Introduction

Plantations have expanded significantly in Western Australia over the past two decades, and this expansion has often been accompanied by significant public debate. While plantation expansion continues, little research is being conducted to clarify the extent of public concerns. This report summarises the findings of a survey conducted in south-west Western Australia during 2008. The survey investigated views on different types of plantations, but especially views on eucalypt plantations. The survey examined the views of adult residents of the South West and Lower Great Southern statistical regions and adult residents of the local government area of Esperance.

The information collected can help inform policy and management decisions regarding rural land use and plantations. It can also highlight areas in which a better understanding of plantations and their impacts is needed. See page 15 to find out how the data was collected, and how you can access the full survey results.
How acceptable are plantations compared to other rural land uses?

The survey shows that many people view plantations less favourably than other rural land uses.

Survey participants were asked to rate how acceptable a number of different land uses were when established on cleared rural land. Figure 1 shows the distribution of acceptability ratings for five different land uses. Ratings of 1–3 indicate that participants viewed the land use as relatively unacceptable, while ratings of 5–7 indicate that the land use was viewed as relatively acceptable.

Traditional agricultural land uses such as cropping and grazing were considered very acceptable by the majority of participants. For example, 94% of participants considered cropping to be acceptable at some level. The non-traditional land use of wind farms is controversial in many parts of Australia, but was considered acceptable at some level by 89% of participants. Far fewer participants considered rural residential development (40%) and eucalypt plantations for pulp (59%) to be acceptable at some level.

FIGURE 1
Distribution of community views on the acceptability of land uses (on previously cleared rural land)

Participants rated each land use on a 7-point scale ranging from 7 = very acceptable to 1 = not acceptable.

1 Only views about eucalypt plantations grown for pulp are shown in Figure 1. There were some differences in views on different types of plantations (Figure 2) but all types of plantations were generally viewed less positively compared with more traditional agricultural land uses.
How acceptable are different types of plantations?

While most participants considered all types of plantations acceptable at some level, views clearly ranged widely.

Figure 2 shows the distribution of acceptability ratings for pine plantations grown for timber, eucalypt plantations grown for timber, and eucalypt plantations grown for pulp and paper.

Participants considered some types of plantations more acceptable than others. Plantations grown for pulp were more often considered unacceptable than plantations grown for timber and the distribution of views was more strongly characterised by conflicting views.

**FIGURE 2**
Distribution of views on the acceptability of plantations (on previously cleared rural land)

Participants rated each land use on a 7-point scale ranging from 7 = very acceptable to 1 = not acceptable.
Who supports and who opposes plantations?

Participants clearly indicated diverse views on plantations. We examined whether support or opposition for plantations related to the characteristics of respondents, such as the area in which they live, their demographic characteristics, and whether or not they had any association with a particular land use.

Analysis showed that:

- participants living in different parts of Western Australia (shown in Figure 3) did not differ in their overall level of support for eucalypt plantations.
- participants living in the Lower Great Southern statistical division were more likely to consider pine plantations for timber unacceptable than were participants living in other areas.
- participants aged 45 years and older were more likely to consider all three types of plantations unacceptable than were younger participants.
- participants with higher levels of education were more likely to consider pine plantations for timber and eucalypt plantations for pulp unacceptable than were participants with lower levels of education.
- participants who had some association with forest industries were more likely to consider all three types of plantations acceptable than those who did not have any such association.

**FIGURE 3**

Study area
(Map: C Jayasuriya, University of Melbourne)
What do people believe about the social impacts of eucalypt plantations?

Participants were asked their beliefs about the social costs and benefits of increased plantations. Beliefs about these impacts were very diverse.

Figure 4 shows the percentage of participants who believed that an increase in plantations would lead to an increase or decrease, or little or no change, in a selection of social impacts. It also shows the percentage of participants who indicated that they did not know how these social impacts might be affected by increases in plantations.

Participants most often considered that eucalypt plantations would provide benefits for individual landholders (from financial profit and increased management options). Many participants believed that plantations would have negative impacts on rural population and community involvement, but many others thought that plantations would have little or no impact on these factors. There were many different views on the impacts of plantations on employment and on business for local traders.

What do people believe about the physical impacts of eucalypt plantations?

Beliefs about the environmental and infrastructure impacts of eucalypt plantations were very diverse.

Figure 5 shows the percentage of participants who believed that an increase in plantations would lead to an increase or decrease, or little or no change, in selected physical impacts of eucalypt plantations. It also shows the percentage of participants who indicated that they did not know how plantations would affect these physical impacts.

Many participants considered that plantations would protect soil from erosion. Very few participants believed that an increase in plantations would have benefits for water availability and native vegetation, but views were split on whether plantations would lead to decreased water and native vegetation, or whether plantations would have little or no impact on these outcomes. Views on other environmental impacts of plantations—such as protection from wildfire, road conditions and chemical safety—were even more diverse.
FIGURE 4
Beliefs of participants about social impacts of increased eucalypt plantations

FIGURE 5
Beliefs about the physical impacts of increased eucalypt plantations
How strong are people’s views about plantations?

It is possible for people to have very little interest in an issue but to still express a positive or negative view on that issue. It is therefore important to understand how strongly views are held by participants. Most, but not all, participants reported that their views about plantation forestry were moderately strong to very strong. Participants living in the Lower Great Southern statistical division tended to hold stronger views on plantation forestry than participants living in other parts of the study region.

FIGURE 6
Distribution of strength of views about plantation forestry

What outcomes of rural landscapes do people most value?

Diverse views on plantations may reflect the different expectations people have of rural land use.

Participants were asked about the degree to which they agreed or disagreed with a series of statements prioritising different social (community and economic), environmental and individual landholder benefits. This information was used to group participants with similar priorities or ‘value orientations’.

Most participants considered benefits of plantations for the environment, economy, local communities and individual landholders to be equally important. A second large group of participants considered individual benefits to be less important than community and environmental benefits. A much smaller number of participants prioritised environmental benefits over all other outcomes. A small proportion of participants gave priority to individual benefits over all other outcomes.

The distribution of participants with these value orientations was similar across the study area, and across rural areas and regional centres.
These value orientations were somewhat (but not strongly) reflected in views on plantations (Figure 8). People who valued individual outcomes over community and environmental benefits rated plantations as more acceptable than participants with different value orientations.

FIGURE 8
Acceptability of eucalypt plantations for pulp by value orientation
Participants rated each land use on a 7-point scale ranging from 7 = very acceptable to 1 = not acceptable
Are some kinds of plantations more acceptable than others?

Participants were asked how acceptable they would find plantations in a range of different circumstances.

More people considered plantations acceptable in areas where water availability is good than in areas where demands for water are high (Figure 9). More people considered plantations acceptable in areas affected by soil salinity or with average to poor quality soil than in areas with good quality soil (Figure 10).

**FIGURE 9**
Acceptability of plantations in areas with high water demand or good water availability

**FIGURE 10**
Acceptability of plantations in areas with:
- soils affected by salinity
- average to poor soil quality
- areas with good soil quality.
More participants considered plantations acceptable when they were planted on part of a property rather than a whole property (Figure 11). More participants considered plantations acceptable when grown in areas previously used for plantations rather than on land previously used for agriculture or native vegetation (Figure 12).

In addition, the survey found that plantations were more often considered acceptable when:

- planted in areas in which local processing was possible rather than where processing would require export
- grown for timber rather than for pulp and paper
- owned by an individual landholder rather than a plantation company.

**FIGURE 11**
Acceptability of plantations planted on the whole or on only a part of a property

**FIGURE 12**
Acceptability of plantations planted on land previously used for:
- native vegetation
- plantations
- agriculture
What influences community views on plantations?

Why does one person find plantations acceptable while another person finds them unacceptable? This research suggests that a wide range of factors may shape a person’s views about plantations, including:

- different views on important outcomes of rural land use
- different beliefs about impacts of plantations
- different levels of personal or work association with forest or agricultural industries
- different demographic characteristics, such as age and residence in an urban or rural area.

The analysis suggests that beliefs about the impacts of plantations are the most important predictors of overall attitudes towards plantations. These beliefs include:

- beliefs about physical (environmental and infrastructure) benefits of plantations (e.g. road conditions and water impacts)
- beliefs about social benefits of plantations (e.g. employment and population)
- beliefs about individual benefits of plantations (e.g. profit and management options).

The analysis also suggests that values (e.g. priority outcomes for rural land use shown in Figure 7) play only a minor role in explaining variation in views on the acceptability of plantations. This is an important finding since social values are generally considered to be long-term orientations that are not readily open to persuasion and change only very slowly over a person’s lifetime. When values are in conflict, environmental debates can be very difficult to resolve.

In contrast, beliefs (e.g. beliefs about social and physical benefits shown in figures 4 and 5) can change over time. Beliefs about impacts of plantations may change through direct experience—for example, if fears about impacts are not realised, or if experiences of impacts improve or worsen over time. Beliefs may also change when new, trusted information becomes available through research or education.

Our findings therefore highlight the real possibility that views about plantations will change over time, and point to the opportunity for dialogue to generate more shared beliefs about the costs and benefits of plantations.
How do these findings compare with other research?

The survey found that views about plantations are very diverse among residents of the study region, and also that these views are often less positive than views on other rural land uses. This is consistent with the results of other surveys conducted in South Australia and Victoria,2 and in New South Wales.3

However, the survey demonstrates much stronger support for plantations than has been observed in other parts of Australia. The results of this survey can be directly compared with an identical survey conducted among residents of Tasmania.4 Overall, participants from the Western Australian study region were more likely to find plantations acceptable than were residents of Tasmania.

Compared with Tasmanians, participants from Western Australia were also more likely to consider the physical and individual benefits of plantations to be more positive.

The reasons for this are not clear. It is possible that the high levels of salinity experienced in Western Australia may contribute to the greater acceptability of plantations, or that Western Australian policy and practices may be more successful in mitigating some potential negative impacts of plantations. It is also possible that the reduction of native forest harvesting in Western Australia may have contributed to reducing conflict over forests more generally.


Understanding community views on plantation forestry

Plantations are generally viewed differently from traditional rural land uses such as cropping and grazing, and differently from new ‘green’ land uses such as wind farms and native vegetation. Land use policy that positions plantations as ‘just another crop’ may be at odds with public perception in this regard.

Views about plantations are very diverse. The majority of participants considered plantations acceptable at some level, with around 20% finding plantations very acceptable. The findings suggest that plantations are more acceptable to residents of Western Australia than to residents in some other parts of Australia. However, there is also evidence of some opposition, with 5–12% of participants considering plantations very unacceptable.

Beliefs about the impacts of plantations are strikingly diverse, and the study suggests these beliefs may be especially important in understanding why some people support plantations while others do not. Independent research and clearer communication regarding the social, economic and physical costs and benefits of plantations may assist in developing new and shared understandings of plantations.

The survey revealed that plantations are acceptable to more participants in Western Australia when they are planted:

- in areas with good water availability
- on poorer or saline soils
- on land previously used for plantations
- on only part of a property rather than the whole property
- on land owned by an individual landholder
- where products can be processed locally.

These results provide feedback for a range of stakeholders on how residents of south-west Western Australia viewed plantation forestry in 2008. The study provides insights into why views on plantations are so varied, and guidance on what makes plantations more or less acceptable. It is hoped that these findings might assist industry and government in considering how to reduce social conflict regarding plantations.
How was the survey conducted?

The survey primarily used postal questionnaires, although some participants completed the survey by telephone. Questions were developed based on information collected through eight group interviews conducted in the study area during 2006. The questionnaire was pre-tested by the researchers.

Sampling was stratified with 1200 households randomly selected from each of the South West and Lower Great Southern statistical divisions, and 600 households selected from the Esperance local government area. Households were identified via a publicly available listing of households with telephone directory listings. Potential participants were posted a questionnaire. Reminder cards, a second questionnaire and a telephone reminder/interview or card were used to encourage as many people to participate as possible.

A total of 947 respondents completed the survey: 778 returned a postal questionnaire and 169 completed a telephone interview based on the questionnaire. The response rate was 31%.

Of these participants, 168 lived in the Esperance local government area, 411 lived in Lower Great Southern statistical division, and 361 lived in South West statistical division.

An equal number of men and women completed the survey. Younger participants (18–44) were underrepresented in the survey and older participants (45–74) were somewhat overrepresented, and the sample contained a higher proportion of people with higher education qualifications than expected based on 2006 Australian Bureau of Statistics census information about the population of the study area.

For the South West statistical division, 69% of respondents lived in regional centres (towns of 10,000 or more residents), consistent with the proportion of the adult population the study area living in these centres (66%). In the Lower Great Southern statistical division, 59% of respondents lived in regional centres. This was higher than expected based on the proportion of the adult population living in these centres (50%).

For a more detailed description of survey results and information about the way this data was collected, see www.crcforestry.com.au. Or request a printed copy by emailing crcforestry@crcforestry.com.au.
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