Roadside Conservation

Certificate IV of Community Landcare

Program

Merredin - November 30 - December 1, 1999

Day 1

Time	Item	Delivery
8.30am	Registration	Richard McLellan
9.00am	Welcome/Introduction	Richard McLellan
9.15am	The Importance and Management of Roadside Vegetation	RCC Representative - David Lamont
10.15am	Morning Tea	
10.45am	Legislation and Shire Policies	Richard McLellan
11.15am	Vegetation Issues Special Environmental Areas & Rare Flora	David Lamont
12.00pm	Lunch	
1.00pm	Codes of Practice	David Lamont
1.30pm	Field Trip - Sites inspection	
3.30pm	Close	

Day 2

9.00am	Roadside Management Principles The role of Fire Weeds/Use of Herbicides Machinery Practice Drainage Borrow Pits - Opening & Rehabilitating	David Lamont Larry Trinder
10.30am	Morning Tea	
11.00am	Dieback issues	Richard McLellan
11.15	Roadside Revegetation Techniques	Larry Trinder
12.00pm	Lunch	
1.00pm	Developing a Management Plan	David Lamont
2.00pm	Field Trip - Sites inspection	
3.30pm	Close	

A GENERIC CODE OF PRACTICE FOR ROADSIDE CONSERVATION DURING ROAD CONSTRUCTION AND ROAD MAINTENANCE OPERATIONS BY LOCAL GOVERNMENT

The Roadside Conservation Committee

Introduction

Aims of the Code of Practice

To balance road design and road safety requirements with all other values associated with roadsides in the Shire.

To achieve this it will be necessary to:

- Account for the needs of ratepayers, council work teams, and other organisations with responsibilities or interests in roads and roadsides;
- Develop cost effective roadworks and maintenance programs;
- Protect road reserves and the adjoining land from erosion, weeds and disease;
- Minimise disturbance and clearance of vegetation; and
- Use the Roadside Conservation Committee map of conservation values as a basis for planning/management decisions so as to identify potential conflict situation and ameliorate against them.

Benefits of a Code of Practice

- A fresh start on road and road reserve management which will allow for the competing demands and values of road reserves and do this within the context of the surrounding environment rather than in isolation from it.
- Improve communication, consultation and cooperation throughout the Shire staff at all levels so that environmental considerations are integral to any works program, rather than an additive to it.
- Set out clear responsibilities for roadside works between personnel within the Shire.
- The development of road works and road maintenance techniques which improve the overall environment of the roadway.
- Build on the skills and experience of works crews in environmental road management and maintenance.
- The development of works appropriate to the special values of particular roadsides, whether for safety, fire prevention, erosion or wildlife.

A Code of Practice is:

- A clear direction for on-ground staff.
- A clear understanding of the issues involved.
- Clear and strategic directions and management guidelines.
- A clear allocation of responsibilities.
- Flexible to adjust to changing circumstances.
- A participatory process between staff and the community.

Management Goals

- Protect indigenous flora and fauna values.
- Maintain and enhance visual amenity and landscape quality.
- Prevent further land degradation such as soil erosion.
- Prevent the invasion and spread of weeds and soil borne fungal pathogens.

Management Aims

- Ensure the safe function of the road and protect the road formation.
- Minimise the risk and impact of wildfire through weed control.
- Protect and restore indigenous vegetation communities on roadsides.
- Protect rare and priority species of flora and fauna on roadsides.
- Prevent further land degradation on roadsides.
- Control the spread of weed and fungal pathogens on roadsides.
- Maintain and enhance the visual amenity and landscape quality of the road reserve.
- Protect the cultural and heritage values of roadsides.
- Protect service utilities located on roadsides.

General Principles

- Areas beyond the road formation that contain vegetation (includes all trees, shrubs and groundcovers whether whole or in part, but excluding environmental and noxious weeds) to any degree of significance will not be disturbed during road construction and road maintenance operations, except where necessary to carry out required works.

- Weeds and soil borne fungal pathogens will not be spread as a result of road construction and road maintenance operations.

Contractor Agreement

- When road works are carried out under contract for the Shire, the Code of Practice for Roadside Conservation in Road Construction and Road Maintenance will be adhered to by the contractor for the duration of the contract.

Road Maintenance

- Works areas or zones should be marked out clearly before commencing works.
- The appropriate type and size of machine will be used for road operations as specified by the Shire Engineer or representative.
- On roadsides of high conservation value, machines will be selected that create the least disturbance to vegetation on the road reserve.
- On roadsides of high conservation value machinery will, where possible, operate from the road formation while carrying out works.
- Table drains will be maintained in a condition that will prevent water flooding the road. Works must be kept to the minimum to meet these requirements.
- When carrying out maintenance of table drains, spoil will be directed towards the road pavement, where it will be removed to a designated dump site as specified by the Shire Engineer or representative.
- Road shoulders will be graded to the minimum required to maintain the road formation and the condition of the road according to the type of road as specified by the Shire Engineer or representative. Under no circumstances is the road reserve to be graded beyond the road formation.
- Vegetation on the road reserve beyond the road formation should not be disturbed during grading operations.
- Scraping of batters should be avoided.
- Vehicles and machinery should not be serviced within roadside vegetation.
- Any soil or other materials required for road construction and maintenance operations should be taken from disease free and weed free areas.
- Where there is no alternative to use soil or other materials from a weed or disease infested sites for road construction or road maintenance operations, the materials should only be used on roads of low conservation value.
- Materials used for road construction or road maintenance operations on high conservation or moderate conservation roads should wherever safe be temporarily piled on the road formation or on an existing cleared area in close proximity to the work site.

- All excess materials from road construction or road maintenance operations will be removed at completion of works to a designated site of low conservation value as specified by the Shire Engineer or representative.

- Pits for gravel, soil or other materials will not be dug from the roadside.

Vegetation Removal

- When it is deemed necessary to remove, destroy or lop indigenous vegetation the Foreman of the work crew has a responsibility to ensure that no indigenous vegetation, other than that designated, is removed, destroyed or lopped and that indigenous vegetation beyond the working zone is not disturbed.

- Only the minimum vegetation necessary to meet required works should be marked for removal. If more vegetation needs to be removed to complete required works than originally marked, the Shire engineer or representative will be consulted prior to undertaking works.

- All other vegetation on the road reserve should not be disturbed.

- Areas of regenerating indigenous vegetation on high conservation roadsides should be clearly identified on the ground before mowing or slashing operations are undertaken.

- Areas of regenerating indigenous vegetation on medium and low conservation roadsides should be avoided during mowing or slashing operations.

- Dead trees should be retained on the roadside, unless they pose a significant hazard as specified by the Shire Engineer or representative, to provide habitat for wildlife.

- Limbs on dead trees that pose a significant hazard as specified by the Shire Engineer or representative will be removed. The rest of the tree should be retained on the road reserve to provide habitat for wildlife.

- Pruning works will be carried out so as to minimise the extent of wounding and enhance callus formation.

- Tree stumps left after pruning or vegetation removal works will be cut as close as possible to the ground.

- Vegetation to be removed should be felled in the direction that minimises damage to surrounding vegetation, preferably onto the road formation or other cleared area.

- Indigenous vegetation that must be removed will be chipped and either returned to the site, used in rehabilitation works or made available for community projects.

- Larger vegetation that can not be chipped will be stock piled in a cleared area for public removal or returned to the Shire Depot and made available at an appropriate time for firewood.

Vegetation Removal cont.

- All attempts to carry out sawing, splitting and chipping of felled vegetation should be done with due regard to the understorey. These activities should be restricted to as few sites as possible.

- Pruning required in the vicinity of powerlines should be carried out in accordance with Western Power's Code of Practice for tree clearing.

Site Rehabilitation

- In the event that major works are required that modify existing indigenous vegetation on road sides, rehabilitation of the site should be encouraged. To achieve this, it is recommended that the guidelines proposed by the Roadside Conservation Committee are adhered to.

- Seed from indigenous plants should be collected over a period of time to allow for sees from a range of species to be collected, from the roadside prior to works commencing. N.B. CALM permit is required.

- Machinery should be chosen to ensure that vegetation to be chipped is free of top soil.

- Top soil should be removed prior to works commencing and stock piled in a cleared area, for a period no longer than six months, to be spread over the site at completion of works.

- Sub soil in the works area should be ripped at completion of works to avoid compaction, before top soil is spread over the site.

- Indigenous vegetation should be chipped and returned to the site at completion of works.

Weed and Pathogen Control

- The Shire will initiate training for outdoor staff to identify environmental and noxious weeds found in the district.

- Weed control methods that minimise disturbance to native vegetation will be implemented. Refer to Chapter 10 of the Roadside Conservation Committee Manual.

- A reporting method to record the location and spread of weeds along the roadsides should be devised and control measures planned accordingly.

- Shrub weeds should not be removed when they are in flower or are seeding unless there is no alternative.

Weed and Pathogen Control cont.

- Where shrub weeds must be removed when in flower or are seeding, they will be transported to a designated site, as specified by the Shire Engineer or representatives, for disposal. Such material should be covered to prevent weed seeds blowing onto the roadside and colonising further areas.

- Vehicles and machinery working in weed infested areas or known pathogen areas should, where possible, be cleaned of soil and washed down thoroughly prior to commencing work on a road of high conservation value.

- Vehicles and machinery should, where practical, be cleaned of soil and washed down thoroughly each day to prevent the further spread of weeds and soil borne diseases.

Herbicides

- Herbicides should only be used in the following situations:

- to control noxious and environmental weeds
- in the event that rehabilitation programs are undertaken
- to control exotic grass and weed growth around roadside facilities and road signs.
- heavy mulching at the base of road facilities and road signs is a preferred alternative to using herbicides
- to control exotic grasses and weed growth in inaccessible situations

- Herbicides will only be used by trained staff, and in accordance with manufacture instructions.

- Except in the control of noxious and specific environmental weeds, only herbicides with the active ingredient of glyphosate will be used to control weeds.

- Spot spraying with a back pack, gas gun or the use of a rope wick applicator are the preferred methods of applying herbicides.

- Records of herbicide use along roadsides will be kept.

Vehicle and Machinery Access and Parking

- Vehicles and machinery should not attempt to turn around on a high conservation road, unless at a suitable site where roadside vegetation will not be disturbed.

- Vehicles and machinery should not deviate from the road formation onto the road reserve during road works.

- Where vehicles and machinery are left for a period of time or overnight they should be parked in a designated wayside stop or private land of low conservation value.

Stock Pile Sites

- A set number of stock pile sites will be designated and approved by the Shire Engineer at strategic locations throughout the Shire.

- All statutory authorities and contractors undertaking works in the municipality or Shire will be supplied with a location map of designated stock pile sites by the Shire Engineer or representative.

- Any works carried out that require stock piling of materials will use designated stock pile sites only.

- New stock pile sites will not be located on roadsides of high conservation value or roadsides adjacent to vegetated areas of high conservation value.

- Stock pile sites that already exist on or in close proximity to roadsides of high conservation value or other high quality areas of vegetation will be monitored by the Shire for weed growth and the presence of soil borne pathogens such as the cinnamon fungus (*Phytophthora cinnamomi*) and the necessary controls implemented.

Waste Management

- Dump sites for disposing of excess materials from road construction or road maintenance operations and the disposal of pest plants, will be designated at strategic locations throughout the municipality by the Shire Engineer.

- All statutory authorities and contractors undertaking works in the Shire or municipality will be supplied with a list and location map of dump sites, by the Shire Engineer or representative.

- The Shire Engineer or representative is responsible to monitor all dump sites and provide new locations to all statutory authorities and contractors, as becomes necessary.

- Soil piles created from grading of shoulders or drains that cannot be retained safely on the road formation will be removed to a designated site or site of low conservation value as specified by the Shire Engineer or representative and not spread over existing vegetation or dumped on a nearby roadside.

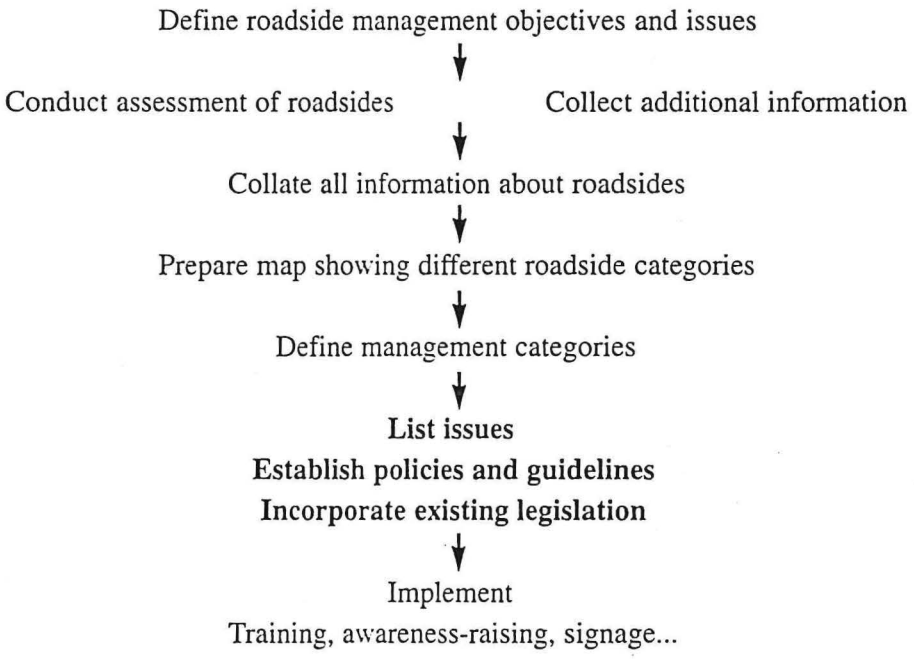
- Litter and excess materials left over from road construction or road maintenance operations will be removed and disposed of at a designated site or site of low conservation value as specified by the Shire Engineer or representative and not spread over existing vegetation or dumped on a nearby roadside.

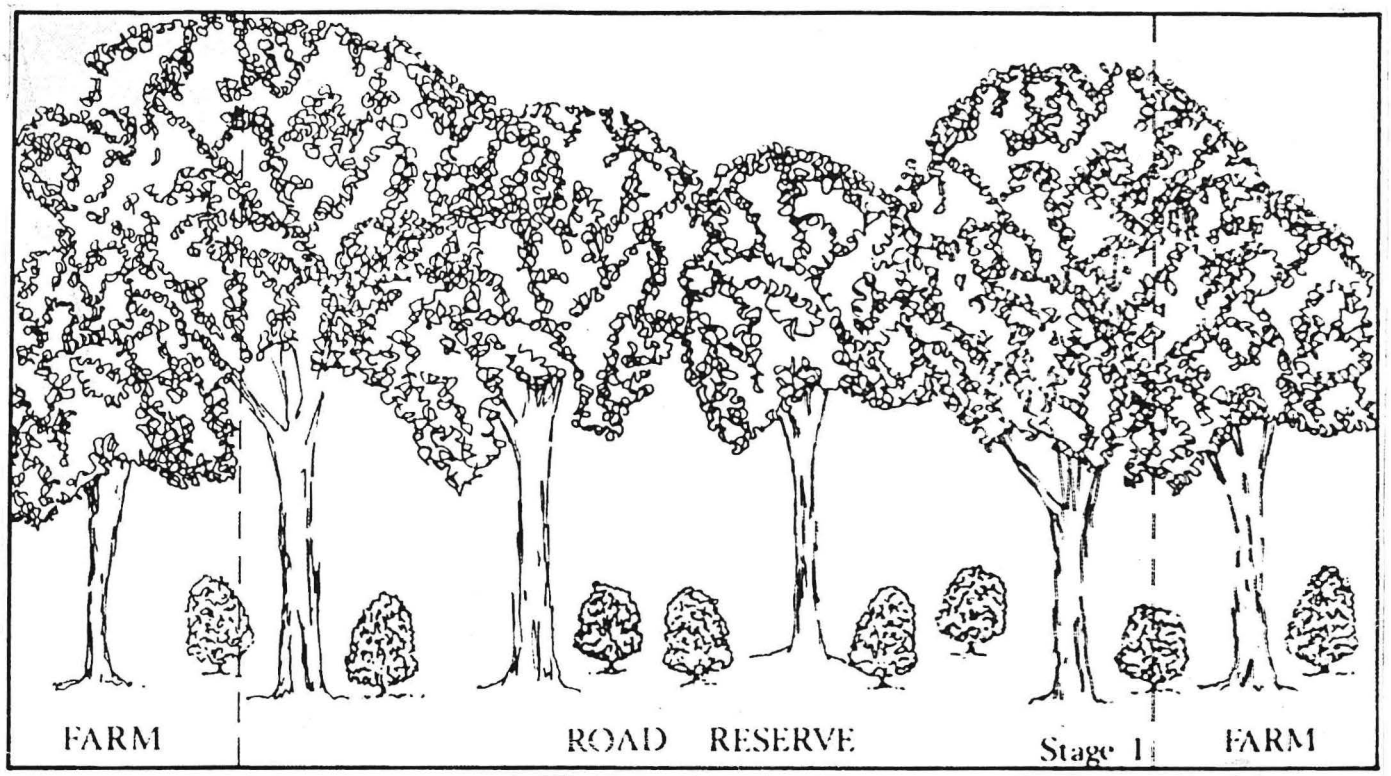
Acknowledgements

This Code of Conduct is based on a template provided by the Office of Public Sector Standards Commissioner.

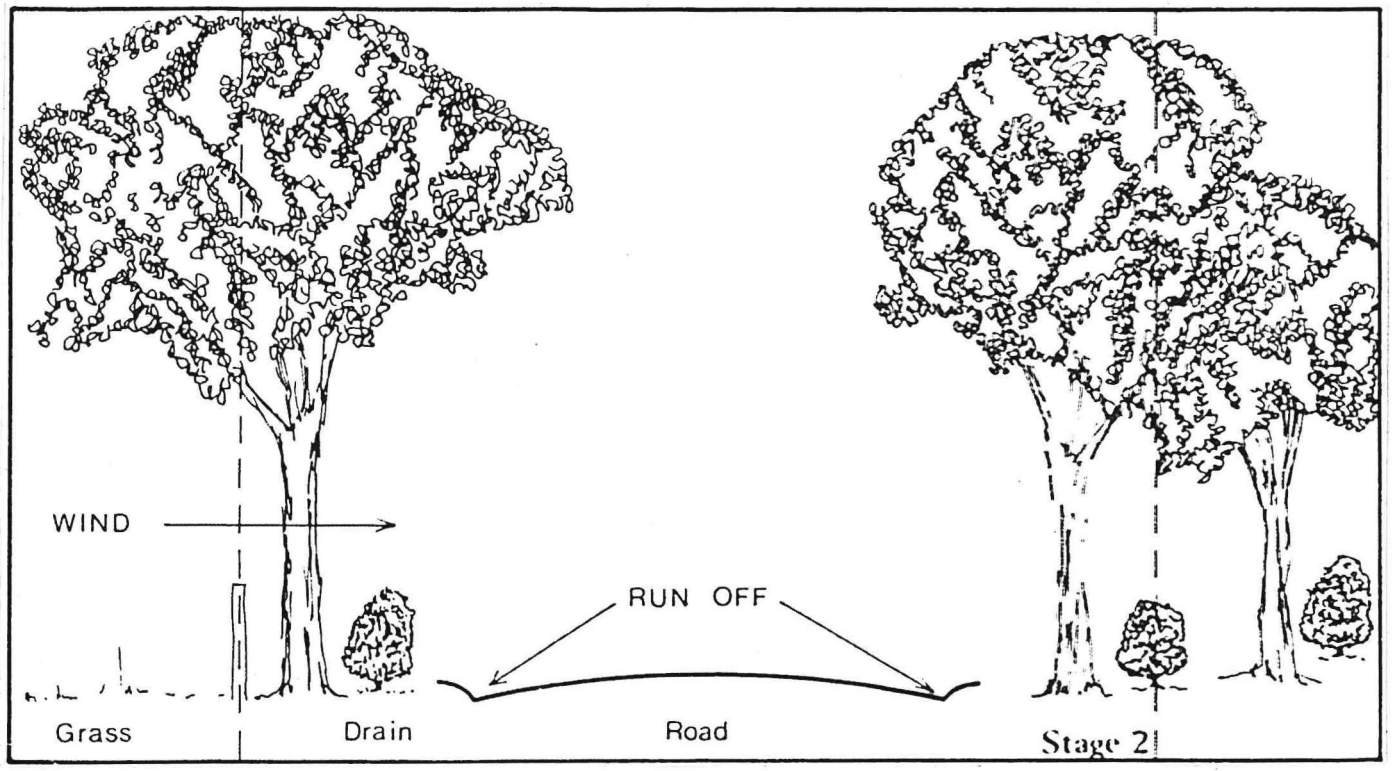
We acknowledge in particular the Public Sector Management Division's publication *'Getting on Board A Guide to Recruitment and Induction of Members of Western Australian Government Boards and Committees'.*

Preparing a roadside environmental management plan is a three-step process involving: 1. assessment, 2. planning, and 3. implementation. This flow diagram summarises the process.

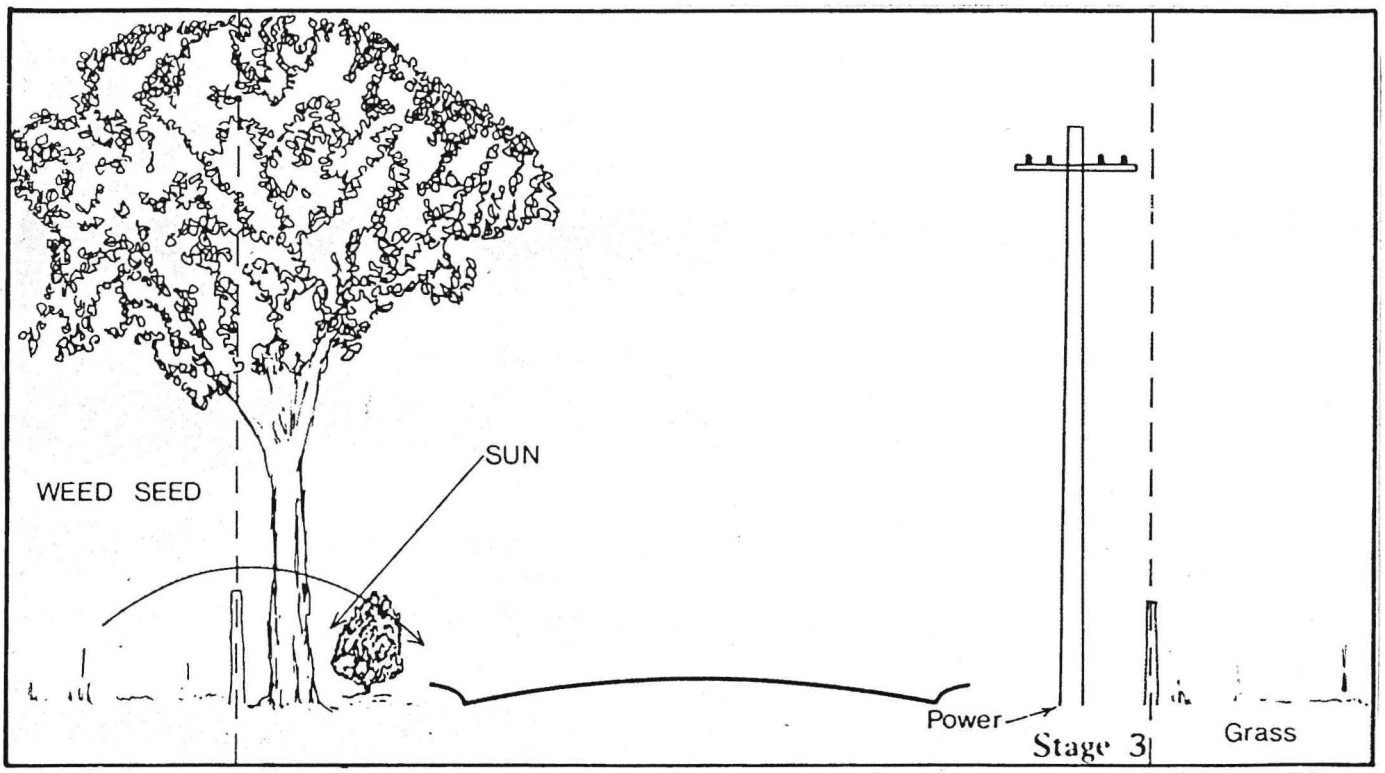




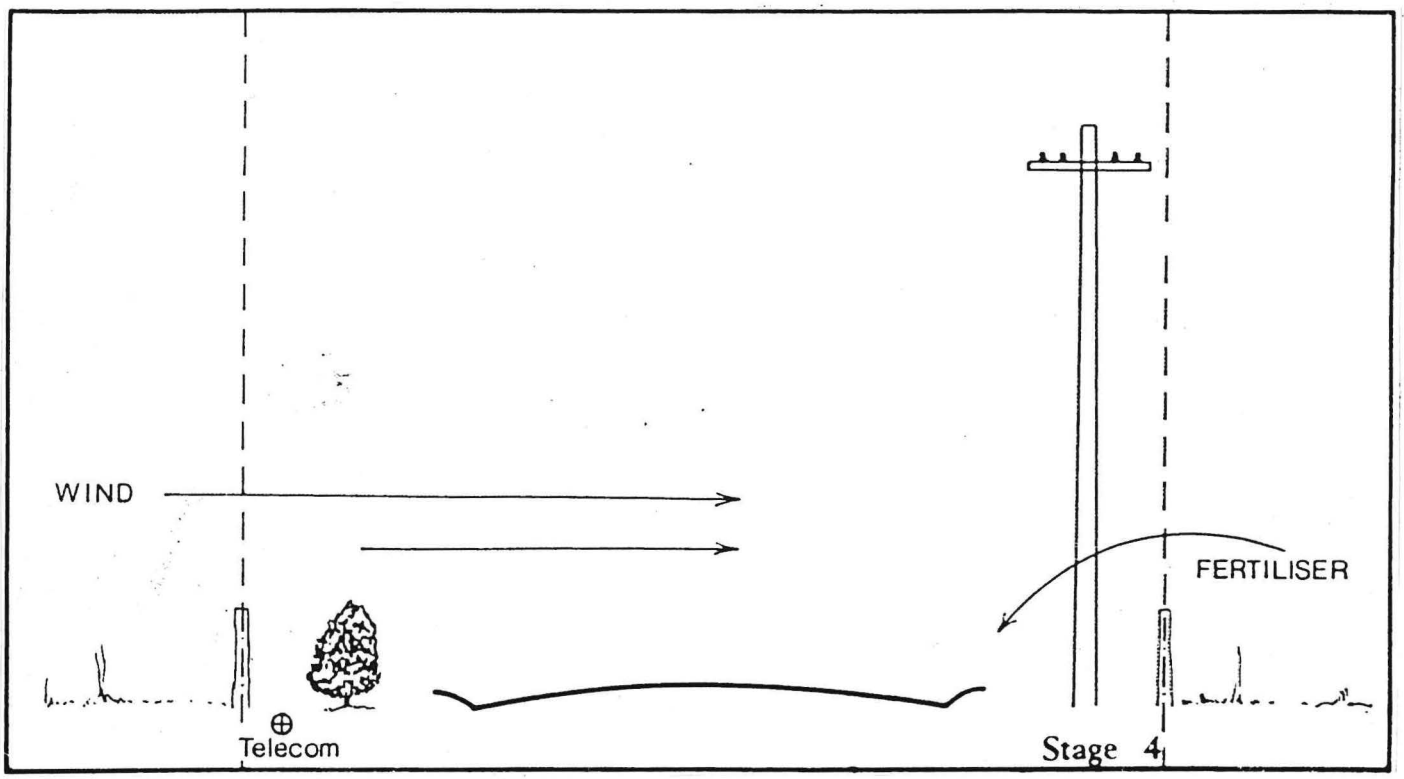
Stage 1 represents the undisturbed condition of mallee or low woodland with a semi-continuous canopy and a relatively stable relationship between the plant association and the environment.



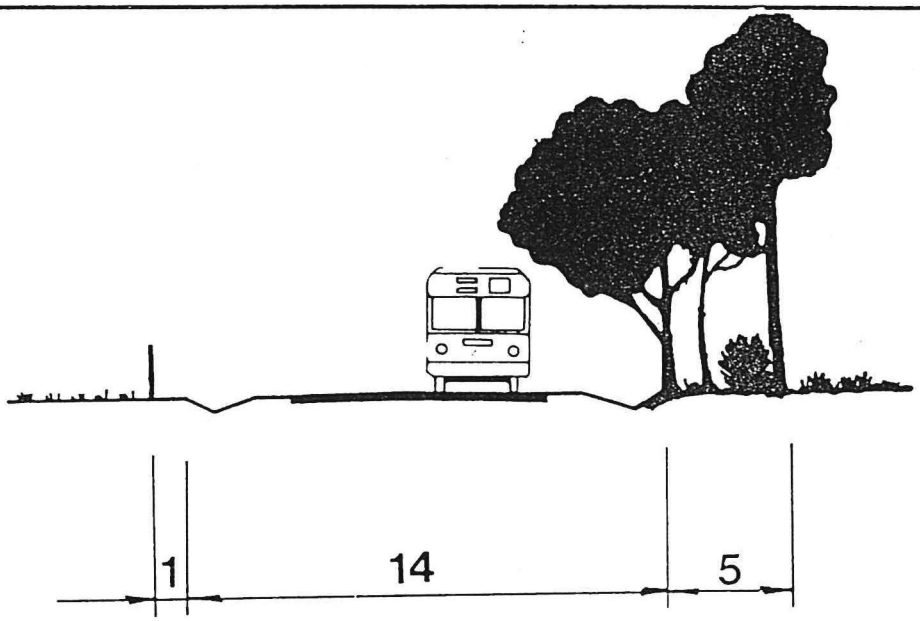
Stage 2 may occur shortly after agricultural settlement begins. Immediately changes begin to occur. Water is redistributed by the road surface and table drains, the vegetation on one side of the road at least is subjected to increased wind exposure, increased lateral sunlight and possible soil erosion.



Stage 3 occurs when intensive agricultural settlement and utility services, such as electric power transmission necessitate removal of vegetation on one verge. The single remaining verge is now fully exposed to wind, rain, sun scorch, abrasion from wind blown particles, invasion by agricultural plants and weeds, deposition of litter and imposition of fertilisers.



Stage 4 is when whatever persists on the remaining verge is disturbed by a subterranean cable. It is by this stage that weed growth may have forced the farmer or shire council to burn the verge regularly, and in this almost totally new environment it will be only the occasional plant that persists.



Widen to one side

ROAD WIDENING - 20 M WIDE RESERVE

APPENDIX 2 - Standard Survey Sheet

21 | SURVEY TO DETERMINE THE CONSERVATION VALUE OF A ROAD

Roadside Conservation Committee

Date 22/6/96 Observer(s) Chris, Geoff
Road Name Bolberling East
Nearest named place Goomalling
Shire Goomalling
Direction of travel ENE
Section no. 2.
starting point Beginning of native reserve
odometer reading 500m
ending point End of reserve
odometer reading 1.1 km
length of section 600 m

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	☑	☑
shrub layer	☑ 2	☑ 2
ground layer	☑	☑

RARE FLORA

Rare flora known to be present ☐ ☐
Name

EXTENT OF NATIVE VEGETATION ALONG LENGTH OF ROADSIDE

Less than 20%	☐	☐
20-80%	☐ 2	☐ 2
over 80%	☑	☑

No. OF DIFFERENT NATIVE SPECIES

0-5	☐	☐
6-19	☐ 2	☐ 2
Over 20	☑	☑

Dominant species (if Known) Jam, tammar, sandalwood.

WEEDS

Few weeds (under 20% total plants)	☑	☑
Half weeds (20-80% total)	☐	☐ 2
Mostly weeds (over 80% total) 2	☐	☐
Ground layer totally weeds	☐	☐

Dominant weeds (if known) Wild Oats

VALUE AS A BIOLOGICAL CORRIDOR

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

FAUNA OBSERVED

PREDOMINANT ADJOINING LAND USE

Agricultural crop or pasture:-		
• completely cleared	☐	☐
• scattered trees/shrubs	☐	☐
Uncleared land	☑	☑
Plantation of non-native trees	☐	☐
Urban or Industrial	☐	☐
Railway Reserve parallel to road	☐	☐
Drain Reserve parallel to road	☐	☐
Other Reserve		

UTILITIES/DISTURBANCES

Disturbances continuous	☐	☐
Disturbances Isolated	☐	☐
Disturbances absent	☑ 2	☑
Type		

CONSERVATION VALUE

High	☑ 2	☑
Medium	☐	☐
Low	☐	☐
Reasons		

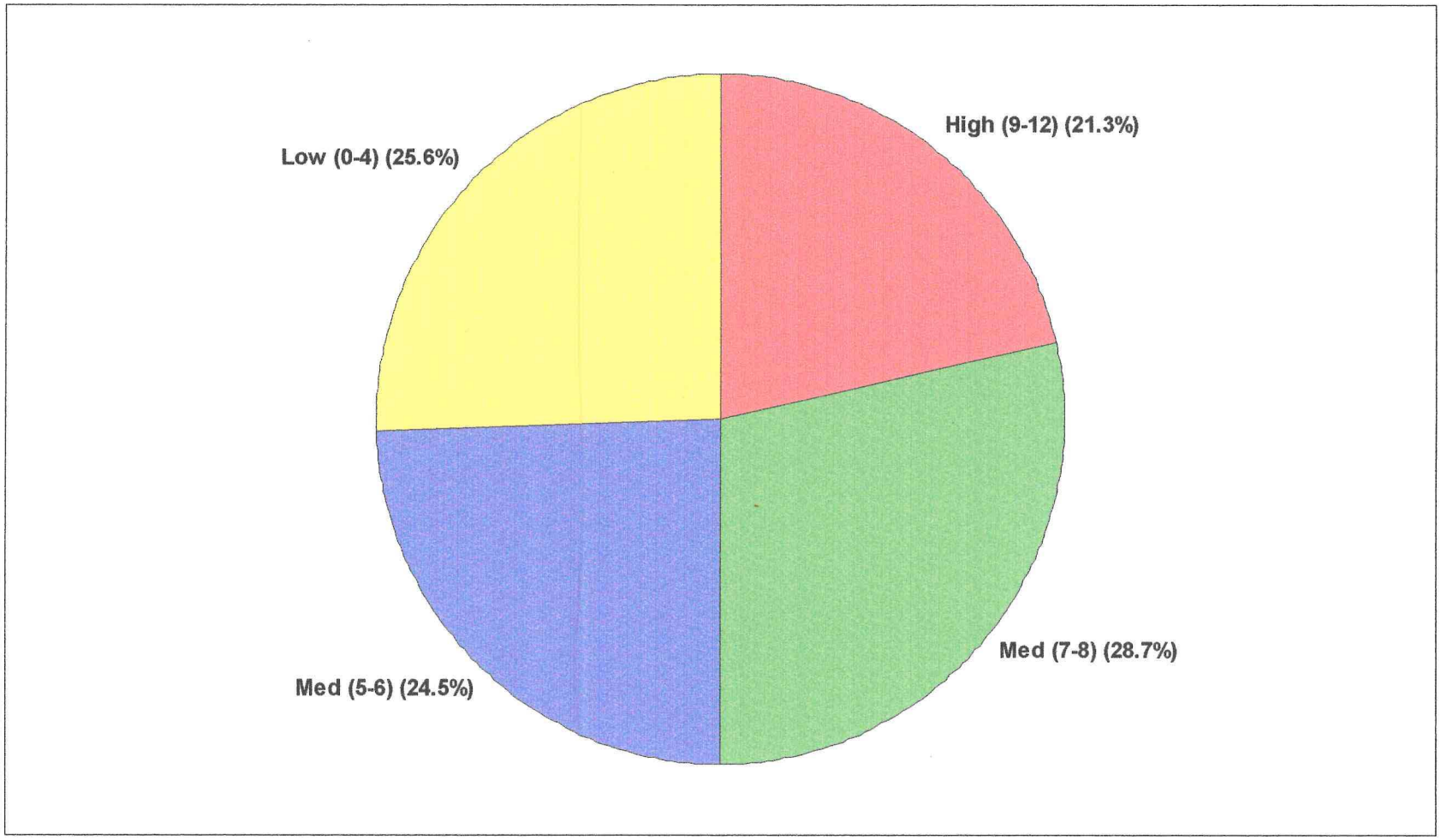
LANDSCAPE VALUE

High	☑ 2	☑
Medium	☐	☐
Low	☐	☐
Avenue of trees	☐	☐
Reasons		

GENERAL COMMENTS

Very important bush reserve on both sides. High % of wildflowers. End of section L+R. Roadside dirt dumped in reserve causing weed mainly wild oats.

L 10 | R 10



Conservation status of roadsides in the Shire of Gnowangerup.

Summary Information: Shire of Capel

Conservation Status (km)

High (9-12)	181.2	26.8%
Med (7-8)	154.7	22.9%
Med (5-6)	137.8	20.4%
Low (0-4)	201.9	29.9%

Native Vegetation on Roadside (km)

2 - 3 veg layers	425.3	62.9%
1 veg layer	208.6	30.9%
0 veg layers	41.7	6.2%
Total	675.6	100.0%

Weed Infestation (km)

Light (2)	83.4	12.3%
Medium (1)	279.3	41.3%
Heavy (0)	313.0	46.3%
Total	675.6	100.0%

Conservation Values (km)

0	0.0	0.0%
1	15.4	2.3%
2	39.8	5.9%
3	99.7	14.7%
4	47.1	7.0%
5	64.0	9.5%
6	73.9	10.9%
7	63.9	9.5%
8	90.8	13.4%
9	80.7	11.9%
10	70.1	10.4%
11	28.1	4.2%
12	2.4	0.4%
Total	675.6	100.0%

Extent of Native Vegetation (km)

>80%, Good (2)	87.3	12.9%
20-80 % Med (1)	325.1	48.1%
<20% Low (0)	263.2	39.0%
Total	675.6	100.0%

Number of Native Species (km)

Over 20 (2)	237.4	35.1%
6 - 19 (1)	242.3	35.9%
0 - 5 (0)	195.9	29.0%
Total	675.6	100.0%

Value as Biological Corridor (km)

High (2)	249.2	36.9%
Medium (1)	225.8	33.4%
Low (0)	200.7	29.7%
Total	675.6	100.0%

Adjoining Land Use (km)

Cleared	252.1	37.3%
Scattered	317.1	46.9%
Uncleared	97.7	14.5%
Other	8.8	1.3%
Urban	0.0	
Railway	4.6	
Drain	0.0	
Plantation	4.2	
Total	675.6	100.0%

Period of survey: December 1992

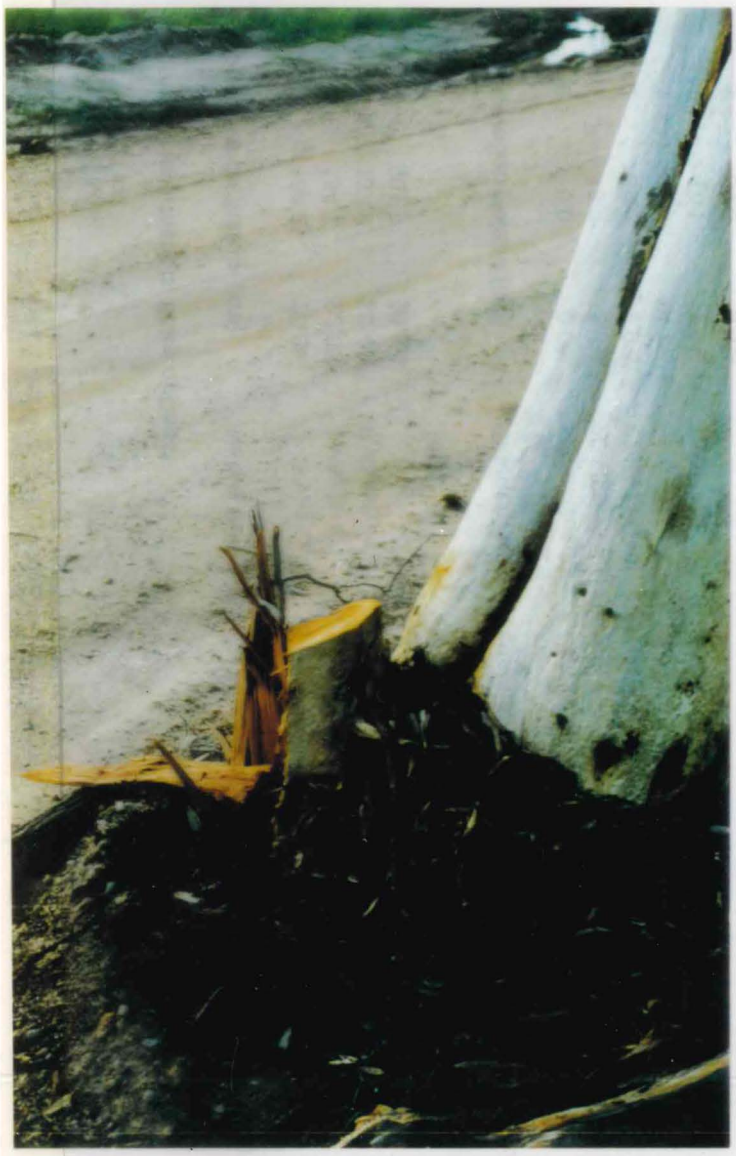
Excessive Clearing

Excessive clearing of road verge is unnecessary and adds to the cost of project

Locate stockpiles on land already cleared; refer to pages 18 & 26 of the Roadside Handbook

Stockpiles like this encourages weeds and degrades existing remnant vegetation

Pruning



Poor pruning technique

Refer to page 27 of Roadside Handbook for correct procedure

2.6 Engaging consultants/contractors

Government guidelines and procedures ensure a consistent approach in recording the engagement of consultants/contractors. It is important that the committee determines whether the person is to be engaged as an employee, or as a contractor.

An employee is engaged on a contract of service which implies an employer/ employee relationship under which the committee is responsible for the person's wages, worker's compensation, PAYE tax instalments and group certificate etc. A contractor is engaged on a contract for service, which implies there is no employer/ employee relationship. Accordingly a contractor submits an invoice for the service performed.

Committee members will ensure:

- *Persons employed under contracts of service will be recruited, appointed and managed in accordance with Public Sector Standards in Human Resource Management.*
- *Contracts for service will be made following correct purchasing procedures, according to current State Supply Commission guidelines on contracts for professional services.*

3. Use of public sector resources

All vehicles, computers, furniture and other equipment provided to the committee remain the property of the Department of Conservation and Land Management and will only be used for official purposes. Committee assets are publicly owned and are not provided to members for exclusive use.

Committee members will ensure:

- *Equipment is operated in accordance with the manufacturer's specifications, is maintained in good condition and stored securely.*
- *Any damage or loss of property or equipment is reported immediately to the committee.*
- *Resources, funds, employees and equipment are used effectively and economically for committee business. Official resources include, but are not limited to; motor vehicles, computers, software, photocopiers, telephones, facsimile machines, printers and any similar items of office equipment.*
- *Requests by an external party such as a charitable body to use committee facilities shall be referred to the committee for approval.*

Drainage

Avoid collecting and diverting runoff over long distances. Let runoff return to its natural drainage lines as quickly as possible. Consider soil modifications, such as relieving soil compaction or improving soil structure, and water harvesting techniques that allow greater infiltration. Where possible, use natural surface drainage instead of piped systems, particularly on rural roads. Let runoff flow over the entire width of a slope.

Drainage

spur drain with incorrect fall

The commonest mode of spread of this disease has been with the transport of road-making material and the movement of road construction and maintainance machinery conductng normal operations.

Some plants are not affected by the fungus, some recieve a slight set-back, whilst others are swiftly killed. The worst affected native plant families are: Banksia family, Heath family, Hibbertia family and Pea family. In addition, some orchard crops, such as avocados and horticultural crops such as Proteas, are very susceptible.

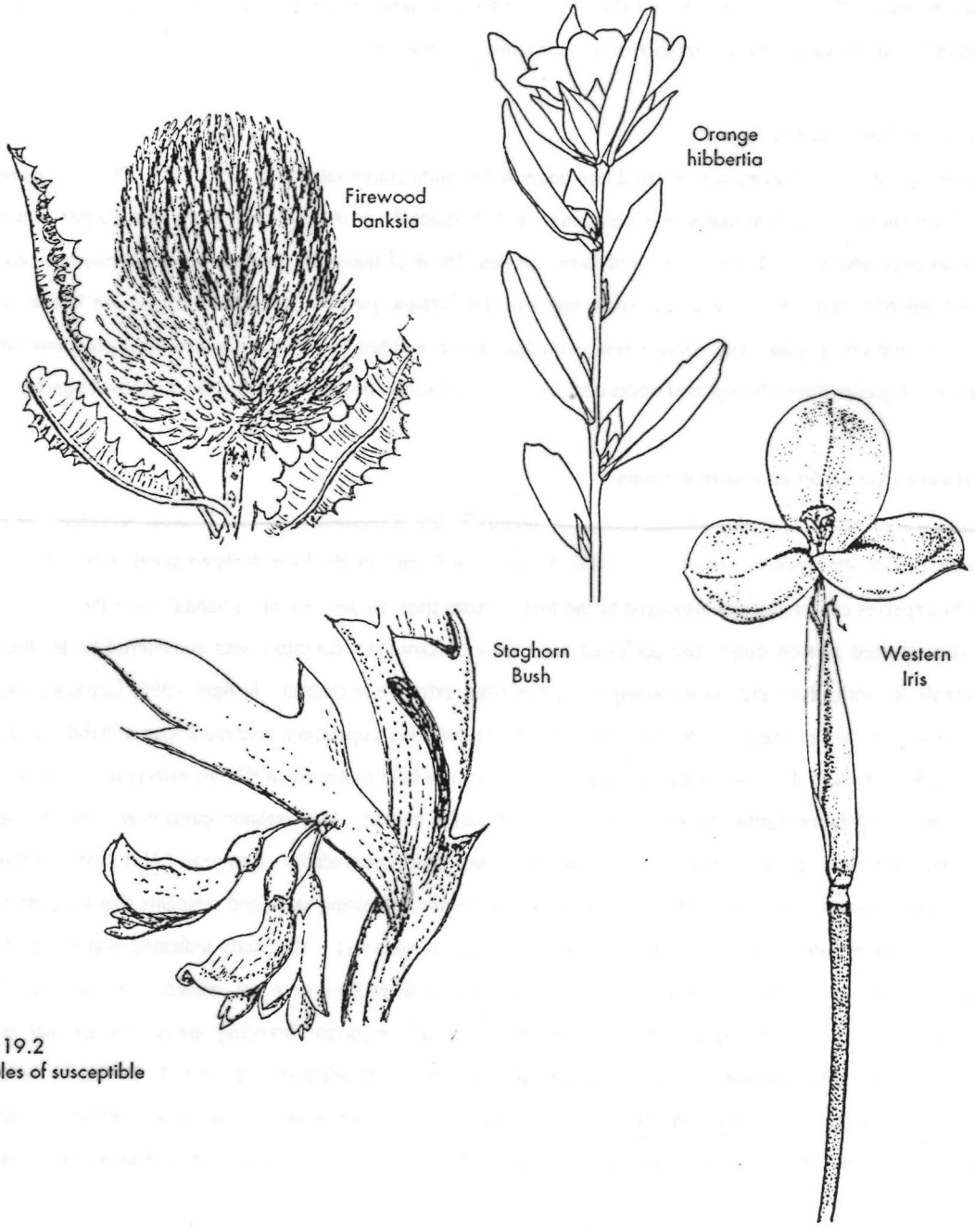
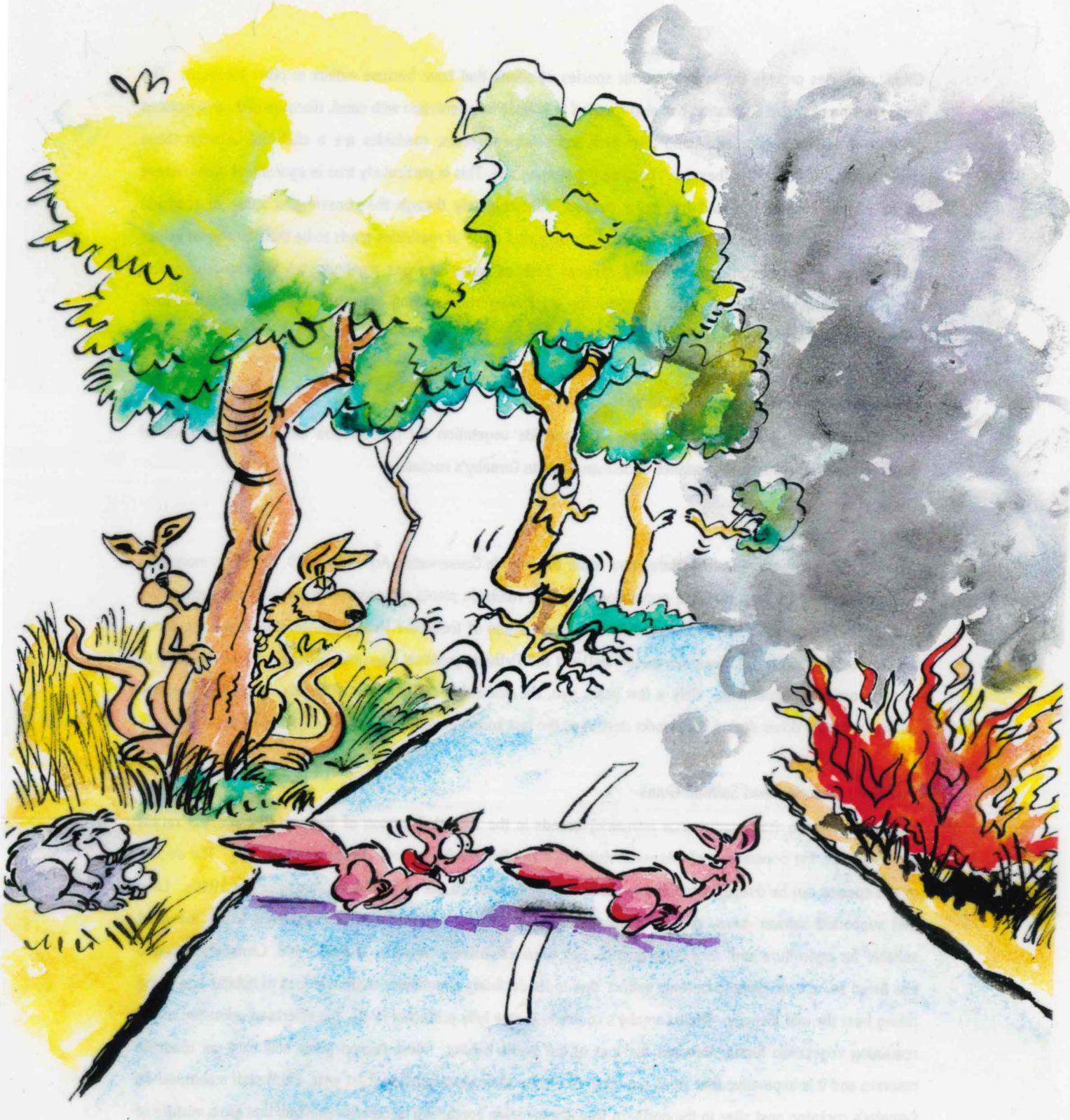
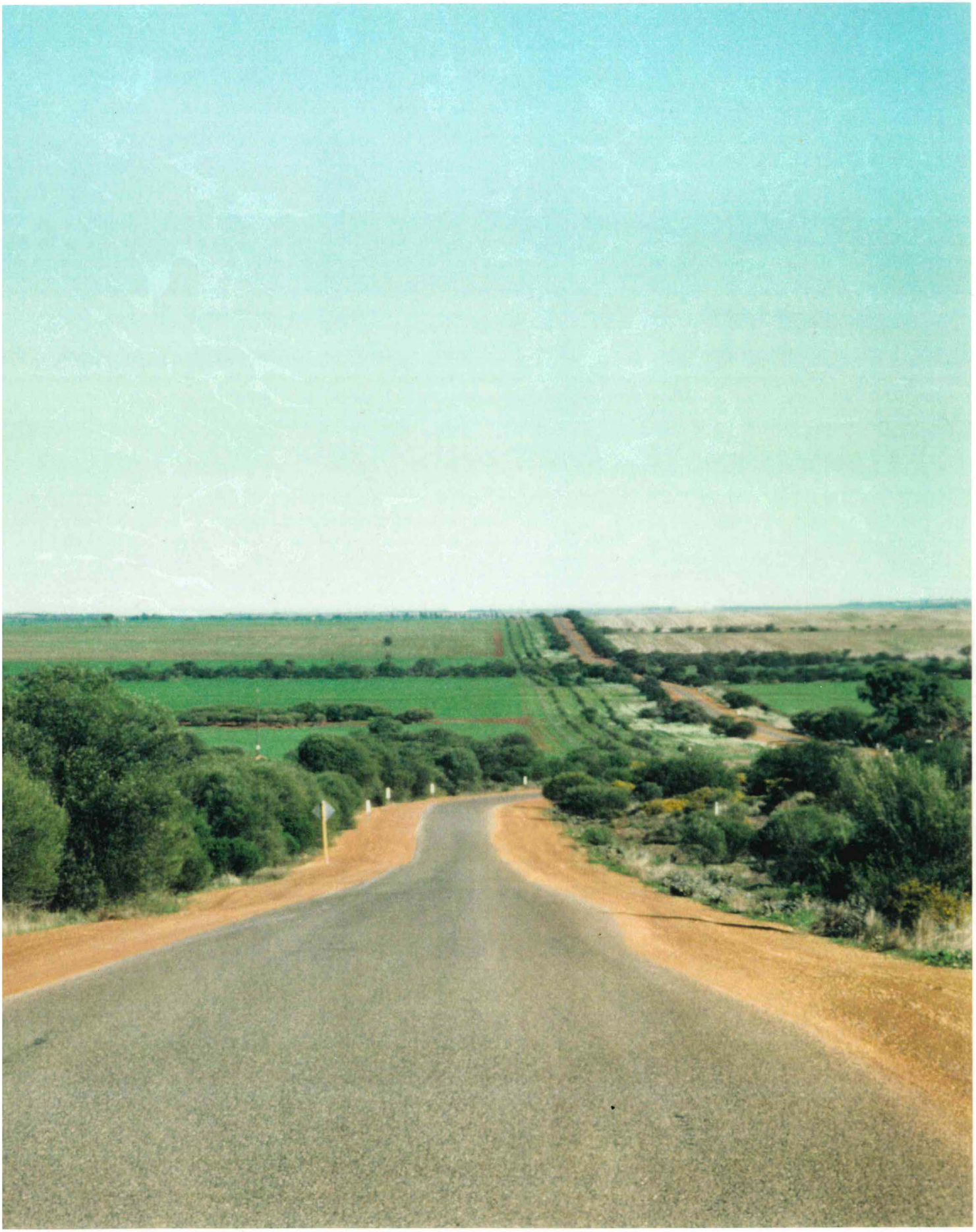
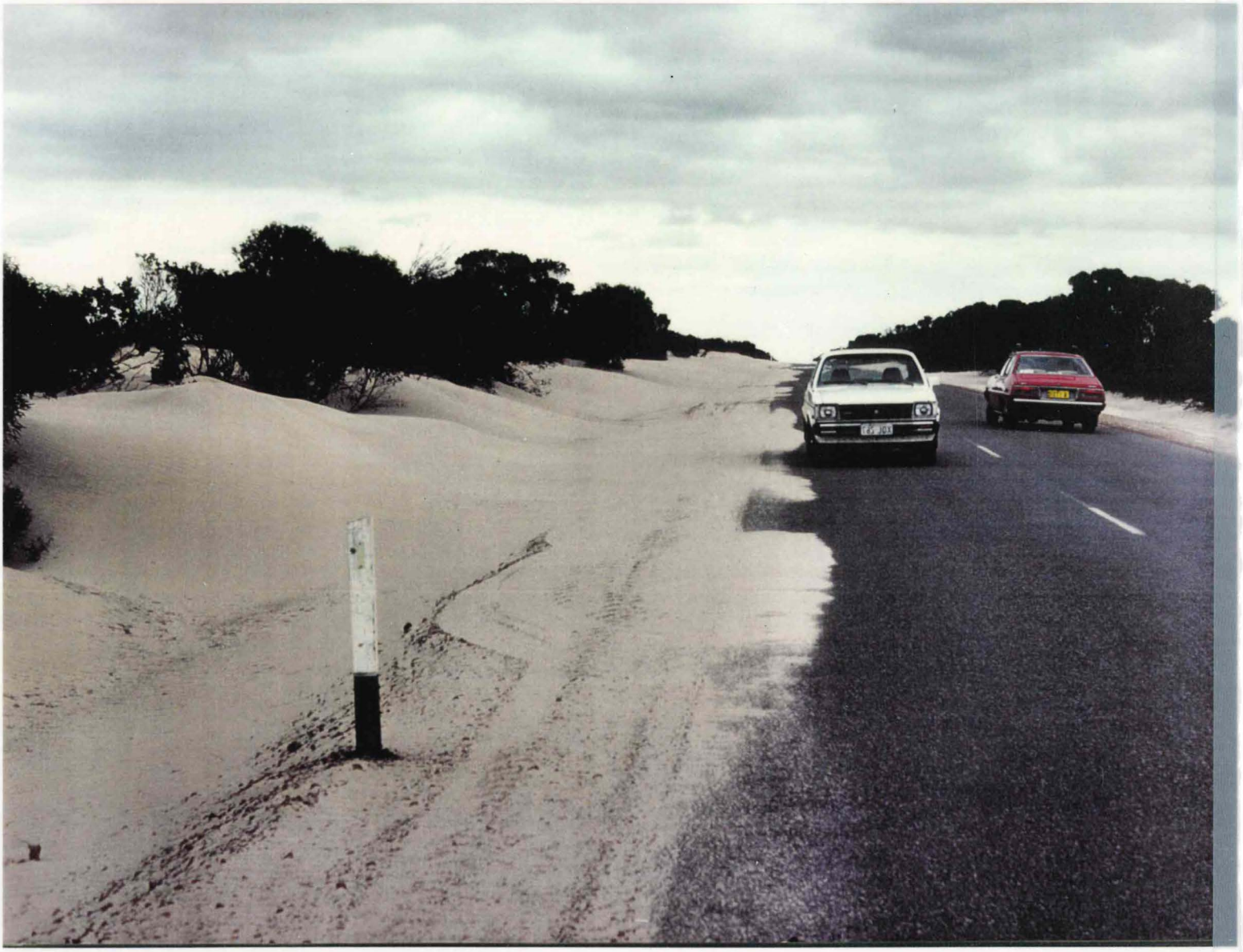


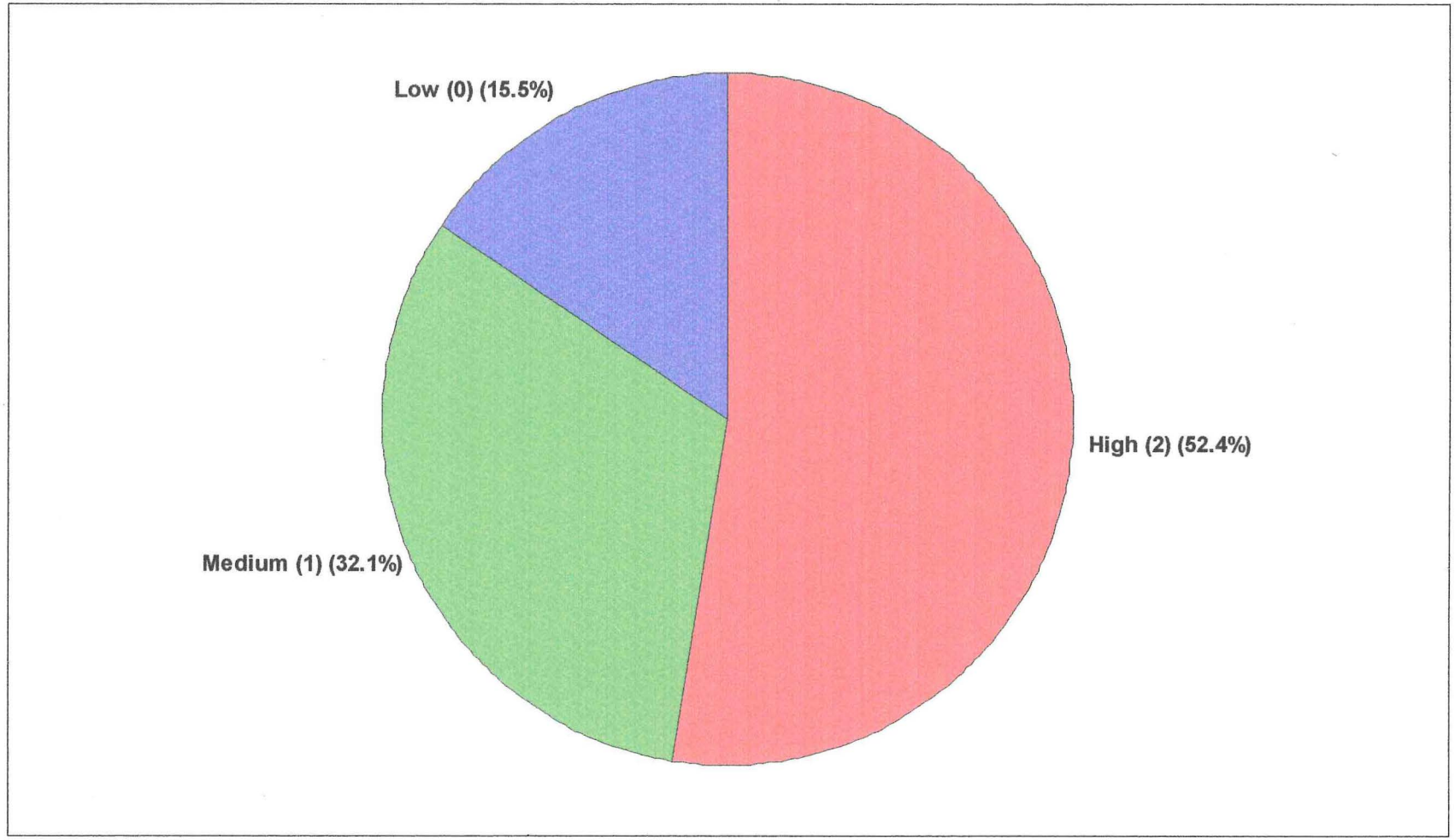
Figure 19.2
Examples of susceptible plants



A negative view of the values of roadsides







Value as a biological corridor, roadsides in the Shire of Gnowangerup.

Often, roadsides provide the last refuge for species of plants that have become extinct in other locations. The mass clearing of native vegetation has also resulted in habitat fragmentation with small, discontinuous and isolated pockets of natural vegetation. Along with river and stream reserves, roadsides are a vital link between these pockets, and it is imperative they don't become the missing one. This is particularly true in agricultural areas, where up to 98 per cent of the land has been cleared. Unfortunately though the conservation value of roadside vegetation is often overlooked and the most readily accepted value of roadsides tends to be their functional values that they provide, i.e. corridors for utility services such as water and gas pipelines, telecommunications and electricity transmission lines. Also as areas for stockpiling road making materials and space for the road construction and maintenance projects.

The Importance of Roadside Vegetation

Two examples that illustrate the importance of roadside vegetation for conservation are the conservation of Declared Rare Flora and the importance of Salmon Gums to Carnaby's cockatoo.

Rare Flora Conservation

Currently, 321 plant species are declared rare under the Wildlife Conservation Act 1950-1979. Of these, more than 100 are known to be from roadside populations. In fact, roadside plants represent more than 80 per cent of the known populations of 40 of the 'Declared Rare' species. Three of these the Meelup Mallee (*Eucalyptus phylacis*) the Cunderdin daviesia (*Daviesia cunderdin* ms) and the Pythara grevillea (*Grevillea pythara*) are known only to exist in roadside populations. Only a few years ago, the one-sided bottlebrush *Calothamnus accedens* became extinct. A grader driver during road works destroyed the last known population of this WA Wheatbelt species.

Carnaby's Cockatoo and Salmon Gums

Carnaby's cockatoo (*Calyptorhynchus latirostris*) breeds in the Wheatbelt region of Western Australia. In recent years, though, the populations of this vocal visitor to many Perth suburbs have declined significantly. The decline of this species can be directly attributed to the loss of more than 30 per cent of its habitat since the 1960s. Land that supported salmon gums, the preferred nest sites of Carnaby's cockatoo, was considered to be the most suitable for agriculture and, as a consequence, has been extensively cleared. In April 1996, Carnaby's cockatoo was listed as 'rare or likely to become extinct' due to its declining population, continued loss of habitat and being taking from the wild illegally. While Carnaby's cockatoo is now fully protected in WA, the effects of salination of the remaining vegetation further threaten the loss of the bird's habitat. Most salmon gums now exist on roadside reserves and it is imperative that steps are taken to ensure their sustainability. Last year, CALM staff monitored 70 Carnaby's cockatoo nest sites in the northern Wheatbelt: region containing woodland remnants that are a mixture of salmon gum, wandoo (*Eucalyptus wandoo*) or morrell (*E. longicornis*). The study indicated that the cockatoos always nested in salmon gums when they were available, but when they were not, wandoo trees were used as a nesting site. The monitoring program also identified several important breeding areas that are not on the conservation estate (all land managed by CALM) and, therefore, not adequately protected. Of the 70 nest trees monitored, 34 per cent were on private property, nine per cent on shire reserves, and 56 per cent on road and rail reserves. Clearly, the retention of nest trees on the road and rail reserves is critical for the long-term survival of the Carnaby's cockatoo.

Code of Conduct

for

THE WA FLORA INDUSTRY ADVISORY COMMITTEE

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT (CALM)

(June 1999)

2. Accountability

The *Financial Administration and Audit Act 1985* places a responsibility on committee members to ensure efficient and effective operations, to avoid extravagant and wasteful use of resources, and to record processes carried out when purchasing goods and services.

2.1 Accountability for public expenditure

Committee members will:

- *Act in a lawful, ethical and justifiable manner.*
- *Demonstrate personal integrity and reliability.*
- *Maintain confidentiality.*
- *Participate constructively in committee activities.*
- *Ensure action is taken on audit reports.*
- *Ensure compliance with statutory and legal requirements.*
- *Analyse financial statements and management reports with due care, and ensure he or she is properly informed.*

2.2 Remuneration or sitting fees

Committee members will not:

- *Accept any fee, reward, gratuity, gift or remuneration of any kind, other than approved travel allowances for Country based non-government members, applicable to the committee.*

2.3 Allowances

Accommodation and travel expenses

Committee members will:

- *Obtain approval for travel from the committee and record this in the minutes, other than for attending normal WAFIAC meetings as previously approved.*
- *Comply with the travel conditions and guidelines set down in current government policies. Circular to Ministers 6/93 and Circular to Chief Executive Officers 21/91 provide that:*
  - *Travel will not be undertaken unless it is demonstrably the most cost effective and efficient method of performing the function or obtaining the information required.*
  - *Attendance at interstate or overseas conferences and courses must be justified in the public interest.*
  - *All travel proposals will include a clear statement of the benefits to Western Australia and the committee, of such travel.*
  - *All overseas travel is to be approved by the Minister.*
  - *A one-page report to the Minister will be made within seven days of return.*
  - *All inter and intrastate travel is to be approved by the committee.*

Country based non-government committee members may be reimbursed actual travel and accommodation expenses as follows:

- *Country based non-government members using their own motor vehicle to travel to an official WAFIAC meeting are entitled to claim reimbursement for actual fuel costs involved in the travel to and from the meeting venue including one nights accommodation if necessary.*

1. Personal behaviour

Committee members are in a position of trust. Their involvement may affect the welfare, rights or entitlements of the community and individuals.

Government power is derived ultimately from citizens, who expect public officers to carry out their functions with professional integrity and due regard for the public interest. All committee members need a clear understanding of their public duty and legal responsibilities.

Committee members will:

Understand the committee's role and public duties

- *Gain a clear understanding of the role or purpose of the committee as well as the statutory and regulatory requirements of members carrying out their public duties.*
- *Develop an understanding of the physical, political and social environment in which the committee operates.*
- *Stay informed about all relevant activities affecting the committee.*
- *Comply with legal obligations and implement the decisions taken by the committee.*

Be active

- *Attend all committee meetings. Where attendance is not possible members will submit an apology. If absence is likely to extend for several consecutive meetings, members will obtain leave of absence.*
- *Participate actively and work cooperatively with fellow members and stakeholders to achieve agreed goals.*
- *Prepare for meetings by reading and considering papers circulated with the agenda.*

Respect each other

- *Treat each other with professionalism, courtesy and respect.*
- *Not improperly influence other committee members.*
- *Act loyally and in good faith.*

Consult

- *Consult stakeholders and affected parties about issues under consideration.*

Raise concerns

- *Express concerns to the chairperson or other relevant authority about decisions or actions contrary to the committee's public duty.*
- *Disclose any information about actual or potentially corrupt or illegal activities to the chairperson or, if necessary, the Anti-Corruption Commission.*

ATTACHMENT 1

MINISTER FOR THE ENVIRONMENT'S ENVIRONMENTAL ROADSIDE WEEDS

Trees, Shrubs and Herbs

Acacia baileyana	Cootamundra Wattle
Acacia podalyriifolia	Mt Morgan Wattle
Acacia pycnantha	Golden wattle
Aerva javanica	Kapok
Brassica napus	Canola
Brassica tournefortii.	Wild turnip
Cytisus proliferus	Tagasaste
Dittrichia graveoleris	Stink Wort
Echium plantagineum	Paterson's Curse
Euphorbia terracina	Geraldton Carnation
Leptospermum laevigatum	Victorian Tea Tree
Lupinus cosentinii	Blue Lupin
Lycium ferocissimum	African Box Thorn
Parkinsonia aculeata	Parkinsonia
Pinus radiata	Wild pines
Psoralea pinnata	Taylorinna
Raphanus raphanistrum	Wild Radish

Grasses

Avena fatua	Wild Oat
Ehrharta calycina	Veldt Grass
Ehrharta longifolia	Annual Veldt Grass
Eragrostis curvula	African Love Grass
Hyparrhena hirta	Tambookie Grass
Pennisetum clandestinum	Kikuyu
Pennisetum setaceum	Fountain Grass
Pennisetum villosum	Feather- top Grass
Rhynchelytrum repens	Natal Redtop

Creepers

Myrsiphyllum asparagoides	Bridal Creeper

Bulbous

Babiana stricta	Baboon Flower
Freesia aff. leichtlinii	Freesia
Gladiolus caryophyllaceus	Wild Gladiolus
Homeria flaccida	Cape Tulip
Watsonia bulbilifera	Red Watsonia
Watsonia merianthera	Coloured Watsonia
Zantedeschia aethiopica	Arum Lily

ACT	PART/SECTION	PAGE	REFERENCE
Agriculture and Related Resources Protection Act 1976-80 cont...	VIII - 105(p), (v) & (w)	75	Regulations regarding vehicles harbouring seed of declared plants, movement of stock, interference with experiments.
	VIII - 106(k)	80-81	Regulations - animal proof fence across road, Crown Land may be granted - gates.
Bushfires Act 53 of 1954	III - 9	18	Permits to authorise burning of bush on road reserve adjoining private land.
	III - 22(2)	21	Burning during Restricted Times and Prohibited Times. Setting fire to fire hazard bush on adjoining boundary and fire break.
	III - 23(1)(b)(i)	22	Also owner may burn bush on road reserve adjoining his land.
	III - 23(2)(iv)	23	Burn between constructed portion of road and an established firebreak.
	III - 27D(2)	37	Requirements for carriage and deposit of incendiary material.
	III - 34(1)(a) & (c)	43	Burning on Crown Lands (other than land set apart for roads or land comprised in closed roads) owner may enter for clearing or clearing and ploughing firebreaks.
	IV - 5(a)	51	Control and extinguishment of bushfires Bushfire control officer to burn bush on or at margins of streets, roads and ways under Local Authority Management.
	V - 48(4)(a) & (b)	62	Misc Damage by bushfire to dividing fence by neglect of owner - road or reserve (MRD and Local authority - excepted).

ACT	PART/SECTION	PAGE	REFERENCE
Environmental Protection Act 1986	V - 50	41	Discharge of waste to cause pollution an offence.
	V - 53(2)(b)	43	Relocating, altering any discharge or emission pipe or channel without approval an offence.
	V - 56	46	Occupiers of prescribed premises to be licensed - increased discharge of waste to be inaccordance with licence conditions.
	V - 59(1)(b)(v)	50	Revocation, amendment of Licences deleting any discharge point no longer in use.
	V - 60(3)(a) & (b)	51	Relationship between works approvals or licences and approved policies. Higher level of protection required - grant or amend works approval.
	V - 65(1)	55	Pollution Abatement Notices - waste likely or being discharged.
	V - 73(a) & (b)	62	Powers in respect of discharges - approval or Chief Executive Officer to remove, disperse, destroy dispose of etc.
	V - 77(2)	66	Discharges from vehicles at time of use on road, reserve, public place an offence.
Local Government Act 1960-1973	VIII - 203	206	Crossing across footpaths or street drains.
	VIII - 216	212	Regulating handcarts on streets - licensing.
	VIII - 218(a)	214	Works in progress abutting street (safety fences, lights)
	VIII - 219(a) & (b)	214	Stock on streets - prohibition or regulating.
	VIII - 221(a), (b) & (c)	215	Lawns, gardens, pipes, vehicles - permitting and regulating.
	VIII - 226	222	Motor tracks - setting apart for specified classes.
	VIII - 231(2)	225-230	Parking stations and facilities.
	VIII - 232(b), (c) & (d)	231	Petrol pumps - regulating and prohibiting.
	VIII - 243 (1)(a) & (b)	239	Straying and diseased animals - no infectious animal allowed on roads.
	VIII - 244	240-246	Streets - use and management.
	VIII - 250	249	Verandah protruding onto street - proper maintenance, or requiring owner to remove.

ACT	PART/SECTION	PAGE	REFERENCE
Local Government Act 1960-1973 cont.	XI - 281(1)(a) & (b)	269	Council taking materials for roadmaking and leaving on land adjoining a street, materials not required (timber, gravel etc).
	XII - 286(1) & (4)	272	Property in streets revested in the Crown - does not affect mines.
	XII - 287(1), (4) & (5)	273-274	Council to obtain Governor's approval before exercising powers to provide, alter, close streets.
	XII - 288	275	Declaration of dedication of public streets by Governor.
	XII - 301(e) & (f)	301	General management of streets. (e) materials for repair of street placed on verge; (f) clearing of land to make road - council must remove debris and spoils adjacent to a fence.
	XII - 307	305	Governor may declare portion of street to be a tree reserve.
	XII - 330	325	Offence without authority to remove material or make alteration to a street.
	XII - 363(1), (2) & (3)	353	Power to widen streets.
	XIII - 365(1), (2) & (3)	357	Construction of water drains - through streets, effluent channels.
	XXII - 510	469	Works over, upon and under streets - permission to construct.
	XXIII - 515	480	Preventing sand drift on roads and order to occupiers to clean up.
	XXIII - 521	485	Flood control powers - council may enter with necessary plant and materials to control.
	XXVIII - 647	617	Offence to neglect repair of fence or gate separating from a road.
	XXVIII - 648	617	Offence to leave gate open placed by Council across road.
	XXVIII - 665	630	Offence to remove Council property from street displace.
Agriculture and Related Resources Protection Act 1976-1980	I - 7(4)(b)	13	Intervention of a road, railway etc for electricity or gas or water shall not prevent lands being taken to be adjoining.
	V - 47(1) & (2)	35	Private land Application to certain roads - owner owns road intersecting, bounding.
	V - 66	48	Management Program Movement of native animals not to be inhibited.
	VIII - 85(1)	63	Power to search conveyances for declared animals or prohibited material.

ACT	PART/SECTION	PAGE	REFERENCE
Land Act 1933	I - 10	9	Districts and Townsites defined by Governor - extending or diminishing boundaries in districts, changing street names.
	I - 16(2)	13	All applications subject to Minister's approval - Access to waterholes, with roads and reserves necessary applied for before survey.
	I - 17(1) & (3)	14	Minister may order surveys of Crown Land and Lands reserves for Town and Suburban lots - accepted in court of law as evidence respecting alignment and width of roads and boundaries.
	III - 29(1)(b) & (c)	21	Governor may make reserves - use by government, Crown instrumentality, road board and for railways, roads, drainage or irrigation works.
	III - 29(1)(l) & (m)	22	Quarrying for roadworks, resting places.
	III - 34(1)	28	Governor may place any reserve under control of a board of management.
	III - 31(4)	24	Classification of reserves - Nothing in this section shall prevent survey and declaration of necessary roads through any reserve or prevent amendment of boundaries if land reserves before survey.
	III - 36	28	In connection with Section 29 - Temporary reserve Land ceases to be reserved if not confirmed in 12 months.
	V - 46(1) para 3	36	Land declared open for selection - adjoining lands include land separated by public road or way.
	V - 62(1)	54	Inclusion of closed roads in adjoining land held under conditional purchase lease.
	V - 80(2)	64	Working Men's blocks - Governor may set apart any Crown land - must be surveyed - with proper roads and reserves for public purposes.
	V - 84(2)	67	Special settlement lands - roads and ways surveyed.
	VI - 97(5)(i)	74	Position and boundaries of leases - reserve, road or stock route within or adjoining boundaries of pastoral lease incorrect, cancelled or closed - These plants to be corrected.
	VI - 106(a)	91	Reservations - Minister may declare temporary or permanent public roads through pastoral leases.
	VII - 117A(1)(c) & (d)	114	Special leases and licences - provision of access
	VIIA - 118A		Provisions for vesting of lands in closed roads.
	VIIA - 118E	118	Closed Roads: Land to be vested for estate similar to that of adjoining land.
	VIIA - 118F(1) & (3)	118	Vested land to be incorporated with adjoining land.
	VIII - 121	122	Agricultural Lands Purchase Lands may be surrendered provided situated near established route of authorised transport
	VIII - 126(1)	123	Sufficient part of land set apart for roads, reserves, townsites etc.

Road Rehabilitation Measures

Based on a one kilometre length of pavement requiring rehabilitation due to a risen water table and that drainage from the site is not practicable, the following table of treatments within the road reservation is provided given the status of this road.

Table VIII. Alternative pavement treatments for Great Eastern Highway

Treatment	Cost per km.	Comments	Result
Raise embankment 1 m and new pavement	$400,000		High chance of success
Deep Lift Stabilisation (incl. 200 mm resheet)	$380,000	Stabilise to total compacted depth of 350 mm to produce a bound pavement.	Good to high chance of success
Drainage blanket and new pavement	$330,000		High chance of success
Dual layer stabilisation	$200,000	Base layer bladed clear; bottom layer stabilised, top layer replaced and stabilised. Soil and pavement material is modified (not bound).	Leaves pavement level unchanged. Good to high chance of success.
Formation Drains/Pumping	Not Feasible	Nil drainage point, low permeability soils and aquifer, highly saline groundwater disposal.	
Deep Lift Stabilisation to 350 mm	Not Possible	Insufficient existing pavement material thickness; (refer above; resheet is required).	
Revegetation	$6,000	15 metre plantable verge width x 2 sides of highway. Plant 3 rows trees on a 5 metre grid = 600 x 2 per km = 3 ha/km or 400 stems /ha	To be used as pro-active solution prior to treatment and in conjunction with other above solutions

CY O'Connor College of TAFE

Roadside Conservation
45321

Certificate IV of Community Landcare

Multiple Choice Assessment

Course Text: 'Western Australian Roadside Handbook'

NAME: _____ Grade: _____

For each of the following questions, either write a few words/sentence in the space provided or circle the letter that corresponds with what you believe to be the correct answer.

1. Roadside vegetation is considered valuable because it:
   (a) Is often the only remaining example of the original vegetation.
   (b) Is generally less fire-prone than introduced vegetation.
   (c) Often contains rare and endangered plants and animals.
   (d) All of the above.

2. Existing native vegetation will require less maintenance if:
   (a) It is regularly pruned or slashed.
   (b) It is left undisturbed.
   (c) It is visited on a regular basis.
   (d) All of the undergrowth is removed.

3. Disturbing the soil and healthy native vegetation:
   (a) Encourages weeds.
   (b) Can prevent natural regeneration.
   (c) Increases the risk of soil erosion.
   (d) All of the above.

11. Machinery and stockpiles are best kept:
    (a) On cleared land.
    (b) Hidden in the bush.
    (c) Under the protection of sheltering trees.
    (d) In areas specially cleared in advance of work starting.

12. Disturbing the soil and healthy vegetation increases the risk of the spread of soil-borne pathogens:
    (a) True
    (b) False

13. Avoid tidying up roadsides because shrubs, logs old or dead trees and small native plants are valuable for:
    (a) Firewood.
    (b) Beekeepers.
    (c) The landscaping industry.
    (d) Wildlife.

14. Machinery should *not* be cleaned down:
    (a) In the depot.
    (b) In watercourses.
    (c) At the end of a job.
    (d) On public holidays.

15. Which of the following is not included in the Environmental Code of Practice for Maintenance Workers:
    (a) Avoid mowing in native vegetation.
    (b) Locate firebreaks in bushlands to prevent fires spreading.
    (c) Locate stockpiles on land already cleared.
    (d) Minimise soil disturbance to avoid causing soil erosion problems.

16. Spoil from cleaning up table drains should be put:
    (a) Carefully into the road verge.
    (b) On private property.
    (c) At sites requesting fill material.
    (d) At the Council's current drain spoil disposal site.

17. Trees are best pruned:
    (a) Using whatever item of plant is considered appropriate at the site.
    (b) By careful and skilful manipulation of the grader/loader.
    (c) By 'target pruning' using chainsaws.
    (d) By contractors.

25. One advantage of direct seeding over using seedlings is that with direct seeding:
    (a) Large areas can be treated quickly and cheaply.
    (b) You don't have to worry so much about weed control.
    (c) You are bound to get better germination rates.
    (d) You can do the work at any time of the year.

Please forward your completed assessment to:

Richard McLellan
CY O'Connor College of TAFE
Hutt Street,
Northam WA 6401

Assignment:

> Choose a piece of roadside verge close to where you live or work. Use the information within the three Roadside Conservation manuals to help develop a plan designed to conserve or regenerate the verge. Include a photograph of the area in the plan.

The main body of the plan should consist of:

- **Aim** - the primary reason/s for the plan (eg: nature conservation, provision of a corridor, reduction of land degradation, etc)

- **Objectives** - how to achieve the aims (eg: to revegetate with seedlings and direct seed with species native to the area, to reduce weeds, etc)

- **Recommendations** - These will explain how the objectives are to be carried out and by whom (for example: windbreak of *Acacia saligna* to be planted along the fenceline by a farmer for fodder for his stock and as a wind and weed barrier for the roadside remnant)

The plan should also contain as much of the following as possible:

- an examination of who has ultimate responsibility for the area, and who is expected to implement your guidelines
- background to the area of roadside chosen for your plan, if available
- an assessment of the biological health and degrading influences on the area
- an assessment of the physical attributes of the area (soils, water, climate, vegetation type)
- maps of the area showing major features and degraded areas
- photographs of the existing vegetation (these are very important)
- if one objective for the area is to provide a wildlife corridor, the position of nearby remnants should be mapped
- the costs of the project and how these will be met (including any administration or on-going monitoring costs)
- a plan for monitoring and evaluating the project

Make sure you examine the examples of management plans which follow in this manual to give you an idea of what is required. The recommended text, Managing Your Bushland, would be an ideal resource for this assignment.