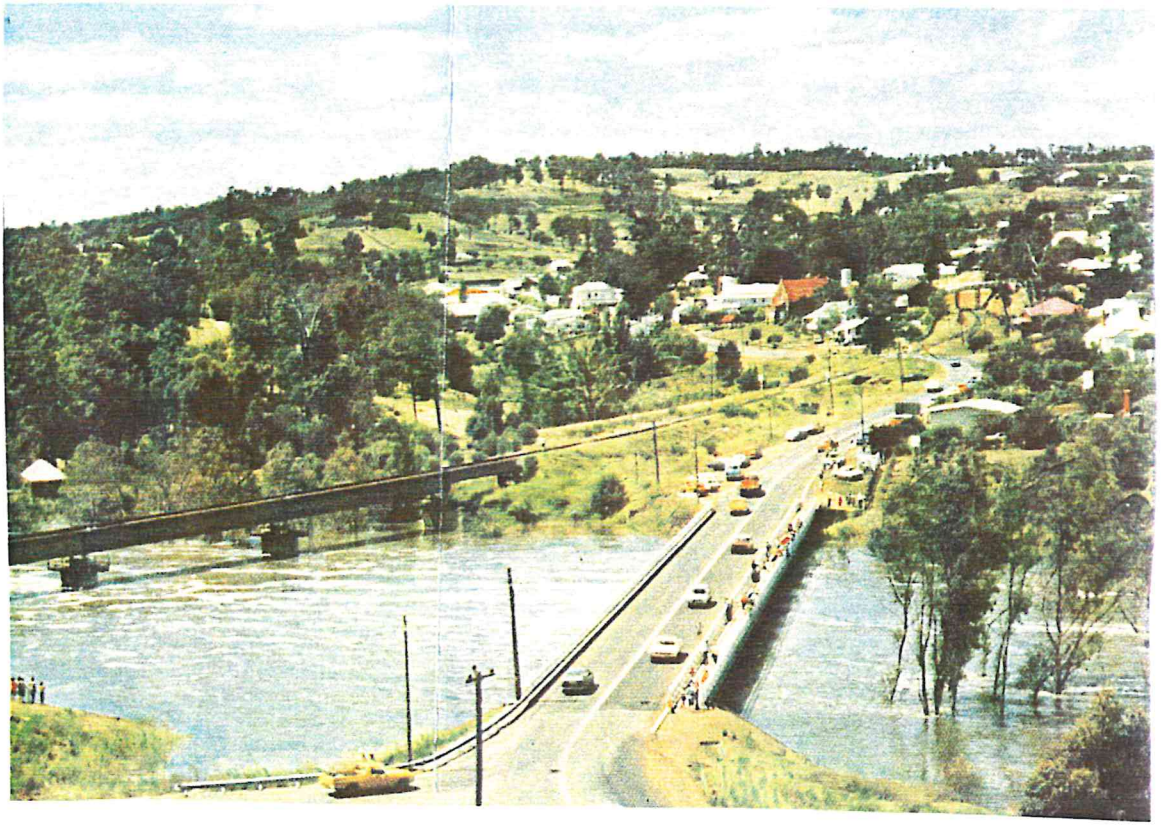
ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF BRIDGETOWN-GREENBUSHES, WA



Roadside Conservation Committee

ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF BRIDGETOWN-GREENBUSHES, 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 Briegetown-Greenbushes is a region of undulating topography that was originally covered by forest, and several patches of State Forest occur, especially in the south. The rest of the Shire has ben cleared for mixed agriculture which includes grazing, cropping and horticulture, except for an important mining area around Greenbushes.

In the main, the agricultural properties are not totally cleared, but contain patches of remnant vegetation. Together with the blocks of State Forest and reserves, and the linear remnants left along roads, rivers and railways, they form a significant conservation network.

These strips and patches form a mosaic in which conservation of wildlife may be 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 5/9/1989 and 14/8/90.

The assessment was done by

H Bedford
L Bruce
J Dewing
N Dodson
M Frith
T Michael
E Shedley
J Sutherland
A Wardell-Johnson

who covered 556.5km of roads.

2.3 Limitations

A few roads in the Shire were not surveyed, but they are all either town roads or dead-end farm access tracks. A list of these is given in Appendix 3.

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

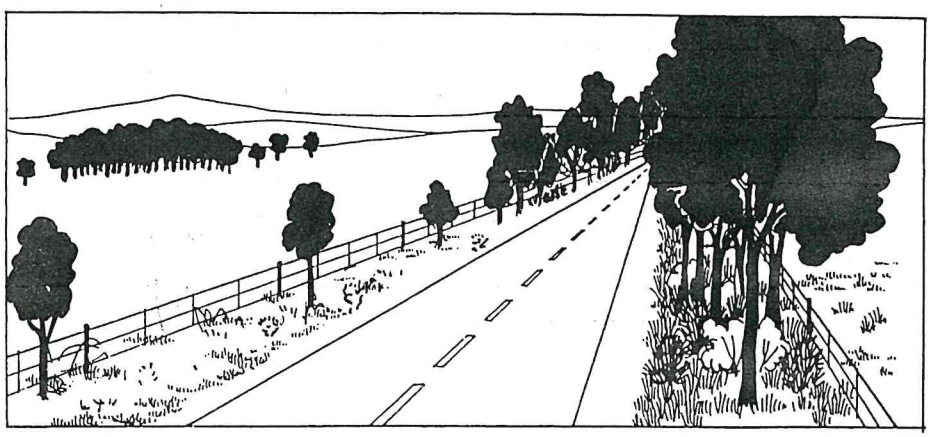
The field data sheets are retained at the office of the Roadside Conservation Committee, PO Box 104, Como. Duplicate copies will be supplied to the Shire of Bridgetown-Greenbushes on request.

Figure 1

Results of all roads assessed
Shire of Bridgetown-Greenbushes, 1990

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO. OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	283.1	50.9	68
Medium	148.2	26.6	44
Low	125.2	22.5	44
	556.5	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.)



3.2 Roads Vested in the Main Roads Department or CALM

Within the Shire of Bridgetown-Greenbushes, one road is under the care, control and management of the Main Roads Department, the South West Highway, H9. In addition, within the State Forest are numerous roads and tracks whose maintenance is the responsibility of the Department of Conservation and Land Management.

Some of these roads have been assessed, and the data is presented below.

Figure 2

Assessment of roads vested in MRD
Geographically within the Shire of Bridgetown-Greenbushes 1990

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS (km)	NOT ASSESSED (km)	TOTAL LENGTH OF ROAD (km)
H9(N)	high	2	3.5		
	medium	3	8.8		
	low	3	6.0		
				3.5	22.8
H9(S)	high	4	5.1		
	medium	4	10.8		
	low	2	3.8		19.7

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

Figure 3

Assessment of roads vested in CALM
Geographically within the Shire of Bridgetown-Greenbushes 1990

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS (km)	NOT ASSESSED (km)	TOTAL LENGTH OF ROAD (km)
110(F)	high	1	4.8		4.8
189(F)	high	2	2.7	3.7	6.4
192(F)	high	1	5.2		5.2
200(F)	high	1	3.0	5.2	8.2

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

3.3 Roads Vested in the Shire of Bridgetown-Greenbushes.

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

Figure 4

Assessment of roads vested in the Shire of Bridgetown-Greenbushes 1990

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	255.4	51.2	63
Medium	128.6	25.8	43
Low	114.4	23.0	43
	498.4	100.0	

These data from Figure 3 above will be used for detailed assessment and guidelines for management in Appendix 2.

CATEGORY	CRITERIA	SUGGESTED CARRIAGEWAY WIDTH
1	Major feeder roads	9m
2	Lesser feeder roads	8m
3	Farm access roads - major	7m
4	Farm access roads - minor	5m

TABLE 1: Categories of Local Government Roads

CATEGORY	CARRIAGEWAY (m)	CLEARING (m)
1	9	15
2	8	14
3	7	12
4	5	7

TABLE 2: Nominal clearing width for Local Government road categories.

4. MAPPING

Two 1:50,000 MRD 'State of Construction' maps for the Shire of Bridgetown-Greenbushes show 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

So far as is known no such areas have been designated within the Shire of Bridgetown-Greenbushes.

7. LANDSCAPE VALUE

7.1 Map

Two 1:50 000 MRD 'State of Construction' maps have 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 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.

Trees take many years to reach full stature, so that if an avenue is destroyed, the effect can scarcely be reproduced within a lifetime.

Many mature trees also contain hollows which are important nest sites for certain birds. It has been calculated that it takes about 200 years for a Jarrah 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 assessor. Avenues only occur on short sections along these roads.

Figure 6

Tree Roads in the Shire of Bridgetown-Greenbushes (1990)

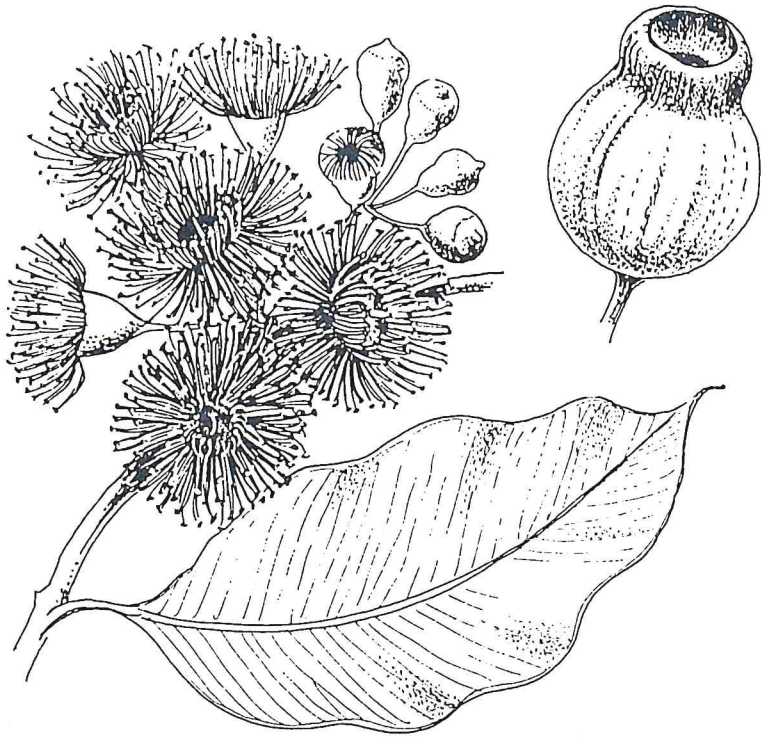
4	Gommes Road
6	Mockerbillup Road
7	Jayes Road
10	Maranup Ford Road
19	Blackwood Park Road
35	Grange Road
36	Blackboy Flats Road
48	Daniels Road
209	Hay Road
210	Old Padbury Road
212	Darouch Road
215	Greenbushes Road
218	Spring Gully Road
221	Huiston Road
239	Angus Road
245	Long Road

8. CONSERVATION IN THE SHIRE OF BRIDGETOWN-GREENBUSHES

The Shire of Bridgetown-Greenbushes is fortunate in that it contains many areas of remnant vegetation including large patches of State Forest which retain excellent populations of natural flora and fauna. In addition, private property has been cleared in such a way that many remnant patches remain within the farmland.

Connecting these areas are linear strips along roads, railways and rivers which perform the vital function of linking the patches together and forming a network of bush corridors. They enable small birds, for example, to move across the countryside from one remnant patch to another. In this respect it is important that the bush corrodirs contain a shrub layer, as shelter and protection for the small birds. All the remnant patches - on reserves or farmland - together with the bush corridors, form a conservation network.

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.



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SURVEY TO DETERMINE THE CONSERVATION VALUE OF A ROAD

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

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

   63 roads have at least one section of high conservation value (see Figure 5 for detail). These sections occupy 255.4km of roadside and are 51.2% of the roads surveyed in the Shire.

   Some of these sections of roadside are where the road passes through State Forest.

   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

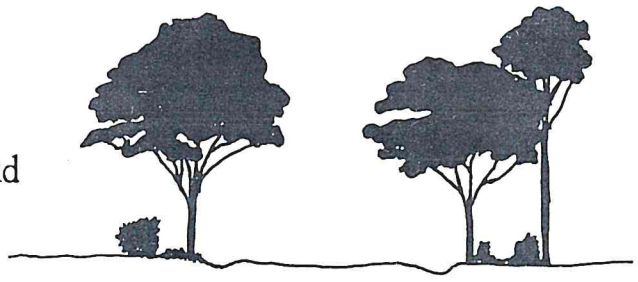
   1. Minimise disturbance to existing vegetation

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

   - downgrades the conservation value
   - increases the fire threat

REGENERATION

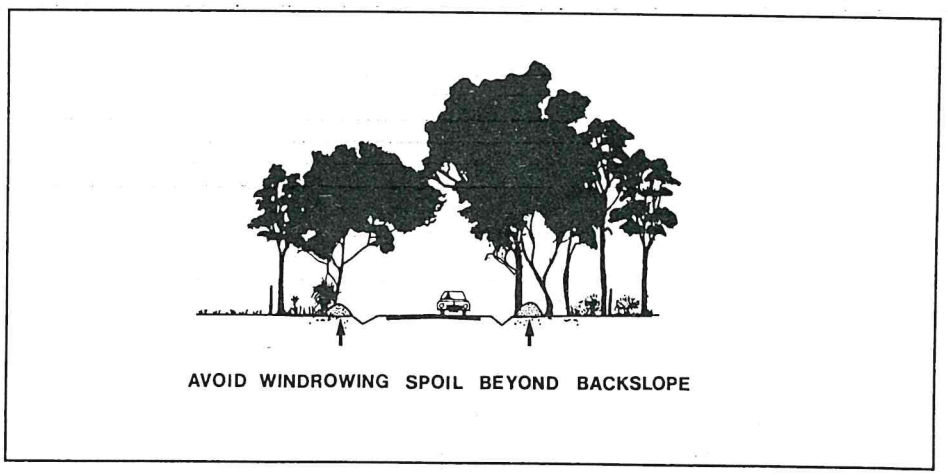
Retain undisturbed vegetation to avoid regeneration costs

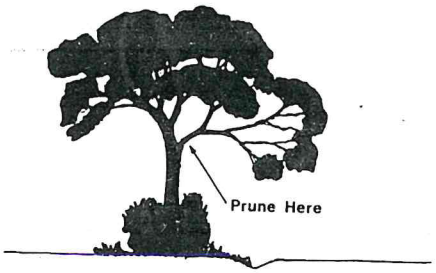


This can be done by:-

- 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.

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





Prune offending branches rather than remove the whole tree. Cut branches off close to limb or tree trunk.

2. MEDIUM CONSERVATION VALUE ROADSIDES
Score 5-8

A quarter of the Shire roads fall in this category, 25.8% of those surveyed, with a length of 128.6km.

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.)

Again, the road reserves are mostly only 1 chain wide, and so any remnant roadside flora is easily damaged by disturbance.

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.

3. LOW CONSERVATION VALUE ROADSIDES
Score 0-4

23% of the roads in the Shire - 114.4km in length - fall into this category.

In some cases, the landholder has totally cleared the roadside when erecting a new fence, leaving only weeds or an occasional wattle to regenerate. In other cases the road actually runs - unfenced - through farmland.

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.

4. 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 weed control on the roadside do not use a soil residual tupe, as Eucalypts are especially sensitive to these.
- encourage the adjoining landholder to plant tree belts on his property that will complement the roadside vegetation.

APPENDIX 3

Shire of Bridgetown-Greenbushes
List of roads not assessed

19	67	87	101	196	240	306
20	69	88	103	202	246	307
32	73	89	117	204	247	
33	74	90	118	207	248	
41	80	93	121	208	250	
47	82	94	124	217	279	
51	83	95	131	224	284	
57	84	96	139	226	293	
60	85	97	189	230	298	
66	86	98	191	231	300	

ROADSIDE CONSERVATION VALUE

SHIRE OF BRIDGETOWN-GREENBUSHES.

high 12-9 =

medium 8-5 =

low 4-0 =