6. DISCUSSION AND CONCLUSIONS

The Flinders Ranges Landscape Quality Assessment Project commenced with the objective of measuring and mapping the landscape quality of the Flinders Ranges north of Hawker. This objective has been fulfilled and this report has described the implementation of the project.

Several issues have been raised through the project:

1. What is an appropriate threshold level of scenic quality to be considered vital to protect?

2. How well do the Class A and B Environmental Areas of the Flinders Ranges Planning Area Development Plan under the Development Act protect the highly rated areas?

3. How similar to the results are earlier attempts to assess the landscape quality of the Flinders Ranges?

4. What implications do the results have for policy and planning of the region?

5. Do the findings support the theory of landscape aesthetics that landscape preferences favour landscapes which are survival enhancing?

Each of these issues is addressed below.

6.1 THRESHOLD LEVEL

The rating scale used in the survey was 1 (low) to 10 (high) and the mean ratings derived from the survey participants ranged from 3 to 8. This is an identical range to that derived for South Australia (see Figure 3.3 in Chapter 3). Much of South Australia rated 4 and 5 and higher ratings were comparatively rare.

An appropriate threshold for the Flinders Ranges is considered to be 6. This figure and above cover the highland areas of the region while the lower and flatter areas rated 3 – 5.

6.2 DEVELOPMENT PLAN

The original designation of the Class A, B and C Environmental Areas of the Flinders Ranges Development Plan in the early 1970s was based on their general environmental value including their scenic quality (see Figure 3.1 in Chapter 3). The designation was undertaken based on knowledge and experience of the region but not on any explicit survey of landscape preferences.

The current Development Plan for the area is titled: Land Not within a Council area (Flinders). This extends from the northern boundary of the Flinders Ranges Council and covers the entire Flinders Ranges north to Moolawatana.

The Plan has the following four zones:

PaLa  Pastoral Landscape Zone
Pa    Pastoral Zone
EnA   Environmental Zone Class A
EnB   Environmental Zone Class B

Section 3.4 of Chapter 3 described the derivation and meaning of the Environmental Zones. Class A aims to conserve the environment and landscape of the area and restricts new buildings and structures, mining and new roads. Class B allows somewhat greater freedom of development.

Most of the boundaries of the EnA and EnB areas in the Development Plan were defined by Pastoral Lease boundaries, a few boundaries by joining defined points and the remainder by fences and tracks. Thus in order to provide a clear definition, the area often extended beyond the highly rated areas.

The scenic quality ratings have been compared with the Plan’s zones for the Elder – Wilpena – Heysen Range and the Arkaroola – Mt Painter – Freeling Heights areas (Figures 6.1 and 6.2).

The differences between the Plan and the scenic quality ratings are summarised below.

Elder – Wilpena – Heysen Range

The Development Plan designated these Ranges as EnA which extended west from the Heysen Range onto the Lake Torrens plains nearly to the Hawker – Leigh Creek Road and east to the Wilpena – Blinman road. All of the areas identified as scenic quality ratings 7 and 8 were within the EnA area. The western plains were rated 4 and the eastern areas ranged from 6 to 4. From the EnB the highly rated EnA areas can be
Figure 6.1 Elder – Wilpena – Heysen Range area comparison
Figure 6.2 Arkaroola – Mt Painter – Freeling Heights area comparison
viewed including the scenic quality ratings of 6, 7 and 8.

A peculiarity is that the Elder Range is truncated by administrative boundaries so that the EnA covered only its northern half while the southern part lies in Flinders Ranges Council. There it has also been zoned and Environmental Zone Ra(A). This has also been applied to the Chace Range where the EnA has been extended by the Ra(A) designation.

Arkaroola – Mt Painter – Freeling Heights

The Plan designates the Mt Painter and Freeling Heights areas as EnA and the area south (approximately south of Coultauds Lookout) as EnB.

The EnB area contained scenic quality ratings of 5 and 6, the 6 confined to the Nepouie Range north of Balcanoona. The areas rated 6 and 7 covering the Mt Painter and Freeling Heights lay within EnA areas.

The EnA area extended east onto the Lake Frome plains to the boundary of the Arkaroola lease. Westward the EnA area boundary coincided with the area rated 6 adjacent to Freeling Heights. The EnA area at Mt Painter extended further west and north than the area rated 6 at Mt Painter.

Other areas

The area termed the “central ranges” between Blinman and Nepabunna contains the Mt Hack, Mt Uro, Patawarta Hill, Campbell Hill Range, Jubilee Range, Stirrup Iron Range and Chambers Gorge. Apart from Chambers Gorge which rated 7, the other highland areas rated 6.

The Development Plan designated Chambers Gorge, the Mt Hack – Patawarta Hill area and Stirrup Iron Range as EnA. The remaining areas were designated EnB.

The Gammon Ranges area was designated EnA and this covered the entire area north of the Nepabunna – Balcanoona Road to Yadaninna. While the core Ranges were rated 7, the lower ranges rated 6 and the flatter areas 5.

Overall there were distinct differences between the areas designated EnA and EnB and the areas rated 6, 7 and 8. Generally the rated areas were far more confined to specific ranges whereas the EnA areas extended to a definable boundary such as the Pastoral Lease boundary, a fenceline or track. In no instance however was a highly rated 6, 7 or 8 area not classified EnA and it is therefore not proposed that the EnA and EnB designated areas should be changed as a result of this study.

6.3 RATINGS BY OTHER SURVEYS

Section 3.4 in Chapter 3 reviewed the past surveys of the Flinders Ranges landscape quality. Apart from the Development Plan, these were by John Dallwitz and the author.

The map by Dallwitz (Figure 3.2) essentially classified as Outstanding Grade the high ranges defined by rather broad boundaries. The entire Arkaroola and Mt Painter area was so designated as were the Gammon Ranges and extensive parts of the central ranges. The Heysen and ABC Ranges together with Wilpena and the Elder Range were classified as Outstanding though, curiously, the Moralan area was omitted. While Dallwitz’s map provided somewhat better definition of scenic areas than that provided in the earlier Development Plan (see Figure 3.1), the boundaries of the Outstanding areas remained rather loose.

As a State-wide assessment of landscape quality, the author’s map (Figure 3.3) lacked detail of the Flinders Ranges. It rated the Elder – Moralan – Wilpena area as 8, the Heysen Range and the Gammons and Mt Painter – Freeling Heights as 7. The remaining highland areas including the central ranges were rated 6. The lower areas were rated 5 and this extended to the north east of the Ranges onto the Lake Frome plains. Thus although the key highland areas were identified, their rating was higher that of the current survey.

This was reflected in the ratings of the individual scenes (Figure 6.3) where the identical scene was rated higher by the earlier survey. The average difference in ratings of the five scenes (Table 6.1) was 0.48 and in all cases the original rating was higher than from the current survey. This may be explained by the smaller survey sample in the original survey of 319 which provided a confidence interval of 5.5 compared with the sample of 2422 in the current survey (CI = 1.99). Thus one can have far greater confidence in the ratings of the current survey than those of the original.
Table 6.1 Ratings of common scenes

<table>
<thead>
<tr>
<th>Scene</th>
<th>Original</th>
<th>Current</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edeowie rockface</td>
<td>8.4</td>
<td>8.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Moralana - Wilpena</td>
<td>8.3</td>
<td>7.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Edeowie Gorge</td>
<td>8.2</td>
<td>7.4</td>
<td>0.8</td>
</tr>
<tr>
<td>The Armchair</td>
<td>7.6</td>
<td>7.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Aroona Valley</td>
<td>7.4</td>
<td>7.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Note: Original scenes from Lothian 2000

Figure 6.3 Scenes used in original and current surveys

6.4 POLICY AND PLANNING

The project contract did not require the provision of comments or suggestions in relation to policy and planning of the Flinders Ranges, however based on the survey there are some areas in which it may be useful to comment.

Although scenic quality underwrites much of the tourism and outdoor recreation industries, in many areas compared with other environmental resources, landscape quality has not been regarded as an environmental resource deserving of protection and management. “Scenery is a resource and it must be considered along with other resources if rational planning decisions are to be made” wrote an Australian planner, George Wright in 1974. Fortunately for the Flinders Ranges landscape, the Development Plan both recognised and offered protection of the scenic qualities. In the Australian context, such protection is rare.

Unlike physical environmental resources such as flora and fauna which require protection including of their habitat, scenic quality is a derived environmental resource which reflects qualitative values. Scenic quality is not
absolute in that it is always present but varies in quality from low to high. Scenic quality may be diminished by developments and other actions but is never entirely lost.

Unlike other environmental resources such as biodiversity, soils, water and the underlying geology which are assessed by objective explicit methods, as a qualitative resource, landscape quality can only be assessed through measuring human preferences. Because it is a subjective quality, it is often regarded as unmeasurable, however, as demonstrated by this survey, such subjective preferences can be measured objectively. The rigour and objectivity of the methodology provides confidence in the results, that they are robust and should withstand judicial review.

While the resultant map of scenic quality for the Flinders Ranges could provide the basis for a revision of the Environmental Class A and B areas under the Development Plan, such action is not advocated. As found earlier, all of the highly rated areas (6, 7 and 8) are covered by EnA designation which protects their scenic quality. There would be little gained from a revision of the boundaries. The Development Plan establishes the following three objectives for the EnA areas:

1. The conservation of the natural character and environment of the area.
2. The protection of the landscape from damage by mining operations and exploring for new resources.
3. Roads which do not unduly disturb the natural character and beauty of the area.

The principles of development control for the EnA areas were defined as follows.

**Principles of Development Control for EnA areas**

1. Development should not impair the natural and scenic features of the area.
2. No new roads or tracks should be formed or constructed in the Environmental Class A Zone.
3. Native vegetation should not be cleared in the Environmental Class A Zone.
4. No mining operations should take place in the Environmental Class A Zone except where:
   (a) the deposits are of such paramount significance that all other environment, heritage or conservation considerations may be overridden;
   (b) the exploitation of the deposits is in the National or State interest;
   (c) investigations have shown that alternative deposits are not available on other land in the locality outside the zone; and
   (d) the operations are subject to stringent safeguards to protect the landscape and natural environment.
5. No buildings or structures, including transmission line towers and antennae, should be erected in the Environmental Zone Class A other than:
   (a) simple shelters and rainwater storages for walkers and persons on horseback; or
   (b) buildings which form extensions of existing pastoral homestead or tourist hostel developments, provided that they are:
      (i) located within or form compact and continuous extensions of existing groups of homestead or hostel buildings;
      (ii) in keeping with the existing use of the land;
      (iii) of the same or lesser scale as existing buildings;
      (iv) constructed of materials which blend with the landscape;
      (v) sited and designed to be unobtrusive; and
      (vi) sited so that excavation to access tracks and utilities are minimised.
The coverage of these principles appears satisfactory. However the following matters could be considered.

Roads and tracks

The principle regarding new roads or tracks is vital. The presence of roads and tracks diminish the naturalness quality of areas and this affects their scenic quality rating. It was found that a possible reason for the 6 rating of the Mt Painter area rather than 7 was because of the remnant mining tracks which date from the late 1960s.

Some of these tracks, such as the Ridgetop Tour track, have been maintained and possibly upgraded since then. While such tracks enable many people to visit and enjoy these areas who would otherwise be unable to do so, this needs to be balanced against their undoubted effect on scenic quality. The Ridgetop Tour track is only available to vehicles from Arkaroola but mining companies also gain access to this and the other tracks.

It may be desirable to establish guidelines on the future maintenance of these tracks to ensure that they do not further impair the scenic quality and to confine any upgrading to that which is necessary for safety. Restrictions over who may take vehicles on them may also be considered.

Mining

The Development Control principles add a further requirement regarding the need for alternative deposits to be investigated. This appears a quite impractical provision as a mineral exploration license is area-specific and the company involved would be unlikely to have a range of choices. It has been demonstrated that there are large deposits of uranium on the Lake Frome plains which are being worked but this has not stopped a mineral exploration company from conducting activities in the Mt Painter area which is subject to the EnA provisions.

The wording of this development principle appears contradictory. The first part allows environmental, heritage or conservation considerations to be overridden in the National or State interest but the final part requires safeguards to protect the landscape and natural environment. It would be preferable for the final part to acknowledge the protection of the remaining landscape and natural environment.

Comments made by participants summarized in Section 5.9 included many passionate about the beauty of the Flinders Ranges and the need to protect this scenic beauty.

“We are sitting on a true wonder of nature, Please manage it cautiously. Its worth can not be measured in $” (#279)

“The beauty of the Flinders Ranges should be preserved at all costs. It is our natural heritage and no-one should be given the opportunity to destroy or mar it in any way!” (#311)

“Absolutely spectacular beautiful scenery. We certainly are the lucky country to have such natural scenery to look at.” (#438)

The comments regarding mining were salient:

“The Flinders Ranges are not just an icon of Australia, they are a magnificent natural wonder of this ancient country and planet that has existed for years longer than we can count in a day. No amount of money by drilling or mining can justify invading this area.” (#670)

“The Flinders Ranges is a precious arid mountain range and should be highly valued by South Australians. It horrifies me to know that the State Government is considering allowing Marathon Resources to mine in the Arkaroola Mt Painter sanctuary. The damage/vandalism that they have already done is a disgrace and they should be banned from any further access to this precious place. We ought to protect these areas - not contribute to their destruction.” (#154)

“The Flinders Ranges have a wealth of fabulous country and I would like to see Arkaroola protected from mining - what the mining company did there in recent times was absolutely unacceptable and there should never be another chance for such destruction in this uniquely beautiful area.” (#364)

Comments such as these and others recorded indicate that the threshold for permitting mining "in the National or State interest” must be set very high. With better placed alternative resources available (which appear to meet the third development control
principle) it would seem difficult to sustain a case for mining in the Mt Painter area.

6.5 LANDSCAPE THEORY

The prevailing theories of landscape aesthetics, which attempt to explain why humans like particular landscapes, are based on an evolutionary perspective which suggests that preferences are survival enhancing – humans like landscapes which will better ensure their survivability as a species.

The harsh conditions prevalent in arid mountainous landscapes such as the Flinders Ranges appear contrary to this – survivability in such an environment is problematic without sufficient resources.

Human attitudes towards mountains up to the 17th century were hostile, perhaps intuitively reflecting the influence of the survivability instinct. Such areas would have presented major challenges for survival in such times.

The history of agricultural development of the Flinders Ranges, the push northward of cereal cropping in the 1860s and 70s during good seasons, reflecting the false dictum that “rain follows the plough”, and the subsequent return of the normal harsh conditions and the tragic human consequences of failure reinforced the hostility of the Ranges to human endeavour.

The scenic quality rating based on human preferences that has been derived for the Flinders Ranges reflected the negative influence that aridity had on preferences. Ratings were higher for the better watered, lusher environments of the southern areas around Moralana and Wilpena but lower for the northern arid areas of the northern Flinders Ranges particularly in the Arkaroola and Mt Painter areas. This tends to conform to the expectations of the theory.

Figure 6.3 compares the lushness-aridity scores with the ratings. A low score on the lushness-aridity scale indicates lushness and a high score indicates aridity. The graph demonstrates convincingly that arid scores attracted low ratings whereas lushness scores attracted high ratings. The correlation was -0.62. The slope in the equation: \( y = -0.89x + 9.42 \), indicates that for each unit increase in the lushness-aridity score, the ratings fell by 0.89.

The lack of the presence of water in virtually all of the scenes (with the exception of small waterfalls in an Edeowie Gorge scene) was a factor in keeping ratings down. The presence of water almost invariably enhances scenic quality ratings (the exceptions being heavily polluted or coloured water). Scenic quality ratings would be raised for the Flinders Ranges when water is present in many of the creeks and waterholes. This again reinforces the survivability demand of landscape theory.

6.6 CONCLUSIONS

The completion of this survey of scenic quality preferences for the Flinders Ranges in South Australia is a landmark in that it is the first known survey of arid mountainous landscape quality anywhere, certainly in Australia and possibly the world.

The Flinders Ranges present a unique landscape, one which resonates closely with Australians and South Australians in particular. The history of its settlement has been woven into the folklore of the State and the images created by Hans Heysen and other artists and photographers have reinforced its iconic stature.
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