Roadside Vegetation Surveys

Mundaring

September 2007

The Task Ahead: Roadside Surveys

- ‘snap shot’ study of the condition of roadside vegetation.
- designed to allow people with or without botanical expertise to participate.
- left and right hand sides surveyed.

The information you record will help us to decide whether the roadside is...

High conservation value

Low conservation value

Overview...

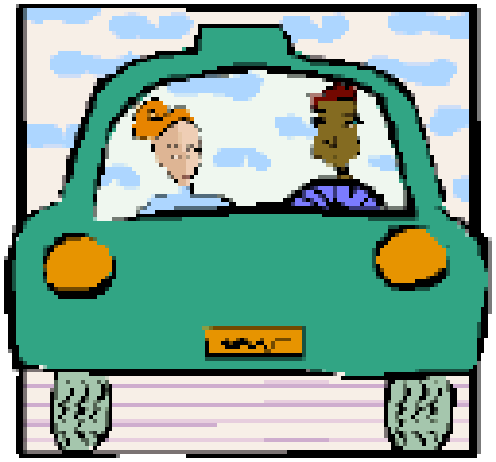
- ✓ An inventory of conservation values
- ✓ Useful for measuring changes over time
- ✓ Produces a map useful for landscape planning & management:

Weed control, Wildlife corridors,

Road works, Tourism,

Revegetation, Funding applications – NRM.

Roadside Surveys...

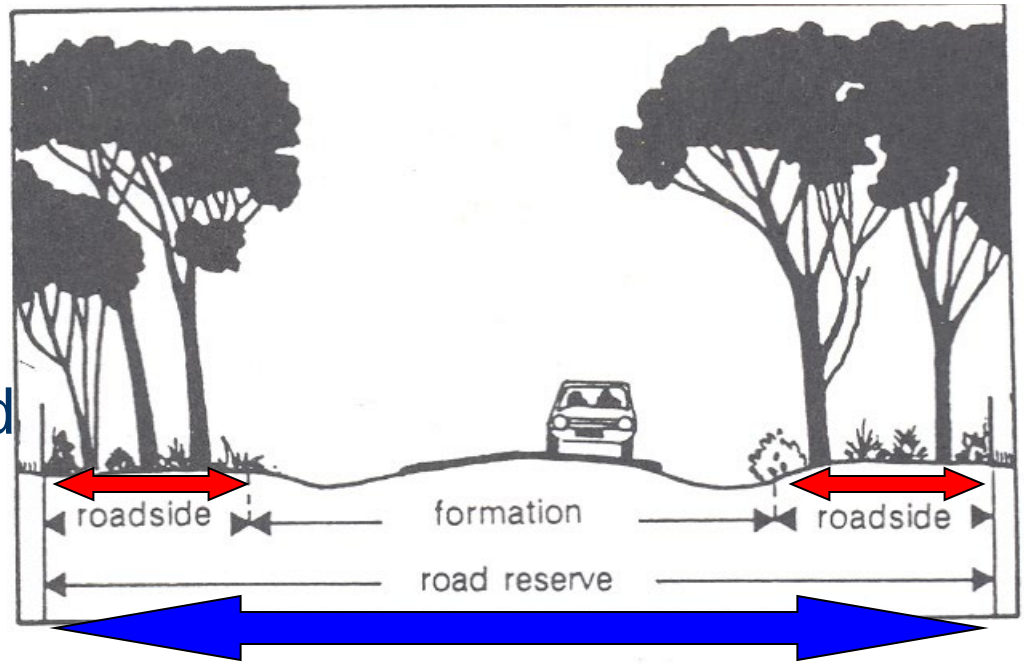


- **Survey procedure**
- **Roadside attributes and examples**

Where is the Roadside?

The road reserve:

- road surface;
- shoulder;
- drain;
- batter/back slope; and
- roadside.



The roadside:

This is the area from the back of the back slope to the fence line.

Survey is vehicle based...

- Best done with 2 people per vehicle:
  - **Driver (observe) and**
  - **Passenger (observe & record)**
- In most instances the survey can be done at approx. 30km/h.

Remember SAFETY FIRST when driving slowly or stopping.

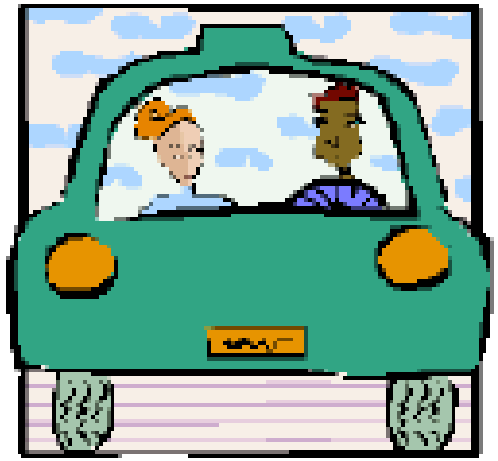
☞ *Average rate of survey is 20km of road per hour, so 100km = 5-6 hours.*

You will need...

Make sure you know your left from your right!

- ✓ checklist and map of roads
- ✓ pens/pencil, highlighter
- ✓ survey pack:
  - **iPAQ**
  - **User's Guide**
  - **Power chargers**
  - **Weed ID photos**
- ✓ a good sense of direction, you MUST indicate direction of travel and odometer readings

Survey Procedure...



Roadside surveys are done in ‘sections’ along the road.

This allows you to record changes in vegetation condition.

Survey Procedure...

- Always start the survey at an intersection
- At the start of the road, set your trip meter to 0.0
- Before you start driving, look at the roadside in front of you, record general details such as:
  - road name
  - your name
  - direction of travel
  - name of road at intersection

Survey Procedure...

- Drive slowly along the road.
- Start recording the roadside attributes for left and right hand sides (more about these later).
- Continue driving until the road ends or until there is a significant change in condition of roadside vegetation.

A Significant Change...

Some roadsides are uniform along their length, and so can be surveyed as *one section* from start to finish.

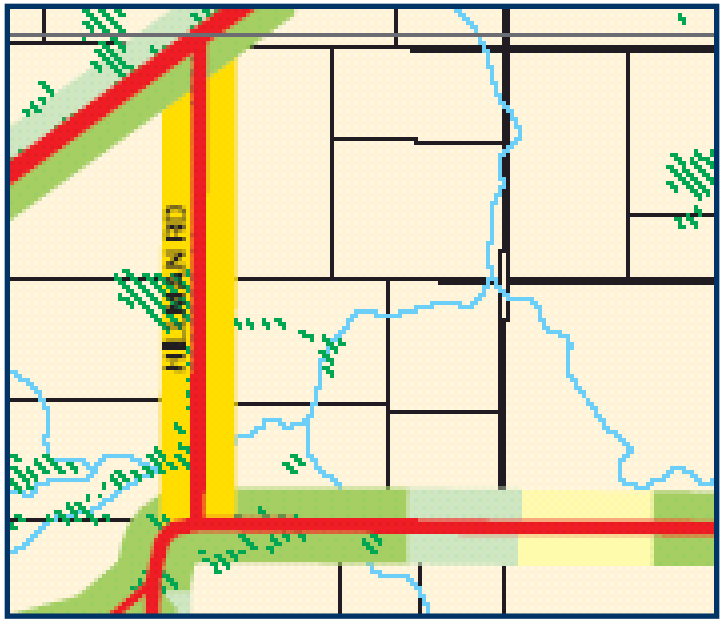
Other roadsides may be quite changeable. For example:

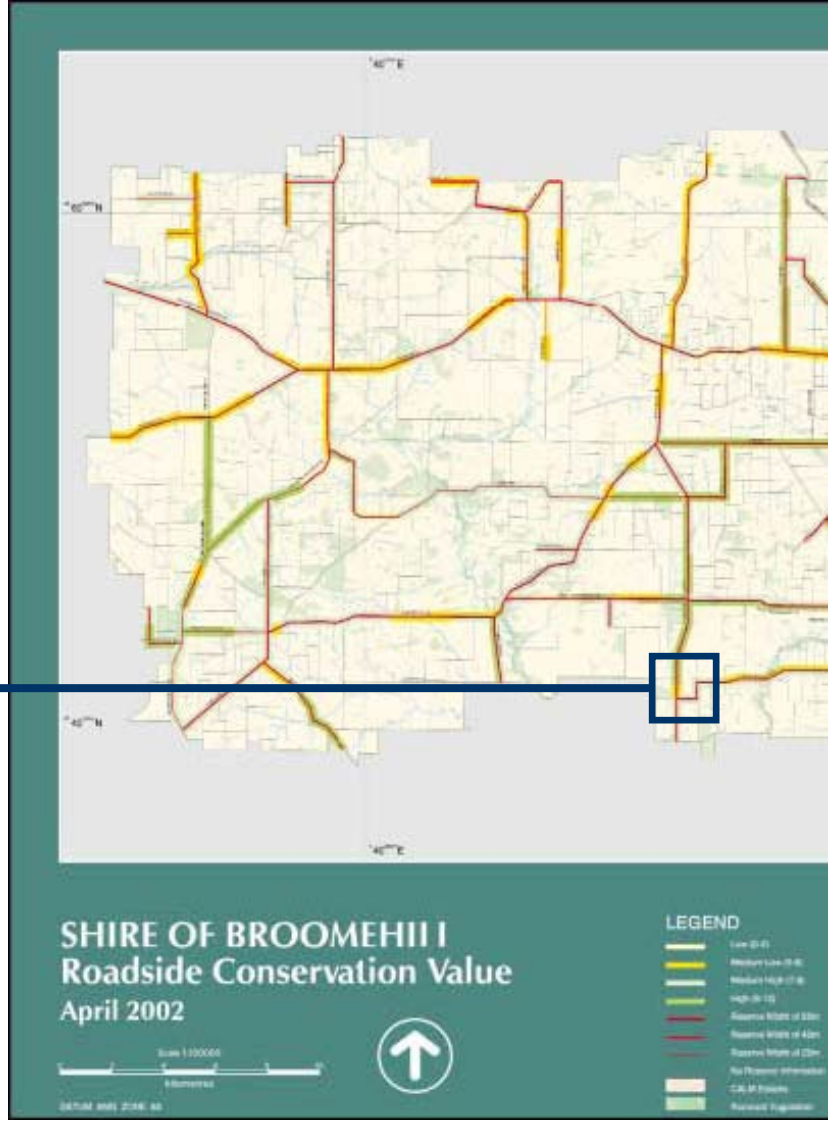
- ✓ adjoining landuse changes significantly, eg. from nature reserve to farmland;
- ✓ quality of roadside vegetation changes significantly, eg. from mostly native to mostly weeds.

Changes may occur on only one side or both sides of the road.

Ignore small changes, i.e. less than 200m along the roadside.

Changing Sections





See how the colour (conservation value) changes along this road…?
Each coloured ‘section’ reflects when they started a new survey section.

Changing Sections Procedure...

1. Note the odometer reading at change over point, this will give the length of Section 1 of the road.
2. Section 2 will continue until another marked change is observed, when section 3 will begin, etc.
3. Each subsequent section is numbered accordingly for this road (1,2,3,4 etc).

☞ *Please note down the odometer reading at any side roads you pass. This is very useful when mapping and checks the accuracy of your odometer!*

Quick Refresher...

1. Would you start a new survey section if the:
   - weed cover increased/decreased dramatically?
   - adjoining land use changed from farmland to nature reserve?
2. Changes under ?? metres should be ignored?
3. Do you start a new section if the ‘change’ only occurs in one side of the road?

There are 10 roadside attributes to record ...

- Width of road reserve;
- Width of vegetation on left and right sides;
- Structure of native vegetation;
- Extent of native vegetation;
- Number of native plant species;
- Value as a biological corridor;
- Degree of weed infestation;
- Nominated weeds;
- Adjoining land use; and
- Presence of utility (eg. water, power).

1. Width of Road Reserve

Historically, road widths were measured in chains (20.1m).

Select the width of the road reserve: 0, 20, 40, 60, 80, 100m.

2. Native Vegetation on Roadsides

Most native vegetation communities have more than one distinct layer.

The Jarrah forest often has an upper (tree) layer, mid (shrub) layer & a ground layer.

If one or more of the layers is missing, the conservation value of the area is reduced.

2. Native Vegetation on Roadsides

Record whether the roadside contains a native tree, shrub and/or ground layer.

NATIVE VEGETATION ON ROADSIDE

	Left	Right
Tree	☑	☐
Shrub	☑	☐
Ground	☑	☐

HEIGHTS

Tree = More than 3m tall

Shrub = Between 1m and 3m tall

Ground Cover = Less than 1m tall

3. Extent of Native Vegetation

Is the native vegetation continuous along the road section, or interrupted by weeds or other disturbances? e.g, fire, soil, rubbish, stockpiles.

EXTENT OF NATIVE VEGETATION ON ROADSIDE

	Left	Right
Less than 20%	☐	☐
20 - 80%	☑	☐
over 80%	☐	☐

4. Number of Native Species

This is a measure of the diversity of the native vegetation.

Make an average estimate along the length of roadside. It does not have to be done in detail.

No. OF NATIVE SPECIES	Left	Right
0 - 5	☐ ✓	☐ ✓
6 - 19	☐	☐
0VER 20	☐	☐

5. Weeds

Estimate average ‘weediness’ over the section being considered.

It should be estimated as a percentage of total plants along the section.

RIGHT: majority of the total plants are weeds

5. Weeds

RIGHT: Ground layer totally weeds

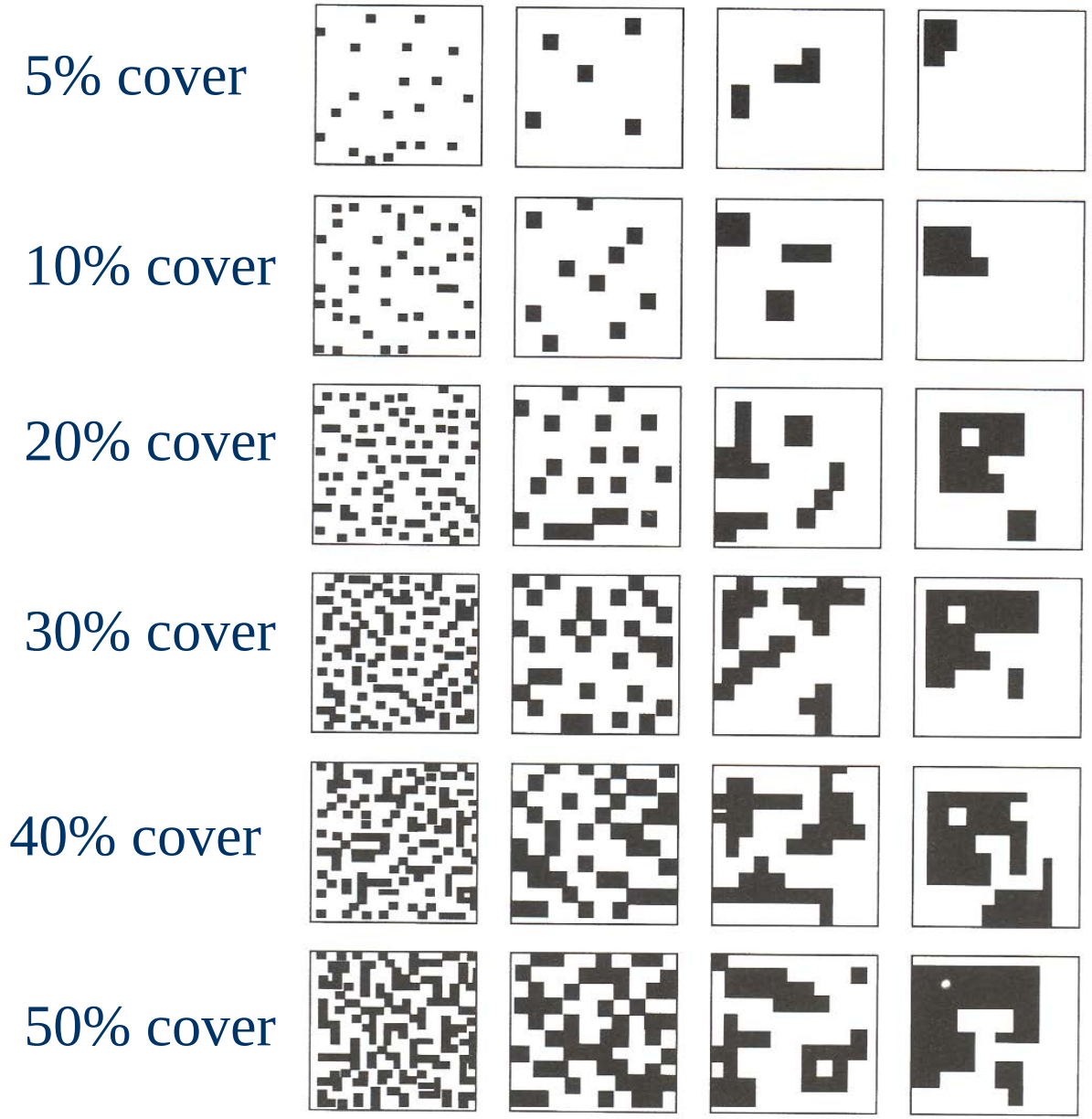
LEFT: Few weeds

WEEDS

	Left	Right
Few weeds (<20% total plants)	☑	☐
Half weeds (20 - 80% total)	☐	☐
Mostly weeds (>80% total)	☐	☐
Ground layer totally weeds	☐	☑

5. Weeds

Weeds may be clumped, or spread out within the road section.



Bayley, D (2001) Efficient Weed Management. NSW Agriculture Paterson NSW.

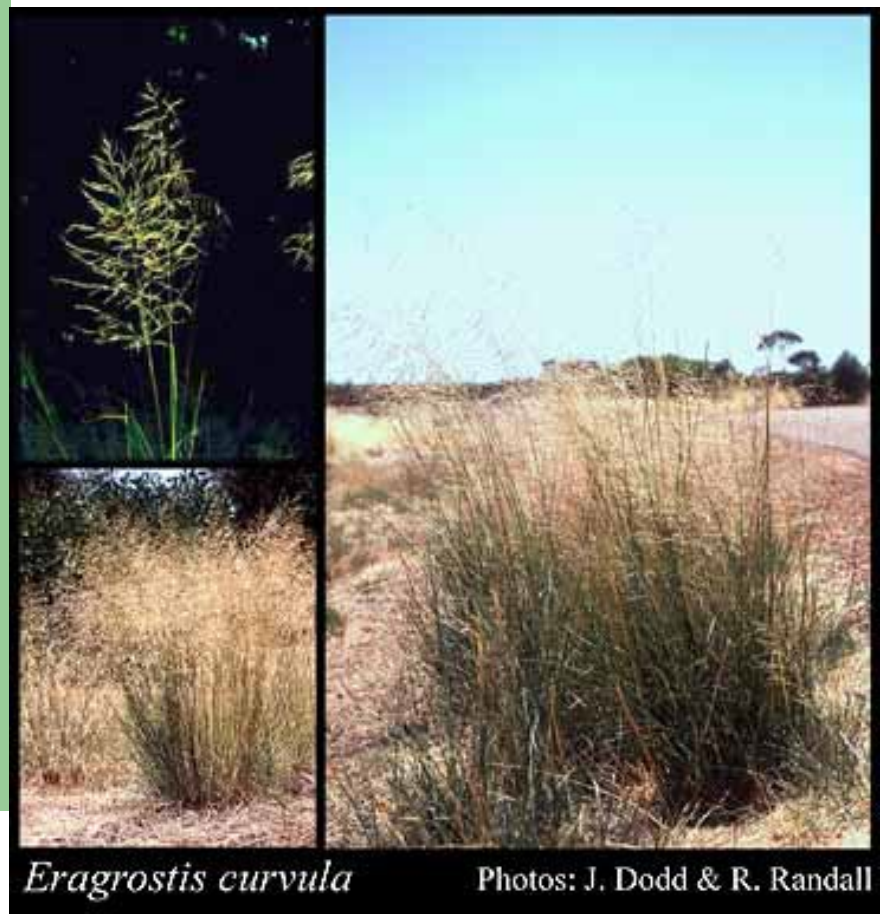
6. Nominated Weeds

Record roadside populations of these 6 weeds:

- African lovegrass
- Bridal Creeper
- Flaxleaf Broom
- Flinders Range Wattle
- Tagasaste
- Watsonia

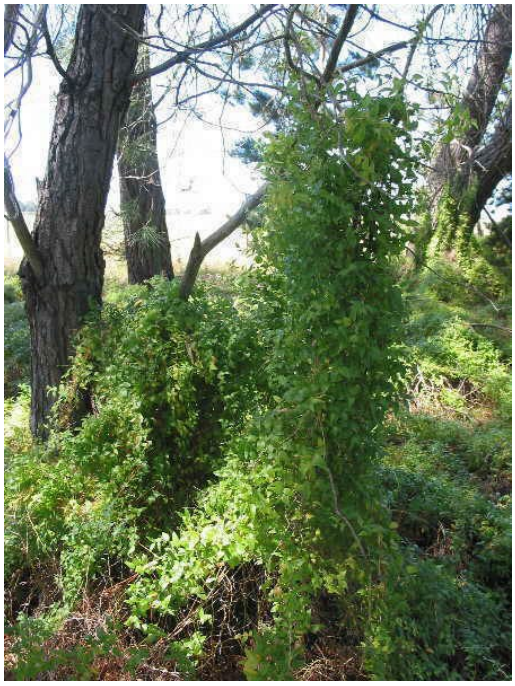
African Lovegrass (*Eragrostis curvula*)

A large, tufted perennial to 1m tall, with greyish-green, often inrolled leaves. The inflorescence is an open or contracted panicle of greenish-purple (or blackish) flowers, to 40cm long. Flowers during spring and summer. Native to South Africa



Bridal Creeper (*Asparagus asparagoides*)

Declared as a Weed of National Significance, Bridal Creeper is a climber with wiry stems, sprawling aggressively for several hundred metres, often climbing quite high into trees. Has heart shaped leaves up to 7cm long, and may have small white flowers occurring along the stems. Small, green pea-sized berries may also be present.



Flaxleaf Broom (*Genista linifolia*)

Forms a dense rounded shrub to 2m tall. The leaves consist of 3 narrow leaflets, their undersurface covered with silky hairs. Bright yellow flowers are produced in compact terminal clusters in spring. Native to the Mediterranean.

Flinder's Range Wattle (*Acacia iteaphylla*)

A dense shrub to 4m high, it is one of the earliest wattles to flower. Its leaves (phyllodes) are grey-green, to 14cm long, narrow with one prominent vein. Flower heads are globular, lemon-yellow, in small sprays from the leaf axils. It is a garden escape from the Perth area.

Tagasaste (*Chamaecytisus palmensis*)

A large shrub or small tree up to 5m high with weeping branches and greyish green, soft hairy foliage. The leaves are divided into 3 oval leaflets each 10-45mm long. The scented, white to cream pea flowers are 12-17mm long and occur in showy clusters, appearing in winter and early spring. The seed pod is flat, 40-50mm long and 8-12mm wide. Native to Canary Islands.

Chamaecytisus palmensis Photos: S.M. Armstrong

Watsonia

Tufted herbs with erect, sword shaped leaves to 1m high in length which are produced annually from a corm. The flowering spike is usually unbranched up to 2m high with many trumpet shaped flowers. Native to South Africa

7. Value As a Biological Corridor

In cleared areas, the road reserve can be very important as a corridor, allowing the movement of fauna – especially birds – enabling them to seek out feeding and nesting areas.

VALUE AS A BIOLOGICAL CORRIDOR

	Left	Right
Connects uncleared areas	☐	☐
Flowering shrubs	☐	☐
Large trees with hollows	☑	☐
Hollow logs	☐	☑

8. Utilities

Electricity, power lines and pipelines often built in roadside.

To construct and maintain them, the roadside vegetation may be destroyed. Their presence may be detrimental.

UTILITIES	Left	Right
Utility Absent	☐	☐
Utility Present	☑	☑

TYPE		
Water	☐	☐
Electricity	☐	☑
Gas	☐	☐
Telecomm.	☑	☐

9. Width of Vegetated Roadside

This is a measure of how much vegetation/land is left along the roadside. With practice, it is easy to recognise the width categories.

WIDTH OF VEGETATION ON ROADSIDE

	Left	Right
1 - 5 m	☑	☐
5 - 20 m	☐	☑
over 20 m	☐	☐

10. Adjoining Land-use

Different land uses have different impacts on the roadside.

Road reserves are most valuable as conservation areas where they act as a corridor of remnant vegetation in an otherwise cleared landscape.

Record the *predominant* adjoining land use.

10. Adjoining Land-use

ADJOINING LAND USE	Left	Right
Agricultural crop or pasture		
- completely cleared	☐	☑
- scattered	☐	☐
Uncleared land	☑	☐
Plantation of non-native trees	☐	☐
Urban or industrial	☐	☐
Railway Reserve	☐	☐
Drain Reserve	☐	☐
Other	☐	☐

10. Adjoining Land-use

scattered

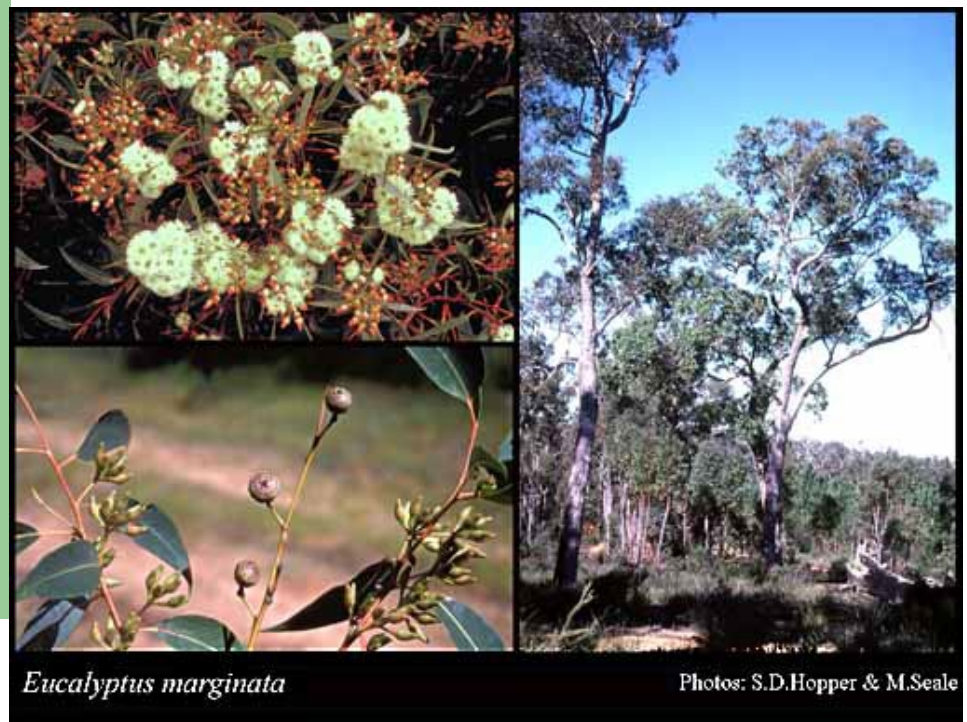
plantation
non- native

completely
cleared

Wildcard Attribute

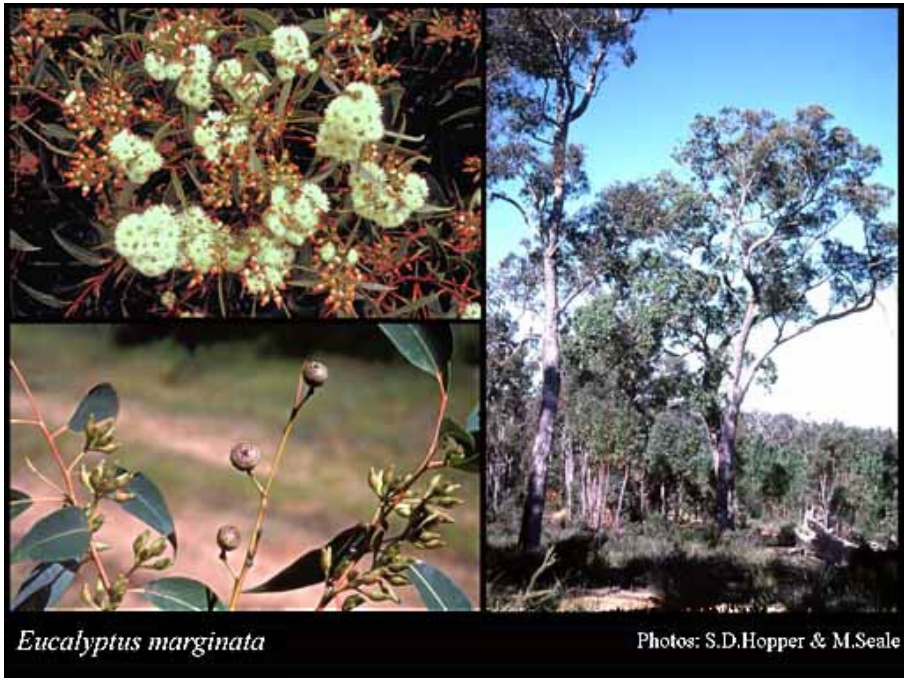
Habitat Trees

These are those big old trees where you can see hollows or nests. Please take special notice of these trees, and record them as 'Present' or 'Absent'. If you spot a Jarrah habitat tree, also note it down in the 'Comments' tab on your iPAQ.



Jarrah (*Eucalyptus marginata*)

- Up to 30m high, with rough, fibrous bark.
- White, cream or pink flowers appear from June to January
- Smaller sized nuts compared to Marri tree's 'honkey-nuts'.



Why do we need this data?

Dieback fungus, *Phytophthora cinnamomi*, is having a huge impact on our Jarrah forest. To stop it killing the Jarrah trees that are important for habitat, the Shire of Mundaring may look into applying phosphite injections to increase the tree's resistance to the fungus.

Using the iPAQs...

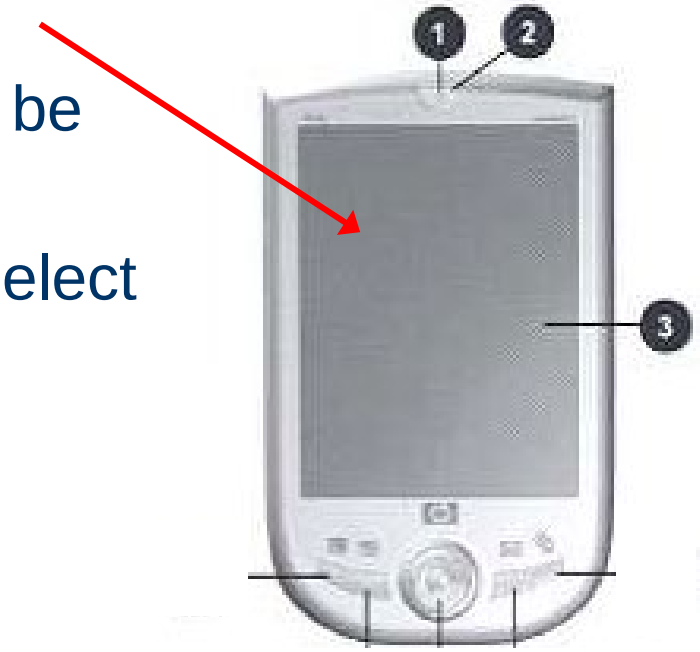
Getting Acquainted...

1. Power: press & hold to turn screen on & off
2. Amber flash = battery charging
   Amber solid = battery charged
3. Display screen
4. Stylus pen: slide up to remove, slide down to store

Getting Acquainted...

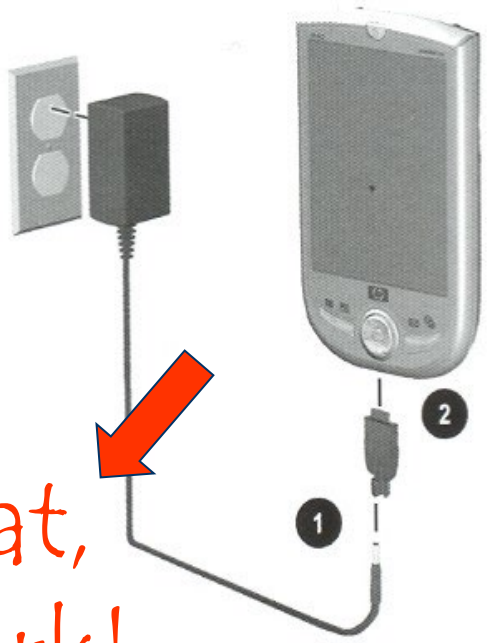
Use the stylus pen to tap or write on the screen.

- ✓ The screen is sensitive, so be careful with your fingers...
- ✓ Simply ‘tap’ the screen to select open an item.
- ✓ Tapping is like pressing a keyboard key.



Charging the iPAQ…

- Make sure the iPAQ is fully charged before use, and charge again at the end of each day. Approx. 4 hours.



If the battery goes flat, you will lose your work!

To protect your work...

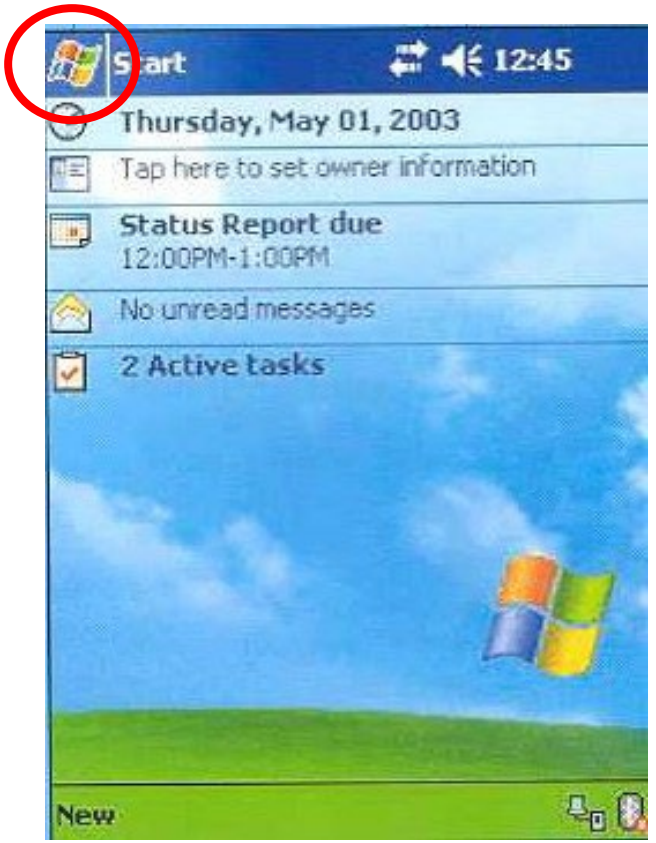
- A program *(Sprite Backup)* saves your information onto a memory card daily at 5pm. If you are using it at this time, you may need to follow the prompt and tap ‘OK’.

- Automatically backs up if battery is low. Press ‘OK’ if prompted to do this.

Getting Started

1. Turn the iPAQ on.

2. Using the stylus pen, tap this icon: (top left corner, next to the word ‘Start’).



3. Select ‘**RCC survey’**.

The program may take a few seconds to start up.

Make sure the device is fully charged.

Starting the Survey

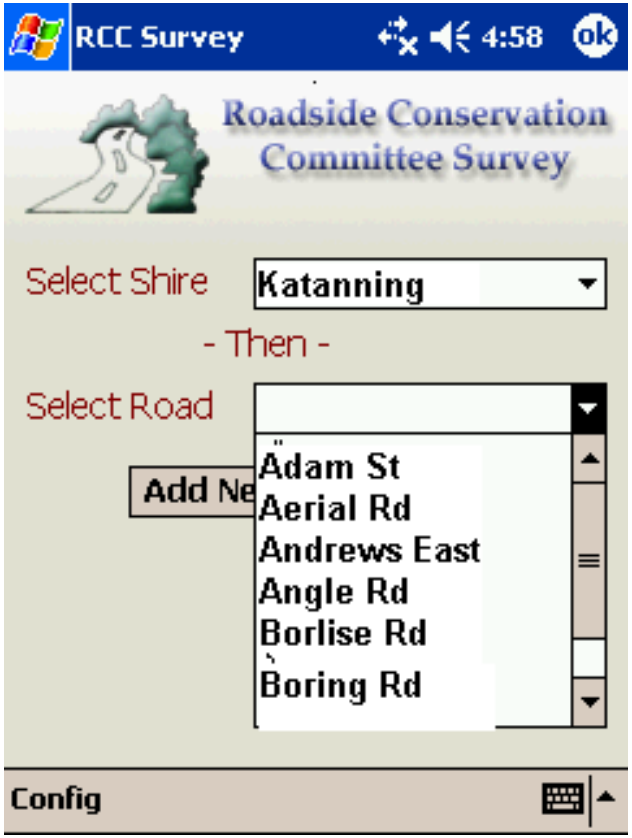
1. Select the name of the **Shire** from the drop-down menu.

2. Select the name of the **road** you are going to be surveying: Test Rd 1

If a road is not listed, select '**Add New Road**'. In the space provided, type the road name. Press **OK**.

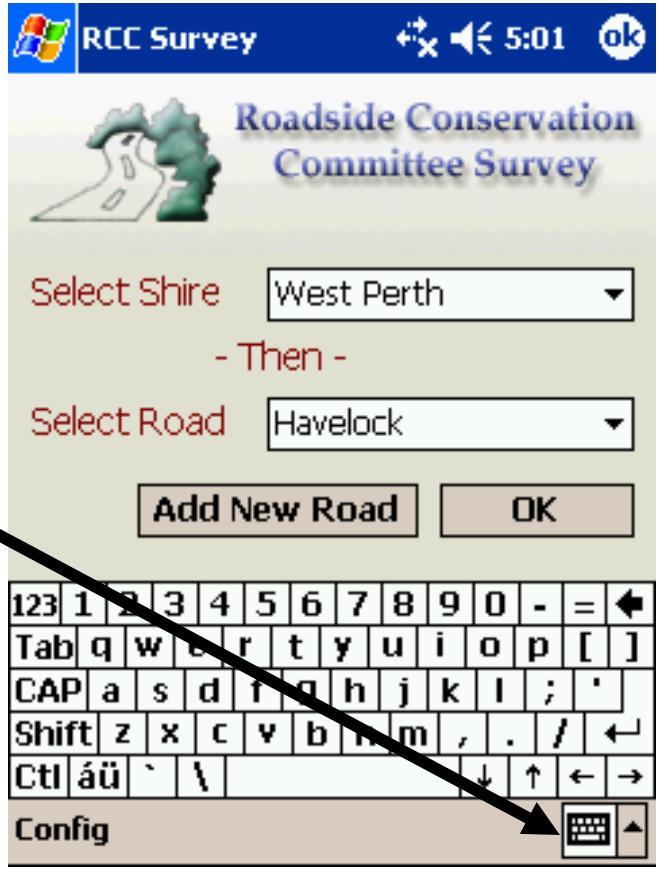
3. You are now ready to begin the roadside survey for the selected road.

Tap 'Start'.



Starting the Survey

- There is a keyboard you can use for typing in details.
- It is located at the bottom right corner of the screen.



Details

Record the following:

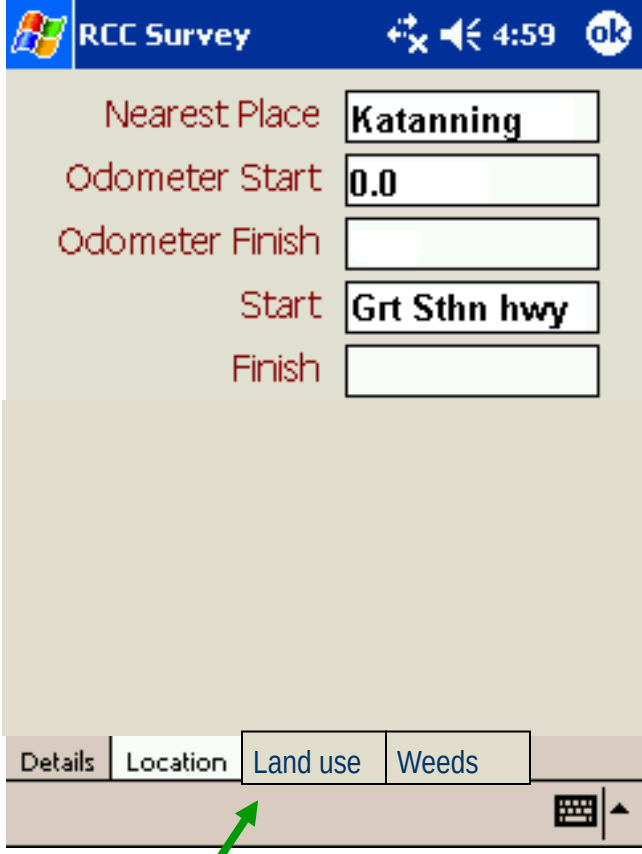
- **Section** number (1,2,3,etc)
- **Observer**
- **Date**
- **Width** (m)
- **Direction**

Go to the next tab, named **Location**.

Location

Record the following:

- **Nearest Place**
- **Odometer Start** (eg. 0.0)
- **Odometer Finish** (eg. 5.6)
- **Start:** start point, eg. Grt Sthn Hwy
- **Finish:** finish point, eg. Boundary Rd



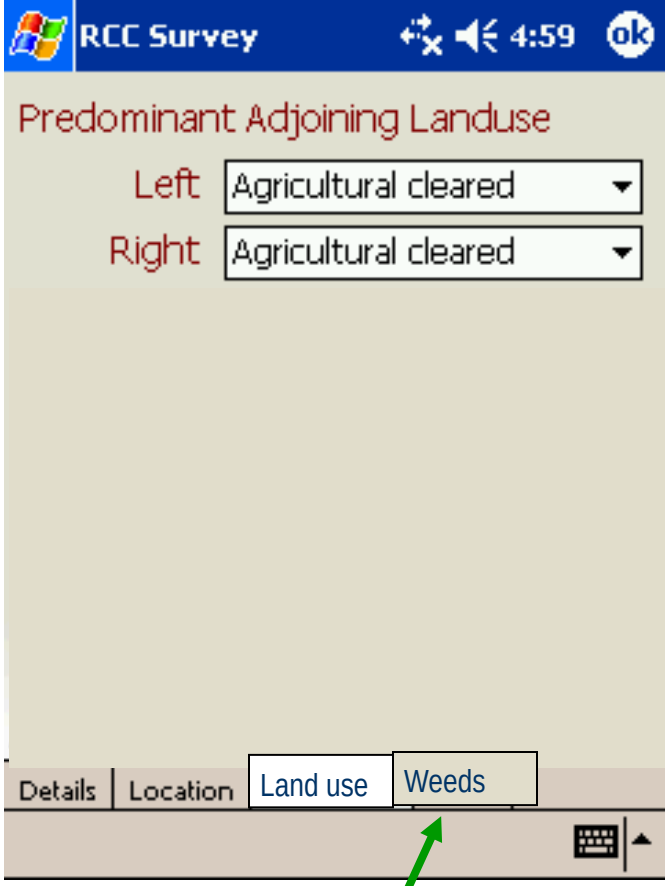
You will need to come back to this page later to fill in Odometer finish and Finish point.

Go to the Land use Tab

Land use

Record the:

- **Predominant Adjoining Landuse:** select the dominant land use from the drop-down menu.
- Remember to record both the left and right sides.

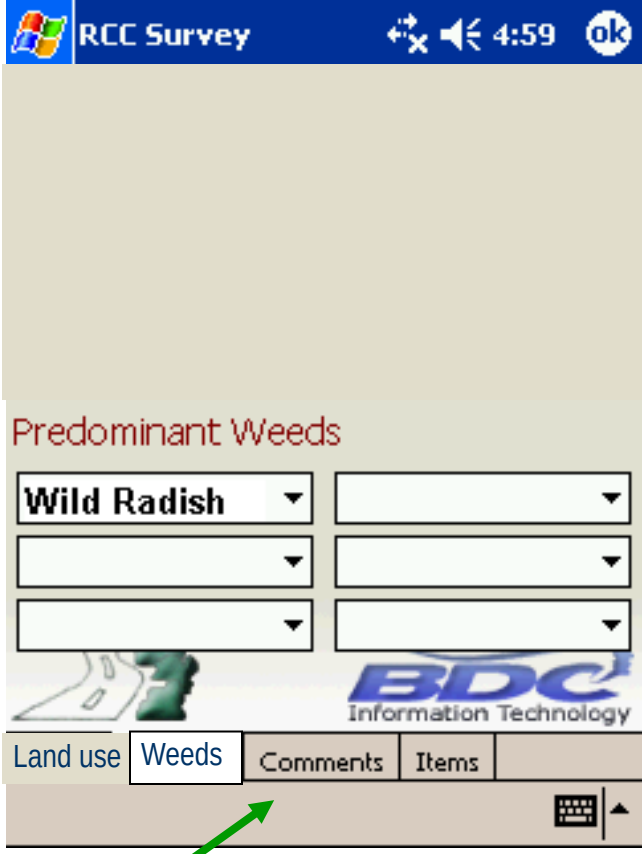


Go to the next tab, named **Weeds.**

Weeds

- **Predominant Weeds:** record the presence of 6 pre-determined weed species. Select from drop-down menu.
- African Lovegrass, Bridal Creeper, Flinder's Range Wattle, Flaxleaf Broom, Tagasaste and Watsonia
- Leave blank if not present.

Go to next tab, **Comments.**



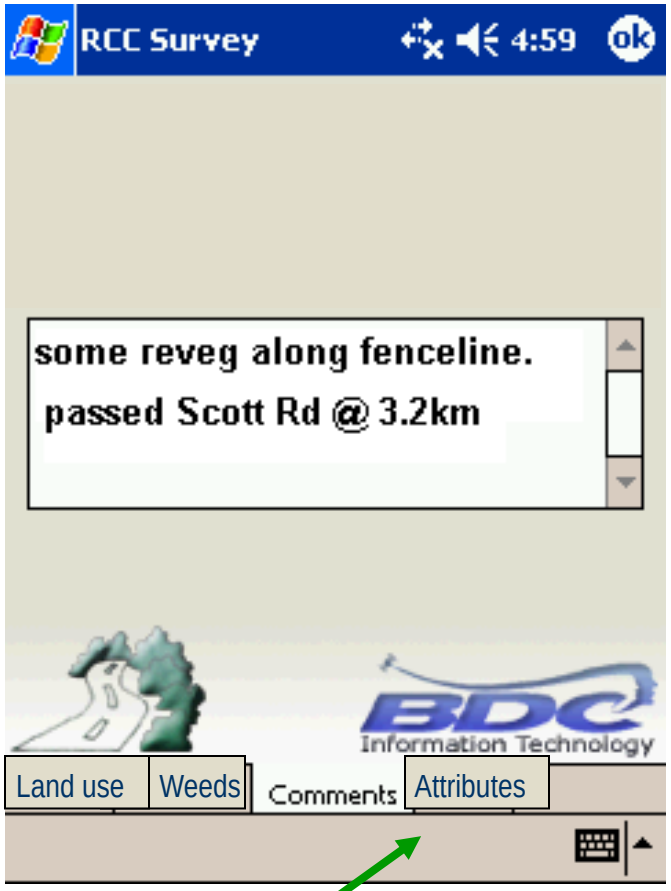
Comments

Comments: you may like to enter other details.

- Please note down any side roads and the odometer reading. This helps greatly in the GIS map production.

Special Request: If you see a ‘Habitat Tree’ that is a Jarrah, Please write it down in this section.

Go to the next tab, named **Attributes.**



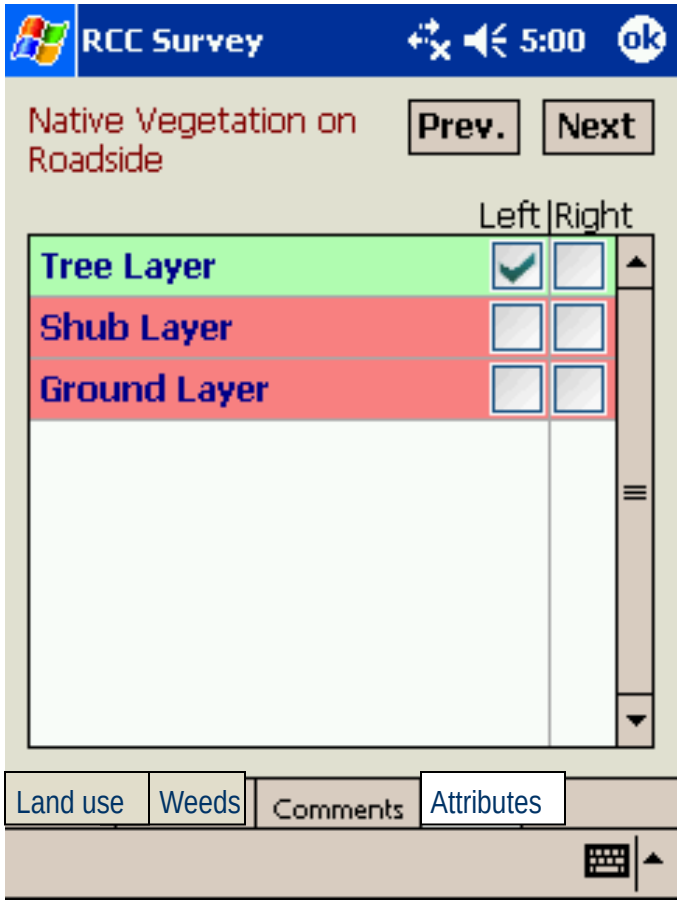
Attributes

Record the **8 roadside attributes** that, when combined, make up the roadside conservation value.

Record the left and right sides independently.

The options will change from red to green, indicating that you have made a selection.

Press **Next** once all options have been changed to green**.**



Attributes

Tick the box if present and press ‘Next’.

Record the other 7 attributes…

Finishing the Section

- The last attribute page will be ‘Habitat Trees’. Press **Next**.
- You will receive an error message:

  “*Please go back and fill in the Odometer Finish field. Go to the Location tab.”*

  Press ‘ok’.

- Continue driving along the road until there is a significant change, or until the road ends.
- When this happens, pull over or slow down, enter the **Odometer Finish** and **Finish** point on the **‘Location’** page.

Next, go back to the **‘Details’** page.

Finishing the Section

On the **Details** page select either:

- **Change Road:** to begin surveying a new road; or
- **Next Section:** if you are still on the same road, and have to start surveying a new section.

Roadside Surveys

- Roadside survey groups/teams.
- Volunteer forms filled out…?
- Map of Shire.

Concurrent Sessions...

- A: groups of 4 to go for practice run (20 mins);
- B: others plan their survey teams and roads, mark onto a central map, and organise roster for using/sharing iPAQs.

Review

- Survey procedure;
- Roadside survey attributes;
- Using the iPAQs;
- Survey teams and allocated roads;
- Roster to share iPAQs;
- Other questions…

Thank-you…

For further information please contact

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Roadside Conservation Committee

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