ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN PART OF THE SHIRE OF NORTHAM, WA

Roadside Conservation Committee

ASSESSMENT OF THE CONSERVATION VALUE OF ROADSIDE VEGETATION IN THE SHIRE OF NORTHAM, 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 Northam 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 11/6/1989 and 27/1/1991.

The assessment was done by the following people:-

J Arbery
A & E Boase
P Hussey
J Quibell
N & M Scott
J Seabrook
R Smith
G Rundle

In all they drove 623.7km.

2.3 Limitations

Northam Shire is recorded as having 603km of roads.

No major roads remain unassessed, although there are several minor ones around Wooroloo, Wundowie, Bakers Hill and Clackline that have not been completed. Given the nature of the countryside through which they pass - jarrah forest on laterite soil - it is likely that they could contain good stands of remnant vegetation. Therefore they should be treated, in the first instance, as though they were high value roadsides.

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 Northam on request.

3.2 Summary of Data

As explained in Section 2, only 623.7km of roads in the Shire of Northam have been assessed. The following table gives an overview of this assessment.

Figure 2

Results of all roads assessed
Shire of Northam 1991

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO. OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	155.4	25.0	30
Medium	207.7	33.3	41
Low	260.6	41.7	59
	623.7	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

Four roads within Northam Shire, portions of H5, M10, M31 and M32 totalling 109.3km, 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 Northam 1991

ROAD	CONSERVATION VALUE	NO. OF SECTIONS	LENGTH OF SECTIONS	TOTAL LENGTH OF ROAD
H5	high	4	8.0	
	medium	11	40.3	60.5
	low	7		12.2
M10	high	1	20.0	20.0
M31	medium	3	8.4	11.2
	low	2	2.8	
M32	medium	1	3.9	
	low	5	13.7	17.6

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

3.4 Roads vested in the Shire of Northam.

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

Figure 4

Assessment of roads vested in the Shire of Northam 1991

CONSERVATION VALUE	LENGTH KM	% OF SURVEY BY LENGTH	NO OF ROADS WITH AT LEAST ONE SECTION HAVING THIS VALUE
High	127.4	24.8	28
Medium	155.1	30.2	38
Low	231.9	45.0	58
	514.4	100.0	

88.6km of rural Shire roads have not been surveyed. See Section 2.3.

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

4. MAPPING

A 1:10,000 MRD 'State of Construction' map for the Shire of Northam 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 are 3 such areas along roadsides contolled by the Shire of Northam.

Figure 5

Special Environmental Areas
within the Shire of Northam 1991

ROAD NO.	ROAD NAME	REASON FOR SITE	EXACT LOCATION
30	Dumbarton Rd	York Gum x Wandoo hybrid	from 3.7km to 5.7km West of Irish town Hall
46	Spencers Brook York Rd	Lechenaultia laricina	on road and rail 100m North of Muresk entry
	Surrey Rd Clackline	York Gum x Wandoo hybrid	within townsite

(NB. DRF also exists in other locations within the Shire, eg. 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)

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 Northam retain magnificent avenues of mature trees, Salmon Gum, York Gum, Red Morrel, Wandoo, Powderbark and Jarrah. 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 in the Shire of Northam (1991)
(Not all of the road has good trees.)

ROAD	ROAD NAME	TREES
21	Southern Brook Rd	Salmon Gum
26	Jennapullin Rd	Red Morrel, Salmon Gum, York Gum
28	Grass Valley North Rd	Salmon Gum
29	Berrybrow Rd	Jarrah Marri
30	Dumbarton Rd	York Gum
31	Meenaar South Rd	Wandoo
38	Katrine Rd	Flooded Gum
49	Chedaring Rd	Jarrah Marri
58	Meenaar North Rd	Wandoo, Salmon Gum, York Gum
59	Moore Rd	Wandoo, York Gum
129	Richter Rd	Wandoo, York Gum
130	Quamkadine Rd	Salmon Gum, York Gum

8. CONSERVATION IN THE SHIRE OF NORTHAM

Northam Shire can be divided both scenically and biologically, into three areas. In the west are the high lateritic soils of the Darling Range on which grow forests of Jarrah and Marri with Wandoo in the valleys and Powderbark on the lateritic hilltops.

The central part of the Shire comprises the valley of the Avon and Mortlock Rivers with their surrounding hillslopes Originally they would have been covered in a woodland of York Gum and Wandoo, with Flooded Gum along the rivers.

To the east the land rises once more and has extensive areas of sandy soil. The original vegetation would have been woodland of York Gum mixed with Salmon Gum and Red Morrel to the east. Very sandy soils would have carried a cover of Banksia woodland and shrubs.

This change in soil and topography means that the flora changes dramatically from one part of the Shire to another and leads to a rich and varied plant assemblage. It is, however, much better conserved in the west than in the east.

In the west of the Shire there are blocks of State Forest, Nature Reserves and other reserves which conserve excellent stands of native vegetation. (see Figure 7) In order to ensure that the native fauna has the maximum chance to survive, it is very important to ensure that these large blocks remain connected by "bush corridors" of vegetation which includes both trees and shrubs. Only in this way can the migration of animals - including especially small birds such as robins and wrens - be assured between one block and another.

The Shire has a great opportunity to ensure this by insisting on appropriate conditions relating to the preservation of road or stream corridors during planning for future development. Unfortunately, due to extensive clearing, this opportunity no longer exists in the Avon Valley and eastern part of the Shire.

In the east of the Shire, very little of the original native vegetation remains, especially of the shrubs and ground layer, which, even where remnants exist on farmland, will have been removed by the grazing of stock. Occasionally this remains along the roadside and it becomes immensely valuable as a source of seed for revegetation projects.

Also the roadsides often have magnificent stands of mature trees. These have holes and hollows for nesting birds and other small animals. It will be a hundred years or more before planted trees reach that stage.

Thus the preservation of existing vegetation, and enhancement of the "bush corridor" value of roadsides in the centre and east of the Shire would be of great value to conservation.

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.

REFERENCES

General Natural History

Walker, M., 1986 The Avon Valley : The Naturalists' View. Toodyay Naturalists' Club, Toodyay.

Nature Reserve and Forest Management

Nature Reserves of the Shires of York and Northam, Management Plan. No 4, 1987. CALM Perth

Northern Forest Region, 1987. Management Plan No.9 CALM Perth.

Rare Flora Management

Kelly, A.E., DJ Coates, I Herford, SD Hopper, M O'Dononghue and L Robson. Declared Rare Flora and other plants in need of Special Protection in the Northern Forest Region. 1990. Wildlife Management Programme No 5. CALM WA.

SURVEY TO DETERMINE THE CONSERVATION VALUE OF A ROAD

Roadside Conservation Committee
c PO 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
shrub layer	☐	1
ground layer	☐	1

Max 2

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
Flowering shrubs for nectar-feeding animals	☐	1
Large trees with hollows for birds nests	☐	1
Hollow logs	☐	1

Max 2

FAUNA OBSERVED

_____

_____

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

Max 2

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

Thirty roads have at least one section of high conservation value. These sections occupy 155.4km of roadside and are 25% of the roads surveyed in the Shire. (See map for location).

As discussed in Section 8, most of the high value roadsides occur in the western portion of the Shire. However, because of the scarcity of native vegetation in the eastern side, these remnants are of greater relative importance. Some detailed conservation comments and management guidelines are given in Figure 8. The survey provides sufficient data for a road-by-road prescription such as this.

In general, all roadsides should be managed so as to minimise disturbance and maximise natural regeneration of desirable plants.

Management Goal

To maintain and enhance the indigenous plant communities.

Guidelines for achieving this goal

1. Minimise disturbance to existing vegetation

In narrow stips, 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 especially on roads which adjoin Naional Parks, Nature Reserves or State Forests. (Consult CALM for details).
- 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.
- request that land be set aside to widen roadside corridors as a condition of sub-division approval.

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.

2. MEDIUM CONSERVATION VALUE ROADSIDES
Score 5-8

41 Shire roads fall in this category, 33.3% of those surveyed, with a length of 207.7km.

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, especially by the use of selective herbicides 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

41.7% of rural roads, totalling 260.6km in length, have a low value for conservation.

Most of these road sections occur where the surrounding land has been long cleared, 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. This practise should be discouraged.

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 type, 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.

Figure 8

Roads important for conservation in the central and eastern portions of Northam Shire (1991).

ROAD	SECTION	CONSERVATION VALUE (CV) & MANAGEMENT (M)
24 Grass Valley South Rd	2 from : Tank Rd to : bend 6 kms	CV : Excellent mature trees of Salmon Gum, York Gum, Red Morrel and Wandoo, with Jam and Manna Wattle. M : Preserve trees. Prune carefully. Do not disturb root zone.
	4 f : Carter Rd t : river crossing 2.1km South	CV : Mature Wandoo trees. Some ground layer inc. everlastings, better to W. M : Minimise disturbance E side if necessary.
26 Jennapullin Rd	8 f : Southern Brook Rd t : Dudley Rd	CV : Good Red Morrel, Salmon Gum and Wandoo, with a substantial shrub layer. M : Do not disturb. Prune. Use selective herbicide to remove Wild Oats from among shrubs.
	10 f : bend 2.3km S of Dudley Rd t : bend a further 0.7km South	CV : Nice Wandoo and Banksia good shrubs and ground layer. Shire Flora and Fauna Reserve to West M : No disturbance, especially to West. Use selective herbicide to remove Wild Oats.
	13 f : 1km North of Clydesdale Rd t : Cydesdale Rd	CV : Magnificent mature Red Morrel, Salmon Gum and York Gum. M : No disturbance. Prune. Do not disturb root zone.
46 Spencers Brook - York Rd	2 f : rail crossing t : Shire boundary	CV : Road and adjoining rail reserve still have numerous ground layer plants inc DRF *Lechenaultia laricina.* M : Cease burning. Use selective herbicide to reove Veldt Grass and so reduce fire threat.

ROAD	SECTION	CONSERVATION VALUE (CV) & MANAGEMENT (M)
48 Parker Rd	3 f : river crossing t : Peacock Rd	CV : Wide verge to east, with good Wandoo and York Gum. Good ground flora especially native grasses. M : Do not disturb East verge. Use selective herbicide to remove Wild Oats.
	4 f : Peacock Rd t : Shire South boundary	CV : Wide verge to East with excellent mature trees inc. Salmon Gum and York Gum, with some ground flora. M : Do not disturb East verge. use selective herbicide to remove Wild Oats. Leave dead wood for animal habitat do not permit removal for firewood.
58 Meenaar North Rd	1 f : Clydesdale Rd t : bend 0.6km NE	CV : East verge has some shrubs with few weeds. M : Do not disturb East verge.
	2 f : bend 0.6km NE t : bend 1.1km further North	CV : Very attractive mature trees of Wandoo, Salmon Gum and York Gum. Some shrubs on eastern verge. M : Minimise disturbance - Prune. No disturbance of East verge.
	3 f : bend, as above t : Moore Road	CV : Nice trees and shrubs. M : Minimise disturbance.
	4 f : Moore Rd t : 1.4km North of Moore Rd	CV : Excellent mature Wandoo and Salmon Gum, dense shrub and ground layer, few weeds. Superb bird habitat. M : No disturbance. Prune only.
	7 f : bend 0.7km North of Dwyer Rd t : bend 2.1km further North	CV : Wandoo and thick shrub layer including Tamma and Grevilleas. Important small bird nesting area. M : Minimise disturbance.

ROAD	SECTION	CONSERVATION VALUE (CV) & MANAGEMENT (M)
59 Moore Rd	Entire length	CV : Passes from Wandoo and York Gum through sandplain with Banksia and Christmas Trees back to Salmon Gum and York Gum. Many and varied shrubs in sandplain area. Throssell Nature Reserve abuts Western edge of road. M : Minimise disturbance. Use selective herbicide to control grass in sandplain area.
152 Duck Pool Rd	3 f : bend 1.8km South of Parker Rd t : Shire South boundary	CV : Uncleared land to south. Good trees, shrubs and ground layer M : Minimise disturbance. If necessary, disturb North verge only.
161 Watson Rd	1 f : Clydesdale Rd t : 0.3km South	CV : Nice trees and good shrub layer. Uncleared land to east. M : Minimise disturbance.

ROADSIDE CONSERVATION VALUE

SHIRE OF NORTHAM