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Report 62**

**Roadsides
Landholder Engagement Program**

Catherine Allan

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Report prepared by:

Dr Catherine Allan
Senior Lecturer, Environmental Sociology and Planning
School of Environmental Sciences
Charles Sturt University
PO Box 789
Albury NSW 2640
Ph: 02 60 519781
Fax: 02 60 519897
callan@csu.edu.au
<http://www.csu.edu.au/faculty/science/ses/staff/allan.htm>

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Introduction

This report presents an evaluation of the Landholder Engagement Program developed and implemented in 2010 by the Indigo Shire and the Rural City of Wangaratta with the aim of enhancing the quality of roadside vegetation in their jurisdictions.

Australia's rural road network facilitates transport of people and products and enables access for infrastructure, but roadsides are about more than just transport. There is growing recognition that roadsides with significant remnant native vegetation also form corridors that provide refuge for native fauna and flora (see for example Breckwoldt, 1990; Spooner, 2005). Anecdotal evidence also suggests that roadsides may be viewed by adjoining landholders primarily as a source of pest plant and animals, and as a fire hazard. The responsibilities for managing roadsides are not clear, as they are a physical and jurisdictional interface between public and private space. The North East Catchment Management Authority Regional Catchment Strategy highlights the need to assess and protect areas such as roadsides and creek lines in the Lower Kiewa and Lower Ovens area.

Guided by the Regional Catchment Strategy, in 2009 Indigo Shire and the Rural City of Wangaratta developed a pilot project that trialled the development of a targeted information program. The Pilot Roadside Partnership Program focused on personal skills training for landholders with vegetated roadsides in the Boorhaman, Rutherglen and Brimin areas. The Pilot Roadside Partnership Program confirmed the complexity of purpose and use of roadsides, and the conservation and other benefits of a targeted one-to-one extension program with landholders (Allan, 2009).

Recommendations from the Pilot Roadside Partnership Program included that the trialled information approach of personalised skills training be used in similar projects elsewhere in the area. Based on these recommendations the Landholder Engagement Program was developed, funded and implemented in 2010 on a wider network of roadsides in the Indigo Shire and Rural City of Wangaratta areas. The project, including this evaluation, was funded by the Victorian Local Sustainability Accord and the Sustainability Fund.

For the 2010 Landholder Engagement Program Rick James, a respected local ecologist, was engaged by the Indigo Shire and Rural City of Wangaratta to manage and deliver skills training to interested landholders with suitable roadsides. Charles Sturt University was engaged to evaluate the program, using the questionnaire developed for the pilot program, and with approval from the University Human Research Ethics Committee.

The Landholder Engagement Program 2010

Within the Lower Kiewa and Lower Ovens areas the program targeted areas where there has been change in ownership or landuse within the past three years. These included the Staghorn Flat, Allan's Flat, Osborne's Flat, Indigo Valley areas in the Indigo Shire, and the Eldorado, Everton, Byawatha and Londrigan areas of the Rural City of Wangaratta.

The program is based on Expressions of Interest from landholders in targeted areas. Everyone with roadside vegetation who expressed interest received a roadside inspection visit by Rick James, the ecologist contracted to the project.

The length of the visit varied depending on situation; the average visit took around two hours, with some taking up to half a day (Rick James, pers comm.) The roadside visit was followed with a report that summarised the information discussed during the visit. A copy of the report proforma is provided in the Appendix.

The visit and the report were customised to the particular roadside and manager, but were based on:

- What the original (pre European) vegetation community in the area have looked like (based on the Victorian system of Ecological Vegetation Classes)

- How the current vegetation compares with pre European
- The importance of the roadside vegetation with respect to the wider landscape
- The past management of the roadside area
- The management issues raised by the landholders e.g. problems that may be affecting the roadside
- Possible causes of identified problems
- Some management suggestions for the future

Existing written management information from the Shire was also presented to participants where it was relevant and/or requested.

The evaluation method

Evaluation can attempt to explain many different aspects of a program or project- what outcomes occurred and why, how well specified activities were undertaken, the ultimate value of the activity, and what could or should be done in light of the evaluation findings (New South Wales Dept. of Environment and Climate Change, 2009). The evaluation presented in this report has what Cook and Shadish (1986) call a 'stakeholder service' focus, in that it aims to create practical information for users, rather than develop theory or widely generalisable recommendations. Articulating the logic is a common beginning point for this type of evaluation as it enables causal assumptions embedded in the project to be understood (Cummings, 2006).

Based on discussions with the project managers during the pilot and subsequent implementation, the logic of the project is:

- Roadsides are valuable for flora and fauna, but that value appears to be less recognised by adjacent landowners than other issues such as pests and fire danger
- Landholders may not be aware of the ecological components of their roadsides or how to manage them
- Showing landholders what native flora and fauna use their actual patch of roadside, and putting that into ecological context, will enhance their understanding of the road reserve
- Enhanced understanding of the road reserve will lead to changes in the way the road reserve is perceived/valued by the adjacent landholder
- Changes in how the roadside is perceived/valued will lead to changed, or maintained, management behaviours in keeping with the goals of the Regional Catchment Strategy
- Providing site specific management suggestions will enhance individual's capacity to change to or maintain ecologically sound behaviour.

To evaluate the program the project managers, with guidance from the author of this report, chose to measure whether the approach taken in this project led to adjacent landholders

1. Being more aware of the components of their roadside
2. Changing the way they perceived the roadside

It was not considered possible to measure changes in behaviour in the time frame of the pilot project, but some attempt to gauge intent to change behaviour was made for the 2010 program.

Questionnaire design

A quantitative approach to the evaluation was considered most appropriate in this case because the aim was to measure change in understanding, perception and behavioural intent of the target population. The main evaluation instrument used was a "before and after" questionnaire, i.e. before and after the roadside visit and report by the project ecologist. The questions were developed from conversations between the project managers and the author of this report, drawing on the design guidelines of Sarantakos (2005), and were tested in the pilot program (Allan, 2009). The full questionnaires are included in the Appendix of this report.

The first question on both the before and after questionnaire asked participants to rate the quality of their roadside on a three point scale – high, moderate or low, with a ‘don’t know’ response also possible. In the “before” survey this was followed by two questions which asked participants to mark listed activities if they, or anyone else, had undertaken them on their roadside in the past three years.

The remainder of both before and after questionnaires consisted of two scaled questions. One asked participants to indicate their degree of understanding about a list of topics, as exemplified in Figure 1.

A number of topics are listed below. Please circle the number that best reflects your assessment of your knowledge on these topics					
	Expert	Much knowledge	Some knowledge	A little knowledge	No knowledge
Identification of native groundcovers	1	2	3	4	5
Threatened species in this district	1	2	3	4	5

Figure 1. Section of question with knowledge statement scale

The other question presented a number of statements, and participants were asked to indicate their degree of agreement or otherwise with the statement. For this question a “don’t know” response was included (see Figure 2).

Below are a number of statements. Please circle the number that most closely represents your response to each of these statements in relation to the roadsides that you have included in this project.						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	don't know
The vegetation on my roadside is similar to that found on many roadsides in this district	1	2	3	4	5	<input type="checkbox"/>
My roadside provides habitat for native birds and other native animals	1	2	3	4	5	<input type="checkbox"/>

Figure 2. Section of questionnaire with perception statements

There was also space provided in the questionnaire for participants to write comments if they chose.

The project participants were asked to complete the questionnaires anonymously to increase the accuracy of the results and reduce the potential discomfort associated with being “tested” on their individual knowledge and perceptions.

Questionnaire administration

Before the visit from the ecologist, Rick James, all project participants were sent the “before” questionnaire in paper format. Participants were requested to complete the questionnaire before the site visit, and hand it, sealed in the envelope provided, to Rick. Rick forwarded the completed questionnaires, unopened, to Charles Sturt University. Within two months after their on-site roadside visit the participants were sent the “after” questionnaire. Participants were this time asked to return the completed questionnaire directly to Charles Sturt University via the stamped addressed envelope supplied with the questionnaire, as per Dillman (1978).

Evaluation results

It is assumed that if there is a difference between the results of the two questionnaires at least some of that change may be attributable to the on-site roadside visit. This evaluation sought anonymous responses, so the findings presented below relate to the population, rather than individuals within that population.

A total of 27 questionnaires were completed before the on-site visit (100 % return rate) and 22 post intervention surveys were returned (82% return rate).

Activities on roadsides

To learn about the range of activities occurring on roadsides in the district project participants were requested to note if any of the listed activities had occurred on their roadsides in the past three years, and to indicate if these were undertaken by them in their capacity as adjoining landholders, or by other people. The responses from the 27 respondents to this question are summarised in Figure 3, with numbers relating to activities that occurred, rather than the level of occurrence.

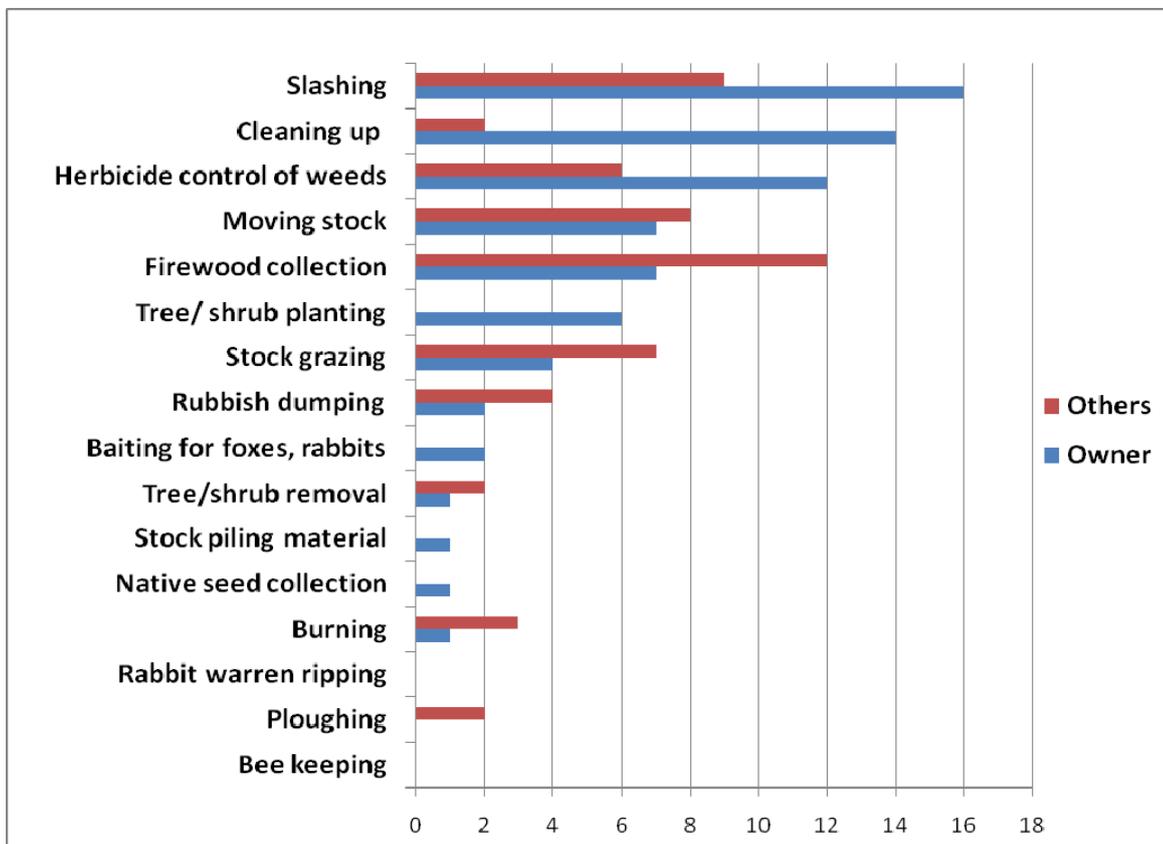


Figure 3. Activities noted as being carried out on the selected roadsides in the 3 years prior to visits

Some participants took the opportunity to add comments below this question:

Own activities

- Picked up litter
- Dug out weeds
- Removed fallen trees
- Grass cutting
- Mowing
- Manual control of weeds

Other peoples' activities

- Littering. Council roadworkers destroying vegetation by parking graders and ploughing drainage lines into the shrubbery. Road workers leaving piles of old road bitumen.
- Grass cutting
- The firewood collection was by persons unknown
- Mowing
- Rubbish dumping was by a neighbour
- Neighbours move stock often

Self assessed knowledge and perceptions

As noted above, all other questions in the questionnaire were asked twice, once before and once after the on-site visit, allowing exploration of the difference, if any, between the population scores before and after the visit and report. Data such as these can be assessed visually by graphing the means (expressed as a percentage) for each question before and after the visit. For example Figure 4 shows an apparent shift to the right, suggesting that population assess their roadsides as more aesthetically pleasing after the visit.

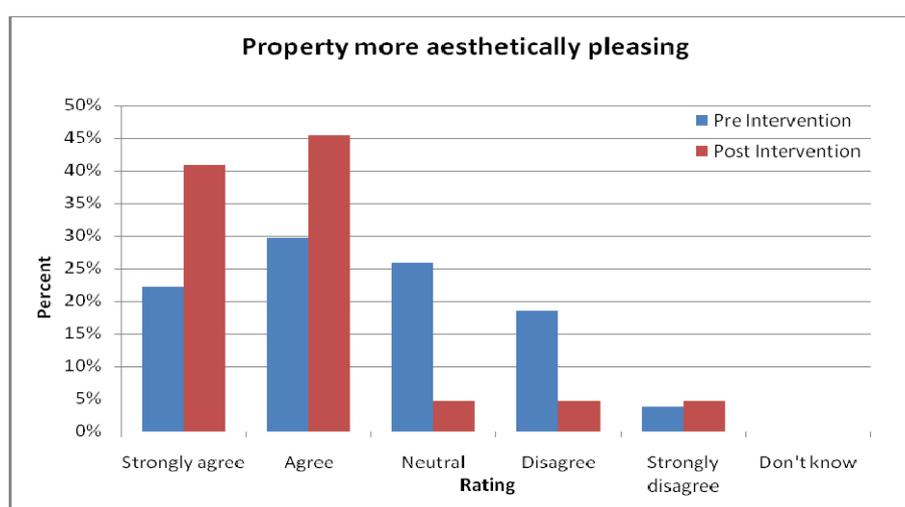


Figure 4. A visual representation of the before and after responses to the statement “My roadside is more aesthetically pleasing because of the vegetation on my roadside”

However, most visual representations of the results are more difficult to interpret. For example, it is difficult to make a judgment about the population response in Figure 5.

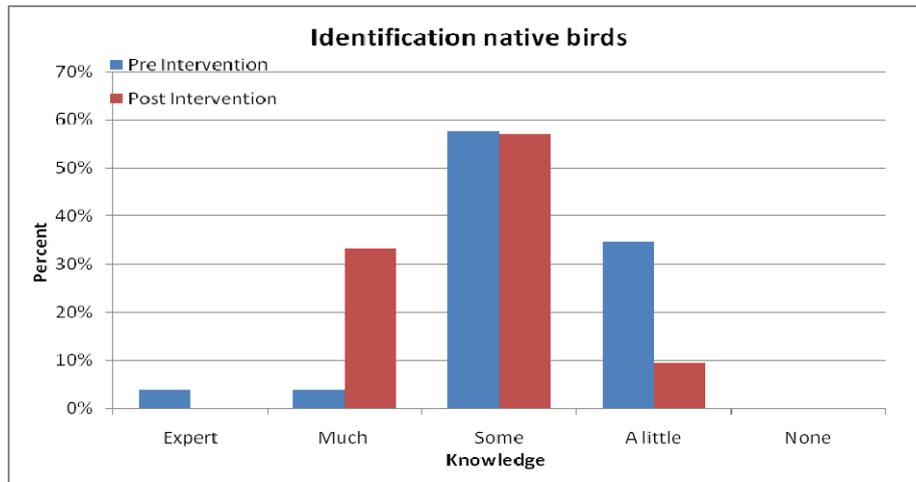


Figure 5. A visual representation of the before and after assessment of knowledge on the topic “identification of native birds”

A graph such as that presented in Figure 6 is even more difficult to interpret, so statistical analysis is preferred, in this case the Wilcoxon-Mann-Whitney test.

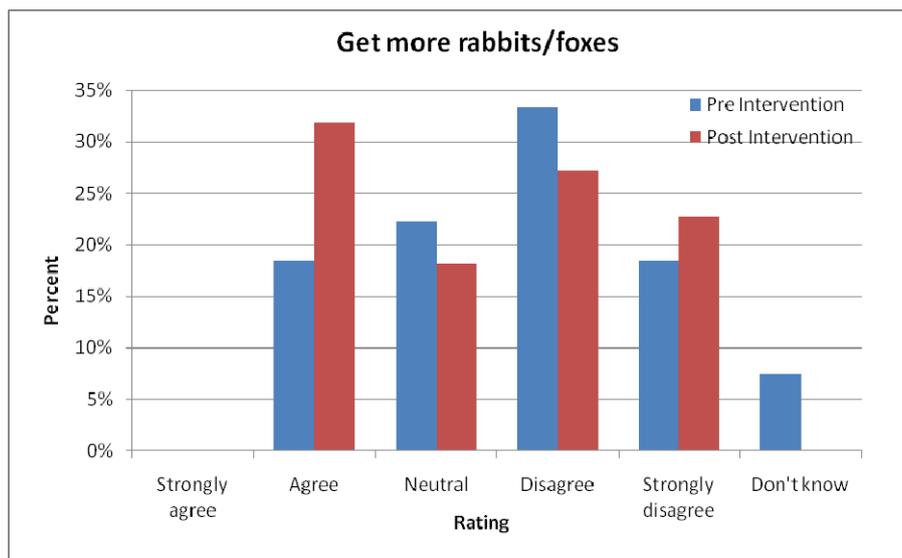


Figure 6. A visual representation of the degree of agreement to the statement “I get more rabbits/foxes on my property because of roadside vegetation”

The Wilcoxon-Mann-Whitney test can be used to compare the mean ranks of a group before and after a treatment (Wilcox, 2009). As the mean of the ranked sums is used the sample population size can vary without invalidating the results. This test was used for each of the scale questions, after removal of all “don’t know” responses. This analysis of the data showed that 12 of the 22 statements presented in the questionnaire showed statistically significant shifts in the population means; that is there is a real change in the population response to these statements before and after the roadside inspection and report.

The complete results are summarised in Table 1, where all the statements from the questionnaires are presented exactly as they appeared in the questionnaire, but in the order determined by the

degree of change between the two questionnaires. The mean score before (meanPre) and after (meanPost) is provided, followed by the Zvalue that shows the degree of difference between the means, and the Pvalue that indicates whether that difference is statistically significant. Table 1 is ranked with the greatest change in mean scores at the top. All significantly different mean changes are shaded in this and subsequent tables.

Table 1. Means of the ranked responses before and after the on-site visit. Statements are listed in order of the largest shifts in mean to the smallest.

Statement from questionnaire	meanPre	meanPost	wilcoxZValue	wilcoxPValue	Significant?
Identification of native mammals	3.23	2.55	3.205263	0.001349	Yes
Identification of native groundcovers	3.81	3.09	3.133713	0.001726	Yes
Ecosystem services provided by native vegetation	3.77	3.05	2.778876	0.005455	Yes
Identification of native birds	3.23	2.76	2.523028	0.011635	Yes
Regulations regarding roadside management	3.88	3.36	2.476166	0.01328	Yes
I consider the quality of my roadside vegetation to be high	2.18	1.71	2.472437	0.01342	Yes
Identification of native trees & shrubs	3.23	2.82	2.293226	0.021835	Yes
Ecological processes in our local vegetation	4.08	3.52	2.269848	0.023217	Yes
My roadside is important for nature conservation in this district	2.35	1.82	2.155536	0.03112	Yes
My roadside is more aesthetically pleasing because of the vegetation on my roadside	2.52	1.86	2.142379	0.032163	Yes
Threatened species in this district	3.92	3.32	2.126023	0.033501	Yes
My roadside provides a corridor for native birds and other native animals	2.35	1.86	2.028726	0.042486	Yes
Identification of native reptiles	3.27	2.91	1.7854	0.074196	Barely
My property is more productive because of the vegetation on my roadside	3.36	3.05	1.291029	0.196694	No
In future I will attempt to manage my roadside to enhance conservation value	2.04	1.77	1.231659	0.218077	No
My roadside has important cultural/historical significance	3.29	2.95	0.959503	0.337305	No
I get more rabbits/foxes on my property because of roadside vegetation	3.56	3.41	0.430639	0.666731	No
I manage my roadsides as an integral part of my property	2.44	2.27	0.408869	0.682636	No
The vegetation on my roadside is similar to that found on many roadsides in this district	2.48	2.35	0.308278	0.757871	No
My roadside provides habitat for native birds and other animals	2	1.86	0.266558	0.789809	No
I have no influence over other peoples' actions on my roadsides	2.5	2.68	-0.51194	0.608691	No
Roadside vegetation increases the risk of fire on my property	2.75	3	-0.79751	0.425157	No

Exploration of the results presented in Table 1 provides information about the self assessed knowledge of the population of landholders, how they perceived their roadsides before and after the roadside inspection, and some indication of behavioural intent. Each of these is discussed below.

Self assessed knowledge of roadside characteristics

Participants assessed their own knowledge as higher after the visit on all of the nine knowledge areas. Some of this perceived improvement was related to increased skills in identification, in particular of native mammals, groundcovers and birds (Table 2).

Table 2. Self assessment of flora and fauna identification skills

Question/statement	meanPre	meanPost	wilcoxZValue	wilcoxPValue	Significant?
Identification of native mammals	3.23	2.55	3.205263	0.001349	Yes
Identification of native groundcovers	3.81	3.09	3.133713	0.001726	Yes
Identification of native birds	3.23	2.76	2.523028	0.011635	Yes
Identification of native trees & shrubs	3.23	2.82	2.293226	0.021835	Yes
Identification of native reptiles	3.27	2.91	1.7854	0.074196	Barely

Participants also indicated an increased understanding of ecological and legal processes related to their roadsides (Table 3).

Table 3. Self assessment of ecological and legal processes

Question/statement	meanPre	meanPost	wilcoxZValue	wilcoxPValue	Significant?
Ecosystem services provided by native vegetation	3.77	3.05	2.778876	0.005455	Yes
Regulations regarding roadside management	3.88	3.36	2.476166	0.01328	Yes
Ecological processes in our local vegetation	4.08	3.52	2.269848	0.023217	Yes
Threatened species in this district	3.92	3.32	2.126023	0.033501	Yes

There was only one freehand comment made specifically about knowledge in the open section of the questionnaires, made in a questionnaire before the roadside inspection

Need to know more information on not making any mistakes by killing off endangered grasses or animal & insect life

Perceptions of their roadside

The remaining questions on the questionnaire related more to the way participants perceive aspects of their roadside and its management. Other than the first question, which asked participants to rate the quality of their roadside vegetation on a three point scale, perceptions and intentions were determined by providing a statement to which participants could select from a 5 point scale ranging from strongly agree (1) to strongly disagree (5), with an additional option of 'don't know'.

Four perceptions appeared to change significantly after the ecological visit, while the other nine appeared unchanged (Table 4). The highest perception shift in the population was an increased

judgement of the quality of the roadsides, and increased consideration of them as being important for conservation in the district.

Table 4. Perception scales

Question/statement	meanPre	meanPost	wilcoxZValue	wilcoxPValue	Significant?
I consider the quality of my roadside vegetation to be high	2.18	1.71	2.472437	0.01342	Yes
My roadside is important for nature conservation in this district	2.35	1.82	2.155536	0.03112	Yes
My roadside is more aesthetically pleasing because of the vegetation on my roadside	2.52	1.86	2.142379	0.032163	Yes
My roadside provides a corridor for native birds and other native animals	2.35	1.86	2.028726	0.042486	Yes
My property is more productive because of the vegetation on my roadside	3.36	3.05	1.291029	0.196694	No
My roadside has important cultural/ historical significance	3.29	2.95	0.959503	0.337305	No
I get more rabbits/foxes on my property because of roadside vegetation	3.56	3.41	0.430639	0.666731	No
The vegetation on my roadside is similar to that found on many roadsides in this district	2.48	2.35	0.308278	0.757871	No
My roadside provides habitat for native birds and other animals	2	1.86	0.266558	0.789809	No
I have no influence over other peoples' actions on my roadsides	2.5	2.68	-0.51194	0.608691	No
Roadside vegetation increases the risk of fire on my property	2.75	3	-0.79751	0.425157	No

Two statements were included to gauge if management behaviour was likely to change as a result of the on site visit and report. Neither of these showed a significant change in the population mean, although in each case there was a slight shift towards more agreement (Table 5).

Table 5. Behavioural intent scales

Question/statement	meanPre	meanPost	wilcoxZValue	wilcoxPValue	Significant?
In future I will attempt to manage my roadside to enhance conservation value	2.04	1.77	1.231659	0.218077	No
I manage my roadsides as an integral part of my property	2.44	2.27	0.408869	0.682636	No

The questionnaire also permitted respondents to select a “don’t know” option for each of the 13 perception and intended behaviour statements. These responses were excluded from the Wilcoxon-Mann-Whitney test used to generate Tables 3-5, but on their own provide some indication of changes in certainty of knowledge or perception (Table 6).

Table 6. Response uncertainty before and after the ecological visit

Question	Don't know- pre %	Don't know post %
The vegetation on my roadside is similar to that found on many roadsides in this district	0	9.1 ↑
My roadside has important cultural/ historical significance	11.1	4.5 ↓
I have no influence over other peoples' actions on my roadsides	11.1	0 ↓
My property is more productive because of the vegetation on my roadside	7.4	0 ↓
I get more rabbits/foxes on my property because of roadside vegetation	7.4	0 ↓
Roadside vegetation increases the risk of fire on my property	7.7	0 ↓
I manage my roadsides as an integral part of my property	3.8	0 ↓
My roadside provides habitat for native birds and other animals	3.7	0 ↓
My roadside is important for nature conservation in this district	3.7	0 ↓
My roadside provides a corridor for native birds and other native animals	3.7	0 ↓
My roadside is more aesthetically pleasing because of the vegetation on my roadside	0	0
In future I will attempt to manage my roadside to enhance conservation value	0	0
I consider the quality of my roadside vegetation to be high	0	0

Open ended questions: comments

The free responses made by participants add depth of understanding to the quantitative data presented above. Most of the comments in pre and post surveys related to perceptions of roadsides or to the program itself:

Pre visit comments

Myself and my neighbours are very concerned about the increasing fire risk from our local roadsides and rail trail corridor.

I totally disagree with letting roadsides get over grown with either native or introduced species as has been the case in the last 10-15 years. Roadways need to be kept clear with room to pass and clear vision on blind corners. This should be the priority then if there is room left then you can have vegetation. Look at how many people burnt on Black Saturday because the roadsides were overgrown. The greenies who petition the clearing of roadsides are directly responsible for these deaths. A bit off track with the purpose of this survey but it needs to be kept in mind when planning roadsides. [First name supplied].

We are keen to enhance the value of our roadside native sps

I would like to enhance my roadside to provide

An aesthetic part of my property

An environment for native fauna

A corridor to support wildlife as an extension of my property

Until June 2010 the property has been rented so from July 2010 I will be in possession allowing these changes to occur

Because of the large amount of roadside adjoining property it fits into many categories

It would be nice to know if "roadside" is classed as what borders your property or includes the other side of the road as well. We technically don't own the road, we currently manage it, but it would be nice to get some council funding or rate reduction to assist with planting and guarding trees. It is difficult to get wider roadside program when your neighbours don't believe it is their responsibility to manage but happily cut habitat trees down.

I believe this to be worthwhile but have no knowledge of the process or outcomes of the roadside partnership. I am hoping this programme will help to preserve the unique aspect of my roadside and perhaps repair some of the damage (done by storm 4-5 years ago).

I am still not sure who this partnership is with, and what the partnership entails and the advantages or disadvantages it carries.

Post visit comments

Very worried about the threat of fire from some roadsides and rail trail

I manage the roadsides by tackling weeds, and enabling nature, indigenous flora to survive and hopefully thrive

We gained simple (cheap) method of managing the land from our advice. We learned more about the conservation values. Project inspired us to be more proactive in its management

Having Rick James come to our Roadside assessment was very informative & encouraging as to what we hope to achieve for our part of our roadside plans

Meeting Rick was reassuring that we are on the right track. Thanks

I believe the discussion about roadside management was important but wonder what changes I, as an individual, can implement and also what assistance (financial & ov plants) I can receive from the council to help re-establish some native vegetation. I have commenced some research on the historical/cultural importance of the roadside, and will endeavour to plant some native vegetation over time.

I would get more involved in the Roadside Partnership if there was a common pool of resources we could access i.e. we have no equipment etc necessary for the proper planting of vegetation

The council should remove noxious weeds and also overhanging branches

Discussion

What is occurring on roadsides

The first part of the evaluation was used to gain some understanding of the range of activities being undertaken on the roadsides in the target areas, and who was undertaking them. The range of activities is large, with all of the listed activities except bee keeping and ripping of rabbit warrens being noted, as well as some extra activities such as manual control of weeds and littering. The responses suggest that the most frequent roadside activities in the last three years have been slashing, cleaning up, controlling weeds with herbicides, moving stock, and collecting firewood, with moderate incidences of tree/ shrub planting and stock grazing. These roadsides, then, are clearly being actively managed and used. Furthermore, they are managed and used by adjoining landholders and others in approximately equal amounts. The questionnaire responses suggest that there may be more active **management** carried out by adjacent landholders, and more active **use** by others. Caution is needed in drawing any further conclusions from this questionnaire as people were only asked to note incidence, rather than the level of activity.

Knowledge, perception and management intent

The evaluation sought to measure whether the approach taken in this project led to adjacent landholders

1. Being more aware of the components of their roadside
2. Changing the way they perceived the roadside
3. Intending to change the way they manage their roadsides

Part of the program logic is that showing landholders what native flora and fauna use their actual patch of roadside, and putting that into ecological context, will enhance their understanding of the road reserve. This evaluation shows that the approach used was effective, at least in the short term. The roadside visit and follow up report made a significant difference to how knowledgeable the participant population felt they were about components of their roadsides. Not only did people feel that they were more able to identify native mammals, groundcovers, native birds, native trees and shrubs and, to a lesser degree, native reptiles, but they also assessed themselves as knowing more about ecosystem services, ecological processes, and threatened species. The approach was also effective with non ecological information, as the participants also assessed themselves as more knowledgeable about roadside management regulations. The quantitative measures were supported by qualitative comments that suggest the visits were informative and useful.

The program logic also assumes that enhanced understanding of the road reserve will lead to changes in the way the road reserve is perceived/valued by the adjacent landholder. The evaluation suggests that this was so for some measures, and not for others. The quality of roadsides was judged by the population to be higher, and more important for nature conservation and fauna movement after than before the visit. This change in the way people valued their roadsides may directly link to the increased knowledge they felt they had of its components and functioning. While the responses to the statement "The vegetation on my roadside is similar to that found on many roadsides in this district" were not significantly different before and after the roadside visit it is noteworthy that the certainty about this statement did appear to change. This was the only statement which had a shift from certainly (no "don't knows) to apparent uncertainty (many don't knows) suggesting that people were at least questioning how their roadsides fit into the district landscape. Most intriguingly, the population appeared to find their roadsides more aesthetically pleasing after the roadside visit- in short it appeared to be more valued for its ecological functions and thought more beautiful as well.

Many of the original perception scores for the population remain unchanged by the visit however. Participants did not change the way they perceived the cultural aspects of their roadsides, nor the

relationship between on farm productivity and roadsides. The negative aspects of pest animals and particularly fire hazard remain unchanged after the visit and report. Many of the comments show that fire is an emotive topic and people have strongly held views about it and the causes of its destructive potential. The comment referring to the 2009 Victorian fires reminds us that fire hazard, and the role of native vegetation in contributing to it, was a particularly salient topic at the time of the roadside visits.

The logic of the roadside project was that participants may be able to use their increased knowledge and more nuanced balancing of perceptions, beliefs and values to change, or maintained the management of their roadsides in keeping with the goals of the Regional Catchment Strategy. Whether this is the reality is not easy to assess, partly because the time of evaluation after the roadside visit was so short, and partly because the roadside visit is only one of many influences on the landholder's behaviour. Most studies related to the motivational elements of behaviour stress the importance of "balancing" a number of influences (Beedell & Rehman, 1999). Seymour et al. (2010) include among these influences values, beliefs, personal norms, and knowledge, along with external factors such as drought, and the nature of the natural asset in question. The qualitative responses in the returned questionnaires suggest that there are indeed a number of influences being balanced by participants, as they show enthusiasm about conservation on the roadsides, continued anxiety about fire hazard and uncertainty about control and responsibility.

The two questionnaire statements included to test whether the visits were likely to change people's management behaviours toward more conservation showed only a slight, and statistically insignificant, shift to the affirmative. This does not mean that changed behaviours will not result from this work, just that it is unlikely to be a simple cause and effect equation. Knowledge of ecological functions on roadsides certainly improved, but this did not negate the existing knowledge about the hazards associated with roadside vegetation.

The nature of the natural asset is also an important factor in how it is managed. As noted in the introduction, roadsides are at the interface of public and private land. The activities listed by the participants as occurring on their roadsides were many and varied and, importantly, were undertaken by outsiders as well as the adjacent landholders. Reflecting on conversations during the on-site visit Rick James notes that when he suggested re-vegetation works, many people expressed a distinct preference to revegetate areas on their own land (maybe adjacent to the roadside remnant) where they had better control over the outcome. He continued "People were worried that they could do a lot of work on the roadside and have it all undone by other people e.g. people driving all over it when collecting firewood!"

Finally, there are known limits to the degree to which information programs can be expected to influence behaviour without changes to other contextual issues such as institutional and legal constraints and disincentives. The limits to relying on private landholders to make large contributions to the conservation of landscapes in the absence of institutional change, as documented by Curtis and Delay (1996) for Landcare, are likely to be the same or greater for land that has multiple public and private roles and uncertain custodianship.

Recommendations

The extension approach used in this project is effective when the aim is to increase people's understanding, and positive perception, of a natural asset. The questionnaire provides useful information about which aspects of the approach achieved the desired purpose, and could continue to be used by the project managers as part of the extension approach. The ultimate value of such a program will depend on the broader context in which it is to be delivered, including the institutional arrangements that provide financial, legal and other support to landholders adjacent to roadsides.

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Appendices

1. Before visit questionnaire
2. After visit questionnaire
3. Blank roadside visit report

Roadside landholder engagement program participant evaluation questionnaire

Please answer the following questions in reference to the roadside(s) that are the focus of your involvement in this project.

1. Please tick the most appropriate response

I consider the quality of my roadside vegetation to be

High Moderate Low Don't know

2. At any time over the last 3 years have you (or others from your property) carried out the following activities on your roadside? (tick all that apply)

- | | | | |
|--------------------------------|--------------------------|--------------------------------|--------------------------|
| Firewood collection | <input type="checkbox"/> | Tree/shrub removal | <input type="checkbox"/> |
| Stock grazing | <input type="checkbox"/> | Cleaning up (eg sticks, bark) | <input type="checkbox"/> |
| Herbicide control of weeds | <input type="checkbox"/> | Tree/ shrub planting | <input type="checkbox"/> |
| Burning | <input type="checkbox"/> | Native seed collection | <input type="checkbox"/> |
| Ploughing | <input type="checkbox"/> | Bee keeping | <input type="checkbox"/> |
| Rabbit warren ripping | <input type="checkbox"/> | Stock piling material | <input type="checkbox"/> |
| Baiting for foxes or rabbits | <input type="checkbox"/> | Moving stock | <input type="checkbox"/> |
| Slashing | <input type="checkbox"/> | Rubbish dumping | <input type="checkbox"/> |
| Other <input type="checkbox"/> | Please specify..... | | |

3. At any time over the last 3 years have any of the following been undertaken by other people/organisations on your roadside? (tick all that apply)

- | | | | |
|--------------------------------|--------------------------|-------------------------------|--------------------------|
| Firewood collection | <input type="checkbox"/> | Tree/shrub removal | <input type="checkbox"/> |
| Stock grazing | <input type="checkbox"/> | Cleaning up (eg sticks, bark) | <input type="checkbox"/> |
| Herbicide control of weeds | <input type="checkbox"/> | Tree/ shrub planting | <input type="checkbox"/> |
| Burning | <input type="checkbox"/> | Native seed collection | <input type="checkbox"/> |
| Ploughing | <input type="checkbox"/> | Bee keeping | <input type="checkbox"/> |
| Rabbit warren ripping | <input type="checkbox"/> | Stock piling material | <input type="checkbox"/> |
| Baiting for foxes or rabbits | <input type="checkbox"/> | Moving stock | <input type="checkbox"/> |
| Slashing | <input type="checkbox"/> | Rubbish dumping | <input type="checkbox"/> |
| Other <input type="checkbox"/> | Please specify..... | | |

4. Below are a number of statements. Please circle the number that most closely represents your response to each of these statements in relation to the roadsides that you have included in this project.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
The vegetation on my roadside is similar to that found on many roadsides in this district	1	2	3	4	5	<input type="checkbox"/>
My roadside provides habitat for native birds and other native animals	1	2	3	4	5	<input type="checkbox"/>
I manage my roadside as an integral part of my property	1	2	3	4	5	<input type="checkbox"/>
Roadside vegetation increases the risk of fire on my property	1	2	3	4	5	<input type="checkbox"/>
My roadside has important cultural/historical significance	1	2	3	4	5	<input type="checkbox"/>
I get more rabbits/foxes on my property because of the roadside vegetation	1	2	3	4	5	<input type="checkbox"/>
My property is more productive because of the vegetation on my roadside	1	2	3	4	5	<input type="checkbox"/>
My roadside provides a corridor for native birds and other native animals	1	2	3	4	5	<input type="checkbox"/>
I have no influence over other peoples' actions on my roadsides	1	2	3	4	5	<input type="checkbox"/>
My roadside is important for nature conservation in this district	1	2	3	4	5	<input type="checkbox"/>
My property is more aesthetically pleasing because of the vegetation my roadside	1	2	3	4	5	<input type="checkbox"/>
In future I will attempt to manage my roadside to enhance conservation value	1	2	3	4	5	<input type="checkbox"/>

5. A number of topics are listed below. Please circle the number that best reflects your assessment of your knowledge on these topics

	Expert	Much knowledge	Some knowledge	A little knowledge	No knowledge
Identification of native groundcovers	1	2	3	4	5
Identification of native trees and shrubs	1	2	3	4	5
Ecosystem services provided by native vegetation	1	2	3	4	5
Threatened species in this district	1	2	3	4	5
Identification of native birds	1	2	3	4	5
Identification of native mammals	1	2	3	4	5
Identification of native reptiles	1	2	3	4	5
Regulations regarding roadside Management	1	2	3	4	5
Ecological processes in our local vegetation	1	2	3	4	5

6. Use the following space to make comments about the Roadside Partnerships project if you wish.

Thank you for completing this questionnaire. Please place the questionnaire into the envelope provided, and hand the sealed envelope to Rick James when he visits your property.

Roadside landholder engagement program participant evaluation questionnaire

Please answer the following questions in reference to the roadside(s) that are the focus of your involvement in this project.

1. Please tick the most appropriate response

I consider the quality of my roadside vegetation to be

High Moderate Low Don't know

2. Below are a number of statements. Please circle the number that most closely represents your response to each of these statements in relation to the roadsides that you have included in this project.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
The vegetation on my roadside is similar to that found on many roadsides in this district	1	2	3	4	5	<input type="checkbox"/>
My roadside provides habitat for native birds and other native animals	1	2	3	4	5	<input type="checkbox"/>
I manage my roadside as an integral part of my property	1	2	3	4	5	<input type="checkbox"/>
Roadside vegetation increases the risk of fire on my property	1	2	3	4	5	<input type="checkbox"/>
My roadside has important cultural/historical significance	1	2	3	4	5	<input type="checkbox"/>
I get more rabbits/foxes on my property because of the roadside vegetation	1	2	3	4	5	<input type="checkbox"/>
My property is more productive because of the vegetation on my roadside	1	2	3	4	5	<input type="checkbox"/>
My roadside provides a corridor for native birds and other native animals	1	2	3	4	5	<input type="checkbox"/>
I have no influence over other peoples' actions on my roadsides	1	2	3	4	5	<input type="checkbox"/>
My roadside is important for nature conservation in this district	1	2	3	4	5	<input type="checkbox"/>

My property is more aesthetically pleasing because of the vegetation my roadside **1** **2** **3** **4** **5**

In future I will attempt to manage my roadside to enhance conservation value **1** **2** **3** **4** **5**

3. A number of topics are listed below. Please circle the number that best reflects your assessment of your knowledge on these topics

	Expert	Much knowledge	Some knowledge	A little knowledge	No knowledge
Identification of native groundcovers	1	2	3	4	5
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Ecosystem services provided by native vegetation	1	2	3	4	5
Threatened species in this district	1	2	3	4	5
Identification of native birds	1	2	3	4	5
Identification of native mammals	1	2	3	4	5
Identification of native reptiles	1	2	3	4	5
Regulations regarding roadside Management	1	2	3	4	5
Ecological processes in our local vegetation	1	2	3	4	5

4. Use the following space to make comments about the Roadside Partnerships project if you wish.

Thank you for completing this questionnaire. Please place the questionnaire into the envelope provided, and hand the sealed envelope to Rick James when he visits your property.

ROADSIDE PARTNERSHIP PROJECT

FIELD VISIT REPORT

Landholder details

Name:

Address:

Phone number:

Email:

1. Roadside inspection quick facts

Date of inspection:

Who was present at the inspection?

Road name:

Length adjoining property:

Average width:

Approximate total roadside area (hectares):

Location Map

2. Road details

2.1. Road classifications –

2.1.1. Road type

Highway Main Road Local Road

2.1.2. Road conservation status

High Medium Low

2.1.3. Fire strategy classification

Fuel reduced corridor Priority access road No classification

2.2. Road classifications

2.2.1. Road type

Highway Main Road Local Road

2.2.2. Road conservation status

High Medium Low

2.2.3. Fire strategy classification

Fuel reduced corridor Priority access road No classification

2.3. Roadside vegetation

In Victoria, the Department of Sustainability & Environment (DSE) classifies native vegetation into groups known as Ecological Vegetation Classes (EVCs). Each EVC is characterised by the group of plants that are typically found together and their position in the landscape. EVCs are developed for bioregions – geographic areas with similar landform and climate. Using this classification scheme, the original native vegetation in the area assessed would have been as follows:

What does an “intact” example of this vegetation community look like? (Description adapted from the DSE EVC “benchmark” sheet):

Eg An open eucalypt woodland with trees to 15m tall. Found on well drained fertile soils on plains country in areas where the average annual rainfall exceeds 600mm per year. This woodland type typically only supports a scattering of shrubs. The groundcover, however, is

usually characterised by a diverse range of grasses and forbes (plants other than grasses and without woody stems e.g. lilies).

How does the roadside compare to this?

2.4. Special features

2.5. Landscape context

3. Management

3.1. Current management

3.2. Management issues

3.3. Causes

3.4. Proposed management actions

Aerial photo:

Photo(s):



ADD PHOTO & DESCRIPTION >>>>

Some useful contacts:

Name	Role	Phone
Rick James	Consultant – roadside inspections	(02) 6026 8110 0429 440 482
Scott Draper	Rural City of Wangaratta Environment Officer	(03) 5722 0879 0429 179 856