

**ASSESSMENT OF THE CONSERVATION VALUE
OF ROADSIDE VEGETATION
IN THE SHIRE OF TOODYAY, WA**



OLD PLAINS ROAD



ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF TOODYAY, WESTERN AUSTRALIA

1. INTRODUCTION

Alteration of original native vegetation into productive farmland in Western Australia has been a continual process since the time of original settlement.

The Shire of Toodyay is fortunate in that it has numerous patches of remnant native vegetation, including some State Forest in the west. Many farms contain remnant patches and there are some good strips along roadsides.

These strips and patches form a mosaic in which conservation of wildlife is integrated with farming to form a productive and uniquely Australian landscape. Roadside strips are an essential element of this network, as they function as corridors enabling movement of animals - especially small birds - across the landscape. They are also an important seed source for regeneration projects - especially of shrubs, since grazing beneath farm trees often removes this layer. A well conserved roadside helps with erosion and salinity control and is less of a fire threat than one dominated by annual weeds. Finally, roadside vegetation contributes greatly to the attractiveness of the countryside, as it forms the windowframe through which visitors and residents alike view the landscape

2. ASSESSMENT PROCESS

2.1 Method

The method followed is that developed by the Roadside Conservation Committee and designed to be carried out by volunteers. Its aim is to produce a conservation score which will rate each road as having high, medium or low conservation value. This information can then be used by the road manager to choose appropriate management techniques for the roadsides.

Appendix 1 shows the field data sheet. Each road was divided into as many sections as the assessor decided were reasonably uniform. A data sheet was completed for each section.

2.2 Field Work

Fieldwork was undertaken between 29/5/1988 and 20/3/90.

The assessment was done by the following people:-

P Hussey
M Kerr
G Rundle

assisted by:

D Atwell
R Paynter
J Seabrook

In all they assessed 411.9km of roadsides.

2.3 Limitations

Two major roads, Julimar Road and Dewar's Pool Road, have not been completely assessed. A number of short roads, especially those connected with new subdivisions, have also not been considered

2.4 Scoring

Scoring is shown on the field sheet, (Appendix 1).

Topics scored:

- . native vegetation on roadside
- . extent of native vegetation along length of roadside
- . number of different native species
- . weeds
- . value as a biological corridor
- . predominant adjoining land use

Each of the above attributes can score to a maximum of 2, giving total scores in a range from 0-12. These are ranked into the following categories:-

12 - 9	high conservation value
8 - 5	medium conservation value
4 - 0	low conservation value

The following attributes were noted but not scored:-

- . width of road reserve
- . width of vegetated roadside
- . presence of utilities/disturbances

In addition a subjective judgement for Conservation Value and Landscape Value was also recorded.

3. RESULTS

3.1 Field Data Sheets

The field data sheets are retained at the office of the Roadside Conservation Committee, PO Box 104, Como. Duplicate copies will be supplied to the Shire of Toodyay on request.

3.2 Summary of Data

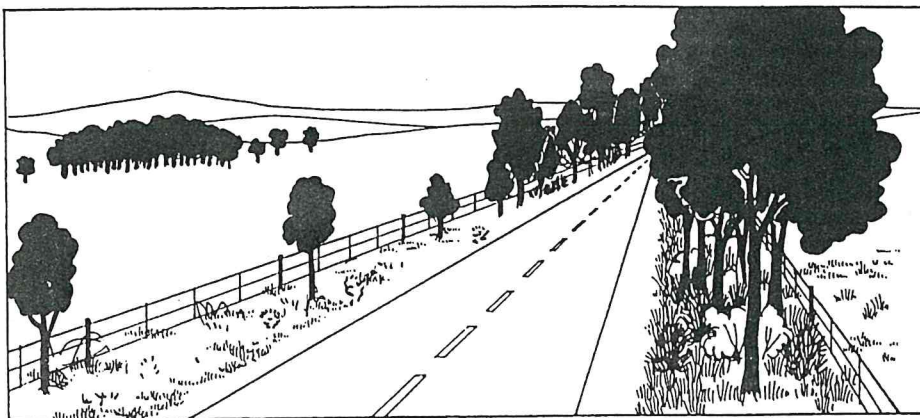
As explained in Section 2, 411.9km of roads in the Shire of Toodyay have been assessed. The following table gives an overview of this assessment.

Figure 1

Results of all roads assessed
Shire of Toodyay 1990

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO. OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	152.3	37.0	23
Medium	111.1	27.0	22
Low	148.5	36.0	34
	411.9	100.0	

(NB: where the conservation value of the roadside is different on either side of the road, the highest value is recorded on this table.)



3.3 Roads Vested in the Main Roads Department

One road within Toodyay Shire, M26, is under the care, control and management of the Main Roads Department (MRD).

Figure 2

Assessment of roads vested in MRD,
Geographically within the Shire of Toodyay 1990

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS KM	TOTAL LENGTH OF ROAD KM
M26 (W)	high	2	16.1	
	medium	4	10.3	
M26 (E)	high	1	3.7	
	medium	1	11.2	42.0

The result of the assessment have been passed to the MRD, and this roads will not be considered further in this document.

3.4 Roads Vested in the Shire of Toodyay

When the MRD road is excluded, the data for roads under the care, control and management of the Shire of Toodyay is as follows:

Figure 3

Assessment of roads vested in the Shire of Toodyay (1990)

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	132.5	35.8	22
Medium	88.9	24.0	21
Low	148.5	40.2	34
	369.9	100.0	

207km of Shire roads have not been surveyed. Apart from Julimar Road (19.9km) and Dewar's Pool Road (24.5km) most of the other unassessed rural roads are those concerned with recent subdivisions.

The above figures will be used for detailed assessment and guidelines for management in Appendix 2.

Figure 4

High Conservation Value Roads

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
M26 Toodyay Red Hill Rd	from: Shire S boundary to: Ten Mile Hill	n = 11 s = 11	13.0km	5-20m varies	Some revegetation at west end. Morangup N.R. to north
	f: 17.6km from Shire boundary t: 20.7km from Shire boundary	n = 11 s = 11	3.1km	20 m?	
M26 Toodyay- Goomalling Rd	f: 11.2km E of Toodyay t: Shire E boundary	n = 11 s = 11	3.7km	1-5m	
S24 Toodyay- Clackline Rd	f: Shire S boundary t: 8.3km N of Shire boundary	e = 11 w = 10	8.3km	1-5m	Old railway, part now N.R. to east of road. Endangered plant <u>Grevillea</u> <u>candolleana</u>
4 Julimar Rd	f: Plunkett Rd t: Keating Rd	n = 10 s = 10	4.2km	?	State Forest
	f: Keating Rd t: Shire W boundary	n = 10 s = 10	2.6km	?	State Forest

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
6 Old Plains Rd	f: 3.5km N of Tele- graph Rd t: 4.1km N of Tele graph Rd	e = 9 w = 8	0.6km	1-5m	Fence setback on E?
	f: 7.9km N of Tele- graph Rd t: N end, Bewmalling N.R.	e = 8 w = 9	1.6km	1-5m	Bewmalling N.R. on west
	f: Bewmalling N.R. t: Bulligan Road	e = 11 w = 10	3.8km	1-5m	Superb trees and ground cover
	f: Bulligan Rd t: Shire N boundary	e = 9 w = 8	4.4km	1-5m	endangered flora <u>Grevillea scabra</u> occurs
13 Fernie Rd	f: Toodyay-Red Hill Rd t: 1.6km S	n = 10 s = 10	1.6km	1-5m	
	f: 1.6km S t: Salt Valley Rd	n = 10 s = 10	1.4km	1-5m	
	f: Salt Valley Rd t: Shire S boundary	e = 11 w = 11	3.8km	1-5m	
14 Salt Valley Rd	f: Hoddy Well Rd t: 3.9km W	n = 11 s = 11	3.9km	1-5m	endangered flora <u>Grevillea</u> <u>candolleana</u>

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
	f: Chitty Rd t: Fernie Rd	n = 11 s = 11	4.3km	1-5m	
16 Chitty Rd	f: 2.3km S from Salt Valley Rd t: Shire S boundary	e = 9 w = 10	4.5km	1-5m	Attractive road
17 Salt Valley Rd (Hoddy Well Rd)	f: Toodyay-Red Hill Rd t: 2.8km S	e = 11 w = 11	2.8km	1-5m	Good powderbarks
	f: Salt Valley Rd t: Toodyay-Clackline	n = 11 w = 11	1.6km	1-5m	
18 Sandplain Rd	f: Toodyay-Red Hill Rd t: Folewood Rd	e = 11 w = 11	4.1km	1-5m	Excellent heath and large trees
21 Morangup Rd	f: Grandis Rd t: Quarry Rd	e = 11 w = 11	4.1km	20 m	Morangup N.R. to east
	f: Quarry Rd t: End of uncleared to north	n = 10 s = 10	1.2km	?	Morangup N.R. to south

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
	f: 3.4km from Quarry Rd t: Where road becomes track	n = 9 s = 9	1.4km	1-5m	
	f: Where road becomes track t: Start of cleared land	n = 10 s = 11	3.3km	?	Lovely woodland
23 Red Gully Rd	f: 1.4km E of Bejoording Rd t: 5.7km E of Bejoording Rd	n = 10 s = 10	4.3km	1-5m	Large wandoo and powderpark trees
24 Forrest Rd	f: Toodyay-Goomalling Rd t: End Wongamine N.R.	e = 11 w = 11	2.6km	1-5m	Superb wandoo avenue. Passes through Wongamine N.R.
	f: End Wongamine N.R. t: Red Gully Rd	e = 10 w = 10	1.3km	1-5m	Magnificent trees
25 Coondle West Rd	f: Julimar Rd t: End forest to W	e = 10 w = 10	2.4km	?	State forest to west
	f: End forest to W t: "Woodland Height" Rd to S	e/s - 11 w/n = 11	5.0 km	1-5m	

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
27 Bulligan Rd	f: Western end of road t: Old Plains Rd	n = 10 s = 10	1.8km	1-5m	Magnificent trees
	f: Old Plains Rd t: End uncleared block	n = 11 s = 10	1.9km	1-5	Superb uncleared block to S
	f: End uncleared block t: Shire N boundary	n = 11 s = 11	3.3km	1-5m	Big trees
38 Melrose Station Rd (Beard Rd)	f: Western end of road t: End uncleared block	n = 10 s = 10	0.9km	1-5m	Fine forest
39 Keating Rd	f: Julimar Rd t: Beach Rd	e = 11 w = 10	3.4km	?	State Forest
	f: Beach Rd t: Shire W boundary	e/n = 11 w/s = 11	10.9km	?	State Forest Moondyne Nature Reserve
40 Beach Rd	f: Keating Rd t: Plunkett Rd	n = 11 s = 11	4.4km	n = 1-5m	Attractive road
41 Plunkett Rd	f: Julimar Rd t: Beach Rd	e = 11 w = 11	5.0km	1-5m	Nice views

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
48 Harders- Chitty Rd	f: 2.0km S of Julimar Rd t: Fence across road	n = 9 s = 9	2.4km	1-5m	Lovely big trees
111 Stirlingia Drive	f: Race Course t: Sandplain Rd	n = 11 s = 11	3.1km	1-5m	Recent subdivision
No number No name	f: Old Plains Rd t: Farm gate at W	n = 10 s = 1	1.7km	n = 20m s = 1	Excellent bush to N
(F) Quarry Rd	f: Morangup Rd t: Parking at end	e = 10 w = 10	12.0km	?	Through Timber Reserve and Avon Valley N.P.
128 Flat Rocks Rd	f: Shire W boundary t: Julimar Farm	n = 10 s = 10	1.2km	1-5km	Through State Forest SEC clearing to N.
	f: Julimar Farm t: End of road	n = 10 s = 11	1.4km	n = ? s = 1-5m	State Forest to N

(nb. Declared Rare Flora (DRF) also exists in other locations within the Shire. The Department of Conservation and Land Management has prepared and given to the Shire a Rare Flora Register which gives exact details with maps, of all sites on Shire land.)

LANDSCAPE VALUE

7.1 Map

A 1:100 000 MRD 'State of Construction' map has been coloured to show 'landscape value' as follows:-

high	=	red
medium	=	yellow
low	=	blue
avenue of trees	=	cross hatched red

These figures are subjective, based on the individual judgement of each assessor, and relate to the attractiveness of the road in the landscape. This data will be useful for the design of tourist or scenic routes.

7.2 Tree Roads

An avenue of mature trees contributes substantially to the attractiveness of a landscape, framing the view and forming a tunnel effect over the road. In addition, the trees are attractive in themselves, particularly Salmon Gums with their bright shiny leaves and beautiful bark.

Trees take many years to reach full stature, especially Salmon Gums which are exceptionally slow growing, so that if an avenue is destroyed, the effect can scarcely be reproduced within a lifetime.

Many trees also contain hollows which are important nest sites for certain birds. It has been calculated that it takes about 150 years for a Salmon Gum or 100 years for a Wandoo to develop hollows, so the importance of mature trees to maintaining the bird population is very clear.

Figure 6 below is a list of "Tree Roads" as determined by the assessors. Usually, avenues only occur on short sections along these roads.

Wurmbea drummondii



4. MAPPING

A 1:100,000 MRD 'State of Construction' map for the Shire of Toodyay shows the roads assessed in this survey. The exact conservation value is written in red figures, while a colour indicates the general value as follows:-

high	=	green
medium	=	pink
low	=	blue

5. MANAGEMENT GUIDELINES FOR CONSERVATION PURPOSES

Appendix 2 contains a detailed discussion of the Shire roads, and guidelines for suggested management techniques which retain and enhance the roadside conservation value.

These guidelines are taken from documents drawn up by the Roadside Conservation Committee.

- . Roadside Manual
- . Guidelines for the clearing and maintenance of roadside vegetation

Copies of these have been supplied to the Shire, but further copies may be obtained from the RCC on request.

6. SPECIAL ENVIRONMENTAL AREAS

A "Special Environmental Area" is a section of roadside which is of such great significance that it should be treated with special care when road and utility service construction or maintenance is undertaken.

Some reasons for designating a Special Environmental Area would include:

- . populations of rare or endangered plants
- . vegetation of special scientific, conservation or aesthetic significance
- . aboriginal or European cultural sites

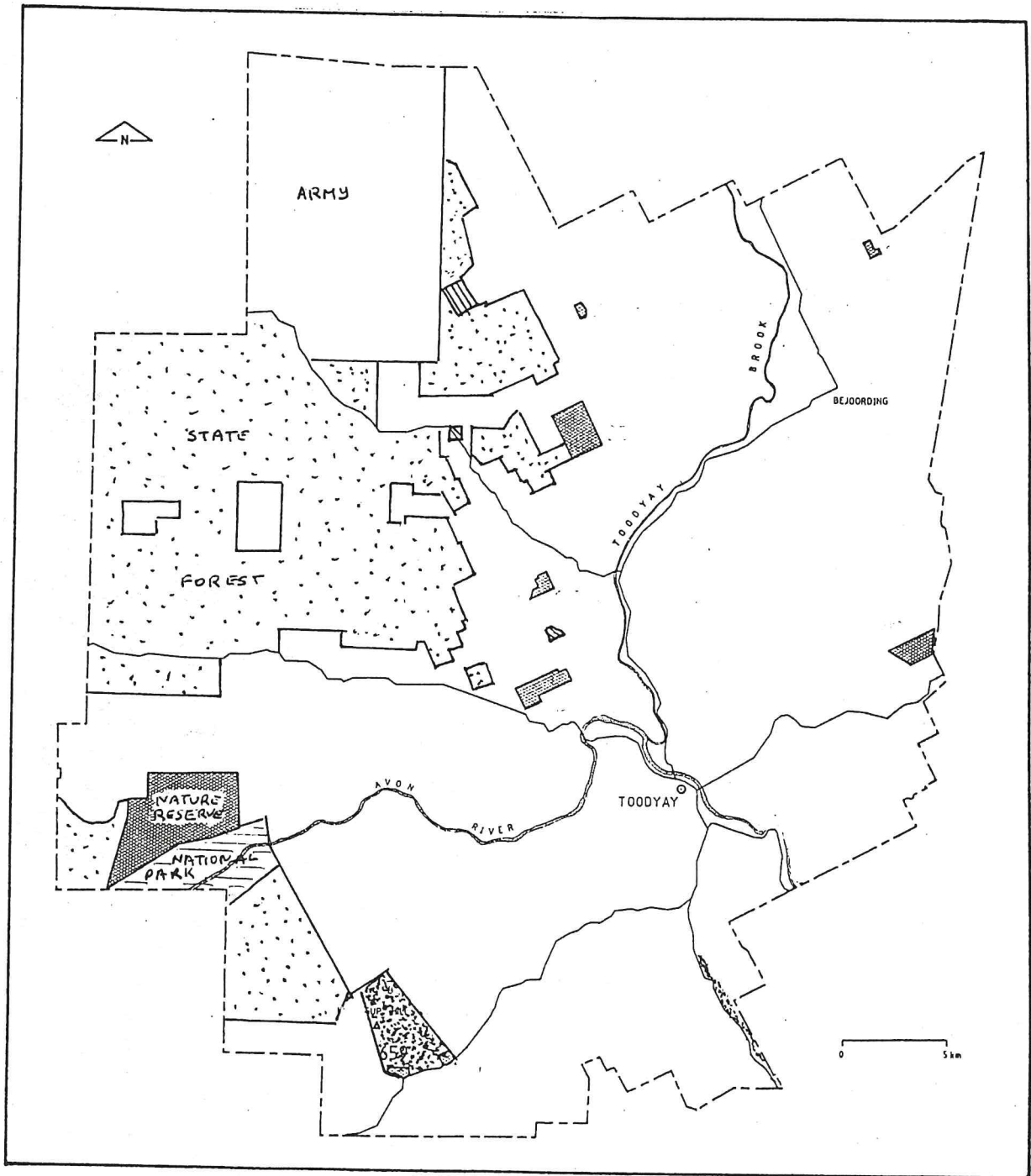
In the Shire Toodyay, two such areas have currently been delineated.


Figure 5


Special environmental areas in the Shire of Toodyay


ROAD NO.	ROAD	REASON FOR AREA	EXACT LOCATION
S39	Dewar's Pool Rd	<i>DRF Wurmbea drummondii</i>	5.2km W of Toodyay -Bindi Bindi Road Hillside
S115	Toodyay-Bindi Bindi Road	<i>Drummond's Rose Hedge</i>	West verge, just N. of Hawthornden Homestead

Map 1 Conservation areas in Toodyay Shire



 National Park

 Nature Reserve

 State Forest


 Other

Figure 6

Tree Roads in the Shire of Toodyay (1990)

- 2 Nunile Road
- 6 Old Plains Road
- 12 Lover's Lane
- 23 Red Gully Road
- 24 Forrest Road
- 27 Bulligan Road
- 34 Wattening Springs Road
- 37 One Man Road
- 38 Melrose Station Road
- 45 ?
- 48 Harders-Chitty Road



8. **CONSERVATION IN THE SHIRE OF TOODYAY**

A number of conservation reserves exist within the Shire of Toodyay and there is also a large area of State Forest and Army land which serves a conservation purpose. However, most of this land is in the west (see map 1).

Roadsides and native vegetation remnants on private land are essential to link these reserves to form a conservation network.

Toodyay is fortunate in that many of its natural resources have been well documented and management plans for the Nature Reserves prepared (see Appendix 3). In addition, a flourishing Naturalist's Club based on Toodyay has focused enthusiasm and expertise and its members are well able to advise the Shire on conservation matters.

Toodyay Shire also falls within the boundary of the Avon River Catchment Management Advisory Committee, which has access to expertise concerning hydrology and soil erosion matters.

Together with maps showing the location of remnant vegetation, this study, which gives the location of important bush corridors, forms the basis for conservation planning within the Shire. It should now be possible to plan regeneration and replanting schemes to link the remnants and give in the Shire a landscape where production and conservation are integrated to the benefit of both. The result will be a productive and beautiful region that is uniquely Australian.

SURVEY TO DETERMINE THE CONSERVATION VALUE OF A ROAD

Date _____ Observer(s) _____
 Road Name _____
 Nearest named place _____
 Shire _____
 Direction of travel _____
 Section no. _____
 starting point _____
 odometer reading _____
 ending point _____
 odometer reading _____
 length of section _____

No. OF DIFFERENT NATIVE SPECIES

0-5 0
 6-19 1
 Over 20 2
 Dominant species (if Known) _____

UTILITIES/DISTURBANCES

Disturbances continuous
 Disturbances Isolated
 Disturbances absent
 Type _____

WIDTH OF ROAD RESERVE _____

Side of the road	Left	Right
Width of Vegetated roadside		
1-5m	<input type="checkbox"/>	<input type="checkbox"/>
5-20m	<input type="checkbox"/>	<input type="checkbox"/>
over 20m	<input type="checkbox"/>	<input type="checkbox"/>

WEEDS

Few weeds (under 20% total plants) 2
 Half weeds (20-80% total) 1
 Mostly weeds (over 80% total) 0
 Ground layer totally weeds 0
 Dominant weeds (if known) _____

CONSERVATION VALUE

High
 Medium
 Low
 Reasons _____

NATIVE VEGETATION ON ROADSIDE

tree layer	<input type="checkbox"/>	1
shrub layer	<input type="checkbox"/>	1
ground layer	<input type="checkbox"/>	1

} max 2

VALUE AS A BIOLOGICAL CORRIDOR

Connects uncleared areas	<input type="checkbox"/>	1
Flowering shrubs for nectar-feeding animals	<input type="checkbox"/>	1
Large trees with hollows for birds nests	<input type="checkbox"/>	1
Hollow logs	<input type="checkbox"/>	1

} max 2

LANDSCAPE VALUE

High
 Medium
 Low
 Avenue of trees
 Reasons _____

RARE FLORA

Rare flora known to be present
 Name _____

FAUNA OBSERVED

EXTENT OF NATIVE VEGETATION ALONG LENGTH OF ROADSIDE

Less than 20%	<input type="checkbox"/>	0
20-80%	<input type="checkbox"/>	1
over 80%	<input type="checkbox"/>	2

PREDOMINANT ADJOINING LAND USE

Agricultural crop or pasture:-

- completely cleared 2
- scattered trees/shrubs 1

Uncleared land 0

Plantation of non-native trees 1

Urban or Industrial 1

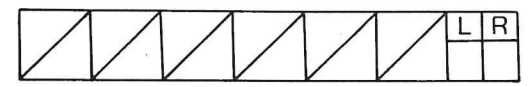
Railway Reserve parallel to road 1

Drain Reserve parallel to road 1

Other _____

} max 2

GENERAL COMMENTS



APPENDIX 2

MANAGEMENT GUIDELINES

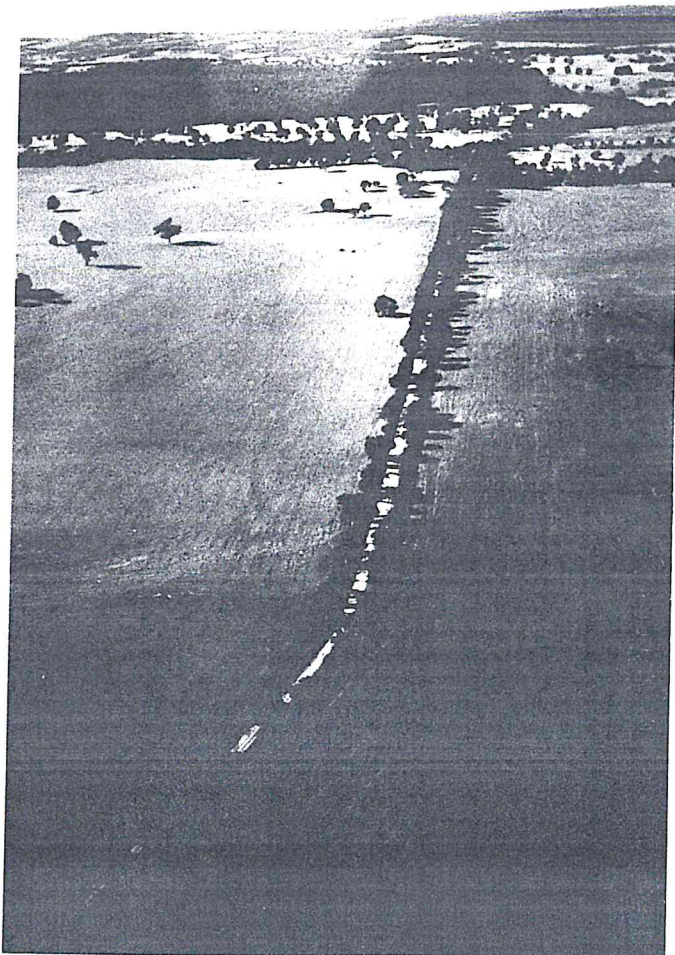
It is assumed that the primary aim of road management is the creation and maintenance of a safe, efficient road system. The following conservation guidelines should be considered along with this.

1. HIGH CONSERVATION VALUE ROADSIDES Score 9-12

Twenty two roads have at least one section of high conservation value (see Figure 4 for detail). These sections occupy 1325km of roadside and are 35.8% of the roads surveyed in the Shire. It is likely that Julimar Road and Dewar's Pool Road would also have sections which come into this category.

The greatest length of these roads are in the south and west of the Shire, through forested or recently cleared country.

In the north-west, Old Plains Road combines history, scenery and magnificent floral wealth, and is without doubt, one of the finest rural drives in the State. Some roads associated with it also have high value for conservation.



Conservation Corridor
Old Plains Road

Another area of valuable roadsides occurs around Wongamine Nature Reserve.

Most of these roads are only 1 chain wide and thus the roadsides are narrow and easily damaged by disturbance.

Management Goal

To maintain and enhance the indigenous plant communities.

Guidelines for achieving this goal

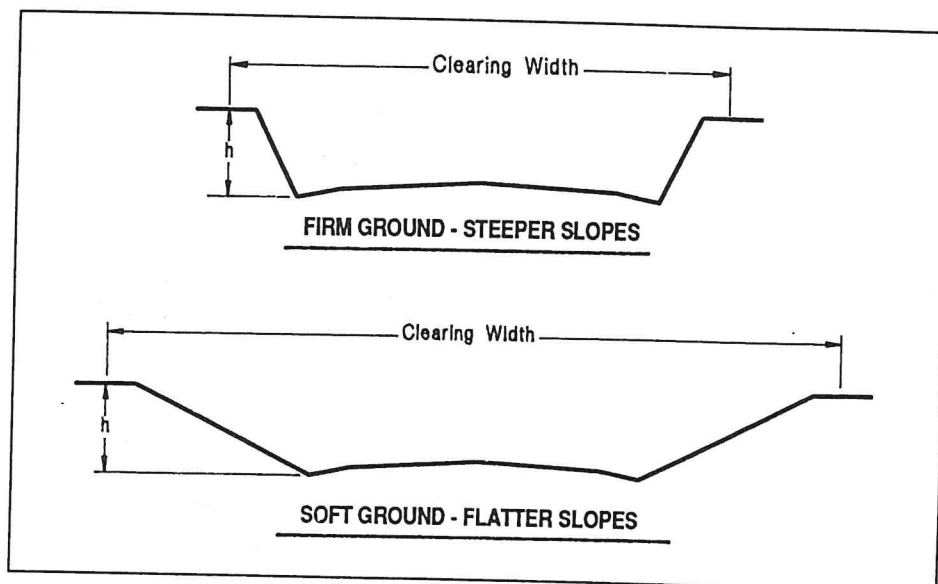
1. Minimise disturbance to existing vegetation

In narrow strips, disturbance leads to weed invasion which:-

- . downgrades the conservation value
- . increases the fire threat

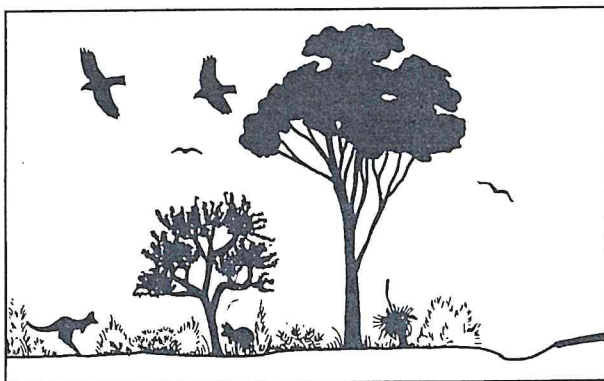
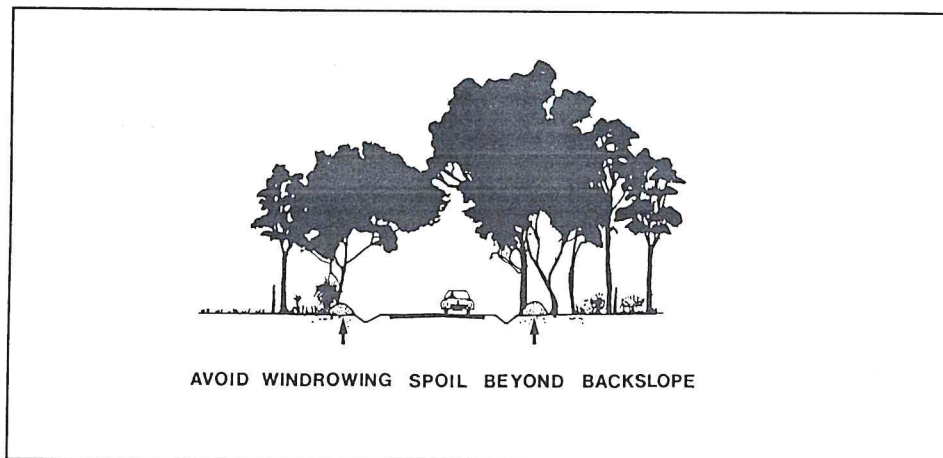
This can be done by:-

- . adopting a road design that occupies the minimum space.
- . diverting the line of a table drain to avoid disturbing valuable flora.
- . prune overhanging branches, rather than removing the whole tree or shrub.
- . do not turn or park machinery over well conserved flora.



- . avoid windrowing soil beyond the backslope.
- . do not dump spoil on well conserved flora.
- . observe dieback control measures if appropriate.
- . use methods other than preventative burning to reduce fire threat.
- . if roadside burning must be undertaken, it should not be repeated within 7 years.
- . encourage adjacent landholders to set back fences to allow vegetation to spread and thicken.
- . encourage adjacent landholders to plant windbreaks or farm tree lots adjacent to roadside vegetation to create a thicker belt.

It is especially important not to disturb vegetation on sandy soil, as weeds such as wild oats and veldt grass soon take over loose sand.



Do not turn road machinery at locations where roadside flora is well conserved.

2. **MEDIUM CONSERVATION VALUE ROADSIDES**
Score 5-8

A quarter of the Shire roads fall in this category with a length of 88.9km.

These roads are often patchy, having some good stands of native vegetation interspersed with weedy areas. They may have utility services along them. (See map for location.)

Management Goal

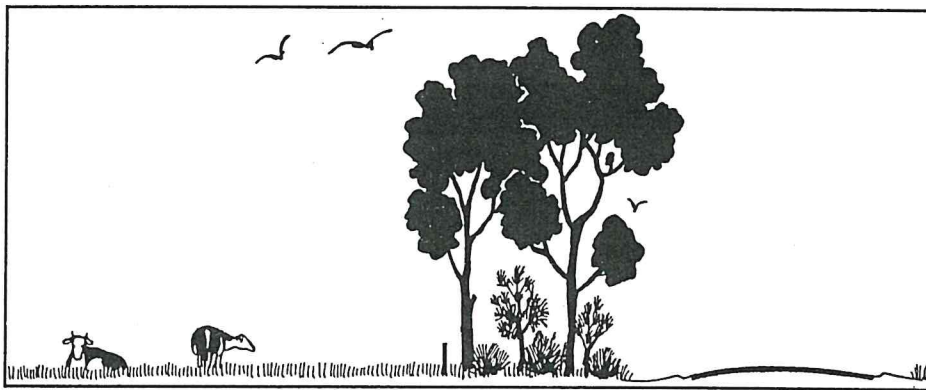
To maintain indigenous vegetation wherever possible, and to encourage its regeneration.

Guidelines For Achieving This Goal

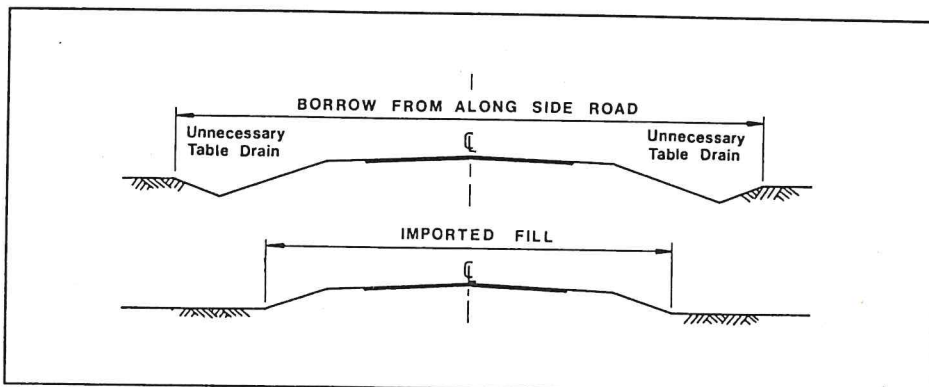
As for High value roadsides, disturbance of areas with good native plant cover should be minimised.

Consideration should be given to weed eradication programmes, combined with reseeded/replanting local species.

Many of these roadsides have the potential to increase in value greatly with sympathetic management.



Import fill for embankment to avoid side borrow from alongside the road.



3. LOW CONSERVATION VALUE ROADSIDES Score 0-4

Many of these road sections occur where the surrounding land has been long cleared, leaving only a few remnant trees and shrubs on the roadside.

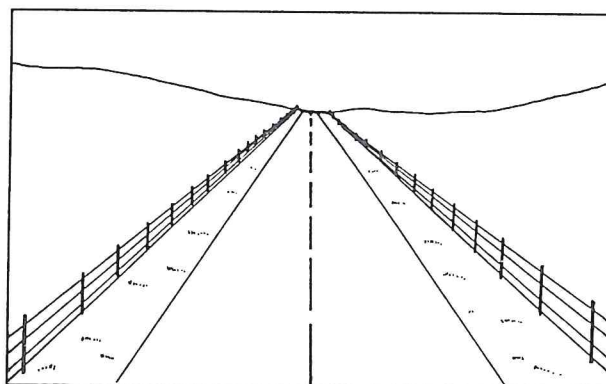
In some cases, the landholder has totally cleared the roadside when erecting a new fence, leaving only weeds or an occasional jam tree to regenerate.

Management Goals

1. Retain remnant trees and shrubs and encourage their regeneration.
2. Encourage revegetation projects using indigenous plants.

Management Guidelines

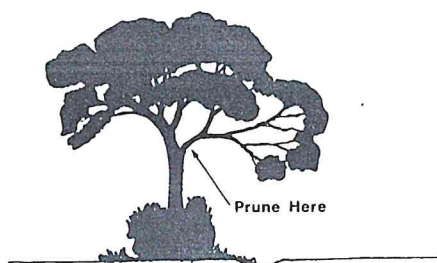
- . Minimise soil disturbance to reduce weed invasion.
- . Encourage revegetation projects by adjacent landholders.



MANAGEMENT OF "TREE ROADS"

Since mature trees are so slow growing and hard to replace, care should be taken to preserve these avenues wherever possible.

- . 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.
- . if using herbicide for grass control on the road shoulders, do not use a soil residual tupe, as Salmon Gums are especially sensitive to these.
- . encourage the adjoining landholder to plant tree belts on his property that will complement the roadside trees.



GUIDELINES FOR THE MANAGEMENT OF FLORA SITES

1. Protected Flora

All native flora is protected under the Wildlife Conservation Act, which is administered by the Department of Conservation and Land Management.

Local or State government may damage or destroy protected flora without the need for a licence, when this is an unavoidable consequence of constructing and maintaining roads - provided always that the works are executed in a reasonable manner. The same applies to service utilities using the roadside.

2. Endangered Flora

Some species have been officially declared to be rare. They may not be destroyed without the written permission of the Minister for Conservation and Land Management even when the destruction results from normal road maintenance work. CALM will notify a Local Government Authority if there are rare plants on its roads. Roadside users (eg. service authorities) therefore, need to consult the road manager to ascertain whether rare flora is known to occur along a particular road reserve.

Known sites containing endangered flora should be clearly identified to avoid inadvertent destruction.

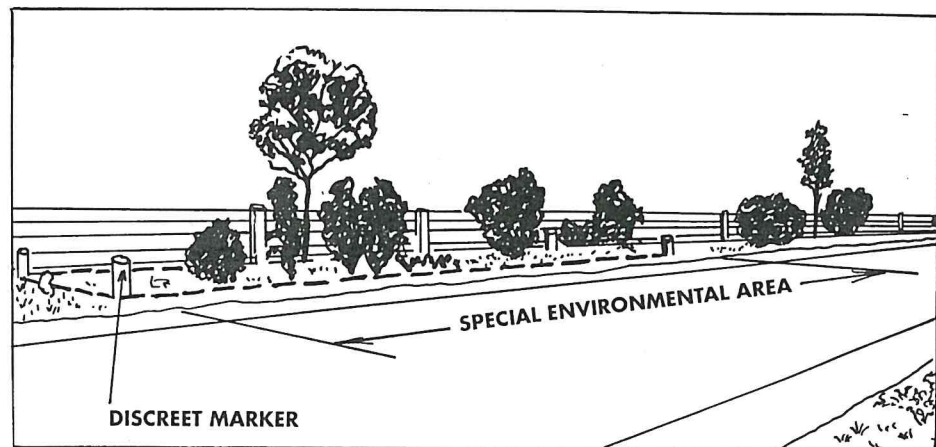


Figure
Special environmental area.

3. Confidentiality

The presence of rare plants should not be advertised so that deliberate exploitation does not occur. This principle may also apply to some other sites.

4. Marking Sites in the Field

4.1 The Main Roads Department has devised a system, as illustrated in Figures 7 and 8, to permanently mark special environmental areas. A register is kept to record site details for planning purposes, flora recognition and management requirements such as the application of herbicides and burning controls. This system has been endorsed by CALM, Westrail also complies with this standard. Local Government Authorities are encouraged to use the same system. Markers of a uniform shape and colour will make recognition easier for other authorities using road reserves.

A cheaper adaptation of the same design is used by the Shire of Victoria Plains. This is equally acceptable as a marker (see Figure 9).

4.2 When notified of a population needing marking, the local Authority should contact the appropriate CALM Regional office for assistance with exact site location and correct position of marker posts.

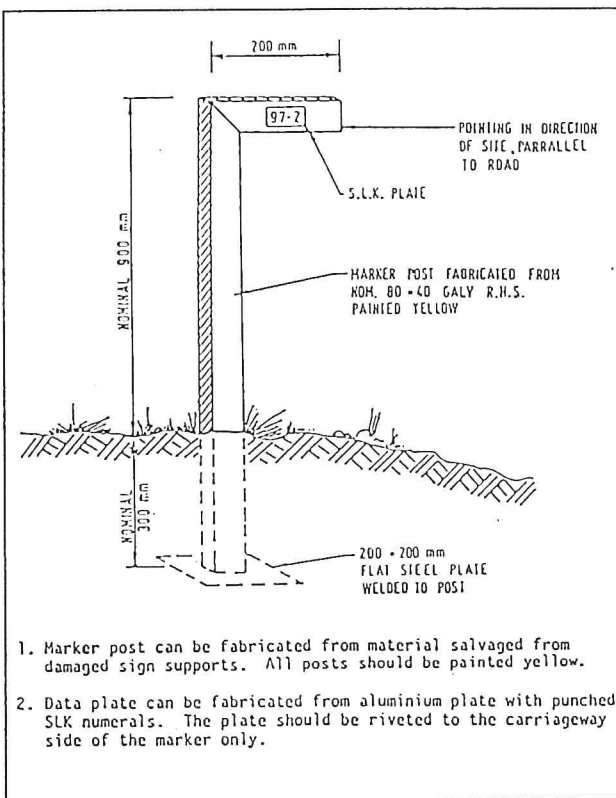


Figure
MRD Special environmental
markers

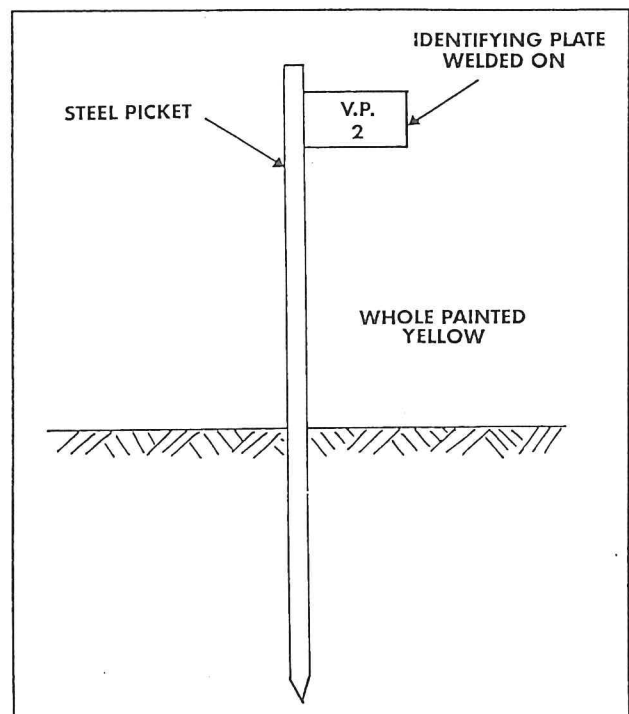


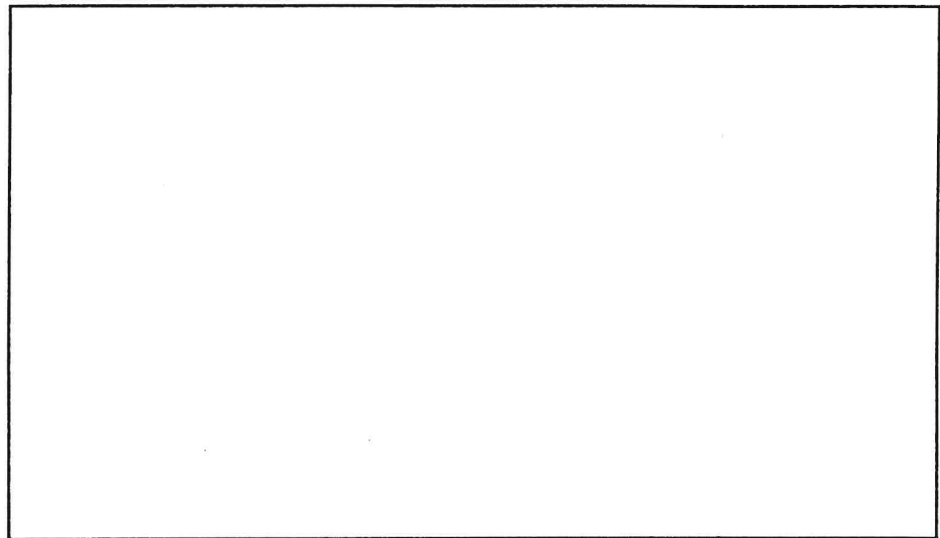
Figure
Shire special environmental
site marker.

SPECIAL ENVIRONMENTAL AREA REGISTER

Shire: _____

Site No: _____

Exact Location: _____



MAP

Reason For Site: _____

Special Instructions For Management: _____

APPENDIX 3

PUBLICATIONS RELATING TO CONSERVATION IN THE SHIRE OF TOODYAY

Nature Reserves

Moondyne Nature Reserve. Crook, I.G. and Evans, T.
Western Australian Nature Reserve Management Plan No. 1
Dept of Fisheries and Wildlife, Perth, 1981.

Moondyne Nature Reserve - A Guide. Crook, G.
Dept of Fisheries and Wildlife, Perth, 1984.

Nature Reserves in the Shire of Toodyay.
Moore, S.A., Williams, A.A.E., Crook, I.G. and Chatfield, G.R.
Department of Fisheries and Wildlife, Perth, 1985.

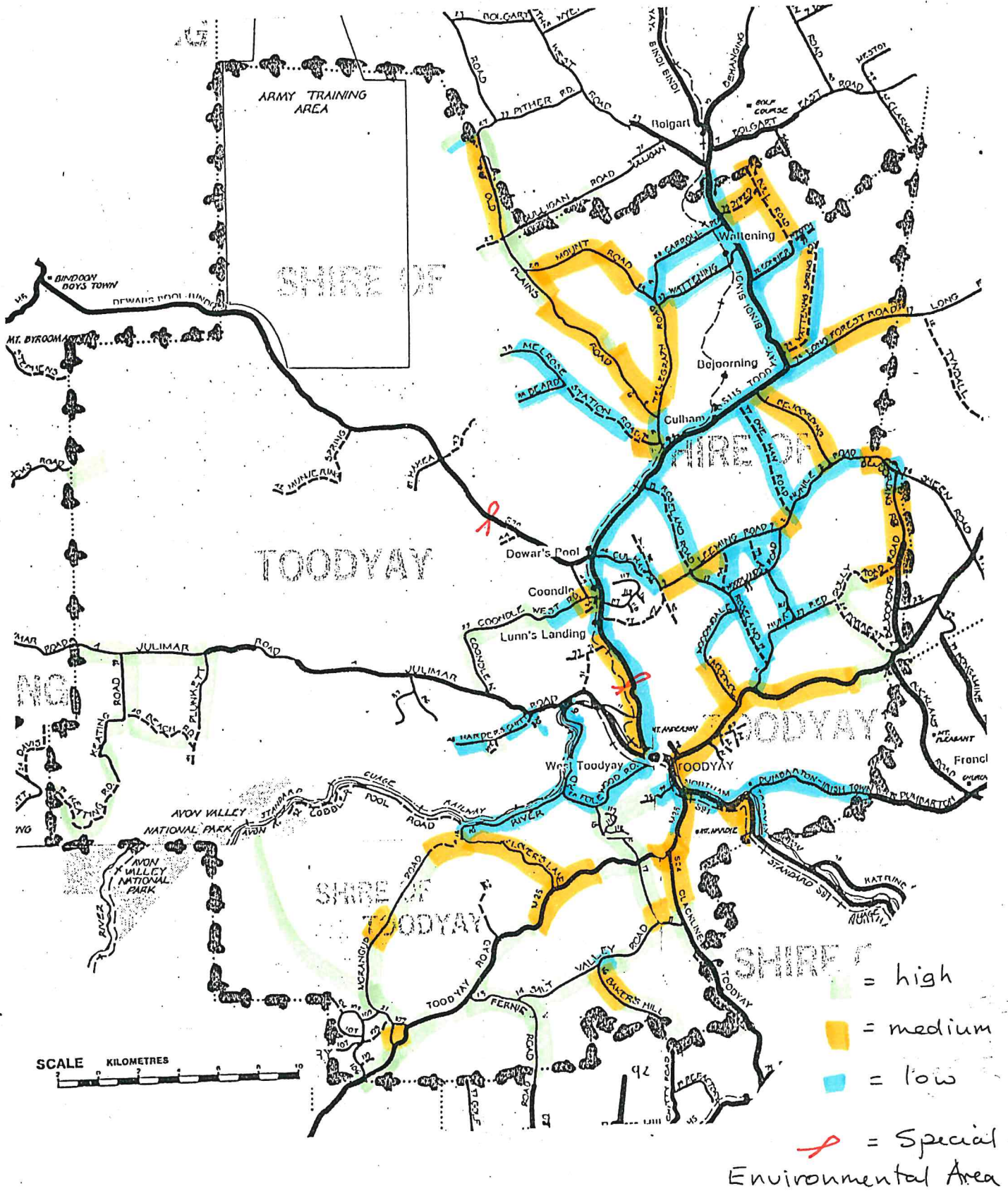
Rare Flora

Declared Rare Flora and other Plants in Need of Special
Protection in the Northern Forest Region. Kelly, A.E. et al.
Wildlife Management Programme No. 5
Dept of Conservation and Land Management, Perth, 1990.

General

The Avon River - A Naturalist's View.
Toodyay Naturalists' Club, Toodyay, 1984.

ROADSIDE CONSERVATION VALUE SHIRE OF TOODYAY



█ = high
█ = medium
█ = low
↗ = Special Environmental Area