

A Survey of Roadside Conservation Values in the Shire of Augusta-Margaret River and Roadside Management Guidelines



Populations of Declared Rare Flora such as *Darwinia ferricola*, pictured above, can be found along roadsides in the Shire of Augusta-Margaret River.

Photos – S. D. Hopper, WA Herbarium

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Roadside Conservation Committee



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1.0 INTRODUCTION

The Shire of Augusta-Margaret River is located 290 km south of Perth in Western Australia's Blackwood Region. The major agricultural pursuits and industries in the area are timber, viticulture, dairy, beef, sheep, horticulture and fishing. Tourism is also an important industry, with the area's spectacular natural resources, such as the Leeuwin lighthouse; Boranup forest; Flinders Bay; Ellensbrook homestead; Canebreak; Scott River National Park; Cowaramup Bay; Calgardup (Redgate); Kilcarnup; Leeuwin Naturaliste National Park; heritage walk trails and beaches. The Shire records approximately 1.5 million visitors annually, with 500,000 visiting the Augusta Margaret River Tourism Association.

The Shire of Augusta-Margaret River covers an area of 2,370 square kms, of which 998 square kms (42%) is State forest and National Park, and supports a population of approximately 10,500 people. The area experiences a mediterranean climate with an average annual rainfall of 1195 mm. Seasonal temperatures are characterised by warm summers, with maxima averaging from the mid to high twenties, and mild winters, with maxima in the mid teens. Mean daily maximum and minimum temperatures and rainfall statistics are shown below.

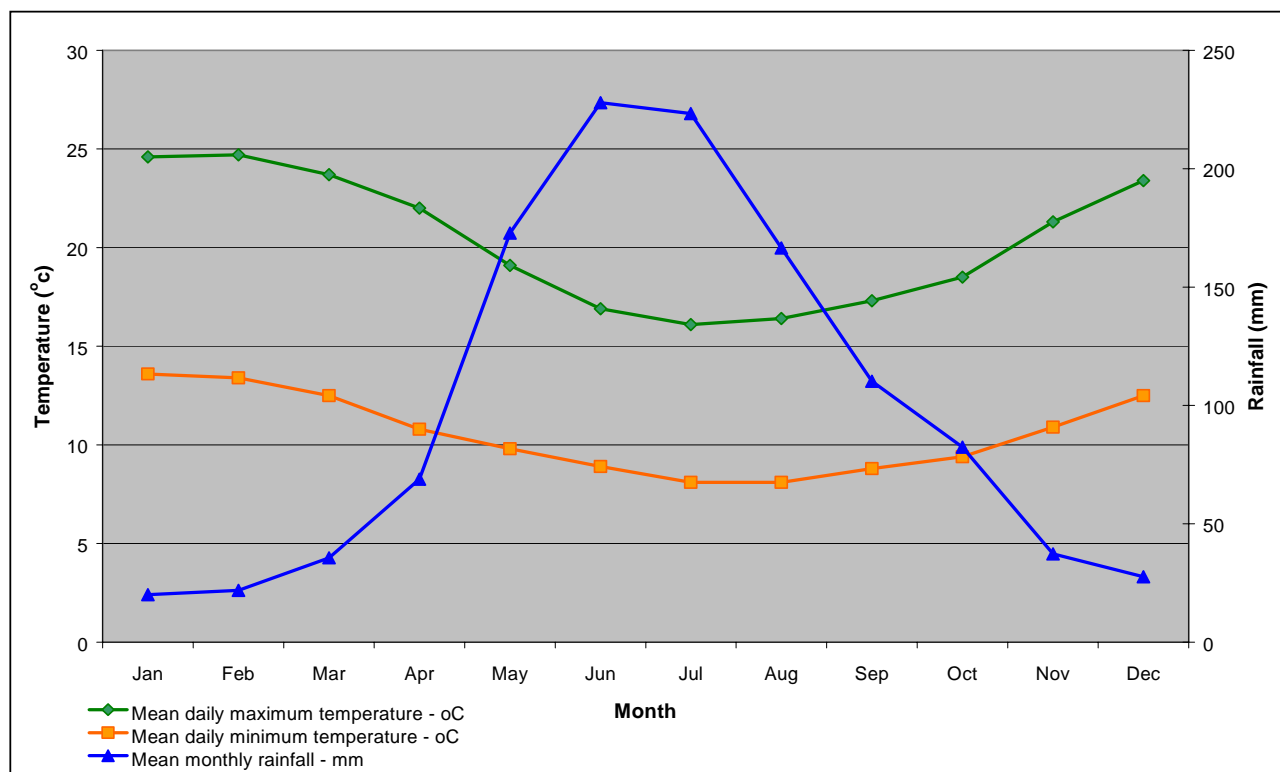


Figure 1 – Mean daily maximum and minimum temperature (°C) and rainfall (mm) in the Shire of Augusta-Margaret River, based on climate averages from the Karridale weather station 009560.

1.1 Flora and Fauna

The WA herbarium records more than 1300 different species of plants from the Shire of Augusta-Margaret River (see Appendix 4) and these include: 44 *Acacia spp*, 23 *Boronia spp*, 36 *Caladenia spp*, 22 *Drosera spp*, 30 *Hibbertia spp*, 30 *Leucopogon spp*, 18 *Pimelea spp*, and 49 *Stylidium spp*. There are 75 populations of declared rare flora (DRF) that occur within roadsides in the Shire, see section 4.2.

Threatened and priority fauna observed in the Shire of Augusta-Margaret River, based on information from the Department of Conservation and Land Management, indicates that 18 species have been recorded or sighted throughout the Shire.

These include:

- Kawaniphila pachomai (*Kawaniphila pachomai*)
- Black Bittern (*Ixobrychus flavicollis australis*)
- Hooded Plover (*Charadrius rubricollis*)
- Malleefowl (*Leipoa ocellate*)
- Crested Shrike-tit (*Falcunculus frontatus leucogaster*)
- Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*)
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)
- Water-rat (Rakali) (*Hydromys chrysogaster*)
- Western False Pipistrelle (*Falsistrellus mackenziei*)
- Black-stripe Minnow (*Galaxiella nigrostriata*)
- Chuditch (*Dasyurus geoffroii*)
- Brush-tailed Phascogale (*Phascogale tapoatafa*)
- Western Brush Wallaby (*Macropus irma*)
- Quenda (*Isodon obesulus fusciventer*)
- Cape Leeuwin Freshwater Snail (*Austroassiminea lethia*)
- White-bellied Frog (*Geocrinia alba*)
- Orange-bellied Frog (*Geocrinia vitellina*)
- Carpet Python (*Morelia spilota imbricata*)



Water Rat

(Photo by the Department of Conservation and Land Management)



Red-tailed Black Cockatoo

(Photo by Bert and Babs Wells)

1.2 Remnant Vegetation Cover

The Shire of Augusta-Margaret River retains 71.7% of its original native vegetation, and these are located in a variety of tenures, from nature and crown reserves to privately owned bushland. Smaller, more isolated patches of remnant vegetation exist in the more heavily cleared areas such as Cowaramup East, Rosa Brook, Margaret River, Witchcliffe, and Augusta, resulting in a matrix of man-made and natural landscapes. Flora and fauna living in these isolated remnants require connectivity throughout the landscape to find nesting sites, food, shelter and to breed. As a consequence, the presence of native vegetation in transport corridors is of vital importance. The presence of bush corridors to connect these areas is paramount to the survival of our native flora and fauna. A comparison of remnant vegetation in Augusta-Margaret River and with surrounding Shires can be seen in Table 1.

Shire	Percentage of Vegetation Cover Remaining
Augusta-Margaret River	71.7%
Busselton	44.5%
Nannup	94.0%
Bridgetown-Greenbushes	67.9%
Donnybrook-Balingup	72.0%

Table 1. Remnant vegetation remaining in the Shire of Augusta-Margaret River and surrounding Shires.

The 33 broad vegetation associations known from the Shire of Augusta-Margaret River, noted in Table 2, provide an indication of the assemblages of native vegetation present prior to European settlement. It should be noted that these assemblages are indicative of the Shire per se and not specifically representative of roadside remnants.

National Objectives and Targets for Biodiversity Conservation 2001-2005 (Environment Australia, 2001) stated that vegetation associations represented by less than 30% remnant vegetation cover are considered ecologically endangered and in need of protection and restoration wherever they are located. There are 7 vegetation associations below or near the 30% target of vegetation coverage in the Shire of Augusta-Margaret River, see Table 2. National targets for biodiversity conservation (2001-2005) state the need to have protection measures in place for those vegetation associations that are below 30%. Vegetation associations with between 10-30% are considered vulnerable, between 30-50% are considered depleted (of the pre 1750 extent).

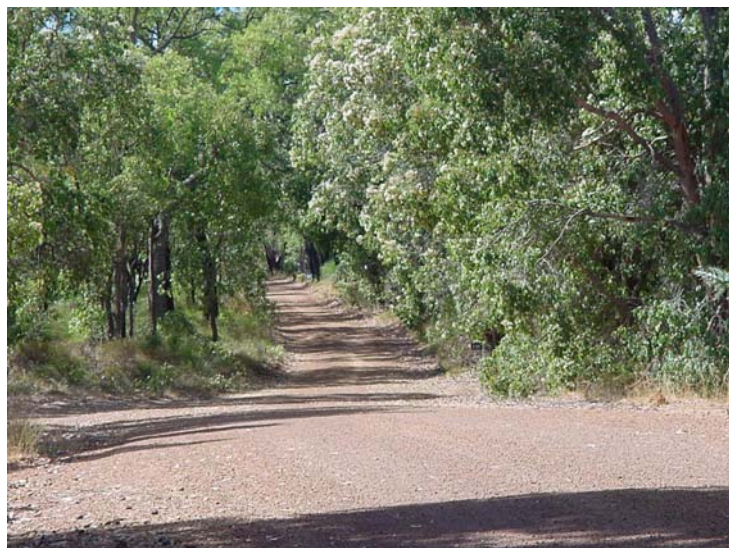
Vegetation Association	Description	% Remaining
1	Tall forest; karri (<i>Eucalyptus diversicolor</i>)	66.2
2	Tall Woodland; tuart (<i>E. gomphocephala</i>)	60.5
3	Medium forest; jarrah - marri	72.1
14	Low forest; jarrah	76.1
22	Low woodland; <i>Agonis flexuosa</i>	65.8
23	Low woodland; jarrah-banksia	67.2
27	Low woodland; paperbark (<i>Melaleuca sp.</i>)	66.1
37	Shrublands; tea-tree thicket	55.9
51	Sedgeland; reed swamps, occasionally with heath	51.7
949	Low woodland; banksia	82.6
965	Medium woodland; jarrah & marri	4.7
973	Low forest; paperbark (<i>Melaleuca raphiophylla</i>)	30.9
975	Low woodland; jarrah	76.3
990	Low forest; peppermint (<i>Agonis flexuosa</i>)	60.8
1000	Mosaic; Medium forest; jarrah-marri / Low woodland; banksia / Low	24.6
1002	Medium open woodland; jarrah	95.3
1008	Medium open woodland; marri	18.0
1009	Medium woodland; marri & river gum	30.4
1030	Low woodland; <i>Banksia attenuata</i> & <i>B. menziesii</i>	63.6
1034	Medium woodland; marri, wandoo & powderbark	60.8
1103	Shrublands; Acacia & lamarchea thicket	100.0
1104	Mosaic; Shrublands; scrub-heath / Shrublands; <i>Acacia rostellifera</i> & <i>Melaleuca</i>	96.1
1108	Shrublands; <i>Acacia decipiens</i>	66.6
1109	Shrublands; peppermint scrub, <i>Agonis flexuosa</i>	69.7
1132	Medium forest; marri	80.5
1136	Medium woodland; marri with some jarrah, wandoo, river gum and	8.8
1137	Shrublands; <i>Melaleuca incana</i>, <i>Hakea tuberculata</i>, <i>Viminaria juncea</i> scrub	27.9
1138	Low forest; jarrah & marri	62.6
1144	Tall forest; karri & marri (<i>Corymbus calophylla</i>)	69.7
1180	Shrublands; <i>Calothamnus quadrifidus</i> & <i>Hakea trifurcata</i> (Cape Naturaliste)	74.7
1181	Medium woodland; jarrah & <i>Eucalyptus haematoxylon</i> (Whicher Range)	45.3
1183	Medium woodland; <i>Eucalyptus rudis</i> & blackbutt with some bullich, jarrah &	88.0
1185	Medium woodland; jarrah, marri & blackbutt	93.8

Table 2. Vegetation associations in the Shire of Augusta-Margaret River, and the percentage of original extent remaining throughout WA (Shepherd, Beeston and Hopkins, 2001).

2.0 VALUES OF ROADSIDES

Since the settlement of Western Australia by Europeans, large areas of native vegetation in the south west of the state have been cleared for agriculture, roads, settlements, and other development. The fragmentation of the more or less continuous expanse of native vegetation communities by clearing has resulted in the isolation of plant and animal populations which have become severely disadvantaged by becoming isolated within a mosaic of man-made biogeographical islands of small native vegetation remnants. These are typically unreliable for sustaining wildlife due to food shortages, disease and reduced genetic diversity caused by a diminishing gene pool. Nevertheless, the presence of native vegetation along roadsides can often assist in alleviating this isolation effect by providing connectivity between bush remnants, thereby facilitating the movement of biota across the landscape.

Remnant vegetation includes more than just trees, comprising a diverse mix of trees, shrubs and ground covers (creepers, grasses and herbs) which when intact provide valuable food and shelter for local biodiversity. Existing native vegetation generally requires less maintenance if left undisturbed.



Remnant vegetation includes more than just trees.

Remnants in transport corridors are also valuable because they:

- are often the only remaining example of original vegetation within extensively cleared areas;
- are easier to maintain and generally less fire prone than introduced vegetation;
- provide habitat for many native species of plants, mammals, reptiles, amphibians and invertebrates;
- provide wildlife corridors linking other areas of native vegetation;
- often contain rare and endangered plants and animals. Currently, roadside plants represent more than 80 per cent of the known populations of 40 of the declared rare species, and three of these are known only to exist in roadside populations;
- provide the basis for our important wildflower tourism industry. The aesthetic appeal of well-maintained roadsides should not be overlooked, and they have the potential to improve local tourism and provide a sense of place;

- often contain sites of historic or cultural significance;
- provide windbreaks and stock shelter areas for adjoining farmland by helping to stabilise temperature and reduce evaporation.
- assist with erosion and salinity control, and not only in the land adjoining the road reserve per se;
- are generally far less of a fire threat than annual weeds;
- provide a benchmark for the study of soil change throughout the advancement of agriculture;
- are a vital source of local seed for revegetation projects in the absence of other alternatives;
- provide a valuable source of seed for regeneration projects. This is especially pertinent to shrub species, as clearing and grazing beneath farm trees often removes this layer;

Approval of the local shire and a CALM permit are required prior to collection.

In a time of rapid change, where the demands placed on the natural resources are numerous, it is vital that there is a coordinated management of lands across all tenures and boundaries to ensure the sustainability and integrity of the natural biota ecosystem processes, agricultural lands and service infrastructure.



Roadsides are the vital link and a priceless community asset.

3.0 LEGISLATION

Uncertainty often exists in the minds of many with regard to the 'ownership', control and management of 'the roadside'. This problem is also exacerbated by the multitude of legislative reference to activities within a transport corridor.

The Department of Conservation and Land Management (DCLM) has the legislative responsibility to manage and protect all native flora and fauna in Western Australia. It is important to note that all flora and fauna is protected under provisions of the *Wildlife Conservation Act 1950* and cannot be taken unless it is taken in a lawful manner. In addition to the general provisions relating to protected flora under the *Wildlife Conservation Act*, special protection is afforded to flora that is declared as rare or threatened under section 23F of the *Wildlife Conservation Act*.

The legislation pertaining to the management of road reserves is complex and includes those listed below.

State legislation:

- *Aboriginal Heritage Act 1972*
- *Agriculture and Related Resources Protection Act 1976*
- *Bush Fires Act 1954*
- *Conservation and Land Management Act 1984*
- *Environmental Protection Act 1986*
- *Heritage of WA Act 1990*
- *Land Act 1933*
- *Local Government Act 1995*
- *Main Roads Act 1930*
- *Mining Act 1978*
- *Soil and Land Conservation Act 1945*
- *State Energy Commission Supply Act 1979*
- *Water Authority Act 1987*
- *Wildlife Conservation Act 1950-1979*

Commonwealth legislation:

- *Environment Protection and Biodiversity Conservation Act 1999*

It is recommended that a cautionary approach be taken when working within roadsides, and that the relevant authority be contacted if there is any doubt about the management or protection of heritage or conservation values present in the roadsides.

The Environmental Protection Amendment Bill 2002 is currently before parliament and it is envisaged that this will require greater adherence to legislative requirements before native vegetation is cleared. This legislation will provide for two types of permits which will provide for permission to clear native vegetation, however they will have certain conditions attached to them. One of these will be to prepare, implement and adhere to a roadside or specific tenure management plan. Before any native vegetation clearing is undertaken it is incumbent on the project manager or land manager to ensure that the proposed clearing is being carried out under the terms and conditions of the pending legislation, as there are transitional provisions within it, which are retrospective from 26th June 2002.

4.0 ROADSIDE CONSERVATION IN THE SHIRE OF AUGUSTA-MARGARET RIVER

4.1 Collection of native plant material from roadsides

The Shire of Augusta-Margaret River does not generally allow the collection of wildflowers or seed from native plants within road reserves. Exceptions may be granted for special cases, and for particular species. Under the *Wildlife Conservation Act* the Department of Conservation and Land Management may issue a licence following Shire approval.

Collecting seed from a roadside may be the only option in cases where there are no other sources of seed for revegetation, although, it has the potential to impact negatively on the roadside flora. Collection of native plant material from roadsides:

- further depletes the already scarce resource,
- can detract from the integrity of the roadside,
- reduces the amount of seed available for natural regeneration,
- reduces the ability of the area to regenerate after disturbances such as fire, and
- threatens roadside plant communities with the potential introduction and spread of two major threats – *Phytophthora* dieback and weeds.

4.2 Declared Rare Flora (DRF)

Declared Rare Flora (DRF) refers to species, or populations of native plants that are of great significance and should be treated with special care when road and utility service, construction or maintenance is undertaken. Populations of DRF along roadsides are designated Special Environmental Areas (SEA's) and are marked out by yellow stakes

with an identification plate welded on. See figures 10 and 11.

It is the responsibility of the road manager to ensure these markers are installed, and guides for this are outlined in 'Guidelines for Managing SEA's in transport corridors', available from the Roadside Conservation Committee.

DRF sites in the Shire of Augusta-Margaret River need to be checked for the presence of appropriate markers,



Meziella trifida

Photos R. Davis & G.J Keighery

and their locations be made known to all involved in the management and planning of works within the roadside environment.

As of June 2003, the Shire of Augusta-Margaret River had 75 populations of DRF species on roadsides, with 65 of these sites vested in the Shire. Species of DRF in the Shire of Augusta-Margaret River include:

- *Acacia inops*
- *Acacia subracemosa*
- *Adenanthos detmoldii*
- *Amperea micrantha*
- *Anthotium junciforme*
- *Banksia meisneri* subsp. *ascendens*
- *Boronia exilis*
- *Bossiaea disticha*
- *Caladenia excelsa*
- *Chordifex isomorphus*
- *Conospermum paniculatum*
- *Conospermum quadripetalum*
- *Darwinia ferricola*

- *Drakaea micrantha*
- *Dryandra nivea* subsp. *uliginosa*
- *Grevillea brachystylis* subsp. *australis*
- *Grevillea manglesioides* subsp. *ferricola*
- *Grevillea papillosa*
- *Hakea tuberculata*
- *Isopogon formosus* subsp. *dasylepis*
- *Jansonia formosa*
- *Lambertia orbifolia* subsp. *Scott River Plains*
- *Lepyrodia heleocharoides*
- *Meziella trifida*
- *Synaphea nexosa*
- *Thomasia laxiflora*
- *Verticordia lehmannii*
- *Verticordia plumosa* var. *vassensis*



Grevillea brachystylis* subsp. *Australis

Photos by J.A. Cochrane, A.D. Crawford, S.D Hopper (Florabase)



Dryandra nivea* subsp. *uliginosa

Photo J.A. Cochrane & M. Pieroni (Florabase)



Adenanthos detmoldii

Photo- S.D. Hopper (Florabase)

For more information regarding DRF it is advisable to contact the Flora Officer for the Blackwood District (08) 9752 5510. If roadworks are to be carried out near DRF sites, or the yellow stakes have been disturbed, it is advisable to contact DCLM at least one week in advance.

4.3 High Conservation Value Roadsides as Flora Roads

A flora road is one which has special conservation value because of the vegetation contained within the road reserve. The managing authority may decide to declare a Flora Road based on the results of the survey of roadside conservation value. Roadsides determined as having high conservation value in the Shire of Augusta-Margaret River include:

- Miamup Road
- Cowaramup Bay Road
- Clews Road
- Fiftyone Road
- Ellenbrook Road
- Fisher Road
- Governor Broome Road
- Sebbes Road
- Bessell Road
- Caves Road
- Greenhill Road
- Schroeder Road
- Stockdill Road
- Rosa Glen Road
- Rosa Brook Road
- Redgate Road
- West Calgardup Road
- Boodjinup Road
- Cusack Road
- Sunshine Avenue
- Osmongton Road
- Courtney Road
- Bullant Drive
- Low Road
- Milyeanup Coast Road
- McLeod Creek Road
- Darch Road
- Brittain Road

(Not a complete list, consult the 2003 Roadside Conservation Value Map)

These, and other roads may be investigated further to see if they warrant a declaration as a Flora Road. This has a twofold effect of drawing the attention of tourists to the high conservation value roadside and it also alerts all that work in the roadside environment that the marked section of roadside requires due care to protect the values present.

Roads known to have already been declared as Flora Roads, or wildflower drives, in the Augusta-Margaret River Shire include Sebbes Rd, Carters Rd, Twenty-four Rd, Scott River Rd, Governor Broome Rd, and Fifty-two Rd.

In order to plan roadworks so that important areas of roadside vegetation are not disturbed, road managers should know of these areas. It is suggested that the Shire establish a *Register of Roads Important for Conservation* (see section 7.4).



Tourism

Attractive roadside drives are an important drawcard in this, the "Wildflower State".

Declared Flora Roads will, by their very nature, be attractive to tourists and would often be suitable as part of a tourist drive network.

Consideration should be given to:

- Promoting the road by means of a small brochure or booklet,
- Showing all Flora Roads on a map of the region or State,
- Using specially designed signs to delineate the Flora Road section (contact the RCC).



Roadsides are one of the most accessible places for tourists to view wildflowers.



Management

Management objectives should involve disturbing the roadside flora as little as possible, consistent with the provision of a safe and efficient roadway. The management of Flora Roads should aim to:

- Minimise disturbance,
- Control weeds,
- Encourage natural regeneration.

The techniques referred to in Section 7.0 of this report can be used to minimise disturbance to roadside vegetation. Most importantly, staff should be instructed and supervised so that incremental widening does not occur at every pass of the grader. Environmental assessments (pre-construction check-lists) should be completed prior to any upgrading work, to assist with planning for flora preservation. Fire management should be undertaken in such a way so as to take into account the ecological needs of the flora. Where rehabilitation is contemplated, local native species should always be used.

4.4 Weeds

Weeds are plants that are growing outside their natural range and competing with native plants for nutrients, space, water and light. Weeds often invade roadsides and interfere with the growth and survival of native plants. The effect of weed infestations on native plant populations is severe, and causes flow on effects for native fauna. Once native plants begin to diminish, due to heavy competition, native fauna suffers due to reduced availability of habitat and food. Once weeds become established in an area, they become a long-term management issue, costing many dollars to control or eradicate. The WA Herbarium records 212 weed species in the Shire of Augusta-Margaret River, see Appendix 4

Weed invasion along roadsides is an important issue in the Shire of Augusta-Margaret River. The Augusta Margaret River Shire undertakes a yearly weed eradication and re-planting program that targets road reserves. The Roadside Conservation Value map and weed overlays will assist the Shire in coordinating strategic weed control projects, with the highest priority to protect and preserve the high conservation value roadsides, and working towards rehabilitating those with a lower conservation value. The Augusta-Margaret River Shire is working towards the establishment of a Weed Action Group, which through community participation and feedback, will work towards a better system of weed control. The shire has held workshops on the release of the bridal creeper rust fungus, which has been spread throughout the shire, and local greencorp teams are working on weed eradication programs.

Various weeds were recorded and mapped along roadsides in the Shire of Augusta-Margaret River, as part of the roadside survey, see Figure 9. The roadside locations of some of the nominated weed species can be observed in the weed overlays provided with the Roadside Conservation Value map (2003).

Roadside populations of the following 7 nominated weeds can be seen on the overlays accompanying the RCV map:

- Gladioli (*Gladiolus spp.*),
- Freesia (*Freesia hybrid*),
- Dock (*Rumex spp.*)
- Watsonia (*Watsonia spp.*),
- Victorian tea tree (*Leptospermum laevigatum*),



Victorian Tea Tree

Photos C. Hortin

- Arum lily (*Zantedeschia aethiopica*),
- Bridal creeper (*Asparagus asparagoides*),

The general category of “grassy weeds” and “other weeds” are also shown on clear overlays, incorporating a number of different weed species.



Long-tubed painted lady, *Gladiolus angustus*

Photo Western Weeds, 1997

The WA Herbarium recorded two species of Gladioli in the Shire of Augusta-Margaret River, *Gladiolus angustus* and *Gladiolus cardinalis*.



Bridal Creeper, *Asparagus asparagoides*

Photo by K. Jackson



Arum Lily, *Zantedeschia aethiopica*

Photos by R.Knox, K. Dean, R. Randall & Anon.

The WA Herbarium recorded six species of *Watsonia* in the Shire of Augusta-Margaret River. Three of these, *Watsonia borbonica*, *Watsonia meriana* var. *bulbillifera*, and *Watsonia versfeldii* are pictured below.



Watsonia borbonica

Photo by S.J.Patrick



Watsonia meriana* var. *bulbillifera

Photo by R. Randall



Watsonia versfeldii

Photo by J.P.Pigott

4.5 *Phytophthora* Dieback

The *Phytophthora* species dieback is made up of several types of introduced fungi. About one third of native plants in Western Australia's south-west are susceptible, including species of Banksia, Hakea, Eucalyptus, Melaleuca, Verticordia, Acacia and Grevillea.

The *Phytophthora* fungus infects the roots and inhibits the uptake of water and nutrients, eventually causing death. It is more widespread and severe in the higher rainfall zone and waterlogged sites. The Shire of Augusta-Margaret River is a known *Phytophthora* dieback risk area, particularly in forested, multiple use areas.

Phytophthora spreads by the movement of spores in water, or by the spread of infected soil. The spores can be introduced to uninfected areas by human activities, particularly through the soil carried on vehicle tyres or footwear.

Human activities, such as routine maintenance or construction, have the potential to spread *Phytophthora* fungi. Currently, there is no practical method of eradicating *Phytophthora* once it is established in an area.



Impact of *Phytophthora* Dieback

Photo Dieback Working Group

The Dieback Working Group has published a booklet, *Managing Phytophthora Dieback in Bushland: A guide for Landholders and Community Conservation Groups*, that provides detailed information on minimising the risk of introducing or spreading *Phytophthora*.

5.0 ASSESSMENT PROCESS

5.1 Methods

The methods to assess and calculate the conservation value of the roadside reserves are described in *Assessing Roadsides: A guide for Rating Conservation Value* (Jackson, 2002). The process involves scoring a set of pre-selected attributes, which, when combined, represent a roadside's conservation status. A list of these attributes is presented on a standard survey sheet, see Appendix 2. This provides both a convenient and uniform method of scoring.

Ideally, the survey is undertaken by a group of local volunteers, who, aided by their knowledge of the area, are able to provide an accurate and cost effective method of data collection. Community participation also ensures a sense of ownership of the end product, which increases the likelihood of its acceptance and use by the local community and road managers (Lamont and Blyth, 1995).

The majority (556.2 km) of the Shire of Augusta-Margaret River's 911.5 km of roadsides were assessed for their conservation status and mapped. Fieldwork was carried out throughout the months of June, August, October, November and December in 2001, April, September, October and November in 2002, and April 2003.

The enthusiastic efforts of the volunteer surveyors, and project coordinator Merryn Delaney ensured that this project was successfully completed.

5.2 Quantifying Conservation Values

The following attributes were used to produce a quantitative measure of conservation value:

- native vegetation on roadside;
- extent of native vegetation along roadside;
- number of native species;
- weed infestation;
- value as a biological corridor; and
- predominant adjoining land use.

Each of these attributes was given a score ranging from 0 to 2 points. Their combined scores provided a conservation score ranging from 0 to 12. The conservation values, in the form of conservation status categories, are represented by the following colour codes

Conservation Value	Conservation Status	Colour Code
9 – 12	High	Dark Green
7 – 8	Medium High	Light Green
5 – 6	Medium Low	Dark Yellow
0 – 4	Low	Light Yellow

Table 3: Colour codes used to depict the conservation status of roadsides.

The following attributes were also noted but did not contribute to the conservation value score:

- width of road reserve;
- width of vegetated roadside;
- presence of utilities/disturbances;
- dominant native species;
- dominant weed species;
- fauna observed;
- general comments.

It is felt that the recording of these attributes will provide a community database that would provide information useful in many spheres, such as local government and community interest groups.

5.3 Mapping Conservation Values

A computer generated map (using a Geographic Information System, or GIS), depicting the conservation status of the roadside vegetation and the width of the road reserves within the Shire of Augusta-Margaret River was produced at a scale of 1:100,000. The data used to produce both the map and the following figures and tables are presented in Appendix 3.

Data obtained from the Department of Conservation and Land Management, Main Roads WA and the Department of Agriculture was used in the base map, and depicts the location of remnant vegetation on both the Crown estate and privately owned land.

The roadside conservation values map initially provides an inventory of the *status quo* of the condition of the roadside vegetation. This is important as the quality of roadside vegetation has far reaching implications for sustaining biodiversity, tourism and Landcare values.

Moreover the data and map can be incorporated as a management and planning tool for managing the roadsides *per se*, as it enables the condition of roadside vegetation to be easily assessed. This information can then be used to identify environmentally sensitive

areas, high conservation roadsides or strategically important areas, and thus ensure their conservation. Conversely, it enables degraded areas to be identified as areas important for strategic rehabilitation or in need of specific management techniques and weed control programs.

The map can also be used as a reference to overlay transparencies of other information relevant to roadside conservation. This enables the roadside vegetation to be assessed in the context of its importance to the shire's overall conservation network. Other overlays, such as the degree of weed infestation, or the location of environmentally sensitive areas or future planned developments, could also be produced as an aid to roadside management.



Weed control along a roadside

Photo MRWA

As well as providing a road reserve planning and management tool, the roadside conservation value map can also be used for:

- Regional or district fire management plans;
- Tourist routes, i.e. roads depicted as high conservation value would provide visitors to the district with an insight to the flora of the district;
- Landcare and/or Bushcare projects would be able to incorporate the information from this survey into 'whole of' landscape projects.



The survey data and map can be used in developing regional or district fire management plans

6.0 SURVEY DATA RESULTS

A summary of the general roadside conditions in the Shire of Augusta-Margaret River is presented in Table 4. The survey data has been combined to provide the total kilometres, and percentages, of roadside occupied by each of the conservation status categories and the attributes used to calculate the conservation values. As roadsides occur on both sides of the road, roadside distances (km) are equal to *twice* the actual distance of road travelled.

Summary Information: Shire of Augusta-Margaret River										
Length of roadsides surveyed: 1112.4 km										
<u>Conservation Status</u>			<u>Native Vegetation on Roadsides</u>			<u>Weed Infestation</u>				
	total km	%		total km	%		total km	%		
High (9-12)	523.1	47.0	2-3 vegetation layers	893.0	80.3	Light	426.4	38.3		
Med-High (7-8)	285.1	25.6	1 vegetation layer	173.2	15.6	Medium	468.3	42.1		
Med-Low (5-6)	157.5	14.2	0 vegetation layers	46.1	4.1	Heavy	217.6	19.6		
Low (0-4)	146.7	13.2								
Total	1112.4	100.0	Total	1112.4	100.0	Total	1112.4	100.0		
<u>Conservation Values</u>			<u>Extent of Native Vegetation</u>			<u>Value as a Biological Corridor</u>				
	total km	%		total km	%		total km	%		
0	0.6	0.1	Over 80%	371.3	33.4	High	568.8	51.1		
1	23.0	2.1	20% to 80%	578.7	52.0	Medium	361.1	32.5		
2	21.3	1.9	Less than 20%	162.4	14.6	Low	182.5	16.4		
3	46.3	4.2								
4	55.5	5.0	Total	1112.4	100.0	Total	1112.4	100.0		
5	59.3	5.3	<u>Number of Different Native Species</u>			<u>Predominant Adjoining Landuse</u>				
6	98.3	8.8		total km	%		total km	%		
7	113.7	10.2	Over 20	649.4	58.4	Cleared	69.2	6.2		
8	171.4	15.4	6 to 19	272.8	24.5	Drain	0.0	0.0		
9	250.7	22.5	0 to 5	190.2	17.1	Urban/Industrial	19.3	1.7		
10	204.8	18.4				Other	9.2	0.8		
11	58.0	5.2	Total	1112.4	100.0	Plantation	43.9	3.9		
12	9.5	0.9	<u>Width of Vegetated Roadside</u>			<u>Predominant Adjoining Landuse</u>				
Total	1112.4	100.0		total km	%	Railway	2.4	0.2		
			1 to 5 m	962.5	86.5	Scattered	649.9	58.4		
			5 to 20 m	98.9	8.9	Uncleared	318.5	28.6		
			over 20 m	50.9	4.6					
			Total	1112.4	100.0	Total	1112.4	100.0		

Data was collected in the Augusta-Margaret River Shire throughout 2001, 2002 and 2003

Table 4: Summary of the roadside conditions in the Shire of Augusta-Margaret River.

Roadside sections of high conservation value covered 47.0% of the length of roadsides surveyed (523.1 km). Medium-high conservation value roadsides accounted for 25.6% of the total surveyed (285.1 km), medium-low conservation roadside covered 14.2% of the total surveyed (157.5 km). Areas of low conservation value occupied 13.2% of the roadsides surveyed (146.7 km), Table 4, Figure 2.

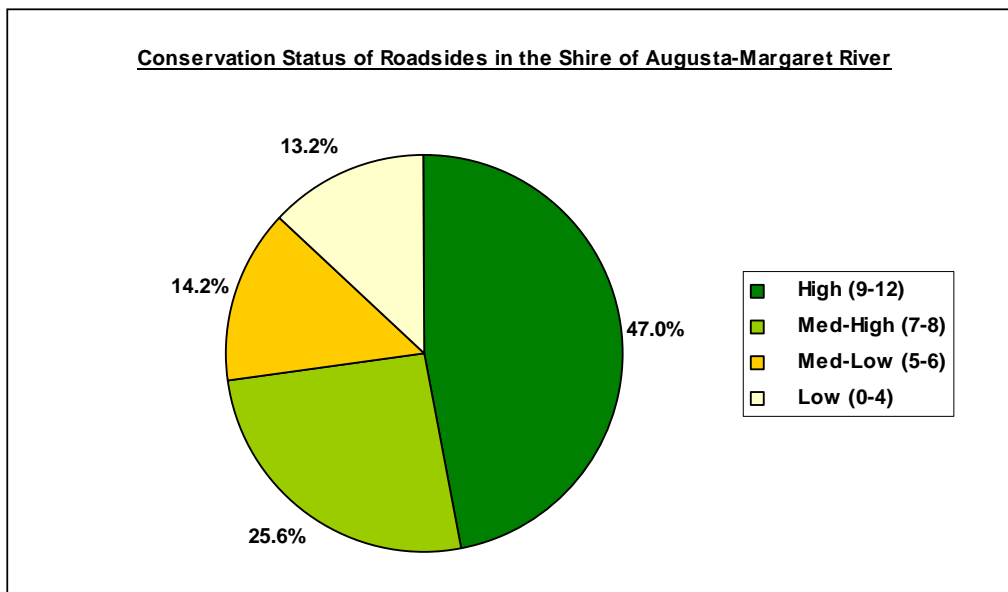


Figure 2 – Conservation status of roadsides in the Shire of Augusta-Margaret River.

The number of native vegetation layers present, either the tree, shrub or ground layers determines the ‘native vegetation on roadside’ value. Sections with two to three layers of native vegetation covered 80.3% of the roadside (893.0 km). 15.6% had only one layer (173.2 km) and 4.1% had no layers of native vegetation (46.1 km), Table 4, Figure 3.

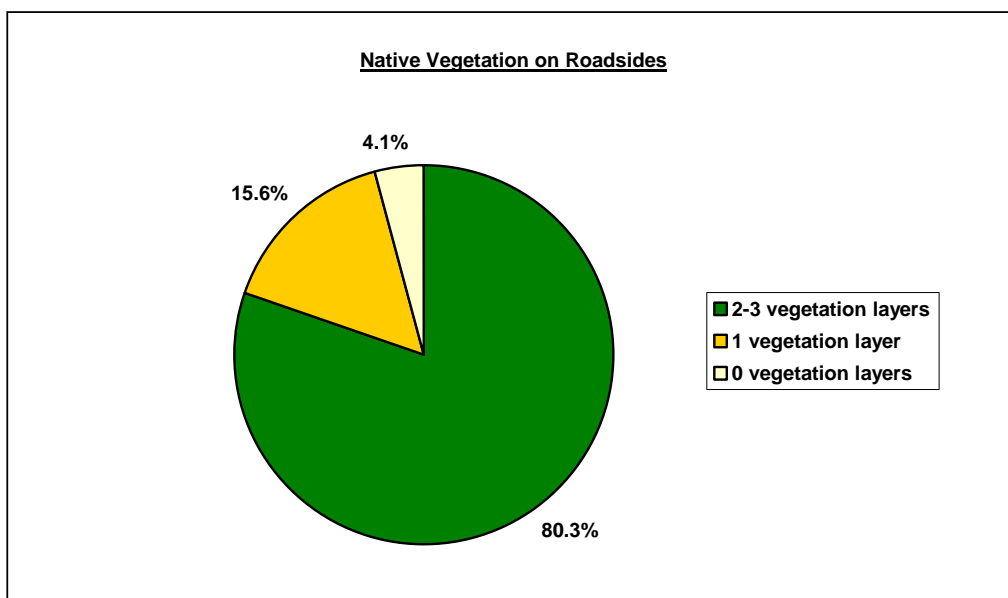


Figure 3– Native vegetation on roadsides.

Roadside vegetation with extensive cover, i.e. greater than 80%, occurred along 33.4% of the length of road surveyed (371.3 km). Survey sections with 20% to 80% vegetation cover accounted for 52.0% of the roadsides (578.7 km). The remaining 14.6% had less than 20% native vegetation (162.4 km), and therefore, a low 'extent of native vegetation' value, see Table 4, Figure 4.

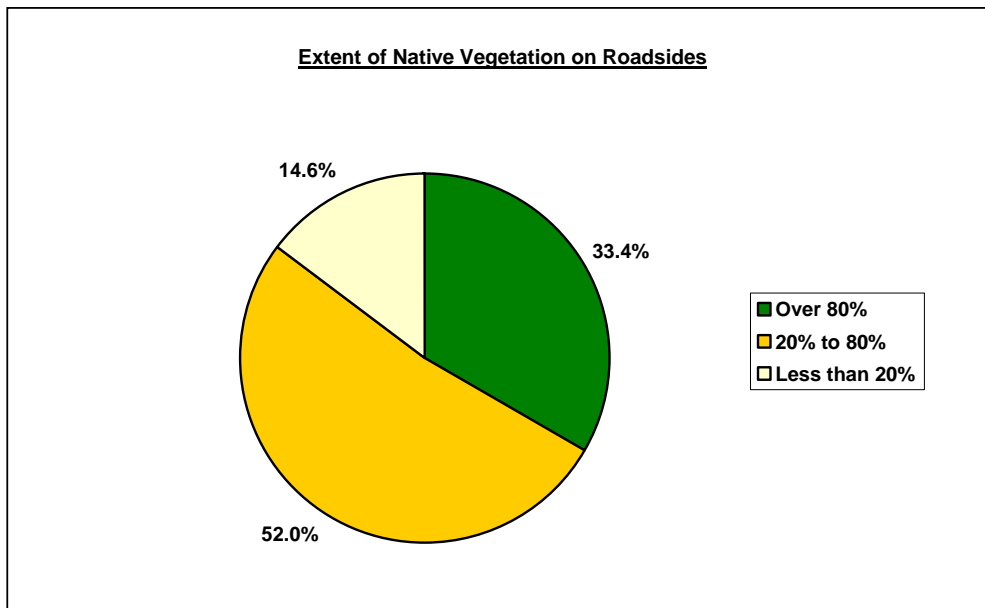


Figure 4 – Extent of native vegetation.

The 'number of native species' score provided a measure of the diversity of the roadside vegetation. Survey sections with more than 20 plant species spanned 649.4 km (58.4%) of the roadside. Roadside sections with 6 to 19 plant species accounted for 272.8 km (24.5%) of the roadside. The remaining 190.2 kms (17.1%) contained less than 5 plant species, see Table 4, Figure 5.

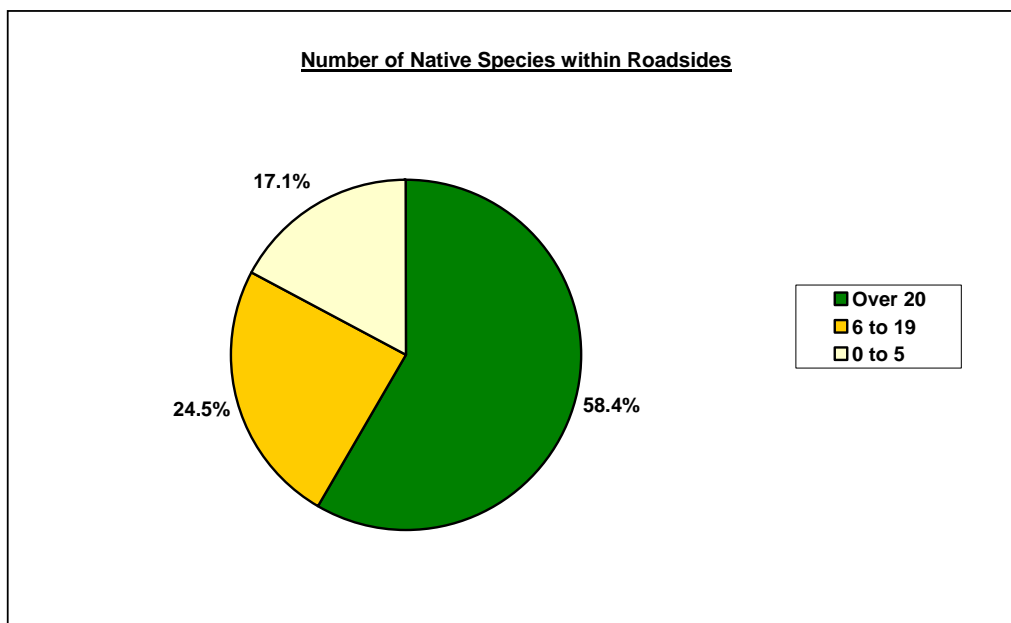


Figure 5 – Number of native species.

Roadsides determined to have high value as biological corridors (as determined by the roadside surveyors) were present along 51.1% (568.8 km) of the roadside, medium value made up 32.5% (361.1 km), and roadsides with low value as a biological corridor occurred along 16.4% (182.5 km) of the roadsides surveyed, see Table 4, Figure 6.

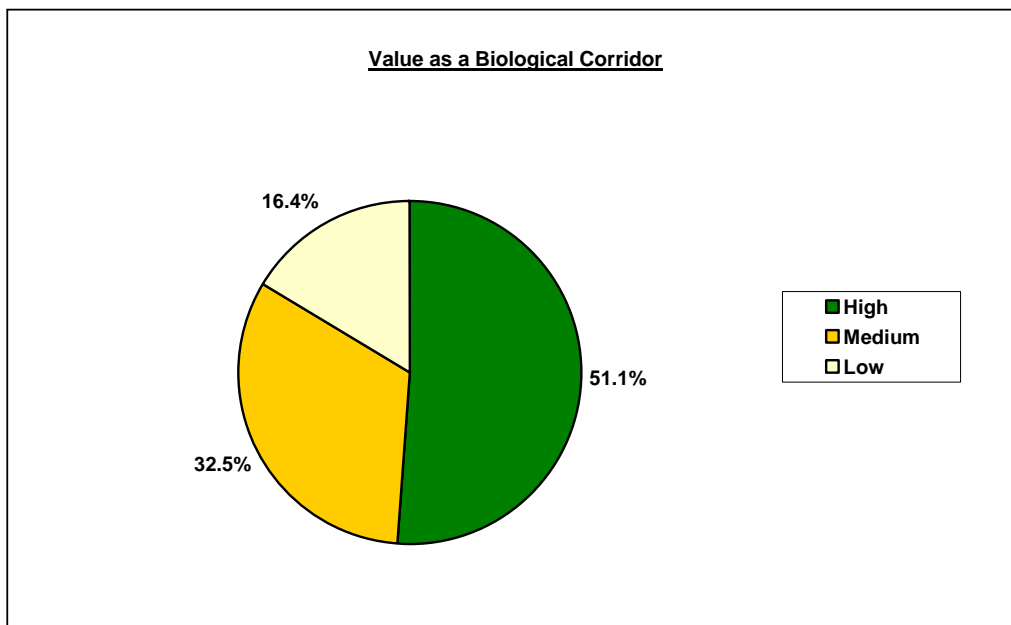


Figure 6 – Value as a biological corridor.

Light levels of weed infestation were observed on 38.3% (426.4 km) of the roadsides surveyed, medium level weed infestation occurred on 42.1% (468.3 km) of the roadsides and 19.6% (217.6 km) were heavily infested with weeds, see Table 4, Figure 7.

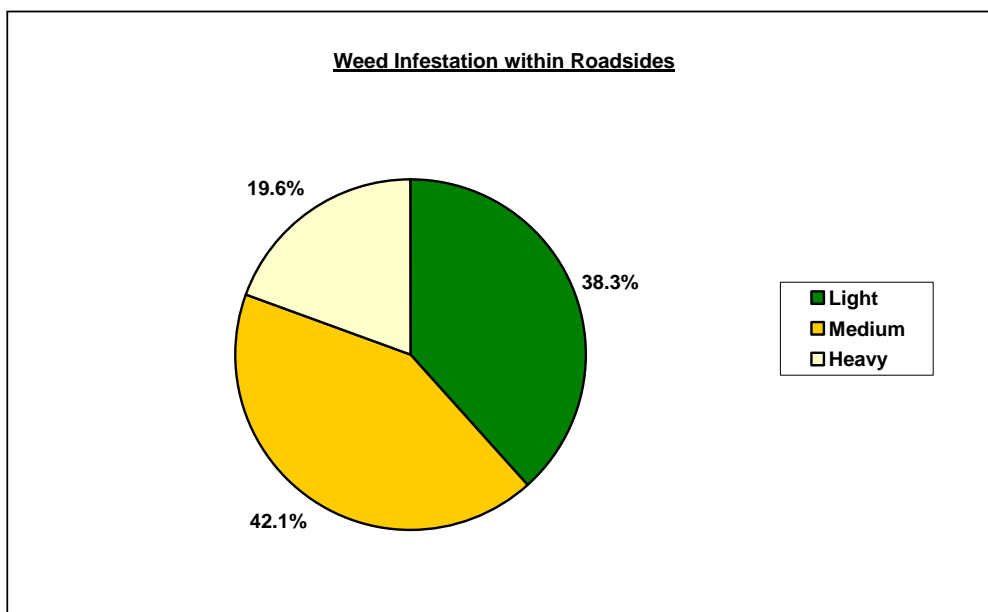


Figure 7 – Weed infestation. Light weed infestation = weeds less than 20% of total plants. Medium weed infestation = weeds 20 to 80% of the total plants. Heavy infestation = weeds more than 80% of the total plants.

A scattered distribution of native vegetation was present on 58.4% of the land adjoining roadsides, whilst 6.2% of roadsides surveyed were adjoined by land that had been completely cleared for agriculture. 28.6% of the roadsides surveyed were bordered by land that was uncleared native vegetation. Plantations adjoined 3.9%, urban/industrial landuses adjoined 1.7%, and railway reserves adjoined 0.2% of the roadsides surveyed, see Table 4, Figure 8.

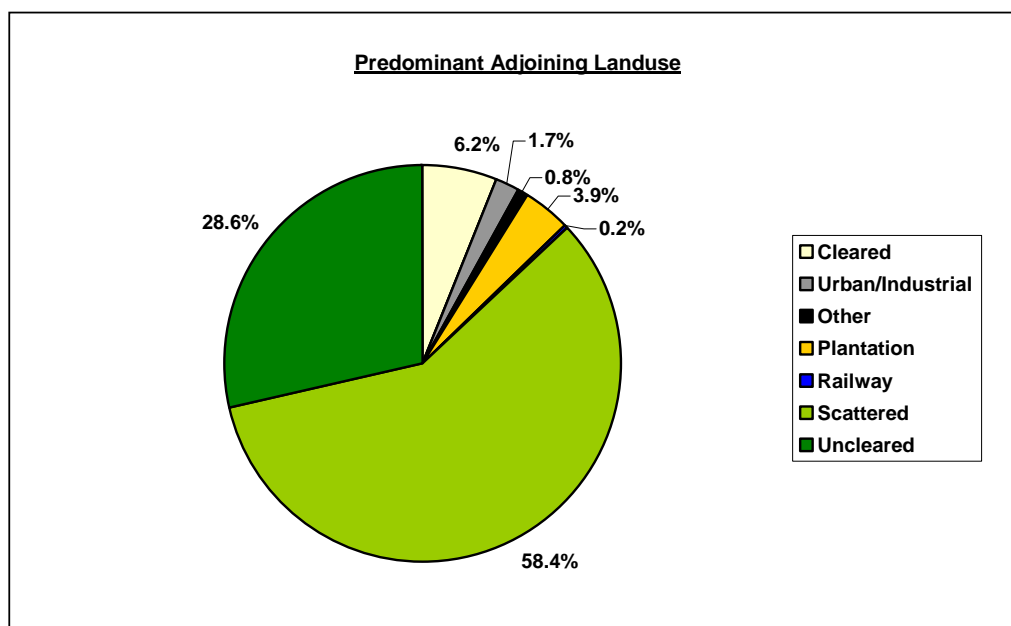


Figure 8 – Predominant adjoining land use.

Roadside populations of the following nominated weeds are indicated on clear overlays accompanying the 2003 RCV map:

- Arum Lily;
- Watsonia;
- Bridal Creeper;
- Victorian Tea Tree;
- Gladioli;
- Freesia;
- Dock;
- Grassy Weeds; and
- Other Weeds.

The occurrence of these, and other nominated weed species along roadsides in the Shire of Augusta-Margaret River can be seen in Figure 9.

The general category of 'Grassy Weeds' encompassed a number of species, and was the most highly recorded category, occurring along 713.9 km of roadsides. Of the 16 nominated weeds surveyed throughout 2001-2003, Watsonia was present along 247.3 kms of the roadsides surveyed, whilst Gladiolus was recorded along 163.3 kms of roadside. Freesia was the next most commonly recorded weed, occurring along 60.0 kms, Cape Weed was present along 57.7 kms, Bridal Creeper 44.0 kms, Dock 42.9 kms,

Arum Lily 24.2 kms, Cape Tulip 17.9 kms, Victorian Tea Tree 17 kms, Vetch 14.3 km, Three Corner Garlic 10.2 km, Cotula 10.1 km and Wild Radish 6.4 kms. Blackberry and Lupins were not observed. Weeds other than those nominated, represented by the 'Other weeds' category covered 146.5 kms of the total roads surveyed, see Figure 9.

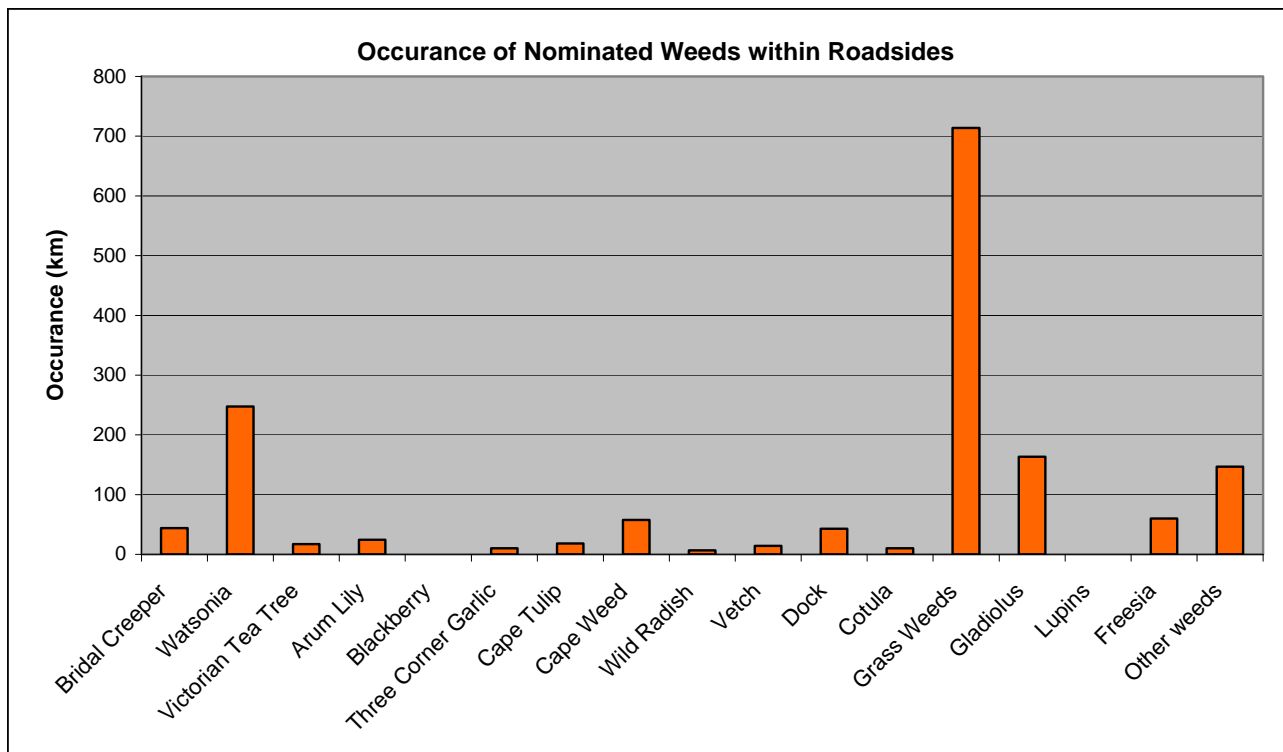






Figure 9 – Occurrence of nominated weeds along roadsides in the Shire of Augusta-Margaret River



7.0 MANAGEMENT TECHNIQUES

The primary aim of road management is the creation and maintenance of a safe, efficient road system. However, the following management procedures are recommended and should be adopted. The following section provides management recommendations that will assist in retaining and enhancing roadside conservation value. These guidelines are taken from the Roadside Conservation Committee's *Roadside Manual* and the *Roadside Handbook*.

The Executive Officer of the Roadside Conservation Committee is also available to assist on all roadside conservation matters, and can be contacted on (08) 9334 0423.

High Conservation Value Roadsides		
Management Goal		Maintain and enhance the native plant communities.
Management Guidelines		Minimal disturbance to existing vegetation. Disturbance leads to weed invasion, which downgrades the conservation value, and increases the fire threat.

Medium Conservation Value Roadsides		
Management Goal		Maintain native vegetation wherever possible, and encourage its regeneration.
Management Guidelines		Minimise disturbance to existing vegetation.

Low Conservation Value Roadsides		
Management Goal		Retain remnant trees and shrubs and encourage their regeneration. Encourage revegetation projects using indigenous plants.
Management Guidelines		Minimise soil disturbance to reduce weed invasion. Encourage revegetation projects by adjacent landholders.

Minimal disturbance can be achieved by:

- Adopting a road design that occupies the minimum space;
- Diverting the line of a table drain to avoid disturbing valuable flora;
- Pruning branches, rather than removing the whole tree or shrub;
- Not dumping spoil on areas of native flora;
- Observing dieback control measures as required;
- Apply the Fire Threat Assessment (Roadside Manual) before burning roadside vegetation;
- Use methods other than fuel reduction burns to reduce fire threat; if roadside burning must be undertaken, incorporate it into a district fire management program;
- Encourage adjacent landholders to set back fences to allow roadside vegetation to proliferate;
- Encourage adjacent landholders to plant windbreaks or farm tree lots adjacent to roadside vegetation to create a denser windbreak or shelterbelt;
- Encourage revegetation projects by adjacent landholders.

7.1 Code of Practice

A Code of Practice has been developed through collaboration with Main Roads Western Australia, the Western Australian Local Government Association and the Roadside Conservation Committee. It is anticipated that this document will be accepted as an industry standard for all working or interested in roadside conservation. This document provides defined parameters for all roadside management works and also provides the local community with an overview of management practices that will ensure the sustainability of native roadside vegetation. Please contact the Roadside Conservation Committee on 9334 0423 for further information.

7.2 Tree Roads

Tree roads are defined as those roadsides with a sufficient density of mature trees to create an attractive tunnel effect. Besides the aesthetic benefits, these areas also provide valuable habitat for birds and other arboreal fauna. Since mature trees are slow growing and hard to replace, care should be taken to conserve these avenues wherever possible. The following points should be considered when working on tree roads:

- prune offending branches rather than remove the whole tree;
- cut branches off close to limb or tree trunk;
- divert line of table drain to avoid disturbing tree roots;
- import fill to build up formation, rather than using side-borrow from roadside;
- when using herbicide for weed control on the roadside do not use a soil residual type, such as Simazine or Atrazine. Eucalypts are especially sensitive to these;

- encourage the adjoining landholders to plant shelter belts on their property that will complement the roadside vegetation.

7.3 Special Environment Areas

A Special Environmental Area is a section of roadside, which has such significance that it requires special protection. Reasons for establishing Special Environmental Areas can include:

- Protection of rare or threatened species of native plants;
- Protection of sites that have other high conservation, scientific or aesthetic values;
- Protection of Aboriginal or European cultural sites.

Special Environmental Areas can be delineated by the use of site markers. See Figures 9 and 10 for design and placement of SEA markers. Workers who come across a 'Special Environmental Area' marker in the field should not disturb the area between the markers unless specifically instructed. If in doubt, the Supervisor, Shire Engineer or CEO should be contacted.

Western Power and West Net rail also have systems for marking sites near power or rail lines. Examples of these are seen in the figure below.

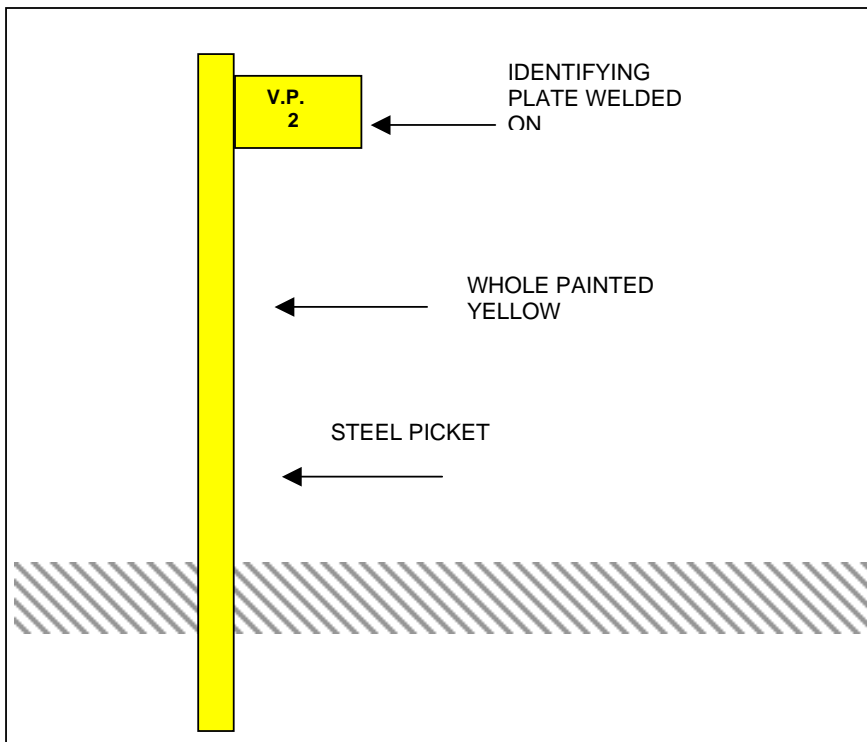


Figure 10 - Special Environmental Area site marker.

7.4 Special Environmental Area Register

To ensure that knowledge of rare flora and other sites does not get lost due, perhaps, to staff changes, a Local Authority should establish a Special Environmental Area Register. This should outline any special treatment, which the site should receive, and be consulted prior to any work being initiated in the area.

The Special Environmental Area Register should be consulted by the appropriate person prior to starting work on any particular road, to ensure that inadvertent damage does not occur. All Special Environment Area sites should be marked on the Shire map, which records Roadside Conservation Value

Local Government is encouraged to permanently mark Special Environmental Areas to prevent inadvertent damage to the rare flora or other values being protected. Markers of a uniform shape and colour will make recognition easier for other authorities using road reserves.

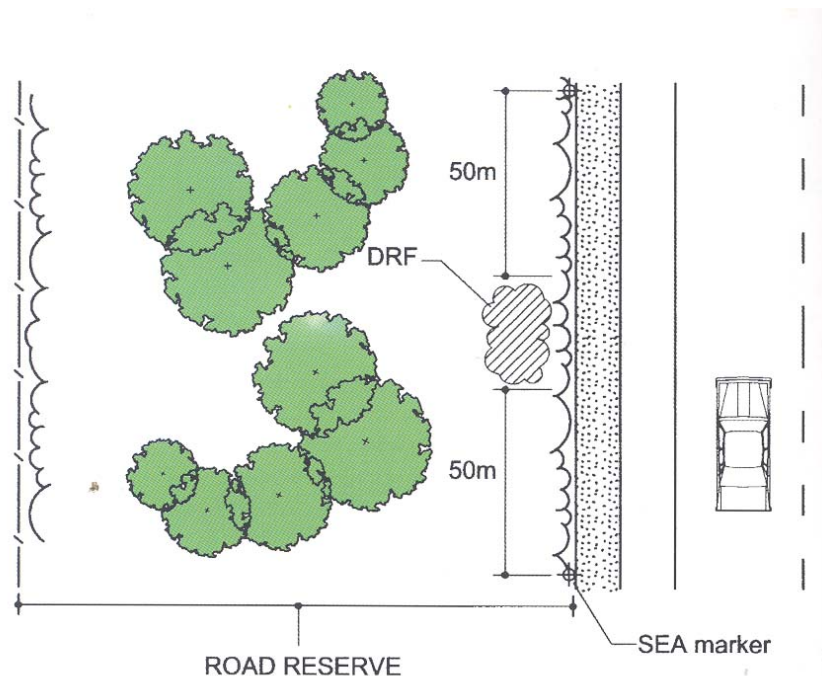


Figure 11 - Marking Special Environmental Area (SEA) sites in the field. In this case, a declared rare flora (DRF) site has been marked.

When notified of a population needing marking, the Local Authority should contact the appropriate Department of Conservation and Land Management Regional or District office for assistance to ensure the exact site location and correct positioning of marker posts.

8.0 ROADSIDE PLANNING, STRATEGIES AND ACTION PLANS

8.1 Planning

The RCC is able to provide good models of Roadside Management Plans and encourages all shires to adopt this practice of planning for roadside conservation. The following actions greatly enhance likelihood of a plan that changes behaviour and results in on-ground actions:

- Community support encourage ongoing community involvement and commitment by establishing a local Roadside Advisory Committee or working group within the Shire Environmental Committee;
- Contract specifications maintain roadside values by developing environmental specifications for inclusion in all tender documents or work practices;
- Community education use of innovative and pertinent material can increase community understanding of roadside values;
- Training promote local roadside planning initiatives and gain acceptance and understanding by involving shire staff, contractors, utility provider staff and the community in workshops, seminars or training days. The Roadside Conservation Committee can provide this training.

Training develops recognition and understanding of roadside values and highlights best work practices. Workshops are developed to ensure that local issues and environments are dealt with and they include site visits to high conservation remnants, current projects and works.

The objective of all roadside management planning should be to:

- **Protect**
 - native vegetation
 - rare or threatened flora or fauna
 - cultural and heritage values
 - community assets from fire
- **Maintain**
 - safe function of the road
 - native vegetation communities
 - fauna habitats and corridors
 - visual amenity and landscape qualities
 - water quality
- **Minimise**
 - land degradation
 - spread of weeds and vermin
 - spread of soil borne pathogens
 - risk and impact of fire
 - disturbance during installation and maintenance of service assets
- **Enhance**
 - indigenous vegetation communities
 - fauna habitats and corridors

8.2 Strategies

The development of a strategy enables potentially competing uses to coexist and ensures that roadsides are managed in a coordinated approach. When producing regional strategies the RCC suggests that:

- Organisational support from local government is essential from the outset;
- Strategies should take no longer than 12 months to produce (including a period for community comment);
- Communities need to be provided with background information to make formal decisions.

Management strategies should be produced to address local issues, rather than be to a standard format. Issues can be categorised as:

➤ **Functional**

- Fire prevention
- Installation and maintenance of services
- Road construction and maintenance
- Stockpile and dumpsite management
- Vegetation removal
- Vehicle and machinery activity
- Water supply catchments

➤ **Cultural and Recreational**

- Cultural and heritage values
- Horse riding
- Visual amenity and landscape values
- Wayside stops

➤ **Landcare**

- Apiculture
- Insect Pests
- Pest animals
- Ploughing, cultivating or grading
- Revegetation and site rehabilitation
- Weeds

➤ **Conservation**

- Protecting and conserving remnant native vegetation
- Rare, threatened or significant flora and fauna
- Regeneration of native plant communities
- Roadside marking of special environmental areas
- Unused road reserves
- Wetlands
- Wildlife habitat
- Wildlife corridors

8.3 Roadside Action Plans

A Roadside Action Plan is prepared for an individual road and contains a works program that will enable conservation values and other road uses to be managed compatibly.

Roadside Action Plans are based on the guidelines that are produced as part of the roadside strategy.

The RCC suggests that Roadside Action Plans be:

- short term documents (to be reviewed within 2 years);
- prepared on a need basis;
- prepared after consultation with major stakeholders;
- a maximum of 2 pages per road;
- names a person or agency responsible for implementing the management recommendations.



Roadside Action Plans may, for example, aim to eradicate invasive weeds such as Tagasaste from roadsides. Weed overlays may be helpful in identifying strategic locations.

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Appendix

1

APPENDIX 1

Definitions of Remnant Vegetation Types, Beeston et al (1993).

Vegetation classed as "**remnant vegetation**" has one or more of the following characteristics:

- * Most closely reflects the natural state of vegetation for a given area.
- * Has an intact understorey (if forest or woodland).
- * Has minimal disturbance by agents of human activity.

Vegetation classed as "**modified vegetation**" has one or more of the following characteristics:

- * Degraded understorey (i.e. reduction in the number of native species, includes weeds).
- * Obvious human disturbance, i.e. clearing, mining, grazing, weeds.
- * Affected by salt.
- * Narrow corridors of vegetation (usually along roads and railway lines or windbreaks), which are more likely to be affected by edge effects.

Vegetation classed as "**scattered vegetation**" has:

- * No understorey
- * Parkland cleared i.e. scattered single trees.
- * No significant signs or chance of regeneration.

Appendix

2

Appendix

3

Shire # and Road #	Section #	Length of section (km)	Road Name	Road Reserve Width (m)	Native Vegetation		Extent of Vegetation		Number of Native Plant Species		Weeds		Value as a Biological Corridor		Adjoining Landuse		Conservation Value (0-12)	
					Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
2010001	1	1.32	MIAMUP RD		2	2	2	2	2	2	2	2	2	2	2	2	12	12
2010001	2	4.90	MIAMUP RD		1	1	0	0	1	1	0	0	0	0	2	2	4	4
2010002	1	6.53	TREETON RD	20	1	1	1	1	1	1	1	1	1	1	1	1	6	6
2010002	2	3.80	TREETON RD	20	2	2	0	1	0	0	1	2	0	1	1	1	4	7
2010003	1	0.50	COWARAMUP BAY RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010003	2	0.20	COWARAMUP BAY RD		2	2	1	0	1	1	2	1	1	0	0	1	7	5
2010003	3	2.30	COWARAMUP BAY RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010003	4	1.00	COWARAMUP BAY RD		2	2	1	1	0	0	1	1	1	0	1	1	6	5
2010003	5	1.60	COWARAMUP BAY RD		2	2	0	0	0	0	1	1	0	0	1	1	4	4
2010003	6	1.40	COWARAMUP BAY RD		2	2	1	1	0	0	2	2	2	1	1	1	8	7
2010003	7	1.20	COWARAMUP BAY RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010003	8	1.20	COWARAMUP BAY RD		2	2	2	2	2	2	2	2	2	0	0	1	10	9
2010003	9	1.10	COWARAMUP BAY RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010004	1	0.70	FIFTYONE RD		2	2	1	1	2	2	2	1	0	0	1	1	8	7
2010004	2	0.50	FIFTYONE RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010004	3	0.90	FIFTYONE RD		2	2	1	1	1	2	1	2	1	1	1	1	7	9
2010004	4	0.90	FIFTYONE RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010004	5	1.40	FIFTYONE RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010007	1	1.20	ELLENBROOK RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010007	2	1.10	ELLENBROOK RD		2	2	2	2	2	1	1	1	2	2	1	1	10	9
2010007	3	0.90	ELLENBROOK RD		2	2	1	1	1	1	1	1	2	2	1	1	8	8
2010007	4	0.90	ELLENBROOK RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010007	5	1.10	ELLENBROOK RD		2	2	2	2	2	2	1	1	2	2	0	1	9	10
2010007	6	0.70	ELLENBROOK RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010007	7	1.00	ELLENBROOK RD		2	2	2	1	2	2	1	1	2	2	1	1	10	9
2010008	1	9.36	WIRRING RD	20	1	2	1	1	1	1	1	1	1	2	1	1	6	8
2010009	1	0.80	OSMINGTON RD	20	2	2	2	2	1	1	2	2	2	2	0	0	9	9
2010009	2	5.50	OSMINGTON RD	20	1	1	1	1	0	0	1	1	0	2	0	0	3	5
2010009	3	5.55	OSMINGTON RD	20	0	2	0	1	0	1	0	2	0	1	1	1	1	8
2010009	4	2.50	OSMINGTON RD	20	1	2	0	0	0	0	0	0	0	1	1	1	2	4
2010009	5	5.92	OSMINGTON RD	20	2	2	1	1	0	0	1	1	1	2	1	1	6	7
2010012	1	0.90	GREENHILL RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10

2010012	2	0.73	GREENHILL RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010012	3	2.70	GREENHILL RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010013	1	0.90	BUSHBY RD		2	2	1	1	2	2	1	1	1	1	1	1	8	8
2010013	2	1.22	BUSHBY RD		2	2	1	1	2	2	1	1	1	1	1	1	8	8
2010013	3	0.30	BUSHBY RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010016	1	0.40	STOCKDILL RD		2	2	2	2	2	2	2	2	2	1	0	0	10	9
2010016	2	0.70	STOCKDILL RD		2	2	2	2	2	2	2	2	0	1	1	1	9	10
2010016	3	0.60	STOCKDILL RD		2	2	2	2	2	2	2	2	2	1	1	1	11	10
2010016	4	0.70	STOCKDILL RD		2	2	1	2	1	2	2	2	1	1	1	1	8	10
2010016	5	0.37	STOCKDILL RD		2	2	2	2	2	2	2	2	1	1	1	1	10	10
2010017	1	0.60	CHALLIS RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010017	2	0.40	CHALLIS RD		2	1	1	1	1	1	1	1	0	1	1	1	6	6
2010018	1	0.70	VAN SITTART RD		2	2	1	1	1	1	2	2	2	2	1	1	9	9
2010018	2	0.20	VAN SITTART RD		2	2	1	1	1	1	2	2	2	2	1	0	9	8
2010018	3	0.20	VAN SITTART RD		2	2	1	1	1	1	2	2	2	2	1	0	9	8
2010018	4	0.73	VAN SITTART RD		2	2	0	0	0	0	1	1	1	1	1	1	5	5
2010019	1	1.35	FISHER RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010019	2	0.55	FISHER RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010019	3	0.80	FISHER RD		2	2	1	1	2	2	2	1	1	1	1	1	9	8
2010019	4	0.75	FISHER RD		2	2	1	1	2	2	0	0	1	1	1	1	7	7
2010019	5	1.05	FISHER RD		1	1	1	1	1	1	1	1	1	1	1	1	6	6
2010019	6	0.80	FISHER RD		2	2	1	2	2	2	2	2	2	2	1	1	10	11
2010019	7	2.62	FISHER RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010020	1	3.70	GLENARTY RD		2	2	1	2	1	1	2	2	2	2	1	1	9	10
2010020	2	1.10	GLENARTY RD		1	1	1	1	1	1	2	2	2	2	1	0	8	7
2010020	3	0.80	GLENARTY RD		2	1	1	0	1	0	2	1	2	1	1	1	9	4
2010020	4	0.30	GLENARTY RD		2	2	1	1	0	0	2	2	2	2	1	0	8	7
2010020	5	0.50	GLENARTY RD		1	1	1	1	0	0	1	1	0	0	1	1	4	4
2010020	6	0.10	GLENARTY RD		2	0	2	0	2	0	2	0	0	0	0	1	8	1
2010021	1	3.77	WILSON RD		2	2	0	0	0	0	1	1	1	1	1	1	5	5
2010021	2	0.30	WILSON RD		2	2	1	1	1	1	2	2	1	2	1	0	8	8
2010022	1	3.00	TWENTYFOUR RD		2	2	0	0	0	0	1	1	2	2	1	1	6	6
2010022	2	0.80	TWENTYFOUR RD		2	1	1	0	1	0	2	1	2	1	0	0	8	3
2010022	3	0.60	TWENTYFOUR RD		2	2	1	1	1	1	2	2	2	1	0	0	8	7
2010022	4	2.01	TWENTYFOUR RD		1	2	0	1	0	0	1	2	1	2	2	2	5	9
2010023	1	0.20	COURTNEY RD		2	1	0	0	0	0	0	0	0	0	1	1	3	2

2010023	2	1.00	COURTNEY RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010023	3	0.40	COURTNEY RD		2	2	1	1	1	1	0	0	2	2	1	1	7	7
2010023	4	2.70	COURTNEY RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010023	5	0.40	COURTNEY RD		2	2	1	1	1	1	0	0	2	2	1	1	7	7
2010024	1	1.10	SCOTT RIVER RD	20	2	2	1	1	2	2	2	2	1	1	0	0	8	8
2010024	2	1.00	SCOTT RIVER RD	20	2	2	0	0	0	1	0	0	0	0	1	2	3	5
2010024	3	1.80	SCOTT RIVER RD	20	2	2	2	2	2	2	2	2	2	2	1	0	11	10
2010024	4	6.00	SCOTT RIVER RD	20	2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010024	5	2.00	SCOTT RIVER RD	20	2	2	1	1	2	2	1	1	1	1	2	2	9	9
2010028	1	0.40	SCHROEDER RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010028	2	0.50	SCHROEDER RD		2	2	2	2	2	2	2	1	2	2	0	1	10	10
2010028	3	1.70	SCHROEDER RD		2	2	2	2	2	2	1	1	2	2	1	2	10	11
2010028	4	0.50	SCHROEDER RD		2	2	2	2	2	2	1	1	2	2	0	1	9	10
2010028	5	2.60	SCHROEDER RD		2	2	2	2	2	2	1	1	1	1	0	0	8	8
2010029	1	0.80	WRIGHT RD		1	1	0	0	1	0	0	0	2	0	2	2	6	3
2010029	2	0.70	WRIGHT RD		2	0	1	0	1	0	0	0	2	0	2	2	8	2
2010029	3	1.30	WRIGHT RD		2	2	1	1	1	1	0	0	2	2	1	1	7	7
2010029	4	0.60	WRIGHT RD		0	0	0	0	0	0	0	0	1	1	2	2	3	3
2010029	5	0.90	WRIGHT RD		2	2	1	1	2	2	1	1	2	1	1	2	9	9
2010029	6	0.50	WRIGHT RD		0	2	1	1	2	2	1	2	2	2	1	1	7	10
2010029	7	1.30	WRIGHT RD		2	2	2	1	2	2	2	1	2	2	0	1	10	9
2010029	8	0.30	WRIGHT RD		2	2	1	1	1	1	1	1	2	2	1	2	8	9
2010029	9	1.00	WRIGHT RD		2	2	1	1	1	1	0	0	2	2	1	2	7	8
2010030	1	0.60	WARNER GLEN RD		2	2	2	1	2	1	2	2	1	1	0	2	9	9
2010030	2	7.30	WARNER GLEN RD		1	2	0	1	1	1	1	1	0	0	1	1	4	6
2010030	3	3.70	WARNER GLEN RD		2	2	2	2	2	2	1	1	1	1	0	0	8	8
2010030	4	1.60	WARNER GLEN RD		2	2	1	1	1	1	1	1	0	0	1	1	6	6
2010030	5	0.20	WARNER GLEN RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010030	6	0.60	WARNER GLEN RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010030	7	3.30	WARNER GLEN RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010030	8	0.90	WARNER GLEN RD		1	1	0	0	1	1	2	2	0	0	1	1	5	5
2010030	9	1.14	WARNER GLEN RD		1	1	0	0	1	0	1	0	0	0	1	1	4	2
2010031	1	0.70	CASTLE RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010031	2	0.40	CASTLE RD		2	2	2	2	2	2	2	2	2	2	0	1	10	11
2010031	3	0.60	CASTLE RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010031	4	0.40	CASTLE RD		2	2	1	2	1	2	1	1	1	2	1	0	7	9

2010031	5	0.60	CASTLE RD		2	1	1	1	1	1	0	0	2	1	1	1	7	5
2010031	6	0.48	CASTLE RD		2	2	1	1	2	2	1	1	2	2	2	2	10	10
2010033	1	0.50	GOVERNOR BROOME RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010033	2	0.40	GOVERNOR BROOME RD		2	2	2	2	2	2	2	2	1	1	1	1	10	10
2010033	3	0.70	GOVERNOR BROOME RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010033	4	0.30	GOVERNOR BROOME RD		1	1	1	1	2	2	1	1	1	1	1	1	7	7
2010033	5	1.00	GOVERNOR BROOME RD		2	2	2	2	2	2	2	2	1	1	1	1	10	10
2010035	1	0.95	MILLARS RD		1	1	0	0	0	0	0	0	0	0	2	2	3	3
2010037	1	0.40	FOREST GROVE RD		1	1	1	1	1	1	1	1	0	0	1	1	5	5
2010037	2	0.30	FOREST GROVE RD		2	1	1	0	0	0	1	0	0	0	1	1	5	2
2010037	3	1.90	FOREST GROVE RD		2	2	1	1	1	1	1	1	1	0	1	1	7	6
2010037	4	0.60	FOREST GROVE RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010037	5	0.70	FOREST GROVE RD		2	2	0	0	2	2	1	1	2	2	1	1	8	8
2010037	6	1.10	FOREST GROVE RD		2	2	0	0	2	2	2	2	2	2	1	1	9	9
2010037	7	1.70	FOREST GROVE RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010038	1	0.30	SEBBES RD		2	2	1	1	2	2	1	1	1	1	1	1	8	8
2010038	2	2.20	SEBBES RD		2	2	2	2	2	2	2	2	1	1	0	1	9	10
2010038	3	1.70	SEBBES RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010039	1	1.15	ROCKY RD		2	2	1	1	0	0	1	1	1	1	1	1	6	6
2010039	2	5.50	ROCKY RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010040	1	1.66	BROOKS RD		2	2	1	1	2	2	1	1	1	1	1	1	8	8
2010040	2	2.70	BROOKS RD		2	2	2	1	2	2	2	1	2	2	0	1	10	9
2010041	1	1.40	NOAKES RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010041	2	1.80	NOAKES RD		2	2	1	1	1	1	0	0	0	0	1	1	5	5
2010042	1	1.65	DAVIS RD	20	2	2	1	1	2	2	1	1	1	2	1	1	8	9
2010042	2	7.37	DAVIS RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010043	1	1.48	LEISHAM RD		2	2	1	1	2	2	2	2	2	2	1	0	10	9
2010044	1	1.50	ROSA GLEN RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010044	2	5.70	ROSA GLEN RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010044	3	1.80	ROSA GLEN RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010044	4	3.60	ROSA GLEN RD		2	2	1	1	1	1	0	0	2	2	1	1	7	7
2010044	5	2.37	ROSA GLEN RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010045	1	2.40	ROSA BROOK RD		1	1	1	1	1	1	0	0	2	1	1	1	6	5
2010045	2	4.90	ROSA BROOK RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010045	3	2.50	ROSA BROOK RD	40	2	2	1	1	2	2	1	1	1	1	0	0	7	7
2010045	4	1.70	ROSA BROOK RD		0	2	0	1	0	1	0	1	0	2	1	1	1	8

2010057	2	0.30	REDGATE RD		2	2	1	1	2	2	2	1	2	1	0	1	9	8
2010057	3	1.00	REDGATE RD		2	2	1	1	2	2	2	2	2	2	1	1	10	10
2010057	4	0.20	REDGATE RD		2	2	1	1	2	2	2	2	2	2	1	1	10	10
2010057	5	1.10	REDGATE RD		2	2	2	2	2	2	2	2	2	2	1	0	11	10
2010057	6	1.30	REDGATE RD		1	1	1	1	1	1	0	0	1	1	1	1	5	5
2010057	7	0.80	REDGATE RD		2	2	1	1	1	1	0	0	2	2	1	1	7	7
2010057	8	1.00	REDGATE RD		2	1	1	1	2	2	1	1	2	2	0	1	8	8
2010057	9	0.30	REDGATE RD		2	2	1	1	1	1	2	2	1	1	1	1	8	8
2010057	10	0.70	REDGATE RD		2	2	2	2	2	2	2	2	2	2	1	0	11	10
2010060	1	0.30	HILLVIEW RD		1	1	0	0	1	1	1	1	1	1	1	1	5	5
2010060	2	0.80	HILLVIEW RD		2	2	1	1	1	1	1	1	1	2	1	1	7	8
2010060	3	0.70	HILLVIEW RD		2	2	2	1	2	2	1	1	2	2	0	1	9	9
2010060	4	3.70	HILLVIEW RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010061	1	1.10	SCOTT RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010062	1	1.40	BULLANT DR		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010062	2	0.70	BULLANT DR		2	2	1	1	2	2	1	1	0	0	1	1	7	7
2010062	3	0.40	BULLANT DR		2	2	1	1	2	2	2	2	1	1	1	1	9	9
2010062	4	0.40	BULLANT DR		1	2	0	1	1	2	1	2	0	0	1	1	4	8
2010062	5	1.00	BULLANT DR		1	2	0	1	1	2	1	2	0	1	1	1	4	9
2010067	1	2.50	CLEWS RD		2	2	2	2	2	2	2	2	2	2	2	2	12	12
2010069	1	2.50	BURNSIDE RD		2	2	1	1	2	2	0	0	2	2	1	1	8	8
2010069	2	2.80	BURNSIDE RD		1	1	1	1	1	1	0	0	2	1	1	1	6	5
2010069	3	3.06	BURNSIDE RD	20	1	2	0	0	1	2	0	0	0	2	1	1	3	7
2010069	4	0.80	BURNSIDE RD		2	2	1	1	2	2	2	1	1	0	0	1	8	7
2010073	1	0.90	KEVILL RD		2	2	1	1	2	2	1	1	2	2	0	0	8	8
2010073	2	2.00	KEVILL RD		2	2	1	1	2	2	0	1	1	1	1	1	7	8
2010073	3	2.31	KEVILL RD		2	2	1	1	1	1	1	1	1	1	1	1	7	7
2010076	1	5.90	BRAMLEY RIVER RD	20	2	2	1	1	1	1	2	2	1	2	1	0	8	8
2010076	2	1.90	BRAMLEY RIVER RD		0	0	0	0	0	0	0	0	0	0	2	1	2	1
2010076	3	2.20	BRAMLEY RIVER RD	20	2	2	2	1	1	1	2	2	2	2	0	1	9	9
2010076	4	1.55	BRAMLEY RIVER RD	20	2	1	0	0	0	0	1	0	0	0	1	1	4	2
2010078	1	2.62	BELL RD	20	1	2	1	1	0	0	1	1	0	2	1	1	4	7
2010081	1	3.62	OLDFIELD RD	20	2	2	2	2	1	1	2	2	1	1	1	1	9	9
2010082	1	3.10	HOLBEN RD	20	2	2	1	1	0	0	1	1	1	1	1	1	6	6
2010082	2	0.70	HOLBEN RD	20	2	0	2	0	1	0	2	0	2	0	0	1	9	1
2010082	3	1.10	HOLBEN RD	20	0	0	0	0	0	0	0	0	0	0	1	1	1	1

2010082	4	2.33	HOLBEN RD	20	2	2	1	1	1	0	1	1	1	0	1	1	7	5
2010083	1	2.50	JINDONG TREETON RD	20	1	1	1	1	1	1	1	1	1	1	1	1	6	6
2010083	2	1.60	JINDONG TREETON RD	20	2	2	0	0	0	0	0	0	1	1	1	1	4	4
2010083	3	2.30	JINDONG TREETON RD	20	2	2	1	1	0	1	1	1	1	1	1	1	6	7
2010083	4	3.75	JINDONG TREETON RD	20	2	2	1	1	1	1	1	1	1	1	0	1	6	7
2010084	1	4.12	CROZIER RD	20	2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010086	1	3.65	MANEAR RD		2	2	1	1	2	2	1	0	1	2	0	1	7	8
2010086	2	5.30	MANEAR RD	20	2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010087	1	1.80	ARTHUR RD	20	2	2	1	1	2	2	1	1	2	2			8	8
2010087	2	1.77	ARTHUR RD		2	2	1	1	1	1	0	0	1	1	1	1	6	6
2010089	1	2.50	BARRETT RD	20	2	2	1	1	1	1	0	0	2	2			6	6
2010091	1	6.00	DENNIS RD		2	2	2	2	2	2	2	2	1	1	0	1	9	10
2010091	2	3.56	DENNIS RD		1	1	2	2	2	2	2	2	1	1	1	1	9	9
2010096	1	0.20	MILYEANUP COAST RD		2	2	2	2	2	2	2	2	1	1	0	1	9	10
2010096	2	1.20	MILYEANUP COAST RD		2	2	2	2	2	2	2	2	1	1	1	0	10	9
2010110	1	1.10	WALCLIFFE RD		2	2	1	1	2	2	1	1	1	1	0	0	7	7
2010110	2	1.75	WALCLIFFE RD	60	2	1	1	1	2	1	1	1	2	2	1	1	9	7
2010110	3	2.00	WALCLIFFE RD		2	2	1	1	2	2	1	0	1	1	1	1	8	7
2010113	1	0.80	MANN RD		2	2	1	1	2	2	1	1	2	2	2	2	10	10
2010116	1	2.40	CARTERS RD		2	2	1	2	2	2	1	2	2	2	0	0	8	10
2010116	2	1.96	CARTERS RD		2	2	1	1	2	2	1	1	1	1	1	1	8	8
2010116	3	1.50	CARTERS RD		2	2	0	1	1	2	0	1	1	1	1	1	5	8
2010120	1	1.40	RAILWAY TCE		2	2	0	0	1	1	1	0	0	0	0	1	4	4
2010120	2	0.69	RAILWAY TCE		0	1	2	2	0	0	0	0	0	0	0	0	2	3
2010120	3	1.00	RAILWAY TCE		2	2	1	1	2	2	1	1	1	1	0	1	7	8
2010122	1	0.30	BOODJINUP RD		2	1	2	1	2	1	2	1	2	0	0	2	10	6
2010122	2	0.60	BOODJINUP RD		0	0	0	0	0	0	1	1	0	0	0	0	1	1
2010122	3	1.00	BOODJINUP RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010122	4	0.80	BOODJINUP RD		1	1	1	1	1	1	1	1	0	0	2	2	6	6
2010122	5	0.70	BOODJINUP RD		2	2	1	1	2	1	2	2	2	1	1	2	10	9
2010122	6	0.20	BOODJINUP RD		2	1	2	0	2	0	2	1	2	0	0	1	10	3
2010122	7	1.00	BOODJINUP RD		1	2	0	2	0	2	0	2	0	2	2	2	3	12
2010122	8	1.50	BOODJINUP RD		2	2	1	1	2	2	1	1	2	2	1	0	9	8
2010122	9	1.40	BOODJINUP RD		2	2	1	1	2	2	1	2	2	1	1	0	9	8
2010166	1	0.58	JACKSON RD	20	2	0	1	0	2	0	1	0	2	0	0	1	8	1
2010167	1	1.54	PERICLES RD	20	2	2	2	1	2	2	1	1	2	1	0	1	9	8

2010363	1	1.24	ILLAWARRA AVE		2	2	1	1	1	1	1	1	1	1	1	1	7	7
2010363	2	1.24	ILLAWARRA AVE		2	2	1	1	2	2	1	1	1	1	0	0	7	7
2010364	1	0.30	HEREFORD PL		1	1	0	0	0	0	0	0	1	1	1	1	3	3
2010367	1	0.70	DEVON DR		1	1	1	1	1	2	1	1	1	2	1	1	6	8
2010380	1	0.48	RANGNOW PL		2	2	1	2	2	2	2	2	0	0	0	0	7	8
2010381	1	0.25	LOARING PL		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010382	1	0.34	BAKERS CL		0	0	0	0	0	0	0	0	0	0	2	2	2	2
2010382	2	0.34	BAKERS CL		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010394	1	11.30	CANEBRAKE RD	20	2	2	2	2	1	1	2	2	2	2	1	1	10	10
2010419	1	1.23	JANE RD		1	1	0	0	1	1	0	0	1	1	1	1	4	4
2010436	1	0.66	WEST BAY CREEK RD		2	2	1	1	2	2	1	1	2	2	0	0	8	8
2010478	1	3.68	CALGARDUP RD		2	2	1	1	2	2	0	0	1	2	1	1	7	8
2010479	1	0.30	PRATT RD		1	2	0	2	0	2	1	2	0	1	1	1	3	10
2010479	2	1.30	PRATT RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010479	3	0.52	PRATT RD		2	2	2	2	2	2	2	2	2	2	0	1	10	11
2010483	1	0.62	CULHANE RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010484	1	0.20	ZANI RD		1	1	0	0	0	0	0	0	0	0	1	1	2	2
2010487	1	7.39	STUART RD	20	0	0	0	0	0	0	2	2	0	0	1	1	3	3
2010496	1	1.36	CHALLIS RD	20	2	2	1	1	2	2	1	1	2	2	0	0	8	8
2010538	1	2.75	NILSSON RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
2010570	1	0.70	BECK RD		0	2	0	2	0	2	0	2	0	2	2	0	2	10
2010573	1	1.65	BRITAIN RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
2010578	1	0.40	POOLE RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
2010578	2	0.86	POOLE RD		2	2	2	2	2	2	2	2	1	2	1	1	10	11
2010707	1	0.47	FRESHWATER DRV STH		2	2	2	2	2	2	2	2	2	2	0	0	10	10
2010709	1	1.97	HORSEFORD RD		2	0	1	1	1	1	1	1	1	1	0	1	6	5
H043	1	3.74	BUSSELL HWY		2	2	1	1	2	2	1	1	1	1	0	0	7	7
H043	2	2.99	BUSSELL HWY		2	2	2	2	2	2	2	2	2	2	1	1	11	11
H043	3	2.70	BUSSELL HWY		1	1	1	1	0	0	1	1	0	0	1	1	4	4
H043	4	0.50	BUSSELL HWY		1	1	1	1	1	1	1	1	0	0	1	1	5	5
H043	5	0.60	BUSSELL HWY		2	2	1	1	2	2	2	2	1	1	0	0	8	8
H043	6	0.60	BUSSELL HWY		1	2	0	1	0	1	0	1	0	0	2	1	3	6
H043	7	0.70	BUSSELL HWY		2	1	1	1	2	1	1	1	1	1	0	1	7	6
H043	8	0.50	BUSSELL HWY		1	1	1	1	1	1	0	0	1	1	0	0	4	4
H043	9	1.10	BUSSELL HWY		2	1	1	1	1	1	0	0	1	1	1	1	6	5
H043	10	0.28	BUSSELL HWY		1	1	0	0	0	1	0	0	0	0	1	1	2	3

H043	11	0.22	BUSSELL HWY		2	1	1	1	1	1	2	1	0	0	1	1	7	5
M027	1	1.35	BROCKMAN HWY		2	2	2	2	2	2	2	2	2	2	0	0	10	10
M027	2	0.50	BROCKMAN HWY		1	0	1	0	1	0	2	1	0	0	0	2	5	3
M027	3	2.30	BROCKMAN HWY		1	1	0	0	0	0	1	1	0	0	1	1	3	3
M027	4	1.30	BROCKMAN HWY		1	2	0	1	0	0	1	1	0	1	1	0	3	5
M027	5	0.40	BROCKMAN HWY		1	1	0	0	0	0	1	1	0	0	1	1	3	3
M027	6	0.90	BROCKMAN HWY		2	2	2	2	1	1	2	2	2	2	0	0	9	9
M027	7	1.20	BROCKMAN HWY		1	1	0	0	0	0	1	1	1	0	1	1	4	3
M027	8	0.30	BROCKMAN HWY		1	0	0	0	0	0	2	0	1	0	1	1	5	1
M027	9	0.40	BROCKMAN HWY		1	0	0	0	0	0	0	0	0	0	1	1	2	1
M027	10	0.30	BROCKMAN HWY		1	0	0	0	0	0	1	1	0	0	1	1	3	2
M027	11	0.70	BROCKMAN HWY		2	1	1	0	0	0	2	1	0	0	1	1	6	3
M027	12	0.30	BROCKMAN HWY		2	1	1	0	1	0	2	2	0	1	1	0	7	4
M043	1	3.43	CAVES RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
M043	2	2.10	CAVES RD		2	2	2	2	2	2	2	2	2	2	1	1	11	11
M043	3	2.98	CAVES RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
M043	4	1.87	CAVES RD		2	2	1	1	2	2	1	1	2	2	1	1	9	9
M043	5	1.40	CAVES RD		2	2	1	1	2	2	1	1	1	1	0	1	7	8
M043	6	3.30	CAVES RD		2	2	1	1	2	2	2	2	2	2	1	1	10	10
M043	7	18.00	CAVES RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
M043	8	1.00	CAVES RD		2	2	2	2	2	2	1	1	2	2	0	0	9	9
M043	9	3.10	CAVES RD		2	2	2	2	2	2	2	2	1	1	0	0	9	9
M043	10	1.50	CAVES RD		2	2	2	2	2	2	2	2	0	0	0	0	8	8
M043	11	2.40	CAVES RD		2	2	2	2	2	2	2	2	2	2	0	0	10	10
M043	12	1.50	CAVES RD		2	2	1	1	2	2	2	2	0	0	1	1	8	8
M043	13	0.60	CAVES RD		1	1	0	0	1	1	1	1	0	0	1	1	4	4
M043	14	11.04	CAVES RD		2	2	2	2	2	2	1	1	1	1	0	0	8	8

Appendix

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APPENDIX 4

Native Plant species in the Shire of Augusta-Margaret River

Acacia alata	Adenanthos barbiger subsp. intermedius ms
Acacia alata var. alata	Adenanthos detmoldii P4
Acacia applanata	Adenanthos meisneri
Acacia assimilis subsp. assimilis	Adenanthos obovatus
Acacia browniana	Adenanthos x pamela P4
Acacia browniana var. ? obscura	Adiantum aethiopicum
Acacia browniana var. browniana	Agonis flexuosa
Acacia browniana var. obscura	Agonis flexuosa var. flexuosa
Acacia cochlearis	Agonis juniperina
Acacia cyclops	Agonis linearifolia
Acacia divergens	Agonis parviceps
Acacia extensa	Agonis sp.Coarse Agonis(J.R.Wheeler 2939)
Acacia flagelliformis P4	Agonis sp.coarse tea-tree(J.R.Wheeler 2939)
Acacia gilbertii	Agonis sp.Lake Jasper(B.Hammersley 567)
Acacia hastulata	Agonis spathulata
Acacia huegelii	Agrostis avenacea
Acacia inops P3	Agrostis plebeia
Acacia lateriticola	Agrostocrinum scabrum
Acacia lateriticola glabrous variant(B.R.Mas P3)	Aira cupaniana
Acacia littorea	Alexgeorgea ganopoda P2
Acacia mooreana P2	* Allium triquetrum
Acacia myrtifolia	* Allium vineale
Acacia nervosa	Allocasuarina fraseriana
Acacia obovata	Allocasuarina humilis
Acacia pentadenia	* Alternanthera nodiflora
Acacia preissiana	Alyogyne huegelii
Acacia pulchella	* Amaryllis belladonna
Acacia pulchella var. glaberrima	* Ammi majus
Acacia pulchella var. goadbyi	* Ammophila arenaria
Acacia pulchella var. pulchella	Amperea ericoides
Acacia saligna	Amperea protensa P2
Acacia scalpelliformis	Amperea simulans
Acacia semitrullata P3	Amperea volubilis
Acacia stenoptera	Amphibolis griffithii
Acacia subracemosa P2	Amphipogon amphipogonoides
Acacia tayloriana	Amphipogon debilis
Acacia tayloriana P4	Amphipogon debilis var. fallax
Acacia tetragonocarpa	Amphipogon laguroides
Acacia tetragonophylla	Amphipogon turbinatus
Acacia uliginosa	* Anagallis arvensis
Acacia urophylla	* Anagallis arvensis var. "unsorted"
Acacia varia	Anarthria gracilis
Acacia varia var. varia	Anarthria laevis
Acacia willdenowiana	Anarthria prolifera
Acanthocarpus preissii	Anarthria scabra
* Acetosella vulgaris	Andersonia aff. caerulea
Acidonia microcarpa	Andersonia auriculata P2
Acrotriche cordata	Andersonia barbata
Actinodium cunninghamii	Andersonia caerulea
Actinostrobilus acuminatus	Andersonia heterophylla
Actinotus glomeratus	Andersonia involucreta
Actinotus laxus ms	Andersonia latiflora
Actinotus omnifertilis	Andersonia longifolia P3
Actinotus sp.Walpole(J.R.Wheeler 3786) P3	Andersonia micrantha
Actites megalocarpa	Andersonia sp.Ironstone(B.J.Keighery & N.Gibson P1)
Adenanthos barbiger subsp. barbiger ms	

Andersonia sprengelioides
 Angianthus preissianus
 Anigozanthos flavidus
 Anigozanthos manglesii
 Anigozanthos manglesii manglesii
 Anigozanthos manglesii subsp. manglesii
 Anigozanthos viridis
 Anigozanthos viridis subsp. viridis
 Anogramma leptophylla
 Anthocercis littorea
 Anthotium junciforme P4
 Anthoxanthum odoratum
 Aotus carinata P4
 Aotus cordifolia P3
 Aotus gracillima
 Aotus intermedia
 Aotus sp.Scott River(K.F.Kenneally 2371)
 Aphelia cyperoides
 Aphelia drummondii
 Apium annuum
 Apium prostratum var. filiforme
 Apium prostratum var. prostratum
 * Arctotheca calendula
 * Arctotheca populifolia
 * Asparagus asparagoides
 Asplenium trichomanes
 Astartea fascicularis
 Astartea sp.Brixton Rd(G.J.Keighery 5389)
 Astartea sp.Gingalup(N.Gibson & M.Lyons 119)
 Astartea sp.Scott River(D.Backshall 88233) P4
 Astartea sp.wing tips(M.E.Trudgen 12044)
 * Aster subulatus
 Asteridea pulverulenta
 Asterolasia pallida subsp. pallida
 Asterolasia squamuligera
 Astroloma ciliatum
 Astroloma drummondii
 Astroloma pallidum
 Astroloma sp.Nannup(R.D.Royce 3978) P4
 Atriplex hypoleuca
 Austrodanthonia acerosa
 Austrodanthonia pilosa
 Austrostipa compressa
 Austrostipa flavescens
 Austrostipa semibarbata
 *Avellinia michelii
 * Axonopus affinis
 Babiana angustifolia
 Banksia chamaephyton P4
 Banksia grandis
 Banksia ilicifolia
 Banksia incana
 Banksia littoralis
 Banksia meisneri subsp. ascendens P4
 Banksia meisneri subsp. meisneri
 Banksia occidentalis
 Banksia occidentalis subsp. occidentalis
 Banksia seminuda
 * Bartsia trixago
 Baumea acuta
 Baumea arthropophylla
 Baumea articulata
 Baumea juncea
 Baumea preissii subsp. laxa ms
 Baumea preissii subsp. preissii ms
 Baumea riparia
 Baumea rubiginosa
 Baumea vaginalis
 Bacteria australis
 Beaufortia sparsa
 * Berkheya rigida
 * Berula erecta
 Billardiera candida
 Billardiera drummondiana var. collina
 Billardiera floribunda
 Billardiera laxiflora
 Billardiera parviflora
 Billardiera parviflora var. parviflora
 Billardiera variifolia
 Blennospora sp.Ruabon(B.J.Keighery & N.Gibson 20)
 Bolboschoenus caldwellii
 Boronia alata
 Boronia anceps P3
 Boronia crenulata
 Boronia crenulata subsp. pubescens
 Boronia crenulata subsp. pubescens ms
 Boronia crenulata subsp. viminea ms
 Boronia crenulata var. crenulata
 Boronia defoliata
 Boronia denticulata
 Boronia dichotoma
 Boronia exilis ms R
 Boronia fastigiata subsp. tenuior
 Boronia fastigiata subsp. tenuior ms
 Boronia gracilipes
 Boronia juncea
 Boronia juncea subsp. micrantha ms
 Boronia juncea subsp. minima
 Boronia juncea subsp. minima ms
 Boronia megastigma
 Boronia molloyae
 Boronia spathulata
 Boronia stricta
 Boronia tetragona P3
 Borya constricta
 Bossiaea aquifolium subsp. aquifolium
 Bossiaea aquifolium subsp. laidlawiana
 Bossiaea disticha P3
 Bossiaea linophylla
 Bossiaea ornata
 Bossiaea praetermissa
 Bossiaea pulchella
 Bossiaea rufa
 Brachyloma preissii
 Brachyscome iberidifolia
 Brachysema modestum R
 * Briza maxima
 * Briza minor
 * Bromus diandrus
 Burchardia congesta
 Burchardia multiflora
 Caesia micrantha
 Caesia occidentalis

Caesia parviflora
 * Cakile maritima
 Caladenia abbreviata ms P2
 Caladenia applanata subsp. applanata ms
 Caladenia arrecta ms P4
 Caladenia attingens subsp. attingens ms
 Caladenia bicalliata
 Caladenia brownii ms
 Caladenia cairnsiana
 Caladenia chapmanii ms
 Caladenia citrina ms
 Caladenia corynephora
 Caladenia excelsa ms R
 Caladenia ferruginea
 Caladenia flava
 Caladenia flava subsp. flava ms
 Caladenia flava subsp. sylvestris ms
 Caladenia gardneri ms
 Caladenia georgei ms
 Caladenia heberleana ms
 Caladenia hirta subsp. hirta ms
 Caladenia huegelii R
 Caladenia infundibularis
 Caladenia latifolia
 Caladenia lodgeana ms
 Caladenia longicauda subsp. merrittii ms
 Caladenia longiclavata
 Caladenia macrostylis
 Caladenia magniclavata
 Caladenia marginata
 Caladenia nana
 Caladenia nana subsp. nana ms
 Caladenia nana subsp. unita ms
 Caladenia paludosa ms
 Caladenia pholcoidea ms
 Caladenia reptans subsp. reptans ms
 Caladenia rhomboidiformis
 Caladenia serotina ms
 Calandrinia corrigioloides
 Callistachys lanceolata
 Callistemon glaucus
 Calothamnus lateralis
 Calothamnus lehmannii
 Calothamnus pallidifolius P3
 Calothamnus sanguineus
 Calothamnus schaueri
 Calothamnus sp.Scott River(R.D.Royce 84)
 P2
 Calycopeplus oligandrus
 Calystegia soldanella
 Calytrix flavescens
 Calytrix tenuiramea
 Calytrix tetragona
 * Cardamine hirsuta
 Carex appressa
 Carex inversa
 Carex preissii
 Carpobrotus virescens
 Cassytha flava
 Cassytha glabella
 Cassytha micrantha
 Cassytha pomiformis
 Cassytha racemosa
 Cassytha racemosa forma pilosa
 Cassytha racemosa forma racemosa
 * Centaurium erythraea
 * Centaurium tenuiflorum
 Centella asiatica
 Centipeda cunninghamii
 Centrolepis aristata
 Centrolepis drummondiana
 Centrolepis fascicularis
 Centrolepis polygyna
 Cephalotus follicularis
 * Cerastium glomeratum
 Chaetanthus leptocarpoides
 Chaetanthus tenellus
 Chamaescilla corymbosa
 Chamaescilla corymbosa var. corymbosa
 Chamaescilla spiralis
 Chamelaucium erythrochlorum ms P4
 Cheilanthes austrotenuifolia
 Cheilanthes sieberi subsp. sieberi
 Cheiranthra preissiana subsp. "unsorted"
 Cheiranthra preissiana var. planifolia
 * Chenopodium glaucum
 * Chenopodium murale
 * Chenopodium pumilio
 Chordifex amblycoleus ms
 Chordifex gracilior ms P3
 Chordifex isomorphus ms P2
 Chordifex jacksonii ms P1
 Chorilaena quercifolia
 Chorizandra cymbaria
 Chorizandra enodis
 Chorizandra multiarticulata P3
 Chorizema cordatum
 Chorizema diversifolium
 Chorizema glycinifolium
 Chorizema ilicifolium
 Chorizema nanum
 Chorizema reticulatum P3
 Chorizema rhombeum
 Chorizema spathulatum
 * Chrysanthemum segetum
 * Cicendia filiformis
 * Cirsium vulgare
 Clematis pubescens
 Comesperma calymega
 Comesperma ciliatum
 Comesperma confertum
 Comesperma flavum
 Comesperma nudiusculum
 Comesperma virgatum
 Conospermum acerosum subsp. acerosum
 Conospermum caeruleum
 Conospermum caeruleum subsp. caeruleum
 Conospermum caeruleum subsp. debile
 Conospermum caeruleum subsp. marginatum
 Conospermum caeruleum subsp. marginatum
 ms
 Conospermum caeruleum subsp. spathulatum
 Conospermum capitatum
 Conospermum capitatum subsp. capitatum
 Conospermum capitatum subsp. glabratum
 Conospermum crassinervium

Conospermum flexuosum	Dampiera trigona
Conospermum flexuosum subsp. laevigatum	Danthonia caespitosa
Conospermum paniculatum P3	Darwinia citriodora
Conospermum quadripetalum P2	Darwinia ferricola ms R
Conospermum stoechadis	Darwinia oederoides
Conospermum teretifolium	Darwinia sp. Williamson (G.J. Keighery 12717) R
Conostephium pendulum	Darwinia vestita
Conostylis aculeata	Dasyogon bromeliifolius
Conostylis aculeata subsp. aculeata	Dasyogon hookeri
Conostylis aculeata subsp. preissii	* Datura stramonium
Conostylis candidans	Daucus glochidiatus
Conostylis candicans subsp. calcicola	Daviesia angulata
Conostylis juncea	Daviesia cordata
Conostylis laxiflora	Daviesia costata
Conostylis serrulata	Daviesia decurrens
Conostylis setigera	Daviesia flexuosa
Conostylis setigera subsp. setigera	Daviesia horrida
* Conyza albida	Daviesia inflata
* Conyza parva	Daviesia longifolia
* Coronopus didymus	Daviesia obovata P2
* Corrigiola litoralis	Daviesia preissii
Corybas recurvus	Daviesia rhombifolia
Corymbia calophylla	Desmazeria rigida
Corymbia haematoxylon	Desmocladus castaneus ms
Corynotheca micrantha	Desmocladus fasciculatus ms
Cosmelia rubra	Desmocladus flexuosus
* Cotula australis	Desmocladus flexuosus ms
* Cotula coronopifolia	Deyeuxia quadriseta
* Cotula turbinata	Dianella brevicaulis
Craspedia variabilis	Dianella revoluta
Crassula colorata var. acuminata	Diaspasis filifolia
Crassula colorata var. colorata	Dichelachne crinita
Crassula glomerata	Dichondra repens
Crassula sieberiana subsp. tetramera	Dichopogon preissii
Crassula thunbergiana subsp. thunbergiana	* Digitaria sanguinalis
* Crepis capillaris	Dillwynia uncinata
* Crotalaria agatiflora subsp. agatiflora	Dillwynia uncinata var. Capel (R.D. Royce 4853)
Cryptandra arbutiflora var. arbutiflora	Diplolaena dampieri
Cryptandra arbutiflora var. tubulosa	Diplopogon setaceus
Cryptostylis ovata	* Diploxaxis muralis
* Cuscuta epithymum	* Dipogon lignosus
Cyanicula deformis ms	* Dischisma arenarium
Cyanicula sericea ms	Diuris laevis
Cyathochaeta avenacea	Diuris longifolia
Cyathochaeta clandestina	Diuris magnifica
Cyathochaeta equitans	Dodonaea ceratocarpa
Cyathochaeta stipoides P3	Dodonaea viscosa
Cyathochaeta teretifolia P3	Dodonaea viscosa subsp. angustissima
* Cynosurus echinatus	Drakaea glyptodon
* Cyperus congestus	Drakaea livida
* Cyperus eragrostis	Drakaea micrantha ms R
Cyperus gymnocaulos	Drakaea thynniphila
* Cyperus laevigatus	Drosanthemum candens
* Cyperus tenellus	Drosera bulbosa
Cyrtostylis huegelii	Drosera enodes
Cyrtostylis robusta	Drosera erythrorhiza
Cytogonidium leptocarpoides ms	Drosera erythrorhiza subsp. collina
* Dactylis glomerata	Drosera erythrorhiza subsp. erythrorhiza
Dampiera alata	Drosera gigantea subsp. geniculata
Dampiera hederacea	Drosera glanduligera
Dampiera heteroptera P3	Drosera hamiltonii
Dampiera leptoclada	
Dampiera linearis	

Drosera huegelii	Eucalyptus megacarpa
Drosera macrantha subsp. macrantha	Eucalyptus patens
Drosera menziesii	Eucalyptus rudis subsp. cratyantha P4
Drosera menziesii subsp. menziesii	Euchilopsis linearis
Drosera menziesii subsp. penicillaris	Euchiton gymnocephalus P3
Drosera modesta	Euchiton sphaericus
Drosera myriantha	* Euphorbia helioscopia
Drosera neesii subsp. neesii	* Euphorbia peplus
Drosera pallida	Euphrasia scabra P2
Drosera platypoda	Eutaxia densifolia
Drosera platystigma	Eutaxia epacridoides
Drosera pulchella	Eutaxia obovata
Drosera stelliflora	Eutaxia virgata
Drosera stolonifera subsp. stolonifera	Evandra aristata
Dryandra armata	Evandra pauciflora
Dryandra bipinnatifida subsp. bipinnatifida	Exocarpos odoratus
Dryandra formosa	Exocarpos sparteus
Dryandra lindleyana subsp. sylvestris	* Fallopia convolvulus
Dryandra lindleyana var. lindleyana	* Ferraria crispa subsp. crispa
Dryandra mimica R	* Festuca arundinacea
Dryandra nivea subsp. uliginosa R	* Ficus carica
Dryandra sessilis var. cordata P2	Fimbristylis velata
Dryandra squarrosa subsp. argillacea R	* Foeniculum vulgare
Dryandra squarrosa subsp. squarrosa	Franklandia fucifolia
Dysphania glomulifera subsp. glomulifera	Franklandia triaristata P4
* Echinochloa crusgalli	* Freesia hybrid
Echinopogon ovatus	* Fumaria bastardii
* Echium plantagineum	* Fumaria capreolata
* Ehrharta erecta	* Fumaria muralis
* Ehrharta villosa	Gahnia decomposita
Elythranthera brunonis	Gahnia lanigera
Elythranthera emarginata	Gahnia trifida
Empodisma gracillimum	* Galium divaricatum
Epiblema grandiflorum var. grandiflorum ms	Galium migrans P3
Epilobium billardierianum	* Galium murale
Epilobium billardierianum subsp. billardierianum	Gastrolobium bilobum
Epilobium billardierianum subsp. intermedium	Gastrolobium forrestii
Epilobium hirtigerum	* Gazania linearis
Eragrostis brownii	* Genista linifolia
Eremosyne pectinata	Genista monspessulana
Erigeron karvinskianus	* Geranium dissectum
Eriochilus dilatatus	Geranium solanderi
Eriochilus dilatatus subsp. dilatatus ms	* Gladiolus angustus
Eriochilus dilatatus subsp. magnus ms	* Gladiolus cardinalis
Eriochilus dilatatus subsp. multiflorus ms	Glichrocaryon aureum var. angustifolium
Eriochilus helonomos ms	Glyceria australis
Eriochilus scaber subsp. scaber ms	Glyceria declinata
Eriostemon spicatus	Gnaphalium indutum
* Erodium cicutarium	Gompholobium amplexicaule
Eryngium pinnatifidum	Gompholobium capitatum
* Eschscholzia californica	Gompholobium confertum
Eucalyptus calcicola P4	Gompholobium knightianum
Eucalyptus cornuta	Gompholobium marginatum
Eucalyptus decipiens subsp. chalara	Gompholobium ovatum
Eucalyptus diversicolor	Gompholobium polymorphum
Eucalyptus marginata	Gompholobium preissii
Eucalyptus marginata subsp. marginata	Gompholobium scabrum
Eucalyptus marginata x megacarpa P4	Gompholobium tomentosum
	Gompholobium venustum
	Gompholobium villosum
	Gonocarpus benthamii
	Gonocarpus benthamii subsp. benthamii ms
	Gonocarpus diffusus

Gonocarpus hexandrus subsp. "unsorted"
 Gonocarpus hexandrus subsp. integrifolius
 Gonocarpus hexandrus subsp. serratus
 Gonocarpus paniculatus
 Gonocarpus pithyoides
 Gonocarpus pusillus P3
 Goodenia caerulea
 Goodenia claytoniacea
 Goodenia eatoniana
 Goodenia filiformis
 Goodenia incana
 Goodenia leptoclada
 Goodenia pulchella
 Goodenia pusilla
 Grammatotheca bergiana
 Gratiola peruviana
 Gratiola pubescens
 Grevillea agrifolia
 Grevillea brachystylis
 Grevillea brachystylis subsp. australis
 P2
 Grevillea bronwenae
 Grevillea centristigma
 Grevillea cirsiifolia P4
 Grevillea diversifolia
 Grevillea manglesioides
 Grevillea papillosa P3
 Grevillea pulchella
 Grevillea pulchella subsp. ascendens
 Grevillea pulchella subsp. ascendens ms
 Grevillea pulchella subsp. pulchella
 Grevillea quercifolia
 Grevillea shuttleworthiana subsp.
 canarina P2
 Grevillea sp.Scott River(G.J.Keighery
 4070) P1
 Grevillea trifida
 Gymnoschoenus anceps
 Haemodorum discolor
 Haemodorum laxum
 Haemodorum paniculatum
 Haemodorum simplex
 Haemodorum sparsiflorum
 Haemodorum spicatum
 Hakea amplexicaulis
 Hakea ceratophylla
 Hakea cyclocarpa
 Hakea cygna subsp. cygna
 Hakea falcata
 Hakea lasiantha
 Hakea lasianthoides
 Hakea linearis
 Hakea lissocarpha
 Hakea oleifolia
 Hakea prostrata
 Hakea ruscifolia
 Hakea sulcata
 Hakea trifurcata
 Hakea tuberculata P2
 Hakea varia
 Haloragis brownii
 Haloragis digyna
 Halosarcia lepidosperma
 Hardenbergia comptoniana
 * Hedypnois rhagadioloides
 Helichrysum macranthum
 * Heliophila pusilla
 Hemarthria uncinata var. uncinata
 Hemiandra glabra
 Hemiandra pungens
 Hemigenia obovata P1
 Hemigenia rigida
 Hemigenia sp.Albany(G.J.Keighery 8712)
 Hibbertia acerosa
 Hibbertia amplexicaulis
 Hibbertia aurea
 Hibbertia commutata
 Hibbertia cuneiformis
 Hibbertia cunninghamii
 Hibbertia ferruginea
 Hibbertia furfuracea
 Hibbertia furfuracea
 Hibbertia glomerata
 Hibbertia gracilipes
 Hibbertia grossulariifolia
 Hibbertia huegelii
 Hibbertia hypericoides
 Hibbertia inconspicua
 Hibbertia lasiopus
 Hibbertia pachyrrhiza
 Hibbertia perfoliata
 Hibbertia pilosa
 Hibbertia quadricolor
 Hibbertia racemosa
 Hibbertia recurvifolia
 Hibbertia rhadinopoda
 Hibbertia serrata
 Hibbertia sp.Darling Range(R.D.Royce
 5741)
 Hibbertia sp.hairy sepals(J.R.Wheeler
 2464)
 Hibbertia sp.rigid bracts(J.R.Wheeler
 3220)
 Hibbertia spicata
 Hibbertia stellaris
 Hibbertia vaginata
 Hirschfeldia incana
 Hodgsoniella junciformis
 * Holcus lanatus
 * Holcus setiger
 Homalosciadium homalocarpum
 Homalospermum firmum
 * Homeria flaccida
 * Hordeum glaucum
 Hornungia procumbens
 Hovea chorizemifolia
 Hovea elliptica
 Hovea pungens
 Hovea stricta
 Hovea trisperma
 Hyalosperma cotula
 Hyalosperma pusillum
 Hyalosperma simplex subsp. simplex
 Hybanthus debilissimus
 Hybanthus volubilis P2
 Hydatella dioica R

Hydrocotyle alata
 Hydrocotyle blepharocarpa
 Hydrocotyle callicarpa
 Hydrocotyle diantha
 Hydrocotyle hirta
 Hydrocotyle hispidula
 Hydrocotyle pilifera
 Hydrocotyle pilifera var. glabrata
 Hydrocotyle pilifera var. pilifera
 Hydrocotyle plebeya
 Hydrocotyle tetragonocarpa
 * Hyparrhenia hirta
 * Hypericum perforatum
 Hypericum perforatum var. "unsorted"
 Hypericum perforatum var. angustifolium
 Hypocalymma angustifolium
 Hypocalymma cordifolium
 Hypocalymma ericifolium
 Hypocalymma robustum
 Hypocalymma scariosum
 Hypocalymma sp. Scott River (A.S. George
 11773) P4
 Hypocalymma strictum
 * Hypochaeris glabra
 * Hypochaeris radicata
 Hypolaena caespitosa ms
 Hypolaena exsulca
 Hypolaena fastigiata
 Hypolaena pubescens
 Hypolaena viridis ms
 Hypoxis glabella var. glabella
 Hypoxis occidentalis
 Hypoxis occidentalis var. quadriloba
 * Iris germanica
 Isolepis cernua
 Isolepis cyperoides
 * Isolepis marginata
 Isolepis nodosa
 * Isolepis prolifera
 Isolepis setiformis
 Isopogon attenuatus
 Isopogon axillaris
 Isopogon formosus subsp. dasylepis P3
 Isopogon sphaerocephalus
 Isotoma hypocrateriformis
 Isotoma scapigera
 Isotropis cuneifolia
 * Ixia paniculata
 Ixiolaena viscosa
 Jacksonia aff. horrida
 Jacksonia furcellata
 Jacksonia horrida
 Jacksonia sparsa ms P3
 Jansonia formosa P3
 Johnsonia acaulis
 Johnsonia inconspicua P1
 Johnsonia lupulina
 Juncus amabilis
 Juncus aridicola
 * Juncus articulatus
 * Juncus bufonius
 Juncus caespiticus
 * Juncus capitatus
 Juncus holoschoenus
 Juncus kraussii
 Juncus kraussii subsp. australiensis
 * Juncus microcephalus
 Juncus pallidus
 Juncus pauciflorus
 Juncus planifolius
 Juncus subsecundus
 * Juncus usitatus
 Kennedia carinata
 Kennedia coccinea
 Kennedia macrophylla R
 Kingia australis
 Kunzea ciliata
 Kunzea glabrescens
 Kunzea micrantha
 Kunzea micrantha subsp. micrantha
 Kunzea recurva
 Kunzea rostrata
 Kunzea spathulata ms
 Kunzea sulphurea
 Labichea lanceolata
 Labichea punctata
 Lachnostachys albicans
 Lagenifera huegelii
 * Lagurus ovatus
 Lambertia orbifolia R
 Lambertia rariflora subsp. rariflora P4
 Lasioptalum floribundum
 Lathyrus tingitanus
 Latrobea diosmifolia
 Latrobea tenella
 Latrobea tenella var. tenella
 Laxmannia jamesii R
 Laxmannia sessiliflora
 Laxmannia sessiliflora subsp. australis
 Laxmannia squarrosa
 Lechenaultia biloba
 Lechenaultia expansa
 * Leontodon saxatilis
 Lepidium rotundum
 Lepidosperma angustatum
 Lepidosperma effusum
 Lepidosperma gladiatum
 Lepidosperma gracile
 Lepidosperma leptostachyum
 Lepidosperma leptostachyum
 Lepidosperma longitudinale
 Lepidosperma pubisquameum
 Lepidosperma resinatum
 Lepidosperma squamatum
 Lepidosperma tenue
 Lepidosperma tetraquetrum
 Lepidosperma tuberculatum
 Lepidosperma viscidum
 Lepilaena cylindrocarpa
 Leptinella drummondii P2
 Leptocarpus crebriculmis ms
 Leptocarpus diffusus ms
 Leptocarpus elegans ms
 Leptocarpus ramosissimus ms
 Leptocarpus roycei ms
 Leptocarpus scariosus

Leptocarpus tenax
 Leptocarpus tephelinus ms
 Leptoceras menziesii
 Leptomeria cunninghamii
 Leptomeria dielsiana R
 Leptomeria ellytes ms
 Leptomeria furtiva ms P2
 Leptomeria lehmannii
 Leptomeria pauciflora
 Leptomeria scrobiculata
 Leptomeria squarrolata
 Leptorhynchus scaber
 * Leptospermum laevigatum
 Lepyrodia aff. riparia ms
 Lepyrodia drummondiana
 Lepyrodia glauca
 Lepyrodia heleocharoides P3
 Lepyrodia hermaphrodita
 Lepyrodia macra
 Lepyrodia muirii
 Lepyrodia porterae ms
 Leucanthemum maximum
 Leucophyta brownii
 Leucopogon aff. pendulus
 Leucopogon aff. propinquus
 Leucopogon alternifolius
 Leucopogon assimilis
 Leucopogon atherolepis
 Leucopogon australis
 Leucopogon capitellatus
 Leucopogon cinereus
 Leucopogon conostephioides
 Leucopogon cordatus
 Leucopogon distans
 Leucopogon distans subsp. contractus
 Leucopogon distans subsp. contractus ms
 Leucopogon distans subsp. distans ms
 Leucopogon elatior
 Leucopogon elegans
 Leucopogon gilbertii
 Leucopogon glabellus
 Leucopogon hirsutus
 Leucopogon obovatus
 Leucopogon parviflorus
 Leucopogon pendulus
 Leucopogon propinquus
 Leucopogon racemosus
 Leucopogon reflexus
 Leucopogon revolutus
 Leucopogon sp. Windy Harbour (A. Strid
 21460)
 Leucopogon tenuicaulis ms
 Leucopogon unilateralis
 Leucopogon verticillatus
 Levenhookia dubia
 Levenhookia pauciflora
 Levenhookia preissii
 Levenhookia pusilla
 * Limonium sinuatum
 Lindsaea linearis
 Linum marginale
 * Linum trigynum
 Lobelia alata
 Lobelia alata var. alata
 Lobelia gibbosa
 Lobelia heterophylla
 Lobelia rhombifolia
 Lobelia tenuior
 * Lobularia maritima
 Logania campanulata
 Logania glabra ms
 Logania serpyllifolia
 Logania serpyllifolia subsp. angustifolia
 Logania serpyllifolia subsp.
 serpyllifolia
 Logania spermacocea
 Logania vaginalis
 * Lolium multiflorum
 * Lolium temulentum
 Lomandra caespitosa
 Lomandra drummondii
 Lomandra hermaphrodita
 Lomandra integra
 Lomandra micrantha subsp. micrantha
 Lomandra nigricans
 Lomandra nutans
 Lomandra pauciflora
 Lomandra preissii
 Lomandra purpurea
 Lomandra sericea
 Lomandra sonderi
 Lomandra suaveolens
 * Lotus angustissimus
 * Lotus suaveolens
 * Lotus uliginosus
 Loxocarya cinerea
 Loxocarya flexuosa
 Loxocarya magna P3
 Loxocarya sp. Rosa Brook (R.D. Royce 2465)
 Luzula meridionalis
 Lyginia barbata
 Lyperanthus serratus
 Lysinema ciliatum
 Lysinema ciliatum forma
 Lysinema conspicuum
 * Lythrum hyssopifolia
 Macrozamia riedlei
 Marianthus candidus
 * Medicago arabica
 * Medicago polymorpha
 Meeboldina coangustata ms
 Meeboldina crebriculmis ms
 Meeboldina denmarkica
 Meeboldina roycei ms
 Meeboldina scariosa ms
 Meeboldina tephрина ms
 Meeboldina thysanantha ms P3
 Melaleuca acerosa
 Melaleuca basicephala P4
 Melaleuca cordata
 Melaleuca cuticularis
 Melaleuca densa
 Melaleuca huegelii subsp. huegelii
 Melaleuca incana
 Melaleuca incana subsp. Gingilup (N. Gibson
 & M. Lyons 593) P2

Melaleuca incana subsp. incana
 Melaleuca lanceolata subsp. "unsorted"
 Melaleuca lateritia
 Melaleuca pauciflora
 Melaleuca preissiana
 Melaleuca raphiophylla
 Melaleuca ringens P2
 Melaleuca thymoides
 Melaleuca viminea
 Melaleuca viminea subsp. viminea
 Melanostachya ustulata ms
 Melilotus indicus
 Mentha pulegium
 * Mentha spicata
 * Mentha suaveolens
 * Mercurialis annua
 Mesomelaena graciliceps
 Mesomelaena preissii
 Mesomelaena tetragona
 Meziella trifida R
 Microtis alba
 Microtis atrata
 Microtis brownii
 Microtis media
 Microtis media subsp. densiflora
 Microtis media subsp. eremicola
 Microtis media subsp. media
 Millotia myosotidifolia
 Millotia tenuifolia var. tenuifolia
 Mirbelia dilatata
 * Modiola caroliniana
 * Monadenia bracteata
 * Monopsis debilis
 Monotaxis grandiflora
 Monotaxis occidentalis
 * Muehlenbeckia adpressa
 Myoporum oppositifolium
 Myosotis discolor
 * Myriophyllum aquaticum
 Myriophyllum crispatum
 Myriophyllum salsugineum
 * Narcissus pseudonarcissus
 Needhamiella pumilio
 Nemcia capitata
 Nemcia lehmannii X
 Nemcia retusa
 Neurachne alopecuroidea
 * Nicandra physalodes
 Notodanthonia caespitosa
 Notodanthonia occidentalis
 Nuytsia floribunda
 * Nymphaea odorata
 * Oenothera stricta subsp. stricta
 Olax benthamiana
 Olearia axillaris
 Olearia cassiniae
 Olearia elaeophila
 Olearia muricata
 Olearia paucidentata
 Olearia rudis
 Opercularia apiciflora
 Opercularia echinocephala
 Opercularia hispidula
 Opercularia vaginata
 Opercularia volubilis
 * Ornithopus pinnatus
 * Orobanche minor
 Orthrosanthus laxus
 Orthrosanthus laxus var. laxus
 Orthrosanthus polystachyus
 * Ottelia ovalifolia subsp. ovalifolia
 * Oxalis corniculata
 * Oxalis glabra
 * Oxalis incarnata
 * Oxalis purpurea
 Oxylobium lineare
 Ozothamnus cordatus
 Ozothamnus ramosus
 Paraserianthes lophantha subsp. lophantha
 * Parentucellia latifolia
 * Parietaria debilis
 * Paspalum dilatatum
 * Paspalum vaginatum
 * Passiflora filamentosa
 Patersonia babianoides
 Patersonia limbata
 Patersonia occidentalis
 Patersonia sp. Swamp Form (N. Gibson & M. Lyons 544)
 Patersonia umbrosa
 Patersonia umbrosa var. "unsorted"
 Patersonia umbrosa var. xanthina
 * Pelargonium alchemilloides
 Pelargonium australe
 * Pelargonium capitatum
 Pelargonium littorale
 Pelargonium littorale subsp. littorale
 * Pennisetum clandestinum
 * Pennisetum macrourum
 Pentapeltis peltigera
 Pentapeltis silvatica
 * Pentzia suffruticosa
 Pericalymma crassipes
 Pericalymma ellipticum
 Pericalymma ellipticum var. ellipticum ms
 Pericalymma megaphyllum ms
 Pericalymma spongiocaulum ms
 Persicaria decipiens
 Persicaria hydropiper
 Persicaria prostrata
 Persoonia elliptica
 Persoonia graminea
 Persoonia longifolia
 Persoonia saccata
 Petrophile acicularis
 Petrophile diversifolia
 Petrophile linearis
 Petrophile serruriae
 Petrophile squamata
 Petrophile squamata subsp. pluridissecta
 ms
 Petrophile squamata subsp. squamata
 Phebalium anceps
 Philydrella pygmaea
 Philydrella pygmaea subsp. minima P1
 Phlebocarya ciliata

Samolus repens	* Solanum nigrum
Samolus repens var. repens	Solanum symonii
* Samolus valerandi	Sollya heterophylla
Sarcocornia blackiana	* Sonchus asper subsp. glaucescens
Scaevola anchusifolia	* Sonchus oleraceus
Scaevola calliptera	Sowerbaea laxiflora
Scaevola crassifolia	* Sparaxis bulbifera
Scaevola glandulifera	Sphaerolobium drummondii
Scaevola globulifera	Sphaerolobium fornicatum
Scaevola microphylla	Sphaerolobium grandiflorum
Scaevola nitida	Sphaerolobium linophyllum
Scaevola striata	Sphaerolobium macranthum
Scaevola striata var. striata	Sphaerolobium macranthum var. "unsorted"
Schizaea fistulosa	Sphaerolobium medium
Schoenolaena juncea	Sphaerolobium nudiflorum
Schoenolaena juncea	Sphaerolobium racemosum
Schoenoplectus validus	Sphaerolobium scabriusculum
Schoenus asperocarpus	Sphaerolobium vimineum
Schoenus bifidus	* Sphaeropteris cooperi
Schoenus breviculmis	Sphenotoma capitatum
Schoenus brevisetis	Sphenotoma gracile
Schoenus cruentus	Sphenotoma parviflorum P3
Schoenus curvifolius	Sphenotoma squarrosus
Schoenus discifer	Sporadanthus rivularis ms P3
Schoenus efoliatus	Sporadanthus strictus ms
Schoenus elegans	* Sporobolus indicus var. capensis
Schoenus grandiflorus	Sporobolus virginicus
Schoenus indutus P1	Spyridium globulosum
Schoenus laevigatus	Stachystemon vermicularis
Schoenus loliaceus P2	Stackhousia monogyna
Schoenus nitens	Stackhousia pubescens
Schoenus pleiostemoneus	Stellaria media
Schoenus sp.A3 Ciliate Sheaths(K.R.Newbey 9402	Stenanthemum humile
Schoenus sp.G Broad Sheath(K.L.Wilson 2633)	Stenopetalum robustum
Schoenus subbarbatus	Stenotalis ramosissima
Schoenus subbulbosus	* Stenotaphrum secundatum
Schoenus subflavus	Stipa flavescens
Schoenus subflavus subsp. subflavus	Stirlingia latifolia
Schoenus sublateralis	Stirlingia seselifolia
Schoenus sublaxus	Stirlingia simplex
Schoenus tenellus	Strangea stenocarpoides
Schoenus variicellae	Stylidium adnatum
Selaginella gracillima	Stylidium adnatum var. abbreviatum
* Senecio diaschides	Stylidium aff. bulbiferum
Senecio elegans	Stylidium aff. spathulatum
Senecio glomeratus	Stylidium amoenum
Senecio hispidulus	Stylidium amoenum var. "unsorted"
Senecio hispidulus var. hispidulus	Stylidium barleei P3
* Senecio lautus	Stylidium breviscapum
* Senecio lautus subsp. maritimus	Stylidium breviscapum var. breviscapum
Senecio ramosissimus	Stylidium brunonianum
* Sherardia arvensis	Stylidium brunonianum subsp. minor
Sida hookeriana	Stylidium bulbiferum
* Sigesbeckia orientalis	Stylidium caespitosum
* Silene gallica var. gallica	Stylidium calcaratum
* Silene gallica var. quinquevulnera	Stylidium ciliatum
* Silene nocturna	Stylidium corymbosum
* Silene vulgaris	Stylidium crassifolium
Siloxerus filifolius	Stylidium despectum
Siloxerus humifusus	Stylidium diversifolium
* Solanum linnaeanum	Stylidium ecorne
	Stylidium falcatum
	Stylidium fasciculatum

<i>Stylidium glaucum</i>	<i>Thomasia grandiflora</i>
<i>Stylidium glaucum</i> subsp. <i>angustifolium</i>	<i>Thomasia heterophylla</i> ms
<i>Stylidium guttatum</i>	<i>Thomasia laxiflora</i> P1
<i>Stylidium inundatum</i>	<i>Thomasia macrocarpa</i>
<i>Stylidium junceum</i>	<i>Thomasia paniculata</i>
<i>Stylidium junceum</i> subsp. <i>brevius</i>	<i>Thomasia pauciflora</i>
<i>Stylidium laciniatum</i>	<i>Thomasia</i> sp. Big Brook (M. Koch 2373)
<i>Stylidium leeuwinense</i> ms P3	<i>Thomasia triloba</i> P1
<i>Stylidium lineatum</i>	<i>Thomasia triphylla</i>
<i>Stylidium lowrieianum</i>	<i>Threlkeldia diffusa</i>
<i>Stylidium luteum</i>	<i>Thryptomene saxicola</i>
<i>Stylidium luteum</i> subsp. <i>glaucifolium</i>	<i>Thysanotus arbuscula</i>
<i>Stylidium mimeticum</i> P3	<i>Thysanotus arenarius</i>
<i>Stylidium piliferum</i>	<i>Thysanotus dichotomus</i>
<i>Stylidium plantagineum</i> P4	<i>Thysanotus formosus</i> P1
<i>Stylidium preissii</i>	<i>Thysanotus glaucus</i> P4
<i>Stylidium pulchellum</i>	<i>Thysanotus gracilis</i>
<i>Stylidium repens</i>	<i>Thysanotus manglesianus</i>
<i>Stylidium rhynchocarpum</i>	<i>Thysanotus multiflorus</i>
<i>Stylidium rupestre</i>	<i>Thysanotus patersonii</i>
<i>Stylidium scandens</i>	<i>Thysanotus pauciflorus</i>
<i>Stylidium schoenoides</i>	<i>Thysanotus pseudojunceus</i>
<i>Stylidium spathulatum</i>	<i>Thysanotus sparteus</i>
<i>Stylidium squamosotuberosum</i>	<i>Thysanotus tenellus</i>
<i>Stylidium striatum</i>	<i>Thysanotus thyrsoides</i>
<i>Stylidium uniflorum</i>	<i>Thysanotus triandrus</i>
<i>Stylidium violaceum</i>	* <i>Tolpis barbata</i>
<i>Stypandra glauca</i>	* <i>Trachyandra divaricata</i>
<i>Styphelia tenuiflora</i>	<i>Trachymene coerulea</i>
<i>Suaeda australis</i>	<i>Trachymene coerulea</i> var. <i>coerulea</i>
<i>Synaphea favosa</i>	<i>Trachymene pilosa</i>
<i>Synaphea gracillima</i>	<i>Tremandra diffusa</i>
<i>Synaphea macrophylla</i> P1	<i>Tremandra stelligera</i>
<i>Synaphea nexosa</i> P1	<i>Tremulina cracens</i> ms
<i>Synaphea otio stigma</i> P1	<i>Tremulina tremula</i> ms
<i>Synaphea petiolaris</i>	<i>Tribonanthes australis</i>
<i>Synaphea petiolaris</i> subsp. <i>triloba</i>	<i>Trichocline spathulata</i>
<i>Synaphea whicherensis</i> P3	<i>Tricoryne elatior</i>
* <i>Taraxacum officinale</i>	<i>Tricoryne humilis</i>
<i>Taraxis glaucescens</i> ms	<i>Tricostularia neesii</i>
<i>Taraxis grossa</i>	<i>Tricostularia neesii</i> var. <i>elatior</i>
<i>Taraxis grossa</i> ms	<i>Tricostularia neesii</i> var. <i>neesii</i>
<i>Templetonia retusa</i>	* <i>Trifolium campestre</i> var. <i>campestre</i>
<i>Tetraria capillaris</i>	* <i>Trifolium cernuum</i>
<i>Tetraria octandra</i>	* <i>Trifolium dubium</i>
<i>Tetrarrhena laevis</i>	* <i>Trifolium incarnatum</i>
<i>Tetralthea fasciculata</i> X	* <i>Trifolium incarnatum</i> var. <i>incarnatum</i>
<i>Tetralthea filiformis</i>	* <i>Trifolium ligusticum</i>
<i>Tetralthea hirsuta</i>	* <i>Trifolium resupinatum</i> var. <i>resupinatum</i>
<i>Tetralthea setigera</i>	* <i>Trifolium subterraneum</i>
<i>Thalassodendron pachyrhizum</i>	<i>Triglochin centrocarpum</i>
<i>Thelymitra</i> aff. <i>holmesii</i>	<i>Triglochin huegelii</i>
<i>Thelymitra</i> aff. <i>macrophylla</i>	<i>Triglochin lineare</i>
<i>Thelymitra antennifera</i>	<i>Triglochin striatum</i>
<i>Thelymitra benthamiana</i>	<i>Triglochin trichophorum</i>
<i>Thelymitra canaliculata</i>	<i>Tripterococcus brachylobus</i> ms
<i>Thelymitra cornicina</i>	<i>Tripterococcus brunonis</i>
<i>Thelymitra crinita</i>	<i>Trithuria submersa</i>
<i>Thelymitra cucullata</i>	* <i>Tritonia crocata</i>
<i>Thelymitra flexuosa</i>	* <i>Tritonia lineata</i>
<i>Thelymitra fuscolutea</i>	<i>Trymalium floribundum</i>
<i>Thelymitra nuda</i>	<i>Trymalium floribundum</i> subsp. <i>trifidum</i>
<i>Thelymitra pauciflora</i>	<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>

* *Typha domingensis*
Tyrbastes glaucescens ms P4
 * *Ulex europaeus*
 * *Ursinia anthemoides*
 * *Ursinia speciosa*
Utricularia benthamii
Utricularia menziesii
Utricularia multifida
Utricularia paulineae
Utricularia simplex
Utricularia tenella
Utricularia violacea
 * *Vallisneria americana*
Velleia macrophylla
Velleia trinervis
 * *Vellereophyton dealbatum*
 * *Verbascum virgatum*
Veronica arvensis
Veronica distans
Veronica plebeia
Verticordia lehmannii P4
Verticordia plumosa var. *brachyphylla*
Verticordia plumosa var. *plumosa*
 * *Vicia sativa*
 * *Vicia sativa* subsp. *nigra*
 * *Vicia sativa* subsp. *sativa*
Villarsia albiflora
Villarsia capitata
Villarsia lasiosperma
Villarsia latifolia
Villarsia parnassifolia
Viminaria juncea
 * *Vinca major*
 * *Viola odorata*
 * *Vulpia membranacea*
 * *Wahlenbergia capensis*
Wahlenbergia gracilentia
Wahlenbergia multicaulis
Wahlenbergia preissii
Waitzia suaveolens
Waitzia suaveolens var. *suaveolens*
 * *Watsonia borbonica*
 * *Watsonia borbonica* subsp. *ardernei*
 * *Watsonia meriana*
 * *Watsonia versfeldii*
 * *Watsonia wordsworthiana*
Wurmbea dioica
Wurmbea dioica subsp. *alba*
Wurmbea monantha
Xanthorrhoea brunonis
Xanthorrhoea brunonis subsp. *brunonis*
Xanthorrhoea brunonis subsp. *semibarbata*
Xanthorrhoea gracilis
Xanthorrhoea preissii
Xanthosia atkinsoniana
Xanthosia candida
Xanthosia huegelii
Xanthosia huegelii subsp.
southern(G.J.Keighery 2165)
Xanthosia pusilla
Xylomelum angustifolium
Xylomelum occidentale
Xyris gracillima

Xyris inaequalis
Xyris lacera
Xyris lanata
Xyris laxiflora
Xyris maxima
Xyris roycei
 * *Zantedeschia aethiopica*