How to Include Scenic Assessment in Park Planning:

An approach based on Geographic Modelling and Objective Community Participation[1]

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ABSTRACT

With trends toward increased use of scientific and community-validated data in park and open space planning, there is a need to ensure that the rigor behind assessment of 'subjective' resource values is commensurate with the accuracy of relatively 'hard' resource attributes, such as economic potential or biodiversity value. An open and scientific procedure was used to map the types of scenery preferred by potential visitors to the Glen Rock regional park, about 130 km southwest of Brisbane. Scenic amenity maps were included with GIS data on other resource values and community preferences to develop a recreation and multiple use management plan for the property. The procedure utilises two criteria to map scenic amenity, defined as a measure of the community's appreciation of landscape aesthetics. The first criteria, visual exposure, estimates the extent that a place in the landscape can be seen. Information on the pattern and intensity of anticipated recreation use was combined with topographic data to produce visual exposure maps. The second criteria, scenic preference, is a rating of peoples liking for different types of scenery. A set of 21 carefully selected photos was shown to 60 potential park visitors and neighbours to identify landscape features that affect people's preferences. This process identified preferred landscapes, such as shady mountain-tops, and non-preferred landscapes, such as dry creek beds. Responses also provided insight into people's preferences for recreation infrastructure. A mathematical equation was developed from measurements of photographs. These equations were applied to GIS data on land cover and topography to produce a map of scenic preference. The scenic amenity assessment has affected recommendations on the planned location and design of recreation infrastructure and recreation trails to enhance visitor experience. The method demonstrates the benefits of using a community-based approach to assess scenic amenity for recreation and multiple use planning of parks and open space.

Park context and scenic assessment

Recognising and assessing the scenic resources of parks and their surroundings is a pursuit which engages most, if not all park managers and planners. The aesthetic inspiration of parks is widely appreciated by park professionals, visitors, and the

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community at large. But increasing recreational use, the requirement for more infrastructure inside parks, and urbanisation of surrounding lands can have significant impacts on their visual appeal. Despite increasing concern about the visual impact of developments, these concerns are often insufficient to withstand the rigours of many land use debates.

Whilst changes to more intensive land use is inevitable in many areas, low confidence in the quality of scenic assessments is often a significant factor in the determination of land use outcomes. Information about scenic values is often poorly substantiated, particularly when compared to evidence on economic benefits of development and some environmental values. Take for example, the substantial efforts devoted to measuring wood and biodiversity values of forests since the early 1990's.

All too often, park managers and planners have needed to rely on their own resources or the opinions of one or the other expert. In arguing the case for scenic values and sensitivity to development, we need to be aware our own opinions are affected by our personal experience and belief systems, and may not coincide with those of park visitors and neighbours. The question for many park managers is therefore: how to ensure scenic values receive adequate and accurate recognition when balancing competing uses within parks and surrounding lands.

In this paper, we introduce an assessment method based on geographic modelling and objective community participation which was used in developing a management plan at Glen Rock, a regional multiple use park, of about 6,300 ha, about 130 km west of Brisbane. We argue that for modern park planning, it is beneficial to include a high level of information about visitor and neighbour preferences for different types of scenery, and that the assessment of visibility be undertaken using geographic modelling. A more complete description of the scenic amenity study at Glen Rock is given in Preston (2001)(b).

Scenic assessment at Glen Rock

The Glen Rock Regional Park is a showcase for the South East Queensland Regional Landscape Strategy. The property was purchased in about 1996 to provide an expanded range of uses for residents and visitors to the region, and to demonstrate best practice planning and management. Whilst outdoor recreation and education are two new uses of the property, parts of the park will continue to be used for cattle grazing. Nature conservation is also a high management priority.

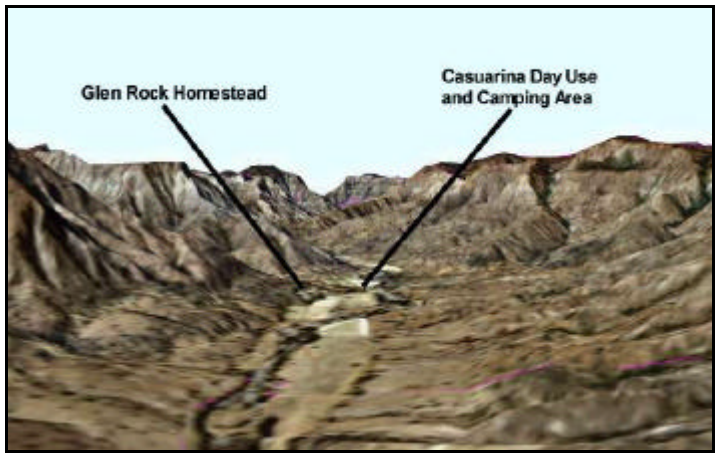

Figure 1. Computer generated 3d view of Glen Rock looking south up Black Fellow Creek

As seen in Figure 1, the main valley of the park follows Blackfellow Creek up to rugged gorges, ridges, and the high plateaus in the upper reaches of the Tenthill Valley. Much of the lower valley has been cleared and some alluvial flats near the creek grow irrigated

pasture for cattle fodder. Natural vegetation communities range from open woodlands to patches of dry and wet rainforest. Wildlife such as the vulnerable brush-tailed rock wallaby, powerful owl and glossy black cockatoo inhabit the area.

Three sites have been developed for picnickers and campers since 1996, but major recreation development has been postponed until preparation of a comprehensive management plan. The main camping site 'Casuarina', is near the main homestead of the property.

A Glen Rock Community Advisory Committee, established by the Regional Landscape Strategy, decided to develop a multiple use management plan for the park in 2000, using a participatory and multiple use planning process, designed by the Forest Planning and Sustainable Use Branch of the Department of Natural Resources (Department of Natural Resources, 2000). This process aims to optimise community benefit from sustainable use. Values and uses taken into account include grazing, ecotourism, nature conservation, cultural heritage (non-indigenous), cultural heritage (Indigenous), military training, forest products, scenic amenity, outdoor recreation, outdoor education, and water quality and quantity.

The geography of Glen Rock is challenging for scenic management because recreation access and infrastructure near the main entry road (Figure 1) is located in cleared areas that are highly visible from forested lookouts and trails around the edges of the valley. The challenging geographical context for Glen Rock and the broad range of land uses and potential visitors provide a suite of issues for sound management and planning of the property.

Over the past 2 years, the South East Queensland Regional Landscape Strategy has wrestled with the question of how best to assess the scenic value of open space, compared to alternative land uses including housing development and infrastructure such as powerlines and roads. This background study (Preston, 2001 (a)) is based on investigations for a semi-rural landscape at Moggill on the outskirts of Brisbane.

How to measure scenic value

The Moggill study, conducted in conjunction with the Brisbane City council, developed an approach for scenic assessment involving community surveys, to determine peoples preferences for different types of scenery, and modelling 'seen areas' using Geographic Information Systems. Whilst the technique was developed for 'whole of landscape' assessment, including urban and natural areas, the Regional Landscape Strategy has an interest in assessing the use of the approach for recreation and multiple use planning of parks and open space.

After a review of alternative approaches to assessment of scenic value, the Moggill study decided to employ an approach likely to have stronger political and community credibility than current expert-based procedures.

Rather than use more widely acknowledged definitions such as landscape value or visual quality, the Moggill study also revisited basic assumptions about how people value scenery. The study resolved that people are likely to be influenced by their cultural and physical environment, and that people value scenery because it affords a range of emotional responses. Not only do people value scenery because it is beautiful, but it is also valued because it is relaxing, interesting, or invigorating. The study also decided that it was important for the community to identify and weight the effect of various landscape elements, rather than assume that landscape theory adequately describes the importance of landscape features.

The first criteria used to value scenery was described as *scenic preference*, which is simply, a measure of what people like to look at. Whilst this definition puts to one side much established theory about which landscape elements are universally valued, it allows the community to give emphasis on those landscape elements which are relevant to the geographical and social context of a planning area.

The second criteria selected to represent the value of scenery was described as *visual exposure*, which is simply a measure of the extent to which places in the landscape are seen. This recognises that areas are more important if they are prominent and can seen by more people. It recognises that attractive areas are more highly valued if access is provided for people to see them, and that people are concerned if unsightly objects are not hidden by vegetation or topography.

As depicted in Figure 2, it is the combination of these criteria that determines the value of scenery. The Moggill study advocates use of the term *scenic amenity*, to distinguish this value from other terms in popular use. Scenic amenity is defined as a measure of the community's appreciation of landscape aesthetics (Preston, 2001(a)). An area has high scenic amenity where its appearance is liked by most people, and it is also seen by a relatively large number of people.

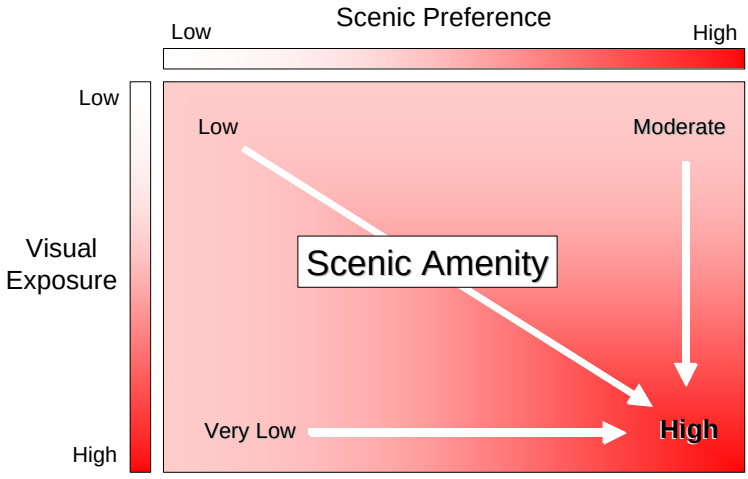

Figure 2. Criteria for assessing the significance of scenery

Whilst being considerably broader than other definitions, and having fairly open criteria, this approach has considerable appeal because it takes a democratic approach to assessing the importance of scenery. This approach of community involvement in the assessment process is commensurate with the evaluation of other values undertaken for the Glen Rock Management plan.

For example, a community survey of different resources values and uses (Tumaneng-Diete, 2001) conducted for the Glen Rock Management Plan, showed that scenic amenity (called scenic qualities and landscape amenity in the survey) was as important as forest production and cultural heritage, and was more important than other several values such as cattle grazing and ecotourism (Figure 3). It should also be noted that the high importance given to Catchment Protection and Water Protection may be associated with the demand for water for crop irrigation in the Lockyer district around Glen Rock where the survey was undertaken.

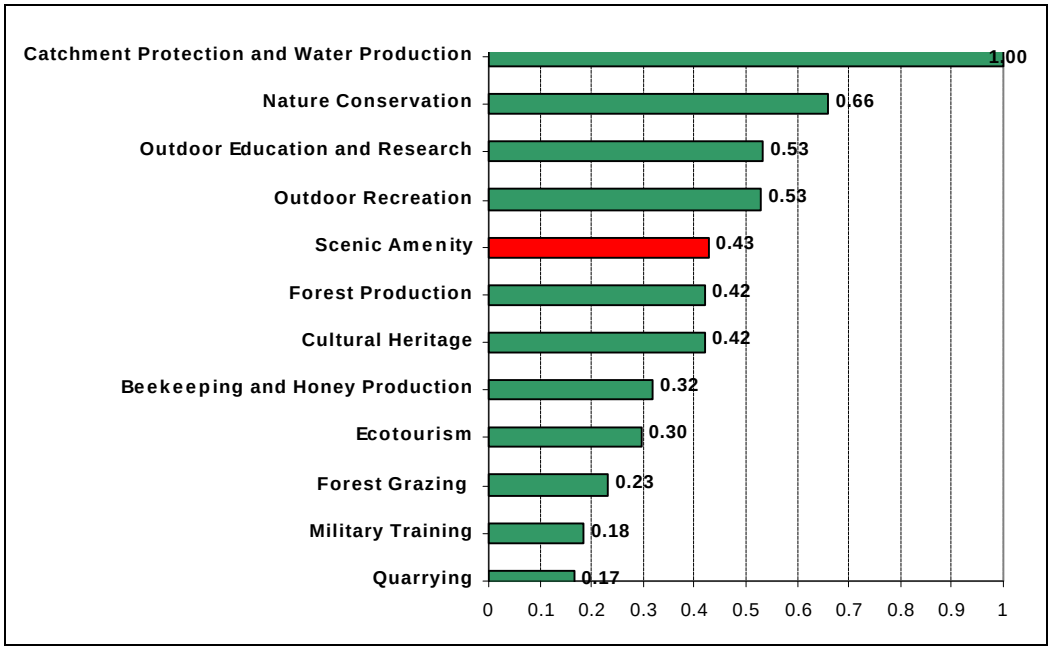

Figure 3. Community values for Glen Rock

Process for assessing scenic amenity

The assessment process defined by the Moggill study (Preston, 2001 a) has five stages as depicted in Figure 4.

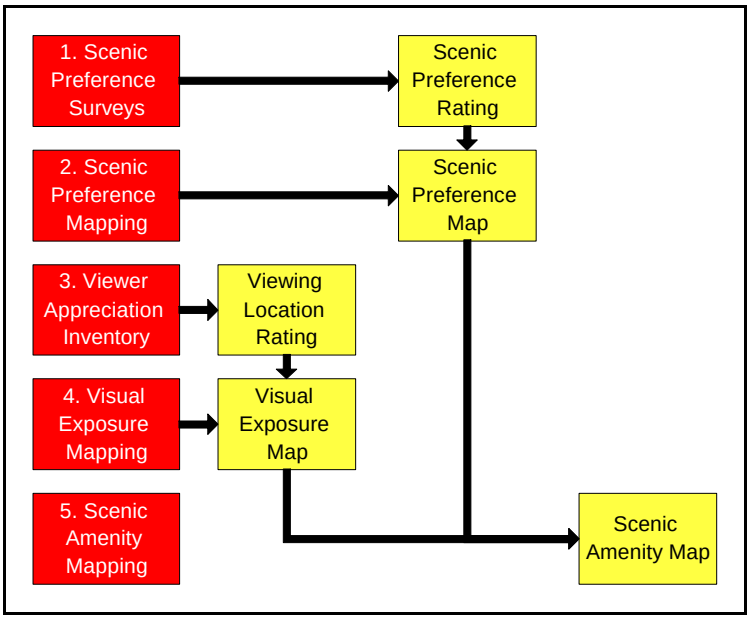

Figure 4. Stages involved in assessing scenic amenity

Scenic preference surveys (box 1 in Figure 4) are used to develop a statistical model and obtain qualitative information about peoples responses that express community preferences for different types of landscapes. This model is applied during scenic preference mapping (box 2 in Figure 4), which relates people's preferences to maps of land cover and topography.

A viewer appreciation inventory (box 3 in Figure 4) is used to identify important viewing locations and allocate a rating to each location based on an estimated viewing duration, number of viewers per day, and appreciation level for the major viewing groups. It also takes into account the visibility from the viewing location.

Visual exposure mapping (box 4 in Figure 4) relies on the use of a digital terrain model to assess how often a place in the landscape can be seen from different viewing locations. This assessment is weighted by the distance between a point in the landscape and the viewing location, and takes into account the orientation of the landscape to the viewer, and the importance rating of the viewing location.

The final stage of mapping scenic amenity (box 5 in Figure 4) requires integration of the visual exposure map and the scenic preference map, to identify the relative contribution made by different places in the landscape to the collective community appreciation of scenery.

Assessing scenic preference

The first step in the Glen Rock survey was to define a community of potential park visitors and neighbours. Whilst the original Moggill pilot project sampled 210 people, the resources and time frame for this project allowed a maximum of 60 people to be surveyed. The availability of resources also precluded random selection of interviewees. Care was taken to ensure that people were selected to cover a broad cross-section of ages, gender, and familiarity with Glen Rock.

Based on discussions with recreation planners from the Glen Rock management planning team, the sample of people included representatives from outdoor recreation groups from Toowoomba (about 1 hr 30 mins by car west of Glen Rock), recreation groups from Brisbane (about 2 hrs east of Glen Rock), residents of Gatton Shire (Glen Rock is Gatton Shire), and international visitors to south-east Queensland. Government natural resource professionals were also included in surveys to assess scenic references. Table 1 shows the balance of gender, recreation groups, and location.

Table 1. Characteristics of people interviewed

	Number of people								
	Gender		*Rec. group*		*Based in*				*Total*
Sample group description	*Female*	*Male*	*Rec. group*	*Not rec.*	*Gatton - Laidley*	*Toowoomba*	*Brisbane*	*Other*	
Government. natural resource planners	4	2		6			6		6
Brisbane bushwalkers	4	1	5				5		5
Brisbane horse riders	2	3	5				5		5
Brisbane ornithologists	2	2	5				4		4
Gatton rural residents	7	5		12	12				12
Gatton town residents	3	3		6	6				6
Others	2			3			3		3
Toowoomba horse riders	2	3	5			5			5
Toowoomba 4WD	1	3	4			4			4
International backpackers	6	4		10				10	10
Total	*33*	*26*	*24*	*37*	*18*	*9*	*23*	*10*	*60*

A set of 21 photos was selected to provide a broad representation of different landscape types at Glen Rock. This set of 21 photos was used during scenic preference interviews.

Each of the 60 people were individually asked undertake the following tasks during interviews:

(a) rank the photos in order on a table from the scene which is most preferred to the scene which is least preferred
(b) record a rating from the most preferred scenery (10) to the least preferred scenery (1)
(c) record a score from 7 to 1 to indicate whether the scenery is (a) calming, (b) interesting, or (c) beautiful. A score of 7 indicates a strong positive response. A score of 4 indicates a neutral response, and a score of 1 indicates a strong negative response.
(d) for each photo record your answer to the questions, (i) 'What was your first response?' and (ii) 'What did you notice in the scenery?'
(e) record other information about your —
– familiarity with natural landscapes (bushlands) (7–1)
– familiarity with rural landscapes (7–1)
– familiarity with river landscapes (7–1)
– familiarity with landscapes around Glen Rock (7–1)
– age, gender, occupation, country of birth
– suburb, block type (e.g. suburb, rural-residential, agricultural).

Data was summarised for scenic preference rating, emotional response, and the frequency of words used to described the scenery.

The two photos receiving the highest ratings are shown in Figure 5. The two photos receiving the lowest ratings are shown in Figure 6.

Photo:	1
Ave. Rating:	9.5
Commonly noticed:	Water
Common response:	Peaceful

Photo:	14
Ave. Rating:	8.4
Commonly noticed:	View
Common response:	Beautiful

Figure 5. Most preferred scenery of peaceful water (photo 1) & a beautiful view (photo 14)

Photo:	13
Ave. Rating:	4.5
Commonly noticed:	Dead tree
Common response:	Dry

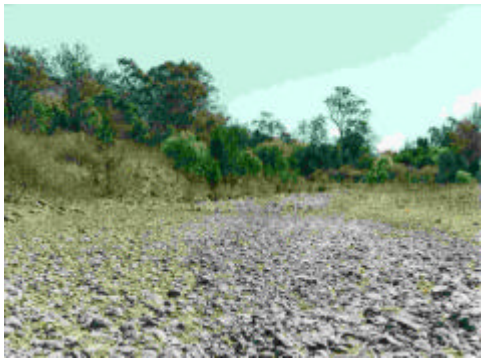

Photo:	9
Ave. Rating:	3.9
Commonly noticed:	Rocks
Common response:	Dry

Figure 6. Least preferred scenery of dry dead trees (photo 13) & dry rocks (photo 9)

Photo:	13
Ave. Rating:	4.7
Commonly noticed:	Roads / parking
Common response:	Barren

Photo:	17
Ave. Rating:	5.3
Commonly noticed:	Toilets
Common response:	Blocking view

Figure 7. Scenic preference of areas with current recreation infra-structure

These results emphasise the importance of running water, shady trees, and views looking down from mountains. There is some evidence that visitors prefer scenery that does not have recreation infra-structure or other buildings. Similar photos to those in Figure 7 without recreation infra-structure had a rating of about one (1) point higher.

A suite of attributes were also recorded for each photograph, indicating the percent of each land cover type in the fore-ground, mid-ground, or background. This information was obtained by placing a 10 x 10 grid over each photograph, and counting the number of cells in different land cover types, and their position relative to the viewer.

A statistical model (see below) was developed from this data to predict scenic preference rating from photo content. This model uses three photo attributes to predict scenic preference. Whilst the resulting equation explains about 52.2% of the variation of people's responses, it is considered stable and has a maximum variation of 1.5 between the observed and a predicted score.

The equation indicates the strong positive effect of water, dense trees, and steep terrain on scenic preference. Terms indicating presence of buildings and recreation infrastructure was not of adequate significance to include in statistical model.

Scenic preference rating (10–1) = *4.5 (base score)*

+ 0.14 X percentage of water in foreground

+ 0.02 X percentage of dense trees or green grass in foreground

+ 0.7 X elevation range in foreground (class 1–4) [1]

[1] *Note: codes for elevation range: 1 = <50 m; 2 = 50–100 m; 3 = 100–300 m; 4 = 300 m +*

A map of land cover types was prepared using GIS topographic data, vegetation and land cover maps, to reflect the characteristics recognised by people in the photos. A map showing 12 main landscape types was prepared using classes listed in Table 2.

Table 2. Description of mapped landscape types and predicted scenic preference

Mapped landscape type	*Type description*			*Estimated composition*			*Predicted scenic preference rating*
	Elevation range	*Green vegetation*	*Running stream*	*Elevation range (1-4)*	*Shady trees or green grass (%)*	*Running stream (%)*	
1	Mod	Low	-	2	10	0	6.1
2	Mod	Mod	-	2	35	0	6.7
3	High	Mod	-	3.5	35	0	7.8
4	High	Low	-	3	10	0	7.2
5	Low	Mod	-	1	35	0	6.4
6	Low	V low	-	1	0	0	5.6
7	V low	V low	-	1	0	0	5.2
8	Low	Low	Yes	1	5	20	8.2
9	V low	Low	Yes	1	5	20	8.2
10	V low	High	Yes	1	60.0	20.0	9.5
11	V low	Mod	-	1	35.0	0.0	6.0
12	Mod	High	Yes	1.5	60.0	20.0	9.8

Table 2 also shows scenic preference ratings predicted for each land type using this equation. The highest scenic preference of 9.8 is for land type 12, which has a high percentage of shady trees or green grass, running streams, and a moderate elevation range. The lowest scenic preference of 5.2 is for land type 7, which has a very low elevation range, little green grass or shady trees, and no running streams.

These scenic preference ratings were applied to GIS land units to produce a scenic preference map for Glen Rock (Figure 8). This map illustrates that the areas with the highest scenic preference are around running creeks in the upper part of the valley, and at the edge of mountains where there are dense and shady trees. The areas of lowest scenic preference are the flat and undulating areas of open forest along the edges of the valley.

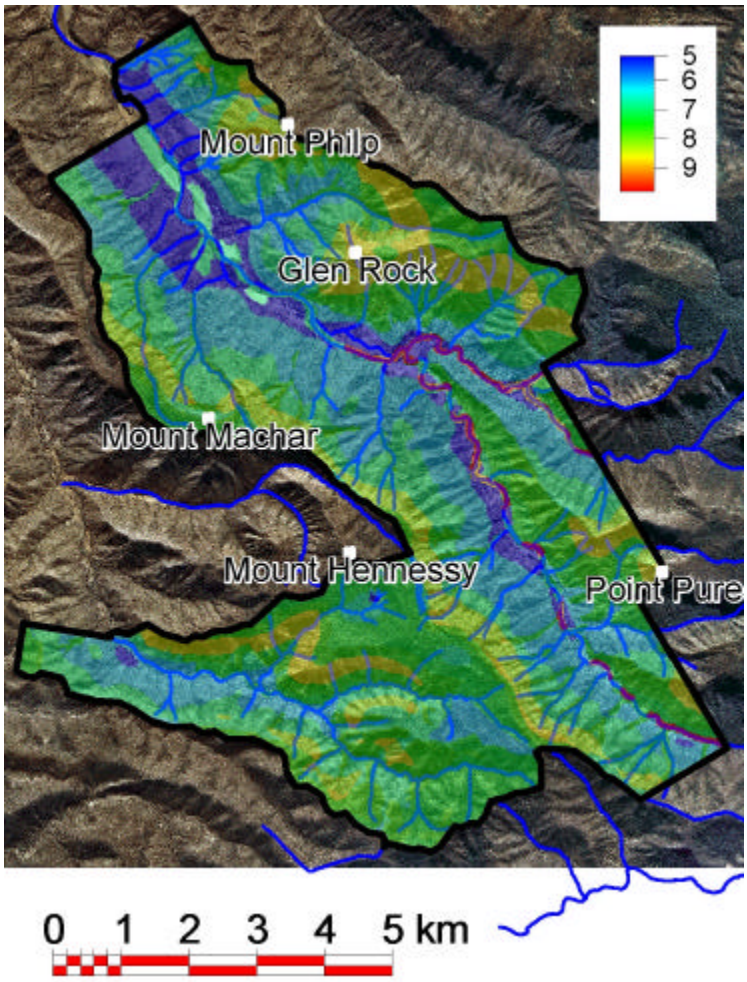

Figure 8. Scenic preference map for Glen Rock

Mapping visual exposure

The first stage of visual exposure mapping is to undertake an inventory of viewing locations. This requires an estimate of the locations, number of viewers, and major type of visitor. This information was estimated by recreation planners familiar with the property (D. Batts, pers. comm.). Existing roads, trails and recreation areas were classified into seven groups, as summarised in Table 1.

A weighting formula was applied to this data to calculate an importance rating of each viewing location. This formula combines estimates of the total number of people per day, their appreciation of scenery, and the estimated minimum viewing duration. The most important view locations, Campers and picnickers, has a computed rating of 4.3. The lowest computed rating of 0.6 is for Multi-use tracks with very low use.

These weightings were allocated to all viewing locations. One of the most important viewing locations is the Casuarina day-use and camping areas (see Figure 1). Other important viewing locations are the roads and tracks along the entry road at the northern end of the study area.

Table 3. Types of viewing locations

Group	*Number of viewers per day*	*Appreciation (% of time looking at scenery)*	*Minimum duration at location (min : sec)*	*Viewing location rating*
Multi-use track (4wd or horses or bushwalkers) – very low use	0.1	90%	1:00	0.6
All visitors – 2wd road	20	50%	0:45	1.4
Multi-use track (4wd or horses or bushwalkers) – low use	1	90%	1:00	1.5
4wd track – moderate use	2	90%	1:00	1.7
Multi-use track (4wd or horses or bushwalkers) – moderate use	2	90%	1:00	1.7
Walkers	10	90%	2:00	2.9
Camper, picnicker	20	90%	5:00	4.3

The next consideration is the visibility looking out from viewing locations. Vegetation maps of the area were used as a basis for applying estimates of visibility for all viewing locations across the property. These estimates were made from notes made during acquisition of photographs. As seen in Table 4, the highest visibility of 100% is from improved pasture and native pasture (vegetation types 1 and 2), and the lowest visibility is from the tall shady closed forest (type 6).

Table 4. Estimated visibility from viewing locations

Vegetation group	*Visibility (%)*	*Estimated tree density (%)*	*Description*
1	100	5	Improved pasture
2	100	5	Native pasture
3	95	10	Thinned trees, lantana
4	60	40	Creek vegetation
5	20	80	Tall shady open forest
6	10	90	Tall shady closed forest
7	60	40	Tall sunny open forest

A computer algorithm is then used to produce advanced ‘seen area’ maps that indicate the extent to which different areas are visible from viewing locations. This algorithm takes into account the distance between the viewing location and a place in the landscape, the importance rating of the viewing location, and the number of viewing locations that can see that place in the landscape. The visual exposure map in Figure 9 shows that the areas of highest visual exposure were the sides of mountains in the northern half of the property, and that the areas of lowest visual exposure were the valleys in the far south of the study area.

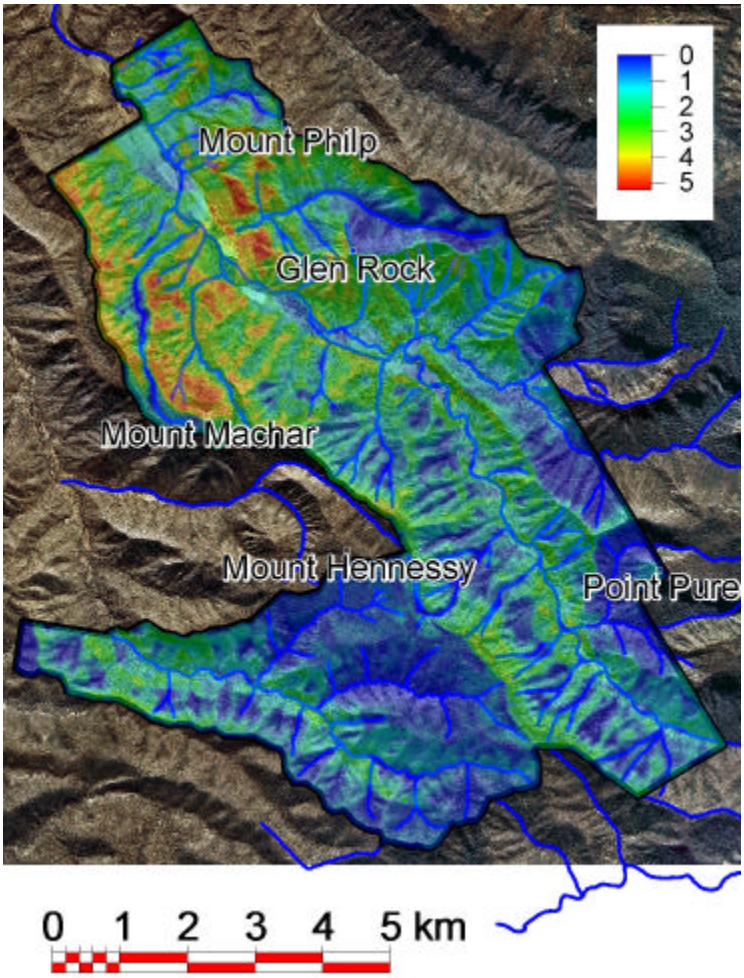

Figure 9. Visual exposure map for Glen Rock

Mapping scenic amenity

The final scenic amenity map is produced by combining the scenic preference map and the visual exposure map (see Figure 10). This map shows areas of highest scenic amenity to be on the sides of the main entry valley in the northern half of the property. Scenic amenity was strongly affected by the base visitation pattern, which is focussed along the valley floor in the northern half of the property. These maps clearly show the strong effect of relief on scenic amenity.

Whilst the highest score scenic amenity score for Glen Rock is 5.5, this is because of relatively low visitation numbers used in visual exposure mapping.

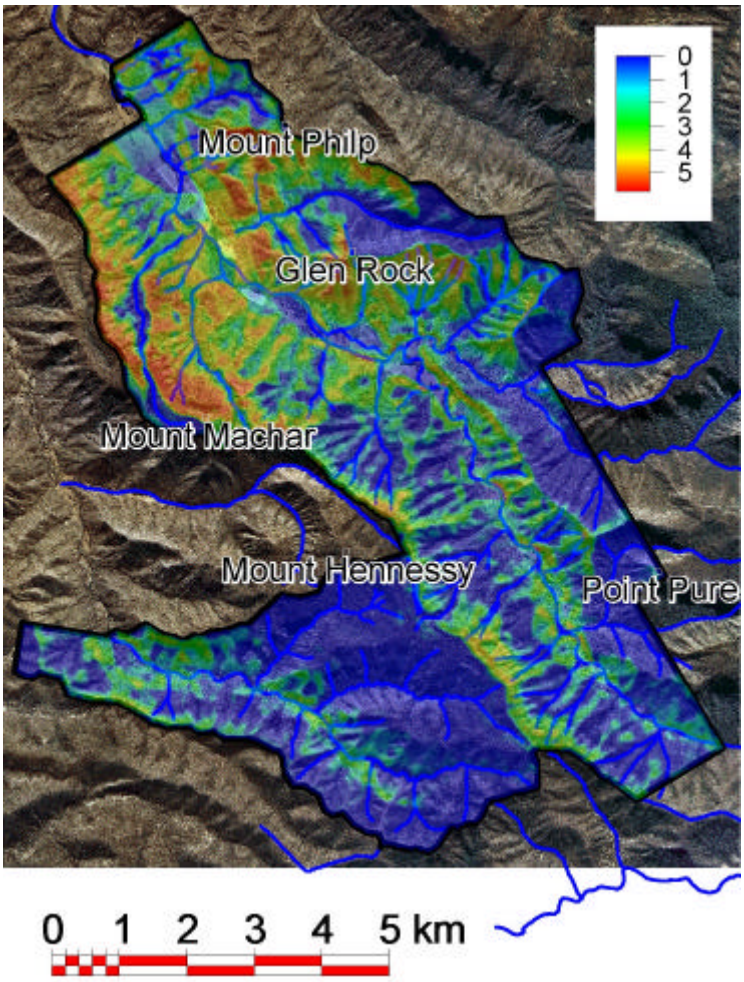

Figure 10. Scenic amenity for Glen Rock

Success and limitations of the approach

The Glen Rock Community Advisory Committee is of the opinion that the scenic amenity study was useful and successful in providing an objective assessment of scenic values for the park, and identifying the importance of management level considerations such as location and design of recreation facilities. The substantial involvement of community and recreation groups in the assessment process strengthened the committee's confidence in outcomes of the study.

A limitation of the study is that only one snap-shot of visitation pattern was included in the assessment of visual exposure. This means that the evaluation of scenic amenity does not take into account the increased number of people who would view landscapes under the expansion of recreational access proposed by the management plan.

The relatively low number of photographs included in interviews limited the benefit of scenic preference surveys. Whilst the photo set provided adequate representation of vegetation cover types and topography, photos of built structures, including different styles of recreation facilities, were limited. The absence of a term for built structures is in contrast with the scenic preference equation for Moggill, which included 'negative' terms for buildings, transmission lines, powerlines and bitumen roads. A total of 21 photos were used, compared to 52 photos for the Moggill study. This sample of photos and the relatively low sample of people (60 compared to 210 for Moggill) partly explains the correlation level for the scenic preference equation (52%, compared to 72% for Moggill).

Whilst the results were logical and predictive errors were low, a larger sample of photos and people should be considered in any future study.

The management planning process would have benefited from the availability of a quantitative model that described the impact of buildings on scenic preference. This would have been possible if a larger photo set was used. In the absence of this data, conclusions about the impact of built structures were inferred from qualitative descriptive information about the photo, rather than measurements and ratings.

Despite these limitations, the assessment provided a thorough starting point for preparation of the management plan, and informed participants on the preferred locations and expectations of potential visitors and neighbours.

Contribution to the management plan

The scenic amenity project contributed to the management plan through regular briefings to planners and community representatives, by providing quantitative data including GIS maps, and a producing a report of methods and results (Preston, 2001 b).

Maps of scenic preference, visual exposure, and scenic amenity, compiled at a grid cell resolution of 25m, were summarised for coarser planning units used to describe other resource values. Data for all environmental and economic values were all compiled on a scale of 1 to 10 to facilitate comparison of preferred and conflicting values.

The strong and consistent responses indicating visitors preference for views from steep and shady mountain tops emphasised knowledge of senior planners, and helped to convey these preferences to the broader planning group. Similarly, people's consistent and strong preferences for scenery of running creeks reinforced the need to provide access to these locations. However most perennial creeks are located in the southern portion of the property where improved 2wd road access if difficult because of the many creek crossings.

The study also showed that people's preferences were also affected by perceived temperature, shade and the availability of water. Presence of shade, both along creeks and on mountain-tops, was a significant factor identified in qualitative data from photos. This conclusion affected recommendations on site design and choice of trees planted near recreation areas.

Qualitative evidence of people's lower preferences for scenery including recreation infrastructure and other buildings surprised some planners. Whilst setting and character had been considered in the design of existing infrastructure, the study indicated that planners had underestimated visitor preferences for unobtrusive buildings. This information has led to recommendations for greater consideration of aesthetics in the location and design of future built structures, including sheds, toilet blocks, and houses.

All future building proposals should include a planning stage to evaluate the visual impact of alternative locations and designs. This impact assessment should take into account the effect on views from higher walking trails and lookout points from hillsides and mountain tops, as well as the immediate view of facilities along the valley floor.

A series of recommendations about recreation development were made to address scenic amenity issues raised by this study. At least thirteen specific recommendations are made in the draft management plan (Regional Landscape Unit, 2001). These recommendations can be broken into four groups.

Firstly, that the new Vision for Glen Rock Regional Park be "a landscape that is lightly touched by man". Specific recommendations are:

- The vision will be embraced when planning views from all major scenic vantage points within the Park.

Secondly, increased access should be provided to favourable viewing locations. Specific recommendations are:

- Eight lookouts will be established to allow visitors to enjoy the scenery from both sides of the main valley
- Picnicking in fields adjacent to the creek systems of the park will provide opportunities for visitors to enjoy creek landscapes
- Picnic areas will require landscaping with local species of green shady native species including Kurrajong, M. bracteata and Ficus.

Thirdly, the effects of increased visitor use on scenic attributes will be monitored. Specific recommendations are:

- Visual exposure will be monitored as visitor use changes.
- Visitor perceptions will also be monitored as access to the property increases.

Fourthly, recreation infrastructure should be designed and located to be sympathetic to aesthetics. Specific recommendations are:

- Development and maintenance of infrastructure must be appropriate to the expectations of visitors
- Placement of new infrastructure will consider the scenic amenity of the landscape and ensure visitor experience is not detrimentally affected
- Any infrastructure at the entry to the park must be unobtrusive.
- Landscaping around a planned activity centre needs to mask buildings
- Landscaping may also be needed to hide access roads to reduce visibility from current and proposed lookouts.
- All infrastructure developments need to consider the visual impacts of the resulting structures and landscaping around existing farm structures.
- Built structures (including vehicle car parks) on mountain-tops will be located away from any cliff edges to maintain scenic amenity of the site and minimise visual impacts from distant viewing locations.

Conclusions and discussion

This study demonstrates that the scenic amenity assessment method, originally developed for whole-of-landscape assessment, can be successfully implemented for the assessment of park values as part of a recreation and multiple-use planning study.

The study has raised awareness about why people value scenery, and how it is possible to assess and map landscape elements. Through substantial involvement of potential visitors and neighbours, the study moved the assessment out of the realms of 'expert knowledge', into the areas of 'community knowledge'. The process demonstrated that it is possible to readily involve a wide range of recreation users in detailed identification of scenic management issues. This approach provided increased confidence in map products, and informed the development of specific recommendations about the placement and design of recreation facilities.

The study demonstrated that the two components of scenic amenity, scenic preference and visual exposure, can be readily explained to visitors, community members, and resource specialists.

The comprehensive approach was important for preparation the Glen Rock management plan because of the low prior knowledge of visitor preferences, and the geography of the park, where most facilities and access are visually evident from hilltops around the surround of the valley.

This study has contributed to knowledge about application of the scenic amenity assessment method developed by the South East Queensland Regional Landscape Strategy. Future studies should seek to use a larger sample of photographs and people than was available to this study. This study also highlighted the future benefit in being able to dynamically model changes in visual exposure that result from changes in viewer locations and numbers.

It is hoped that other park managers will consider the benefits of embracing the process and principles used at Glen Rock in the assessment of scenery for developing or refining park management plans, based on assessment of scenic preferences and visual exposure to map scenic amenity.

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