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

PRESTON BEACH ROAD

Roadside Conservation Committee

ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF WAROONA, 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 eastern part of the Shire of Waroona covers State Forest on the Darling Range, while on the coastal dunes and limestone ridges Yalgorup National Park and more State Forest occur. The Coastal Plain between, however, has largely been cleared and substantially altered by irrigation and drainage. Nevertheless some important remnant patches and strips along roadsides do remain.

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 12/10/1987 and 30/10/88.

The assessment was done by I J Wilson, who covered 232.9km of roads within the Shire.

2.3 Limitations

72.3km of Shire roads were not surveyed. In the main these are short farm access or residential roads, and would have little value for conservation. (See 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 Waroona on request.

Figure 1

Results of all roads assessed
Shire of Waroona 1989

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO. OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	82.3	35.3	12
Medium	108.8	46.7	23
Low	41.8	18.0	13
	232.9	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

Within the Shire of Waroona, two roads are under the care, control and management of the Main Roads Department, H2 and M2. 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 or CALM,
Geographically within the Shire of Waroona 1989

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS	NOT ASSESSED	TOTAL LENGTH OF ROAD
H2	medium	4	12.3	4.0	16.3
M2	medium	1	2.2	13.4	15.6
75(F)	high	10	29.0	0.0	29.0
76(F)	high	1	4.3	0.0	4.3
Stawell Rd	high	1	4.0	0.0	4.0

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

3.4 Roads Vested in the Shire of Waroona.

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

Figure 3

Assessment of roads vested in the Shire of Waroona (1989)

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	44.6	24.7	9
Medium	94.3	52.2	21
Low	41.8	23.1	13
	180.7	100.0	

72.3km of Shire roads have not been assessed. (See 2.3).

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

4. MAPPING

A 1:50,000 MRD 'State of Construction' map for the Shire of Waroona 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 = orange
low = blue

Figure 4

High Conservation Value Roads

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
1 Coronation Rd	from: 0.8km E of Old Coast Road to: Donan Road	n = 10 s = 10	2.5 km	?	Through State Forest, good Banksia regeneration
	f: 5.4km E of Dorsett Rd t: Drake's Brook	n = 11 s = 11	0.5 km	1-5 m 1-5 m	Good shrubs and trees
2 Peppermint Grove Rd	f: Old Coast Rd t: 1km E of Old Coast Rd	n = 10 s = 10	1.0 km	20 m 20 m	Large number of different plants
4 Johnson Rd	f: Old Coast Rd t: 4.3km E of Old Coast Rd	n = 11 s = 11	4.3 km	?	Through State Forest
5 Buller Rd	f: 2.3km W of Somers Rd t: 3.3km W of Somers Rd	n = 11 s = 11	1.0 km	1-5 m 1-5 m	Through timber reserve
6 Nanga Brook Rd	f: Nanga Rd t: 1.6km W of Muja Power Line	n = 10 s = 10	9.1 km	?	Through State Forest
	f: 1.6km W of Muja Power Line t: 2.6km W of Muja	e = 10 w = 8	1.0 km	?	Roadside cleared alongside farm

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
6 Cont'd	f: 2.6km W of Muja Power Line t: 3.2km W of Muja Power Line	n = 10 s = 10	1.6 km	?	Through State Forest
	f: 3.2km W of Muja Power Line t: Hilla-Waters Rd	n = 9 s = 10	3.6 km	1-5 m over 20m	Adjoins State Forest
	f: Hilla-Waters Rd t: 1km W of Hilla-Waters Rd	n = 10 s = 7	1.0 km	over 20m 1-5 m	Adjoins State Forest
	f: Invarell Rd t: Hill Street	n = 9 s = 9	4.0 km	5-20 m 5-20 m	Variable, lower value in narrower sections
26 Bancell Rd	f: Scarp Rd t: 1.7km E of SW Hwy	n = 11 s = 11	2.7 km	1-5 m 1-5 m	Avenue of trees good views
28 Williamson Rd	f: 0.6km W of May-field Rd t: 1.1km W of May-field Rd	n = 4 s = 9	0.5 km	1-5 m 1-5 m	Very good shrubs
	f: Dorsett Rd t: 2.5km W of Dorsett Rd	n = 9 s = 10	2.5 km	1-5 m 1-5 m	Many low shrubs

ROAD	SECTION	CONSERVATION VALUE	LENGTH	WIDTH OF ROADSIDE	REMARKS
20 Donan Rd	f: Old Bunbury Rd t: 0.4km S of Old Bunbury Rd	e = 11 w = 11	0.4 km	?	Through camping reserve
31 Preston Beach Rd	f: Old Coast Rd t: Preston Beach Dr	n = 11 s = 11	8.3 km	?	Through Yalgorup National Park

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 Waroona.

7. LANDSCAPE VALUE

7.1 Map

A 1:50 000 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 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 tuarts with their large upright grey trunks.

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

Figure 5 below is a list of "Tree Roads" as determined by the assessor. Avenues only occur on short sections along these roads.

Figure 5

Tree Roads in the Shire of Waroona (1989)

H2 Old Coast Road
26 Bacell Road

8. CONSERVATION IN THE SHIRE OF WAROONA

The Shire of Waroona is fortunate in that it contains many areas of conservation significance. To the west, Yalgorup National Park covers much of the coastal vegetation system while to the east of the Old Coast Road, State Forest 16 covers some areas of Tuart forest. Most of the Darling Range in the west of the Shire is covered by State Forest dominated by Jarrah.

The Coastal Plain is largely cleared but it contains wetlands important for birdlife, most of which are on private land but there are a few small reserves such as the one at Haub Bridge. These reserves are very important for conservation since they contain shrubs and ground flora lost from remnants on private land due to the pressure of grazing stock.

Roadside vegetation is important as it acts as a bush corridor, permitting small birds to move across the countryside from one patch to another. 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.

APPENDIX 1.

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	☐	0	
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

   Nine roads have at least one section of high conservation value (see Figure 4 for detail). These sections occupy 44.6km of roadside and are 9.0% of the roads surveyed in the Shire.

   These sections of roadside are mostly where the road passes through a National Park, State Forest or 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:-

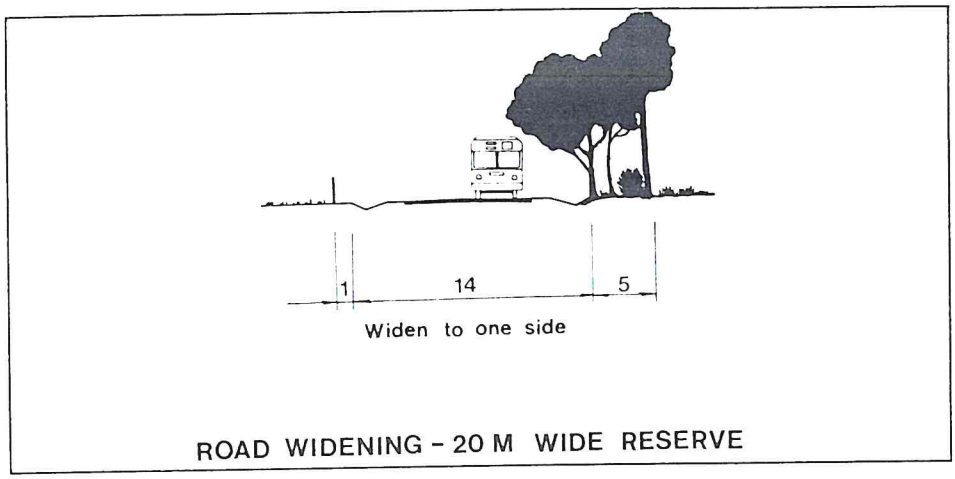
      - downgrades the conservation value
      - increases the fire threat

      This can be done by:-

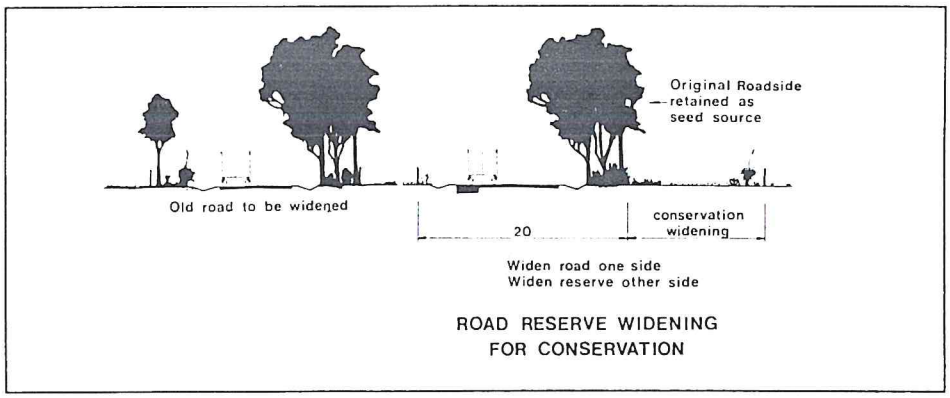
      - adopting a road design that occupies the minimum space.
      - diverting the line of a table drain to avoid disturbing valuable flora.
      - prune overhanging branches, rather than removing the whole tree or shrub.
      - do not turn or park machinery over well conserved flora.
      - avoid windrowing 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 light soil, as weeds such as wild oats, veldt grass and kikuyu soon take over such areas.

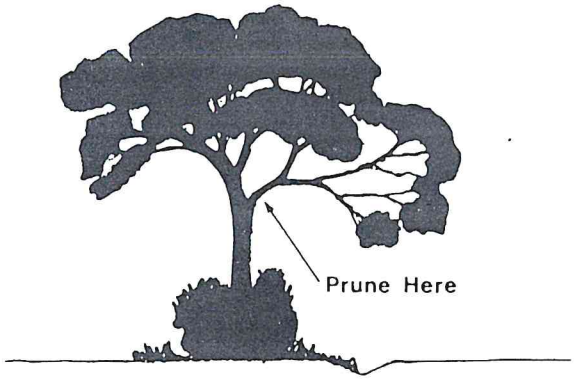


ROAD WIDENING - 20 M WIDE RESERVE



ROAD RESERVE WIDENING FOR CONSERVATION

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



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

2. MEDIUM CONSERVATION VALUE ROADSIDES
Score 5-8

Most Shire roads fall in this category, 52.2% of those surveyed, with a length of 94.3km.

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.)

In most cases they occur where the original landscape has been extensively altered, includinng changes to the level of the soil water table.

Again, the road reserves are mostly only 1 chain wide, and so any remnant roadside flora is easily damaged by disturbance. In addition, the need to keep drains clear has led to considerable use of herbicides.

Nevertheless, any local trees - and especially shrubs - which do occur along these roadsides, assume an even greater importance because of their scarcity.

Management Goal

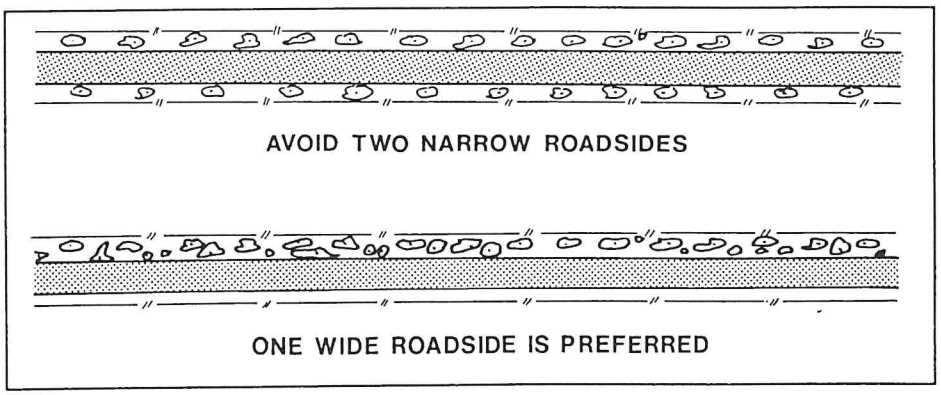
To maintain indigenous vegetation wherever possible, and to encourage its regeneration.

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

Many of these road sections occur in intensively farmed areas, leaving only a few remnant trees and shrubs on the roadside.

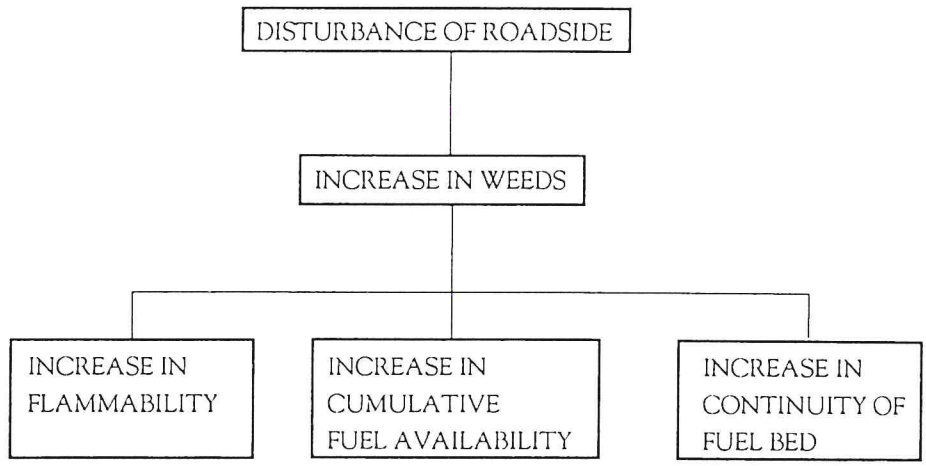
In some cases, the landholder has totally cleared the roadside when erecting a new fence, leaving only weeds or an occasional wattle to regenerate.

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.



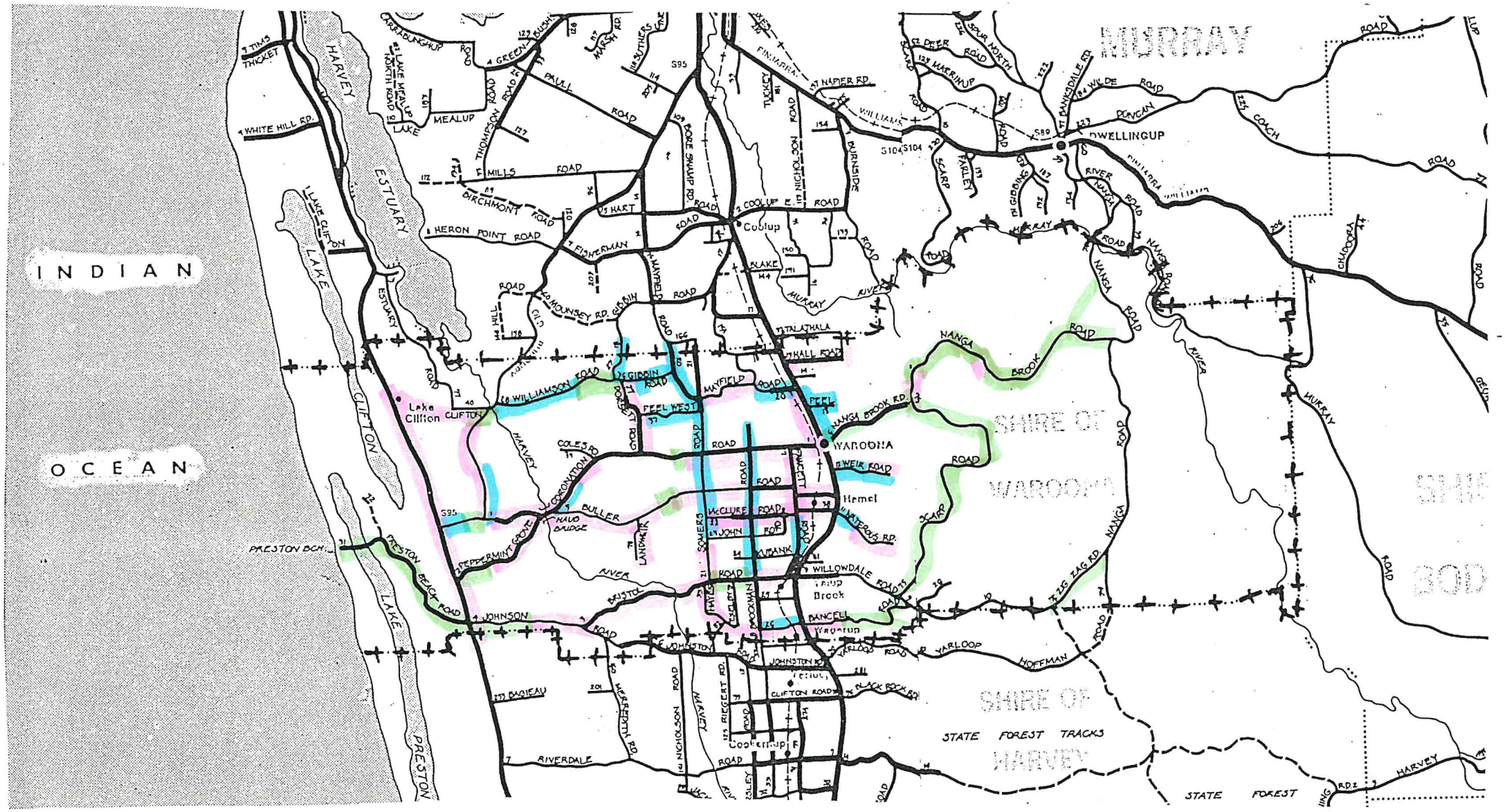
Weeds and fire hazard on roadsides in agricultural areas.

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 vegetatiom.

ROADSIDE CONSERVATION VALUE



SHIRE OF WAROONA

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