

# **BAROSSA AND LIGHT REGION LANDSCAPE ASSESSMENT STUDY**

**Report for Planning SA, the Barossa Council, the Light Regional  
Council, and the Barossa Light Regional Development Board**



**Dr Andrew Lothian  
Scenic Solutions  
2005**



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**Dr Andrew Lothian  
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**2005**

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## EXECUTIVE SUMMARY

The project aimed to assess the scenic quality of the Barossa Valley region rural landscapes outside of towns. It was commissioned by Planning SA, the Barossa Council, the Light Regional Council, and the Barossa Light Regional Development Board. The project was undertaken between May and September 2005.

The approach to the task involved classifying the region into units of similar characteristics, for these to be photographed and rated by participants, and for the ratings to be applied to areas of the region with similar characteristics for mapping purposes.

The region comprised the Barossa Valley between Freeling, Lyndoch and Truro, together with the high land through Collingrove and the Eden Valley from Truro south to Springton and Williamstown. The survey instrument comprised 120 scenes of the region, selected from a total of 1700 photographs, together with 30 scenes from elsewhere in South Australia to ensure State-based ratings. The survey was placed on the Internet and invitations were sent to organisations and individuals to participate. Scenes were rated on a 1 – 10 (low – high) scale. The analysis was based on 1210 ratings which provided an excellent confidence interval of +/- 2.8%.

Naturalness, trees and terrain were found to have the strongest influence on ratings; the presence of water and the visibility of the Barossa Ranges had lesser influence. The presence of vines had a negative influence on ratings due to their generally barren appearance without trees. Churches and ruins in the region attracted higher ratings than farm sheds and winery buildings. Roads with indigenous roadside vegetation rated among the highest scenes.

Landscape factors such as trees, vines and naturalness were scored and these scores were combined with the ratings to develop predictive models for the entire region as well as for smaller landscape units within the region. These models indicated for a given area which combination of landscape factors would produce the ratings obtained.

Based on the ratings and models, the region's landscape quality was mapped. Overall the northern and western areas were low rating, 5 – 5.25, while the eastern area (Collingrove - Eden Valley) was higher 5.50 – 5.75. The core viticulture areas generally had moderate ratings, 5.50. The higher rated Barossa Ranges which overlooks the area rated from 5.50 to 6.50.

Micro ratings were derived for heritage buildings (6.0), areas of native vegetation (6.25), roads with indigenous vegetation (6.5), streams with trees (6.5) and eyesores such as quarries and car dumps (4.0).

Twelve recommendations were made relating to the planning, development and management of the Barossa Study Region:



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## BAROSSA AND LIGHT REGION LANDSCAPE ASSESSMENT STUDY PROJECT SUMMARY

The aim of the project was to “assess the scenic quality of the Barossa Valley Region rural landscapes outside of townships”. It required a “publicly defensible and repeatable valuation of the scenic quality of the landscapes and landmarks of the area, giving a value to every landscape unit.” The outcomes of the project were intended to contribute to the setting of “clear strategic directions for the use of land within the Barossa and Light region.”

The approach to this task involved classifying the region into units of similar characteristics, for these to be photographed and rated by participants, and for the ratings to be applied to areas of the region with similar characteristics.

Following the Introduction, Chapter Two focuses on the nature of landscape aesthetics, covering Australian studies of scenic quality which described the intensive activity in this area in the 1970s led by the South Australia, Victorian and New South Wales branches of the National Trust. This activity largely petered out by the 1980s, probably because of the lack of a credible and reliable assessment methodology at that time. Most of the methods used then and since have been judgement based, relying on the expertise or interest of those rating the landscape.

The failure stemmed largely from basing landscape aesthetics on cognition rather than on affective preferences. The cognitive approach describes and analyses the landscape, the affective preferences approach measures one’s likes and dislikes. They are two separate paradigms and the early studies made the mistake of assuming preferences derived from analysis but this is not the case. The methodology adopted in this project measures the preferences for the landscape and then analyses these preferences with the landscape content through statistical means. This approach enables the analysis to move from describing *what* landscapes are preferred to understanding *why* they are preferred.

Chapter Two then briefly described theories of landscape aesthetics which derive from an evolutionary perspective

that landscape preferences are survival enhancing. It examines the influence of culture on landscape preferences, showing from studies that the similarities in preferences between cultures are greater than the differences. The same principle applies also to individual differences in landscape preferences.

The use of photographs to measure scenic quality is reviewed, it being established that providing the photographs meet certain criteria, that preferences based on photographs will be similar to those obtained from field assessments. Finally the author’s four previous studies of scenic quality in South Australia are summarised.

Chapter Three covers the acquisition of data for the Barossa Landscape Assessment Project. It describes the photography of the region in which 1700 photographs were taken during April and May, 2005. Landscape Units for the Barossa Study Region were then defined; fourteen landscape units were defined by reference to their land form, land cover, land use, water and any other significant features. These landscape units provided a basis for the selection of scenes for the survey. In addition, photographs were selected to represent various key features such as cultural aspects, wineries, farm structures, trees along roads and streams, and industry. Photographs were also selected to represent the Barossa Ranges from varying distances. The survey comprised 120 Barossa scenes plus a further 30 scenes from elsewhere in South Australia to ensure that the ratings reflected a State-wide perspective.

Chapter Three then described the conduct of the survey, through the design of the Internet survey instrument, and its release on 15 June 2005. Participants rated the scenes on a 1 – 10 scale. The survey attracted 2260 participants. This Chapter ends with the identification and scoring of landscape factors, these being elements in the landscape which might assist in understanding why certain landscapes are preferred. The landscape factors identified were the significance in the landscape of trees, vines, water and buildings & structures, the nature of the terrain, the

naturalness of the landscape, and the visibility of the Barossa Ranges. Each was scored on a 1 – 5 scale by up to 20 participants.

Chapter Four describes the analysis of the data obtained from the survey. Only those participants who completed all 150 scenes were included; this comprised a data set of 1210 which provided a confidence interval of 2.81. i.e. at a 95% confidence level, the responses would be +/- 2.8% of the true value. The distribution of participant means and rating means were both statistically normal.

Compared with the South Australian community, the participants were better educated and more middle aged, however these differences did not affect the ratings as the average ratings were similar across all participant characteristics, to within about +/- 0.15 of the mean. Around 63% of participants used broadband and took 18 minutes to complete the survey, and 36% used dial up and took 21 minutes. Slowness in loading the scenes, particularly for dial up, had resulted in many not completing the survey.

Comments on the survey were obtained from only 224 participants out of the 2260, indicating a defect in the survey's recording of comments. The comments covered the photographs and the survey, the Barossa landscape and tourism, and development in the region. A selection of the comments was included in this Chapter.

The overall mean of the ratings was 5.30 with a standard deviation (SD) of 1.01 and the ratings of individual scenes ranged from 2.52 to 7.41. The majority were in the 4.5 – 6.5 range.

Of the landscape factors examined, the influence of naturalness, trees and terrain were strongest and water and the visibility of the Barossa Ranges were lower. The presence of vines and buildings & structures actually had a negative influence on ratings. However, as determined subsequently, churches and ruins attracted higher ratings than farm sheds and winery buildings.

The scores for naturalness and trees factors both correlated highly with the scenic quality ratings. Naturalness also correlated closely

with terrain, trees and the visibility of the Barossa Ranges.

The low influence of the Barossa Ranges was interesting. Further analysis indicated that in close proximity it had a marked influence on ratings. Also its influence for scenes of vines on flat land increased by about 1.5 from distant views to close proximity. However for scenes of bare flat land it had no effect on ratings.

The scenes of cropping land were photographed following a prolonged dry period and through comparison with photographs from other seasons it was determined that their ratings should be increased by 25% to more closely reflect their normal contribution to scenic quality. The ratings of pastoral scenes were not increased because dry grass conditions normally prevailed for half the year.

The ratings per land use are summarised in the table below.

Land use	Mean
Vines	5.33
Pastoral	5.73
- flat	5.57
- sloping or hilly	5.84
Cropping (revised ratings)	4.98
Pines	5.00
Rivers & creeks	6.62
- with water	6.97
- dry	6.39
Buildings & structures	4.84
- sheds	4.34
- winery industry	4.82
- churches	5.65
- ruins	6.09
Roads - with vegetation	6.90
- without vegetation	4.90

Comparison of the scores for vines with those for terrain indicated that vines were located on flat or undulating terrain as no score for terrain exceeded 3. Comparison of the scores for vines with those for trees indicated that the more vines the fewer trees, and vice versa. The ratings of scenes with vines increased with the scores for trees and for terrain.

Ratings of cropping scenes increased with steepness of the terrain and with the significance of the trees.

The ratings of pastoral scenes increased with the terrain, the significance of trees, and

overall, with the apparent naturalness of the scene.

The ratings of watercourses were high and the ratings for creeks with water were about 0.6 higher than dry creeks, reinforcing the importance of water in the landscape.

Ratings of buildings and structures differentiated them by type, industrial structures rating much lower than churches and particularly old ruins.

A surprise finding was that roads with indigenous roadside vegetation rated among the highest of all scenes. The reasons for this are not apparent except that trees are a positive feature and the roads are often lined by large trees.

Predictive models using multiple regression analysis were derived for all 120 scenes and some of the landscape units. The model for the entire region used all seven factors, had a correlation coefficient ( $R^2$ ) of more than 0.5, and was statistically significant. The model was as follows:

$$Y = 2.795 + 0.430 \text{ Natural} + 0.265 \text{ Water} + 0.259 \text{ Trees} + 0.172 \text{ Vines} + 0.106 \text{ Terrain} + 0.076 \text{ Barossa Ranges} - 0.013 \text{ Building}$$

The results of the model were compared with the ratings derived from the survey and around two thirds were within +/- 0.5 of the ratings.

Models were also derived for the following landscape units: Barossa Valley, Gomersal, Seppeltsfield, Collingrove and Eden Valley. The remaining units had too few scenes to enable the development of models.

Ratings for each of the landscape units are shown in the following table.

Landscape Unit	Mean
1. Barossa Valley	5.38
2. Barossa Ranges	6.10
3. North Para River	6.57
4. North Para River valley	6.50
5. Sandy Creek	5.15
6. Freeling Plains	5.01
7. Gomersal	5.17
8. Seppeltfield	5.68
9. North Greenock	5.46
10. Light - Truro	5.47
11. Moculta	4.86
12. Collingrove	5.74

13. Kaiserstuhl	-
14. Eden Valley	5.76

The insights into the landscape quality of the Barossa Study Region provided the basis for mapping its scenic quality.

Chapter Five mapped the scenic rating. It derived mean ratings for each of the fourteen landscape unit based on the scenes present in each landscape unit, equivalent scenes from other landscape units, special analyses of sets of scenes (e.g. scenes with vines), and the predictive models derived.

Ratings were derived which differentiated landscape units by a quarter (i.e. 0.25) ratings. They ranged from 5.0 to 6.5. These compared well with the ratings of scenes derived from the survey.

Overall the northern and western areas are low rating, 5 – 5.25, while the eastern area (Collingrove - Eden Valley) is higher 5.50 – 5.75. The core viticulture areas have generally moderate ratings, 5.50. The higher rated Barossa Ranges overlooks the area with most of the Ranges rating 5.50 to 6.50.

The following table summarises the mean ratings for each landscape unit.

Landscape Unit	Rating
1. Barossa Valley	5.25 – 5.50*
2. Barossa Ranges	5.25 – 6.50
3. North Para River	6.50
4. North Para R. valley	6.50
5. Sandy Creek	5.50
6. Freeling Plains	5.00
7. Gomersal	5.25
8. Seppeltsfield	5.50
9. North Greenock	5.50
10. Light – Truro	5.25
11. Moculta	5.25
12. Collingrove	5.50
13. Kaiserstuhl	5.75
14. Eden Valley	5.75

\* Mainly 5.50

In addition to the landscape unit ratings, scenic quality ratings were derived covering particular landscape features within landscape units which were not represented adequately by the scenes in each unit. The features covered:

- Heritage buildings and structures;
- Significant areas of native vegetation;
- Lengths of trees adjacent to watercourses;
- Roadside trees;

- Eyesores such as sheds, car dumps and winery tanks.

The following ratings for these were derived:

Heritage buildings	6.0
Areas of native vegetation	6.25
Roads with indigenous trees	6.5
Streams with trees	6.5
Eyesores	4.0

The presence of each of these in the Study Region was then assessed and mapped.

Chapter Six covered the applications of the Study's findings and recommendations arising from it.

The regional scenic quality ratings for the Study Region were shown as rankings, from 1 for the highest through to 7 for the lowest, each spaced 0.25 units apart.

The predictive models may be used to determine the scenic rating of scenes in the Study Region and comprehensive guidelines were provided to assist in this.

Recommendations were made relating to the planning, development and management of the Barossa Study Region:

## STRATEGIC MEASURES

### Recommendation 1

***The Barossa and Light Councils and Planning SA adopt as a key strategic objective the protection, maintenance and enhancement of the Barossa Region's landscape character and quality covering all aspects of the Region's planning, development and management.***

Such a policy position is important in defining the position of the authorities with responsibility for the Region.

### Recommendation 2

***Protect the landscape character and quality of the core viticulture area of the Barossa Region from further significant structures and buildings and locate future significant structures and buildings outside of the core viticulture area.***

Increasing pressure to locate major winery developments in the Barossa Valley needs to

be managed carefully so that it does not result in the industrialisation of the region. Suitable locations north of Nuriootpa with good access to the Sturt Highway are available for such developments.

## PLANNING MEASURES

### Recommendation 3

***Ensure the provisions of the Region's Development Plan contribute to and do not detract from the protection, management and enhancement of the region's landscape character and quality.***

It is essential that the provisions of the Development Plan further the protection, management and enhancement of the region's scenic quality and do not, by default or ignorance, result in its degradation.

### Recommendation 4

***Ensure that provisions are included in the Development Plan in respect of new developments to safeguard the character and quality of the Barossa region's landscape.***

The Development Plan needs to ensure that the region's scenic quality is fully considered in respect of the requirements of future developments.

### Recommendation 5

***Appoint a landscape architect to advise councils on planning, development and management issues across the Barossa region.***

In considering new developments and enhancing the landscape of the Barossa, in-house expertise would be invaluable.

### Recommendation 6

***Ensure that the western escarpment of the Barossa Ranges, from near Williamstown to near Stockwell, be given special recognition in the region's Development Plan and that its landscape character and quality be accorded stringent protection.***

The natural backdrop provided to the Barossa Valley by the Barossa Ranges needs to be protected in a similar way that the Hills Face Zone behind Adelaide has been protected.

**Recommendation 7**

***Prepare, in conjunction with industry and the community, a landscape management plan for the Barossa region to identify detailed measures to protect, manage and enhance its landscape character and quality.***

Measures to address eyesores, enhance the appearance of vineyards and winery buildings together with major planting programs should be considered as elements in an overall plan to enhance the region's scenic quality which should be developed with community input and discussion.

**MANAGEMENT MEASURES****Recommendation 8**

***The Barossa and Light Councils work cooperatively with industry, land owners and the community to improve the appearance of properties and encourage the removal of features which degrade scenic quality.***

Features which detract from the Barossa's scenic quality include car dumps, transport depots and quarries. Obviously voluntary measures to improve these should be encouraged but failing these, some form of regulatory measure such as land management agreements under the Development Act may be required.

**Recommendation 9**

***In addressing features which degrade scenic quality, adopt a strategy of removal, relocation and reduction in that order.***

Removal would involve cessation of the eyesore (e.g. dumps), relocation would involve moving it a more suitable location (e.g. truck depot) and reduction means leaving it in its present location but screening it (e.g. quarries).

**Recommendation 10**

***Minimise the visual impact of existing buildings and structures through appropriate means.***

The visual impact can be lessened by tree planting, mounding, trellises and painting a suitable tone.

**Recommendation 11*****Green the Barossa***

The single key action which can achieve region-wide scenic quality enhancement is the planting of trees on a large scale. Trees represent a natural element, so important in achieving high scenic quality. Planting of trees together with shrubs and grasses, and assisting the regeneration of existing trees through temporary fencing, will achieve both biodiversity and scenic quality objectives.

**Recommendation 12**

***Encourage the viticulture and agriculture industries in the Barossa region to utilise professional advice from landscape architects regarding measures to improve the visual appearance of their operations, developments and infrastructure.***

Straight rows of vines can be made more attractive through following the contours of the land. Establishment of shelterbelts, dams, tracks, buildings etc would all benefit from the advice of landscape architects.

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