ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF CHITTERING, WA

Spillman Road

Roadside Conservation Committee

ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF CHITTERING, 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 Chittering is fortunate in that it has numerous patches of remnant native vegetation, including some State Forest in the east. 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 7/10/1987 and 7/5/1990.

The assessment was done by the following people:-

B & B Backhouse
C Brindley
P Hussey
M Kerr
G Rundle
W & C Worth

In all they drove 368.4km.

2.3 Limitations

Chittering Shire is recorded as having 364km of road

The only major road unassessed is Dewar's Pool Road, but there are also some farm access roads and roads connected with recent subdivisions that have not been covered. Many of these, especially where they bisect cleared farmland, could be expected to have a low conservation value.

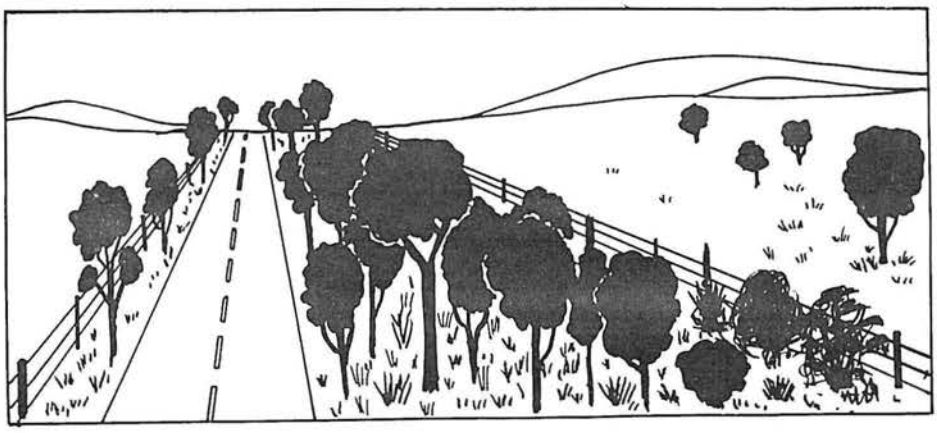
A list of unassessed roads is given in below.

Figure 1

Roadsides which have not been assessed for conservation value in the Shire of Chittering 1990

S39	77
16	78
43	82-90
53	91-104
55	

Most of these roads relate to recent subdivisions.



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 Chittering if requested.

3.2 Summary of Data

As explained in Section 2, 368.4km of roads in the Shire of Chittering have been assessed. The following table gives an overview of this assessment.

Figure 2

Results of all roads assessed
Shire of Chittering 1990

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO. OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	174.8	47.4	30
Medium	113.5	30.8	23
Low	80.1	21.8	28
	368.4	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

Two roads within Chittering Shire, portion of H4 and H6 totalling 81.4km, are under the care, control and management of the Main Roads Department (MRD).

Figure 3

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

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS (KM)	TOTAL LENGTH OF ROAD (KM)
H4	medium	2	13.0	
	low	1	1.5	14.5
H6	high	3	40.8	
	medium	6	16.9	
	low	2	9.2	66.9

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

3.4 Roads Vested in the Shire of Chittering.

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

Figure 4

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

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	134.0	46.7	29
Medium	83.6	29.1	23
Low	69.4	24.2	27
	287.0	100.0	

77km of rural Shire roads have not been surveyed.

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

4. MAPPING

A 1:100,000 MRD 'State of Construction' map for the Shire of Chittering 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

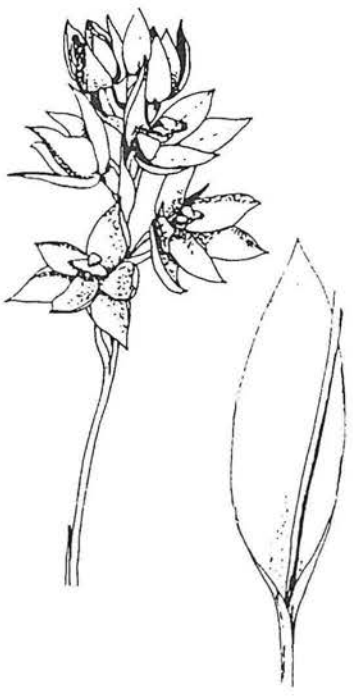
At present there is 1 such area which contains a population of Declared Rare Flora along roadsides controlled by the Shire of Chittering.

Figure 5

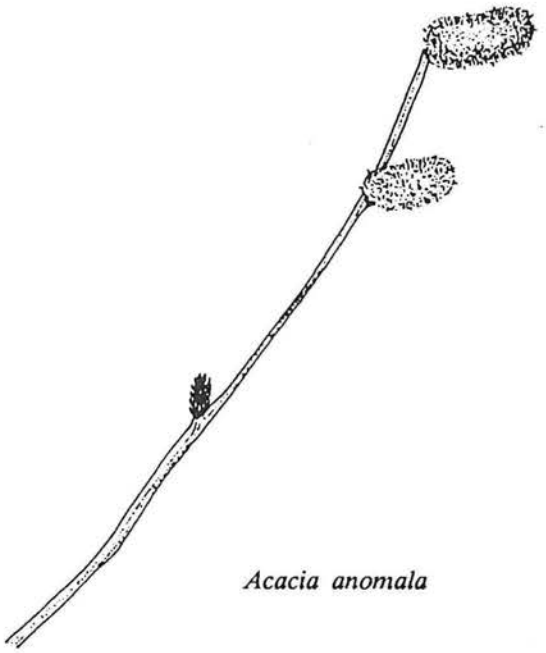
Special Environmental Areas in the Shire of Chittering 1990

ROAD NO	ROAD NAME	DECLARED RARE FLORA (DRF)	EXACT LOCATION
6	Blue Plains Rd	Thelymitra stellata	500m E of Gt Northern Hwy N and S verges

(NB. DRF also exists in other locations within the Shire, eg. at several locations along Gt Northern Highway, and on private property. The Department of Conservation and Land Management has given the Shire a Rare Flora Register, which gives exact details, with maps, of all sites on Shire land.)



Thelymitra stellata



Acacia anomala

7. 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

Many of the roads in Chittering retain magnificent avenues of mature trees, York Gum, Wandoo and Powderbark. Often they have grass weeds as an understory.

These large and stately trees are extremely beautiful, especially when they interlace above the road to form a "green cathedral" effect.

Mature trees such as this take a hundred - perhaps several hundred-years to grow. They can scarcely be replaced within one person's lifetime.

Every effort should be taken to preserve these trees, even to the extent of prohibiting the use of the road by oversize vehicles if it could mean the destruction of the cathedral canopy.

Figure 6

Tree Roads identified in the Shire of Chittering (1990)

ROAD	ROAD NAME	TREES
4	Muchea E Road	Wandoo
7	Chittering Valley Road	Flooded Gum
11	Flat Rocks Road	Jarrah, Marri, Wandoo
14	Tee Tree Road	Jarrah, Marri, Wandoo
30	Wandena Road	Marri
37	McGlew Road	Powderbark
48	Head Road	Powderbark, Wandoo
52	Maddern Road	Jarrah, Marri, Powderbark, Wandoo

8. CONSERVATION IN THE SHIRE OF CHITTERING

Chittering Shire is currently in a good position for conservation planning, as, although there are only a few small conservation reserves within the Shire, (see Figure 7) there are numerous remnants left on private property. These, together with roadsides, form a network permitting movement of small birds across the area, which is also facilitated by the parkland clearing that occurs on many blocks.

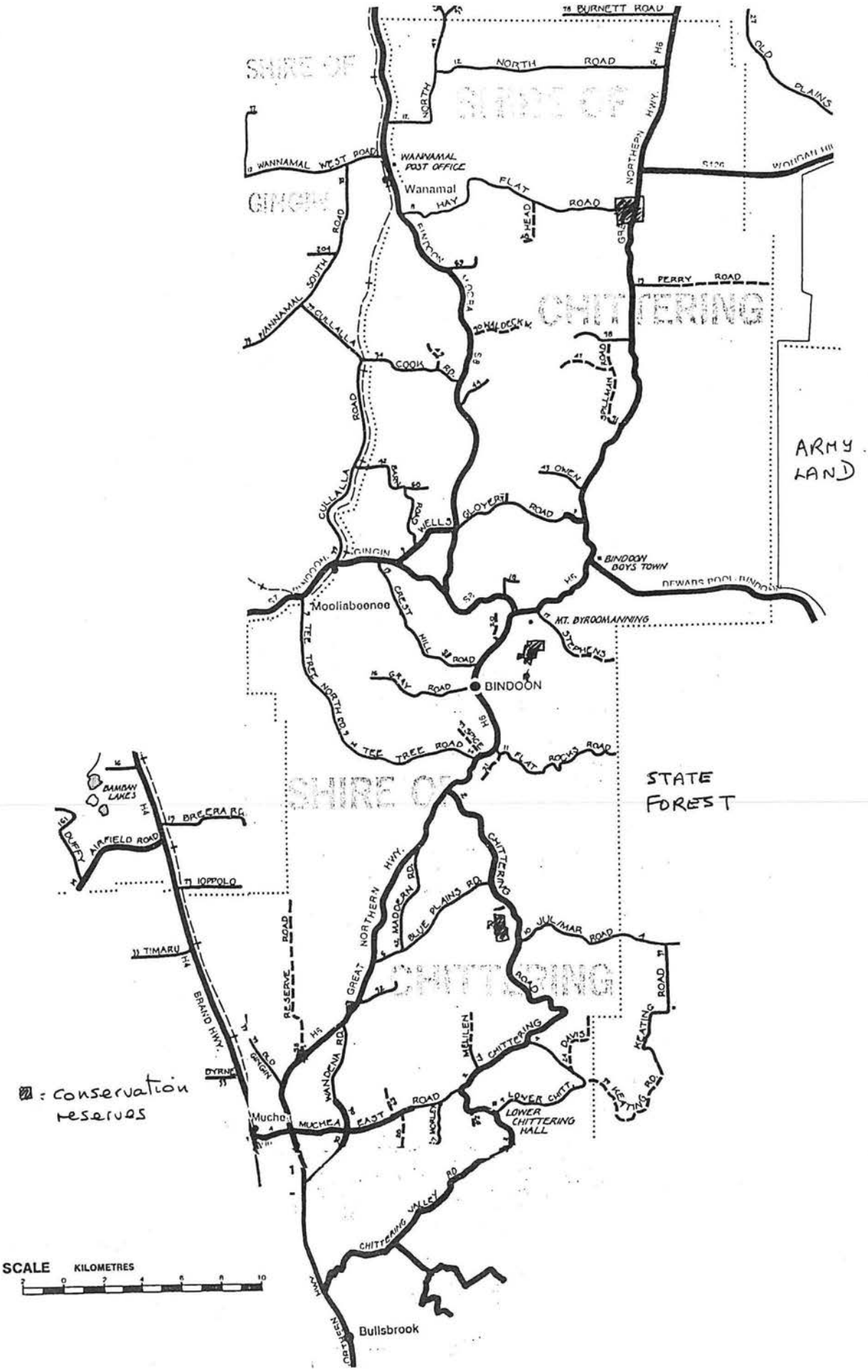
The native vegetation found in the Shire is extremely rich and varied with many beautiful and unusual plants. In many cases the remnants on farmland still contain the full suite of species, but where they have been grazed, shrubs and ground flora will have been removed by the stock. Also, the remnants on farmland tend to occur on ridgetops or other land that is difficult to clear so they have only one type of vegetation community. Few properties contain good bush on the fertile bottom land. Roadside vegetation forms a linear transect through the landscape, and preserves examples of plants lost from the surrounding farmland.

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 would 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.

Hibbertia miniata

Figure 7

Conservation Reserves in the Shire of Chittering



SURVEY TO DETERMINE THE CONSERVATION VALUE OF A ROAD

Roadside Conservation Committee
C - P.O Box 104 COMO W.A. 6152

APPENDIX 1

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 _____

WIDTH OF ROAD RESERVE _____

Side of the road	Left	Right
Width of Vegetated roadside		
1-5m	☐	☐
5-20m	☐	☐
over 20m	☐	☐

NATIVE VEGETATION ON ROADSIDE

tree layer	☐	1	max 2
shrub layer	☐	1	
ground layer	☐	1	

RARE FLORA

Rare flora known to be present ☐ ✳
Name _____

EXTENT OF NATIVE VEGETATION ALONG LENGTH OF ROADSIDE

Less than 20%	☐	0
20-80%	☐	1
over 80%	☐	2

No. OF DIFFERENT NATIVE SPECIES

0-5	☐	0
6-19	☐	1
Over 20	☐	2

Dominant species (if Known)
_____

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)
_____

VALUE AS A BIOLOGICAL CORRIDOR

Connects uncleared areas	☐	1	max 2
Flowering shrubs for nectar-feeding animals	☐	1	
Large trees with hollows for birds nests	☐	1	
Hollow logs	☐	1	

FAUNA OBSERVED

_____
_____

PREDOMINANT ADJOINING LAND USE

Agricultural crop or pasture:-

• completely cleared	☐	2	max 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
_____

UTILITIES/DISTURBANCES

Disturbances continuous	☐	☐
Disturbances Isolated	☐	☐
Disturbances absent	☐	☐

Type
_____

CONSERVATION VALUE

High	☐	☐
Medium	☐	☐
Low	☐	☐

Reasons
_____
_____

LANDSCAPE VALUE

High	☐	☐
Medium	☐	☐
Low	☐	☐
Avenue of trees	☐	✳

Reasons
_____
_____

GENERAL COMMENTS

_____
_____
_____
_____

L R

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 nine roads have at least one section of high conservation value. These sections occupy 134.0km of roadside and are 47.7% of the roads surveyed in the Shire. (See map for location).

The Great Northern Highway, which runs the full length of the Shire, is of such great value for flora conservation that it is called the "Bindoon Flora Road". There are numerous rare and geographically-restricted plants along its length and, in addition, it is a very important scenic and tourist route.

Many of the other high value roadsides in the Shire are on little-used by-ways or farm access tracks, especially in newly cleared areas. Some, such as North Road, Spillman Road and Maddern Road have extremely beautiful treescapes which give a cathedral-like aspect to the drive. Rolling hills enhance this effect on roads such as Davis Road and Reserve Road.

A rare Orchid occurs on the roadside of Blue Plains Road, and has been noted also on Muchea East Road. It is very likely that this, or other rare plants, may occur on other roadsides.

Chittering Shire is increasing in rural population density with a number of new subdivisions. Part of its attractiveness to new residents and old alike is the attractive scenery complimented by the many beautiful, well-conserved roadsides.

Management Goal

To maintain and enhance the indigenous plant communities.

Guidelines for achieving this goal

1. Minimise disturbance to existing vegetation

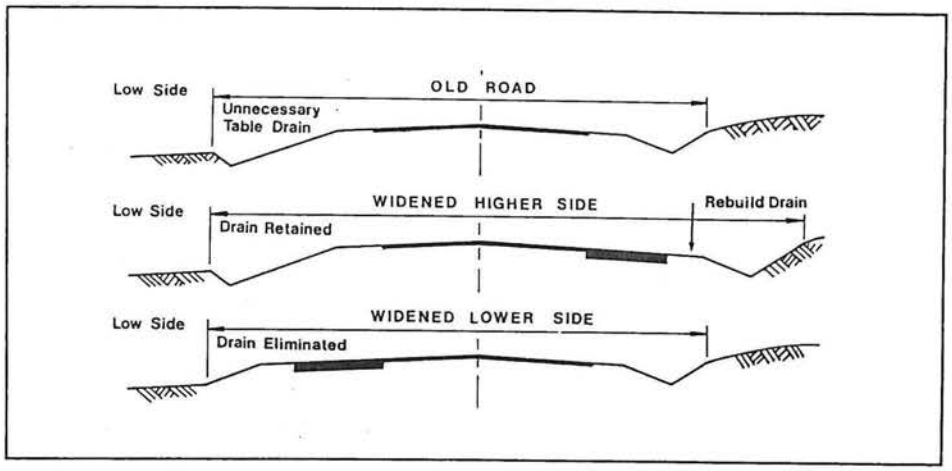
In narrow strips, disturbance leads to weed invasion which:- . downgrades the conservation value . increases the fire threat

This can be done by:-

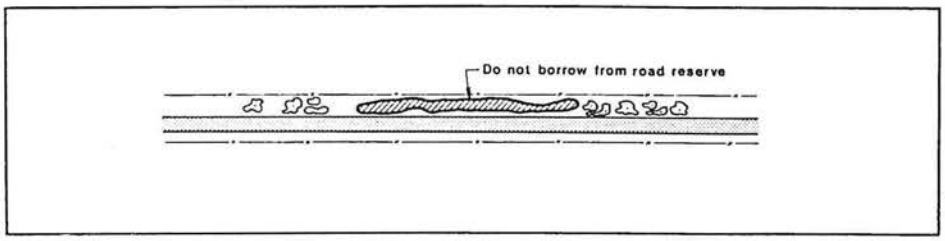
- adopting a road design that occupies the minimum space.
- diverting the line of a table drain to avoid disturbing valuable flora.
- prune overhanging branches, rather than removing the whole tree or shrub.
- do not turn or park machinery over well conserved flora.
- avoid windrowing soil beyond the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

Widen the carriageway on the low side of the road where appropriate to reduce the space required for earthworks.



Plan the location of all borrow pits on cleared sites. Do not locate them in the road reserve.



2. MEDIUM CONSERVATION VALUE ROADSIDES
Score 5-8

Twenty three Shire roads fall in this category, 29.1% of those surveyed, with a length of 83.6km.

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.

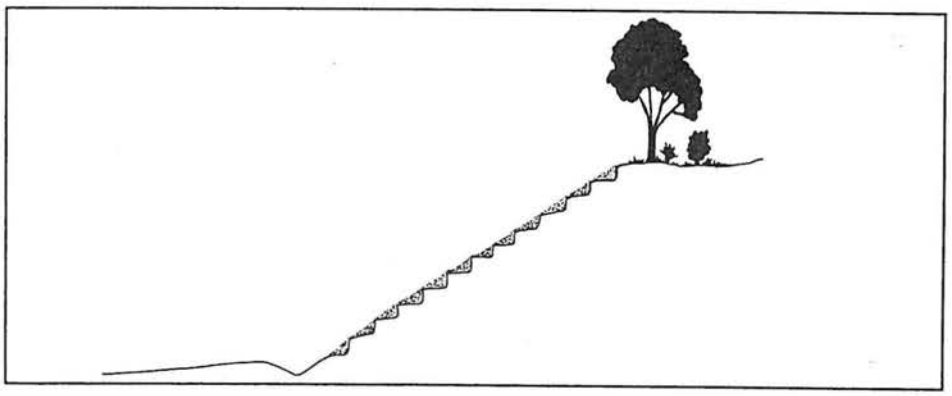
Guidelines For Achieving This Goal

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

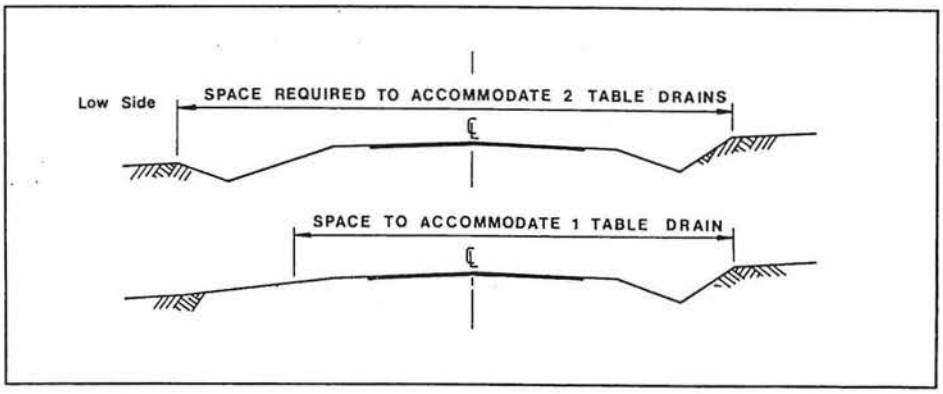
Consideration should be given to weed eradication programmes, combined with reseeding/replanting local species.

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

On wide batter slopes use step slope techniques to retain topsoil to assist regeneration and provide slope stability.



Construction of a table drain on the lower side of the road should be avoided.



3. LOW CONSERVATION VALUE ROADSIDES
Score 0-4

24.2% of rural roads, totalling 69.4km in length, have a low value for conservation.

Many of these road sections occur where the surrounding land has been long cleared through Bindoon and Chittering Valley, leaving only a few remnant trees and shrubs on the roadside. Sometimes access roads run through paddocks.

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

Management Goals

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

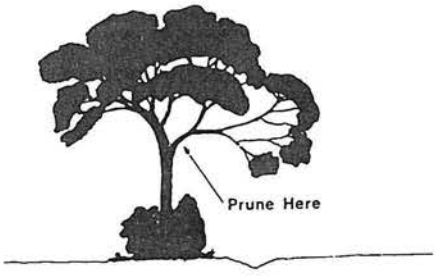
Management Guidelines

- 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 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 (e.g. 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.

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.

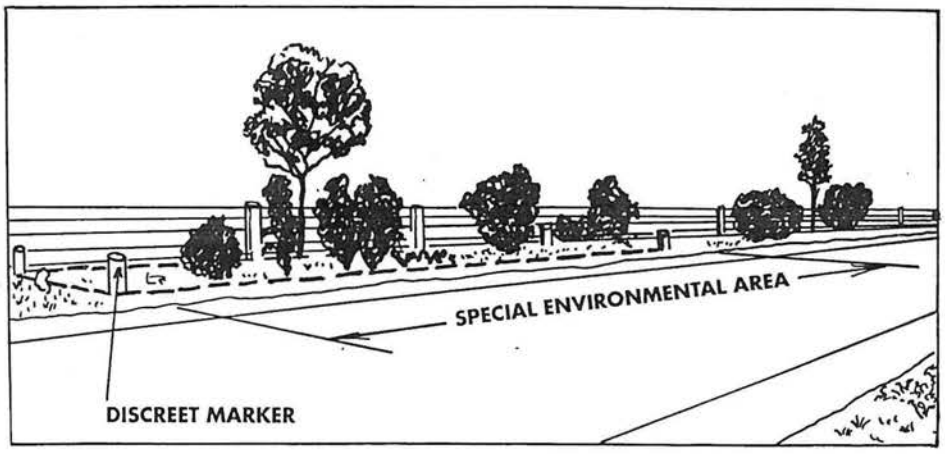


Figure 8
Special environmental area.

4. Marking Sites in the Field

4.1 The Main Roads Department has devised a system, as illustrated in Figures 8 and 9, 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 appliation 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 10).

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 positioning of marker posts.

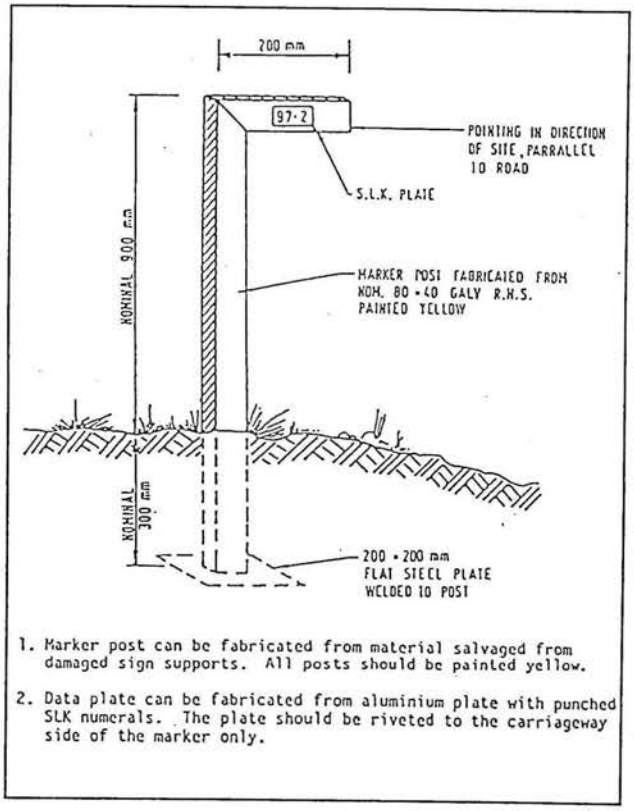


Figure 9
MRD Special environmental markers

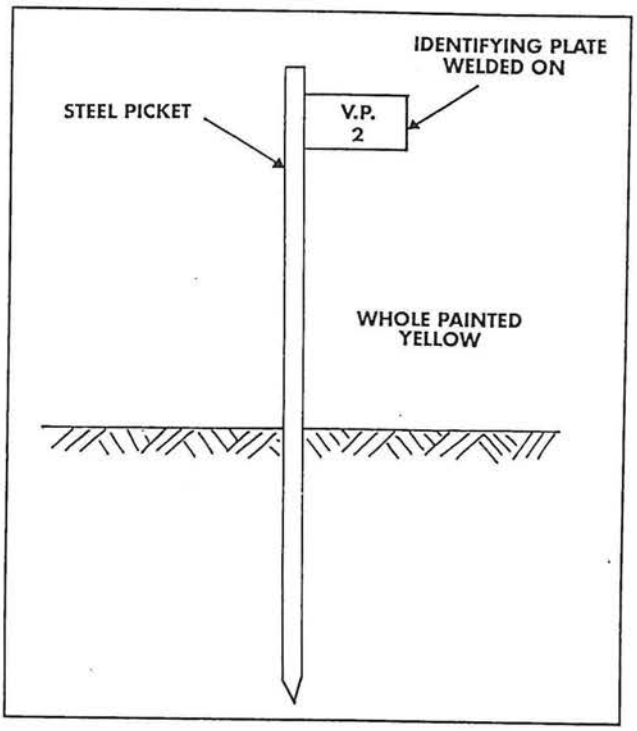


Figure 10
Shire special environmental site marker.

SPECIAL ENVIRONMENTAL AREA REGISTER

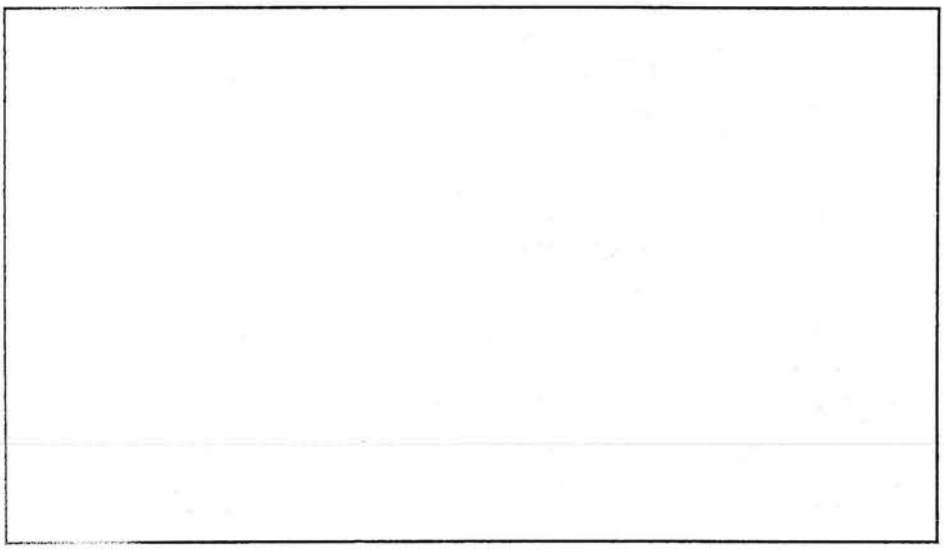
Shire: _____

Site No: _____

Exact Location: _____

_____

_____



MAP

Reason For Site: _____

_____

Special Instructions For Management: _____

_____

_____

_____

_____

APPENDIX 3

PUBLICATIONS RELATING TO CONSERVATION IN THE SHIRE OF CHITTERING

1. Description of Geology, Soils, Vegetation and Land Use over much of the Shire:

   Dept of Conservation and Environment (1980)
   Atlas of Natural Resources, Darling System, Western Australia.

2. Areas Recommended for Reservation:

   Dept of Conservation and Environment (1983)
   Conservation Reserves for Western Australia - The Darling System - System 6.

3. Reserve Management

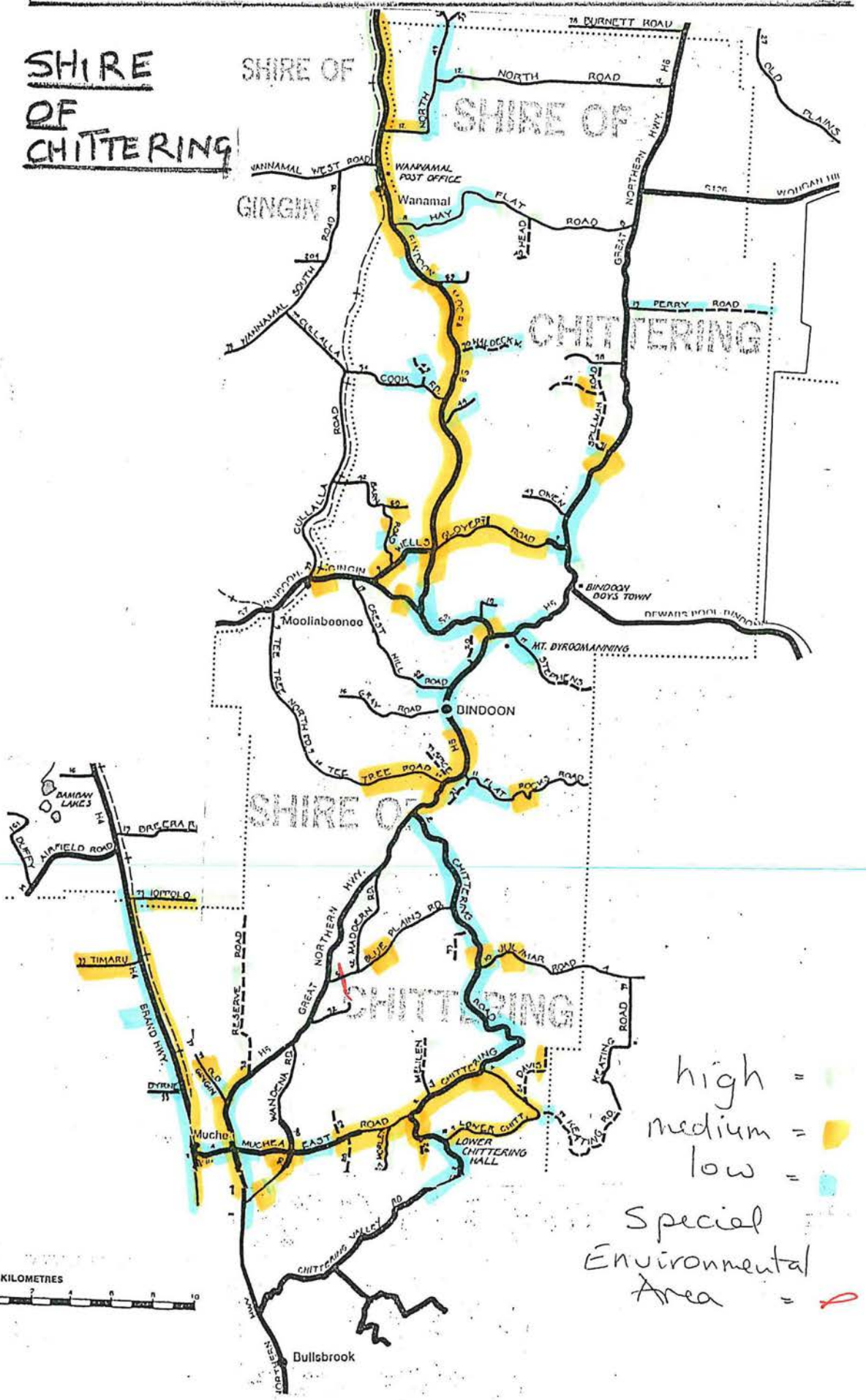
   Department of Conservation and Land Management (1987)
   Northern Forest Region - regional management plan.

4. Rare Plants

   Dept of Conservation and Land Management (1990)
   Declared Rare Flora and other plants in need of special protection in the Northern Forest Region.

ROADSIDE CONSERVATION VALUE

SHIRE OF CHITTERING



high =
medium =
low =
Special Environmental Area =