Landscape Quality Assessment of South Australia

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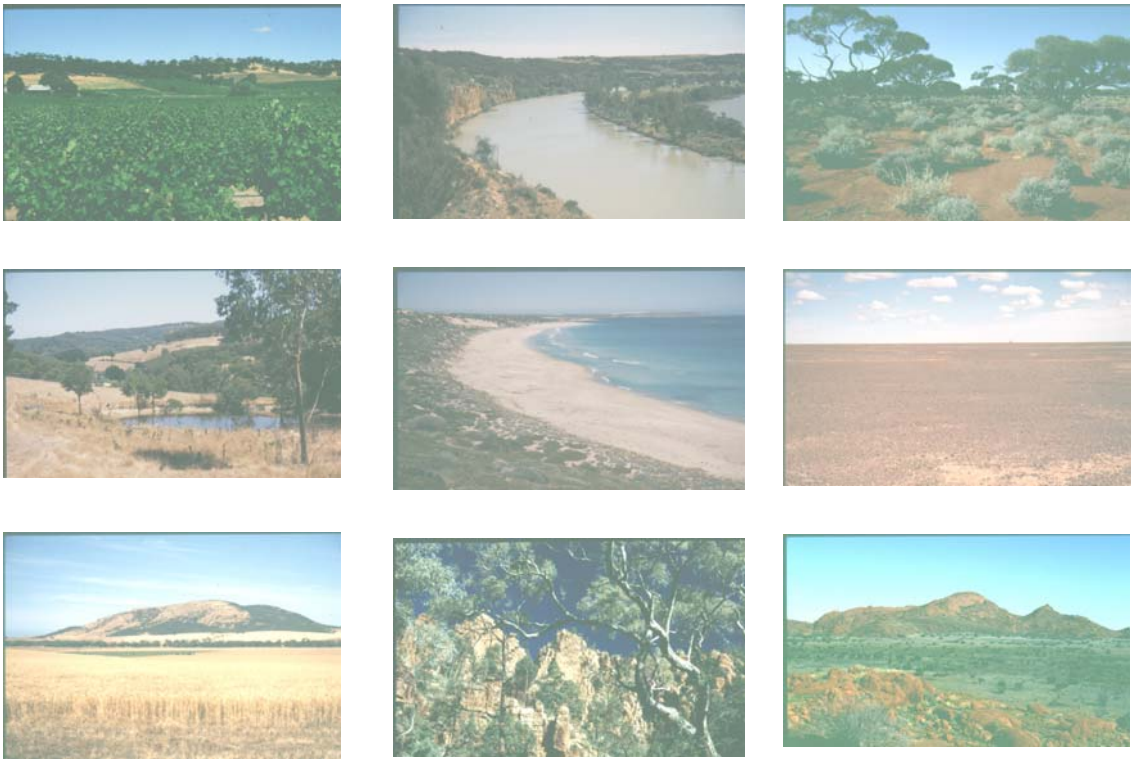

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I lift my eyes to the hills - where does my help come from?
My help comes from the Lord, the Maker of heaven and earth

Psalm 121:1-2
New International Version

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Andrew Lothian

14 September 2000

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ABSTRACT

The object of this thesis is to provide, through a thorough analysis of human perception and interaction with aesthetics and landscape quality, a comprehensive basis on which to develop a credible methodology for the large-scale assessment of perceived landscape quality.

The analysis of human perception and interaction with aesthetics and landscape quality is gained by inquiring in depth into a range of theoretical constructs from key disciplines, cultural aspects, and empirical studies covering:

- the contribution of philosophers to aesthetics
- the psychology of perception and colour
- the contribution of Gestalt psychology to aesthetics
- the psychoanalytical construct of human responses to aesthetics
- the influence of culture on landscape preferences, tracing the changing perceptions of mountains, the portrayal of landscapes in art, and the design of parks and gardens
- a review of over 200 surveys of landscape quality in the late 20th century, including typologies and theories of landscape quality

Based on the analysis of these and the knowledge gained, an empirical study is formulated and conducted, comprising a study of landscape quality of South Australia, an area of nearly 1 million km^{-1}.

This involves, firstly, the acquisition of data covering the delineation of landscape character regions for the State, photography of these landscapes, derivation of a set of representative slides, and rating of these by groups of participants.

Secondly, these preference ratings are comprehensively analysed on the basis of the attributes of the scenes covering land form, land cover, land use, water bodies, naturalism, diversity and colour.

Thirdly, the results are applied as follows:

- a map of landscape quality of South Australia is derived
- the results are used to predict the effect that changes in land use (e.g. clearance of trees) will have on landscape quality
- the theoretical constructs of landscape quality are evaluated on the basis of the preference ratings
- a protocol is detailed to guide the undertaking of large-scale landscape quality assessment

The thesis thus fulfils the objective of conducting a thorough analysis of human perception and interaction with, aesthetics and landscape quality, to provide a basis for developing a credible methodology for the large-scale assessment of perceived landscape quality.

PREFACE

This thesis represents the fulfilment of a personnal quest, a search for understanding why we humans like beautiful landscapes, indeed, why we can regard landscapes as beautiful.

Originating in bushwalking trips to natural areas in Australia in the 1960s this quest was stimulated by travel in Europe, North America, Israel and New Zealand over the ensuing decades. The following quote from personal notes on a visit to the Lake District in England in 1984 indicates the state of my interest at the time:

> "The lakes are simply superb, delightful and beautiful. I kept asking myself, what is it that makes them so lovely? Is it the variety of colours - the lush green, the mottled hues of trees, the blue lakes, the bright red and purple of the rhododendrons, the yellow buttercups; is it the land form - ever changing, contorted, full of surprises around every corner, different everywhere you look, new and exciting, grassy fields which sometimes look as though they are green felt draped over a skeleton of rocks; or is the hand of man - apparent in the herds of straggly woolly sheep crying out to be shorn, the grey flat stone walls across fields, the delightful little villages surrounded by enclosed fields, and the stands of woods.
>
> "Each one of these elements - land form, land use, and land cover are the elements of landscape and, in the case of the lakes, each on their own would be sufficient to be a beautiful place. Put all three together and you have an outstanding area.
>
> Why is it that we humans seem to like particular scenes though puzzles me. Yet there was no doubt in my mind that the scree slopes, forested with planted softwoods above Thirlmere, just didn't compare with the variety of colour and form, of 'bumpy' fields, of farm animals, of a lakeshore, of Esthwaite or Windermere or Grassmere."

The quest for answers reached a threshold point in the early 1990s in a realisation that, if explanation was to be obtained to achieve personal satisfaction, it would only be fulfilled through a process of rigorous study and inquiry. Hence the PhD.

The personal motivations for the quest are relatively straightforward to discern. In the late 1960s environment management, my real interest, did not exist as a tertiary course. So I trained in urban and regional planning followed by post graduate studies [MSc Environment Resources] in the UK [University of Salford, 1973]. Returning to Australia, I commenced working in the newly formed South Australian Department of Environment and Conservation, the agency responsible for environment management in the mid 1970s.

Working across environmental impact assessment, environmental planning, environment policy development, environmental economics, state of environment reporting, mapping of vegetation clearance, and working across state as well as national issues, I became familiar with, and in many ways contributed to, this process of explanation and management of environmental components.

In the early 1980s I supervised a master's thesis on wilderness conservation in South Australia [Lesslie, 1981] and this triggered a realisation that landscape, like wilderness, was a qualitative aspect of the environment deserving of explanation. If this could be achieved with wilderness in a program of work which later [1995] culminated in mapping of wilderness quality across Australia, I reasoned why could not a similar outcome be achieved for landscape?

Yet attempts at landscape quality assessment were patchy, highly individualistic, statistically unsound in methodology and lacking comparability of technique, let alone reproducible results. Personal involvement included engaging consultants to undertake several landscape studies [Dallwitz, 1977; Sanderson, 1979], examining several theses of landscape surveys [eg Dare, 1978], and reviewing landscape studies in South Australia [Lothian, 1984].

With so much known about the environment compared with the state of knowledge 20 - 30 years previously, yet with landscape quality the one area that defied explanation, the challenge presented itself to resolve. Being able to

measure landscape quality; map it and to apply a method at a State-level and then nationally were key goals.

The quest of explanation has taken a somewhat unusual path, to the exasperation initially of my supervisors, but gradually with their understanding and forbearance that this was a personal odyssey to be enjoyed for the journey it provided, rather than for the destination that may or may not be attained. As a mature age student, the interest was definitely in the journey, the explorations of various possible explanatory pathways and alleys that sometimes were blind but worth pursuing nonetheless. The study comprised three distinct parts, reflecting a process of increasing specificity of purpose and these are the parts contained in the thesis.

The first part, the most discursive, tracks across a range of possible explanatory models. Philosophy, it was reasoned, should reveal why humans like landscapes, because beauty has been a subject of philosophers literally for millennia. Psychoanalysis with its understanding of the unconscious should have an explanation of why beauty is appreciated. Theories of perception and Gestalt psychology could surely offer understanding for the perplexed. The influence of culture on human appreciation of landscape was examined for an understanding of whether beauty is merely a cultural contrivance determined by one's cultural upbringing or something more innate. Each of these issues is subject of the exploratory papers in Part One.

Part of this exploration has resulted in the publication of a paper [Lothian, 1999] that synthesised aspects of philosophy and psychoanalysis. More papers are intended to make the fruits of this quest more widely available. By the end of the first part, one is more informed and perhaps wiser about a range of possible explanations of the central question - why humans like landscapes and some pointers for future directions of inquiry emerge.

The second part focuses on what landscape studies can say about human landscape preferences. It covers the underlying constructs or theories on which studies are based, the methodologies that have been developed to measure these preferences, and the findings of the studies. This part is exhaustive in covering over 200 surveys and provides much detailed understanding of the dimensions and characteristics of human landscape preferences.

The third and final part, the application phase, culminates the analysis of the first and second parts, an assessment of landscape quality at a State-wide level. South Australia as a whole was the subject, selected on the basis that if a methodology could work at this scale, then its application nationally would be largely a question of adequate resources, not of some fundamental inadequacy.

The methodology essentially sought to relate human preferences, the dependent variable, with the characteristics of the landscape, the independent variable, and to use this as the basis for mapping landscape quality at a State-wide level. It has involved deriving a map of landscape character for South Australia, photographing the South Australia landscape travelling nearly 20,000km throughout the State, selecting 160 slides for rating purposes and having over 300 respondents rate these in landscape quality terms. Based on this, a detailed analysis of the results was undertaken and relationships between the dependent and independent variables derived; relationships between human preferences and the physical landscape.

The result is a thesis that is believed to go a long way towards fulfilling the original quest. It is not claimed to have fulfilled this in its entirety, inevitably through the long and detailed process involved one is all too aware of shortcomings, of areas where more work is needed, of frustration in not gaining the complete understanding sought. But also the result is a sense of accomplishment, of fulfilment in what has been done. At the end the achievement has been of being more able to answer the question, why humans like landscape?, and to have applied this knowledge to its identification and measurement that can form the basis for its management and protection.

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ATTACHED CD

The following are located in the CD enclosed with the thesis

Summary
An extensive 23 page summary of the thesis.

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Appendix 7.3 Types of Numbers and their Capabilities

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Appendix 10.11 Colours of Slides Designation: Hue/Saturation/Lightness
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Appendix 10.14 Saturation and Lightness of Dominant Colours
Appendix 10.15 Scoring of cloud cover

References
The references used in the preparation of the thesis are shown under their relevant chapter headings.

Reference set of scenes
The 160 scenes used in the thesis are shown in a Powerpoint file on the CD. This also displays the distribution graph of preferences for each scene, their means and SDs, locational information and descriptions of the scenes.

Overview
This Powerpoint presentation summarises the methodology and findings of the survey of landscape quality of South Australia.