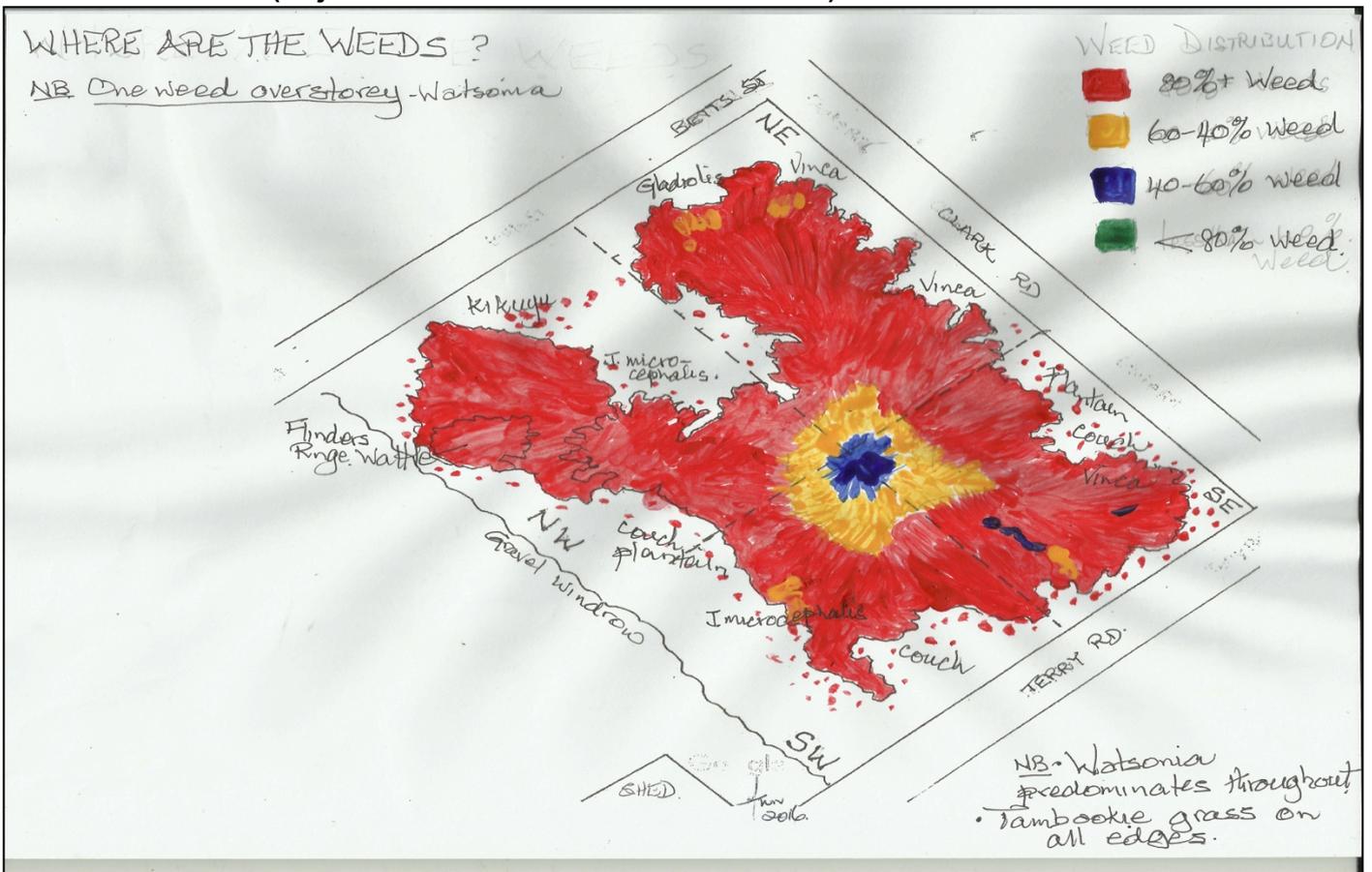
80% + Native
40-60% native

60-80% Native
0-40% Native

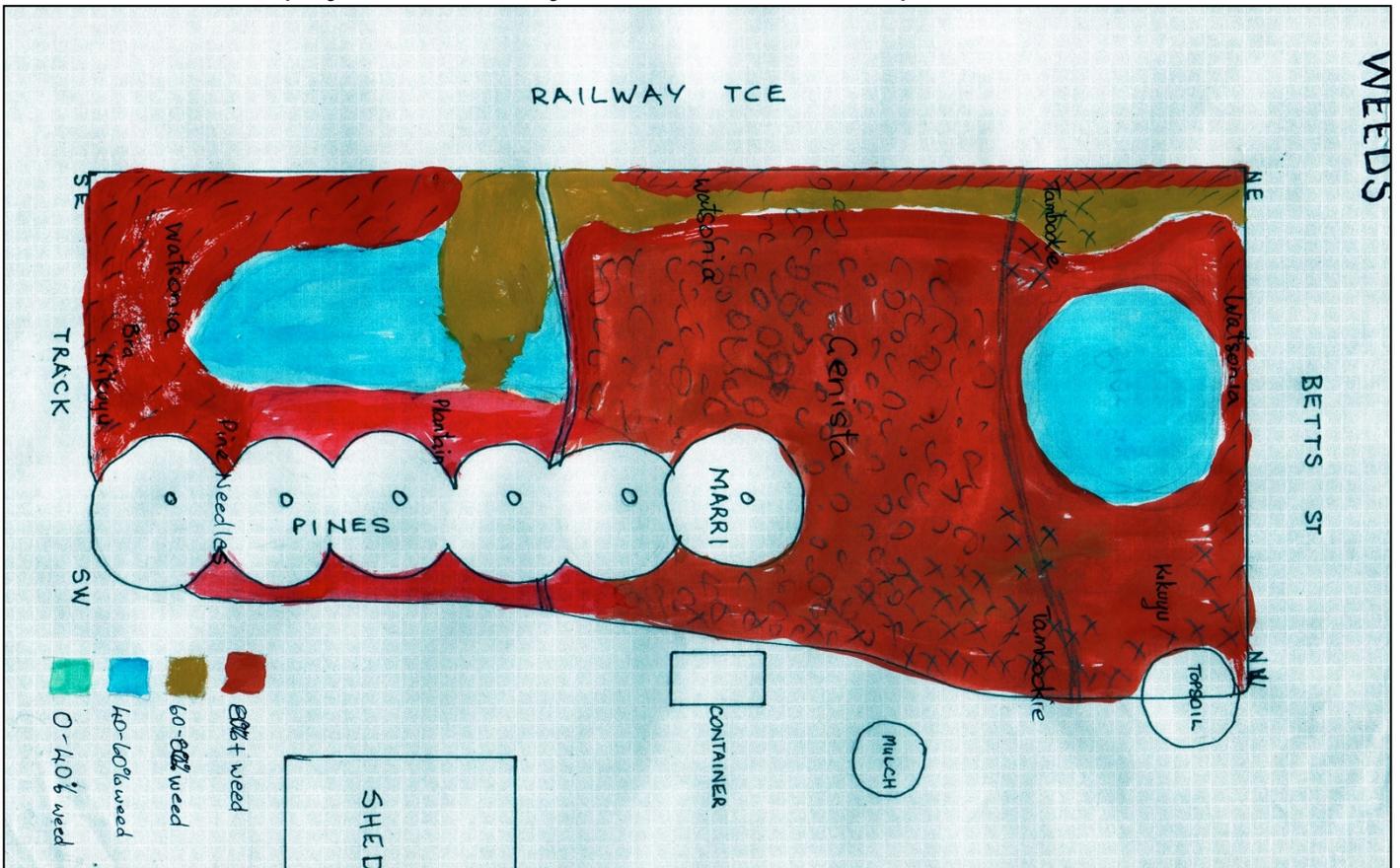


7.2.3 Weed Maps

North West Section (Adjacent to Clarke Road and Betts Road)



South West Section (Adjacent to Railway Terrace and Betts Road)



7.3 PLANTS LIST

7.3.1 Native Plant Species List

SOUTH WEST QUADRANT

FAMILY	GENUS	SPECIES	COMMON NAME
ANTHERICACEAE	Lomandra	Sp	Rolled leaf sedge
DILLENACEAE	Hibbertia	cunninghamii	Clasping Buttercup
DILLENACEAE	Hibbertia	hypericoides	Rough Buttercup
FABACEAE	Acacia	myrtifolia	Wattle
FABACEAE	Bossiaea	linophylla	
FABACEAE	Bossiaea	ornata	
FABACEAE	Acacia	pulchella	Prickly Moses
FABACEAE	Daviesia	Horrida	
FABACEAE	Hardenbergia	comptoniana	
FABACEAE	Hovea	chorizemifolia	
FABACEAE	Hovea	elliptica	
GOODENIACEAE	Dampiera	Linearis	Forest Dampiera
MYRTACEAE	Corymbia	callophylla	Red Gum/Marri
MYRTACEAE	Agonis	Flexuosa	Peppermint Tree
MYRTACEAE	Eucalyptus	Patens	Blackbutt
PHYLLANTHACEAE	Phyllanthus	calycinus	False Boronia
PITTOSPORACEAE	Billardiera	Laxiflora	
POACEAE	Tetrarrhena	laevis	
POACEAE	Themeda	Triandra	Kangaroo Grass
PROTEACEAE	Hakea	amplexicaulis	
RESTIONACEAE	Carax	Sp	
RESTIONACEAE	Taraxus/Loxocarya	Sp	Chinese Puzzle
RUBIACEAE	Opercularia	hispidula	Stinkwort
XANTHORRHOEACEA	Xanthorrhoea	Preissii	Grasstree
ZAMIACEAE	Macrozamia	Riedlii	Zamia

NORTH WEST QUADRANT

FAMILY	GENUS	SPECIES	COMMON NAME
CYPERACEAE	Lepidosperma	squamatum	
CYPERACEAE	Ficinia	Nodosa	Nodding Club Rush
CYPERACEAE	Tetraria	octandra	
DILLENACEAE	Hibbertia	cunninghamii	Clasping Buttercup
DILLENACEAE	Hibbertia	hypericoides	Rough Buttercup
ERICACEAE	Leucopogon	propinquus	
ERICACEAE	Leucopogon	verticillatus	
FABACEAE	Acacia	myrtifolia	
FABACEAE	Bossiaea	linophylla	
GOODENIACEAE	Dampiera	Linearis	Forest Dampiera
HAEMODORACEAE	Conostylis	Aculeate	Prickly Conostylus
HAEMODORACEAE	Conostylis	Setigera	Bristly Conostylus
IRIDACEAE	Pattersonia	occidentalis	Purple or yellow Flag
MYRTACEAE	Agonis	Flexuosa	Peppermint Tree
MYRTACEAE	Corymbia	callophylla	Red Gum/Marri
MYRTACEAE	Taxandria/Astartea	Sp	recent plantings
PROTEACEAE	Hakea	lissocarpha	Honey Bush
PROTEACEAE	Grevillea	quercifolia	Oak-leaf Grevillea

RESTIONACEAE	Lomandra	Sp	Club Rush
RESTIONACEAE	Loxocarya	Cinerea	Chinese Puzzle
RUBIACEAE	Opercularia	hispidula	Stinkwort
SANTALACEAE	Exocarpos	sparteus	
SANTALACEAE	Exocarpos	sparteus	Broome ballart/Native Cherry
SANTALACEAE	Leptomeria	squarrulosa	?? ID for this shrub.
XANTHORRHOEACEA	Xanthorrhoea	preissii	Grasstree

7.3.2 Exotic Plant (Weed) Species List

SOUTH WEST QUADRANT

FAMILY	GENUS	SPECIES	COMMON NAME
BIGNONIACEAE	Pandorea	jasminoides	Wonga Wonga Vine
BRASSICACEAE	Brassica	Sp	Turnip weed/Radish/?
IRIDACEAE	Watsonia	versfeldii	Watsonia
FABACEAE	Chamaecytisus	palmensis	Tagasate
FABACEAE	Genista	linifolia	
JUNCACEAE	Juncus	microcephalus	Juncus microcephalus
PLANTAGINACEAE	Plantago	lanceolata	Plantain/Lambs Tongue
POACEAE	Hyparrhenia	hirta	Tambooki Grass
POACEAE	Cynodon	dactylon	Couch

NORTH WEST QUADRANT

FAMILY	GENUS	SPECIES	COMMON NAME
APOCYNACEAE	Vinca	major	Periwinkle
ASTERACEAE	Gamochoaeta	Sp	Cudweed
FABACEAE	Acacia	iteaphylla	Flinders Range Wattle
IRIDACEAE	Gladiolus	undulatus	Wavy Gladiolus
IRIDACEAE	Watsonia	versfeldii	Watsonia
JUNCACEAE	Juncus	microcephalus	Juncus microcephalus
PLANTAGINACEAE	Plantago	lanceolata	Plantain/Lambs Tongue
POACEAE	Cenchrus (was Pennisetum)	clandestinum	Kikuyu
POACEAE	Cynodon	dactylon	Couch
POACEAE	Hyparrhenia	hirta	Tambooki Grass

7.4 WEEDING ACTIVITIES AND SCHEDULE

Action	Method	When
Chamaecytisus palmensis - Tagasate	Remove manually. Cut off branches, dig around base and cut roots.	June.
Pandorea jasminoides - Wonga Wonga Vine	Remove manually, cut stems and unwind from tree trucks and ground covers. Carefully pull roots which are shallow for up to 4 metres. Observe over next Spring season and year to assess success or further sprouting.	June, July, August
Plantago lanceolata - Plantain	Hand pulling/remove seed heads	Ongoing, Flowers 5 times a year.
Genista linifolia - Genista (large)	Cut/slash to remove flowering heads Large plants cut roots below soil level to remove.	June-Nov.
Genista (small)	Hand pulling.	June-Nov
Hyparrhenia hirta - Tambookie	Remove and bag any seed heads regularly. Hand weeding/digging regularly and laying plants on the ground as mulch deterrent with roots exposed. Broadcast native seed collected onsite. Replant with natives using onsite specimens if available of endemic species purchased locally.	June – ongoing. June – ongoing. April 2017 May – June 2017 When replacement plants are available.
Watsonia versfeldii	Remove and bag seed heads regularly. Weed out bulbs carefully from around native plants. This to be done in selected areas but not leaving bare exposed soil or disturbing soil unnecessarily. Twist and pull main stems leaving bulbs in ground to weaken bulb to rot over winter. Pull seedlings when small. Remove flower heads. Focus on one area at a time. Broadcast collected native seed from Bosseae, Leucopogon, Acacias, etc. Replace with natives divided from existing clumps or purchase local endemic species.	June – ongoing. June – Nov when soil is moist. June - ongoing June – Nov or until soil dries out. Sept to Dec April 2017 May 2017 onwards.
Wavy Gladiolus	DO NOT PULL OUT, unless small area with constant follow up. Paint with Pelagonic Acid if in sunlight (very effective contact and non-residual/organic). Cut carefully at ground level and cover with cardboard, carpet or plastic to eliminate light, moisture and nutrients.	June ongoing June ongoing
Juncus microcephalis (pond area)	Hand Pulling/digging, and removal of seed heads.	Sep – Jan 2017 when water recedes.
Cynodon dactylon - Couch Grass (among Genista)	Observe to assess threats to native plants Needs assessment, could be native Couch. Cover, eliminate light etc. Keep shaded Dig out.	June ongoing to 2017
Cenchrus clandestinum - Kikuyu	Observe to assess threat to native plants.	June ongoing to 2017

<p>(near pond, under Pines)</p>	<p>Cover, mulch with paper, cardboard etc. and a thick layer of heavy mulch. Keep shaded. Pull or dig out especially from around native plants. Could harrow/cultivate with garden plough thing first if it's a monoculture. Makes the pulling easier Paint or spray with Pelagonic Acid in sun e.g. northern end of wetland, but will kill anything it hits so operate carefully.</p>	<p>During growing season, Spring</p>
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7.5 PLANT PHOTOS

7.5.1 Native Plant Photos



Figure 1 - *Acacia pulchella*



Figure 2 - *Billardiera laxiflora*



Figure 3 - *Acacia myrtifolia*



Figure 4 - *Bossiaea linophylla*



Figure 5 - *Dampiera linearis*



Figure 6 - *Hibbertia hypericoides*



Figure 7 - *Macrozamia reidley*



Figure 8 - *Pattersonia occidentalis*



Figure 9 - *Xanthorrhoea preissii*



Figure 10 - Sedge 1



Figure 11 - Sedge 2



Figure 12 - Sedge 3



Figure 13 - *Bossiaea ornata*



Figure 14 - *Daviesia horrida*



Figure 15 - *Exocarpos sparteus*



Figure 16 - *Grevillea quercifolia*



Figure 17 - *Hakea amplexicaulis*



Figure 18 - *Hakea lissocarpa*



Figure 19 - *Hardenbergia comptoniana*



Figure 20 - *Hovea chorizemifolia*



Figure 21 - *Hovea elliptica*



Figure 22 - *Leucopogon propinquus*



Figure 23 - *Leucopogon verticillatus*



Figure 24 - *Tetraria octandra*



Figure 25 - *Tetrarrhena laevis*



Figure 26 - Unknown native 1



Figure 27 - Unknown native 2 with gum blossom



Figure 28 - Unknown native 3

7.5.2 Weed Photos



Figure 29 - Wonga wonga vine weed



Figure 30 - Tagasaste weed



Figure 31 - Tambookie grass weed



Figure 32 - Pinus pinaster weed



Figure 33 - Pinus pinaster weed (2)



Figure 34 - Plantago lanceolata weed



Figure 35 - Exotic weed



Figure 36 - Watsonia versfeldii



Figure 37 - Cynodon dactylon (Couch)



Figure 38 - Orobanche minor weed



Figure 39 - Genista linifolia



Figure 40 - Cenchrus clandestinum (Kikuyu)

7.5.3 Views



Figure 41 - SW to E



Figure 42 - SE to N



Figure 43 - NW to S Railway Tce



Figure 44 - NE to W

7.6 MOSAIC BURNING AND FUEL LOAD REDUCTION SCHEDULE



Figure 45 - Trial 'Cool' burn location, Winter 2017

The area identified above – within the blue rectangle - could be a site for a trail 'cool' mosaic burn, conducted after the first winter rains, as detailed in the table immediately below. The area identified is on the Shire managed verge alongside Betts Street. While there is a large amount of weeds in this area, there are also native plants to carefully work around.

Action	Detail	When
Manual Fuel Reduction	Removal of weed bank, and hand weeding around vulnerable native plants.	By Spring/Summer 2016
Burn 1 – Location 1	A 'cool' burn conducted in area 1	Winter 2017, after firsts rains.
Follow up weeding	Weeds removed over year	Over whole year, regularly
Assessment	The group will assess how effective the burn was in both improving the quality of the native bushland and reducing fuel load in the area burnt, in comparison the effectiveness of weed removal/fuel load reduction conducted on other parts of the site, and decide if, where and when to conduct another burn.	Autumn 2018

Pic's of Mosaic Burning in Denmark WA.



Dry Understorey - Fuel Load



Ignition 2001 – Pic: Kay Stehn



Trial Site 2001 – Pic: Kay Stehn

7.7 PLANTING SCHEDULE

Planting will occur around natives, replacing weeds removed, at a slow, steady, incremental pace, rather than large amounts. Plants may be purchased in small numbers by MRREC, or in greater numbers, by accessing a land-care grant. Larger amounts of plants could be used to replace the area of Genista weed, and perhaps on Shire verges in Betts Road. A planting schedule will be developed in response to need. Direct seeding is also an option.