

# LANDSCAPE ARCHITECTURE

## EVALUATION CRITERIA OF PROTECTED LANDSCAPE AESTHETIC QUALITY

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### Abstract

The study focuses on protected landscape aesthetic quality assessment where the main problem is how to associate aesthetical and ecological approaches. High ecological quality does not often correlate with high landscape aesthetic quality, and this relationship may differ depending on specific ecosystem. The landscape aesthetic quality assessment historically developed on two approaches. One of them – expert approach which has dominated in landscape planning and management practice, and the second – perception approach which has dominated in research. In protected landscape aesthetic quality assessment traditional approaches will be revised by ecology and green philosophy aspects. The study example regards important natural and protected areas around river Lielupe - from Jelgava city to Kalnciems. This is the landscape with high heritage, natural, biological values and it is also living, recreation place for people. Therefore, cooperation between aesthetic and ecological approaches in landscape assessment is needed. The outdoor investigations were carried out in autumn 2006. There were photographs and video materials on the first stage of investigation. In the second part aesthetic quality of views was analyzed with expert approach. There were three main groups of evaluation criteria of protected landscape aesthetic quality. These covered design and compositional outlines – features, their quality and relationship among these features. The results showed that not all criteria are suitable and effective for evaluation of protected landscape aesthetic quality because of restriction of specific ecological conditions.

**Keywords:** landscape aesthetics, protected area, landscape preference, evaluation criteria, aesthetic quality.

### Introduction

#### *The Significance of Visual Aspects*

The visual aspect is just one landscape quality among many others. We perceive the landscape and our surrounding environment through the use of our senses. Sight interacts with other senses, such as hearing, smell and touch, but it is considered to be the most important, contributing to 80% of our impression of our surroundings. However, since most people base their experience of their environment primarily on their visual senses it is an important quality for people (Figure 1.) (Ode, 2003; Ziemeļniece, 1998;

Яргина, 1991).

Within the field of landscape aesthetics there are various theoretical approaches that explain people's reactions to and preferences for landscape. However, taking visual aspects into account in the landscape management and planning is not sufficient in creating well-liked landscapes. It is also about providing means of discussing and analyzing the existing landscape, as well as methods for evaluating changes caused by natural processes or management and planning actions. Approaches for analyzing and describing the landscape based on its aesthetic quality have been of interest in landscape research, with several

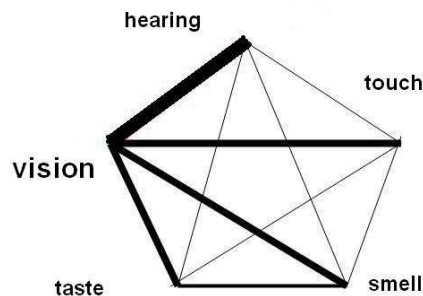


Figure 1. Intensity of perception.

approaches presented (Ode, 2003).

#### *Aesthetic Quality Assessment*

In order to take visual aspects into account there is a need to have tools and approaches for analyzing and describing them. Over the last half – century landscape quality assessment is regarded from two different approaches. One of them is an expert or design approach which is used mostly in landscape planning and management practice (Bells and Nikodemus, 2000; Brinķis and Buka, 2001; Buka and Volrats, 1987; Kundziņš, 2004; Leymarie, 2001). This approach describes the visual component in landscape through the use of visual concepts that describes the spatial pattern of the landscape, and often uses visibility analysis of different land cover for evaluation of changes in the visual quality of the landscape (Ode, 2003). The second one is the perception – based approach, and it has been developed and used mainly in applied environmental perception and landscape assessment research (Bells and Nikodemus, 2000; Ellis and Ficek, 2001; Kaltenborn and Bjerke, 2002; Koole and Van den Berg, 2006; Melluma and Leinerte, 1992; Ode, 2003). Both approaches share the basic conception of landscape quality in which biophysical features of the landscape and human perception and experience are essential interacting components. Landscape quality arises from the relationship between properties of the landscape and the effects of those properties on human viewers. The expert and the perception – based approaches differ in how relevant features of the landscape are represented, and importance of the contribution of the human viewer in determining landscape quality levels (Daniel, 2001).

The subjective and objective approaches differ significantly in their rationale for explaining and evaluating landscape visual quality. However, they are similar in that they evaluate the same landscape, with the same patterns found within, using the same type of the main medium for perception – the vision. Both the subjective and objective approaches could contribute to the development of concepts for describing visual quality (Ode, 2003).

#### *The Expert or Design (objective) Approach*

The objective approach focuses on the physical appearance of the landscape. The expert or design approach has its foundation in design theories, linking the description of landscape with terms developed in the aesthetic philosophy and art, and later transferred to a landscape context.

The aim of the approach has been to provide a language to describe the landscape with regards to aesthetic qualities, mainly in relation to design, planning and assessment. By this approach the biophysical features of the landscape (mountains, lakes, trees, etc.) are translated into formal features (e.g. form, line, texture, color) and relationships among these features (e.g. variety, unity, harmony). Then, following prescribed rules and guidelines, areas are ranked from low to high quality. At a deeper level it might be argued that the formal design parameters on which the assessment of landscape aesthetic quality is based are derived from classical or historical analyses or theories of human aesthetic perception and evaluations. Within the expert or design approach several concepts exist to explain the visual quality, both with regards to the physical attributes of elements but also their interrelationship (Ode, 2003; Daniel, 2001; Kundziņš, 2004).

#### *The Perception – based (subjective) Approach*

The perception – based approach embraces subjective philosophical point of view. For the subjective approach the focus is on the provision of psychological explanation to preferences and hence focusing on the responses (Ode, 2003). This approach treats biophysical features of the landscape as stimuli that evoke aesthetically relevant psychological responses through relatively direct sensory – perceptual processes, for example, legibility, mystery, safety etc. Perception-based methods clearly emphasize the human viewer side of the landscape quality interaction. Various survey methods are applied to obtain measures of perceived landscape aesthetic quality. Indices of perceived landscape quality are based on choices, ratings of landscapes provided by samples of actual or potential human viewers. Different views of landscape usually represented by photographs (Daniel, 2001).

#### *Aesthetics and Ecology*

Our society is becoming more and more urbanized. Urbanization is not only affecting the urbanized areas, urban processes exert an influence on the surrounding landscape. These urban processes cause different spatial pattern in the landscapes as compared to the unaffected rural area. The process of urbanization has led to a decrease in available green spaces within the city and hence put pressure on the existing natural territories near the cities. Natural protected areas near cities is an important component of people's everyday environment, both as an attractive environment to visit as well as being a part of the

surrounding landscape. Green areas have been proven to have positive effects on people's health and reduce stress level.

Visual aspect is a feature that is significant for most people experience of the landscape and an important parameter of the naturally protected areas which are located near people's living, working and recreational areas and can be strongly influenced by urban processes. Through its location near the urban landscape it is a natural territory that people experience on a daily basis, making the visual appeal of this territory important. Management and planning for visual aspects in these territories provide one important approach for creating enjoyable environments and is also means for attracting people to recreation, education and contact with nature (Ode, 2003; Tyrväinen et al., 2003).

The Ecological Aesthetic links aesthetics with ethics and sustainability. At its base, it relates to the moral consideration for aesthetic. This approach is emphasizes the role of preconception and knowledge, particularly in relation to the ecosystem sustainability, and the need for the understanding of what is perceived as being good for the creation of an ecologically healthy

landscape. The ecological aesthetic provides a link between ecology and aesthetics where our aesthetic experience is linked to our ethical values. It has placed focus on ecologically stable landscapes, stressing the appreciation of naturalness (Ode, 2003; Chenoweth, 1990; Thompson, 1999).

#### *The aim of the study*

Evaluation criteria of landscape aesthetic quality created by using expert or design approach are objective and clearly understandable. Therefore they have been used in study example. The aim of the study has been to explore which of those evaluation criteria of landscape aesthetic quality are appropriate for protected landscape assessment, and their role in landscape quality changes.

## Materials and Methods

### *Object of the Study*

The study example surveys important natural and protected areas around the river Lielupe - from Jelgava city to Kalnciems (Figure 2.). Lielupe is the second biggest river in Latvia. It is one hundred nineteen kilometers long and has two hundred fifty tributaries. There are different

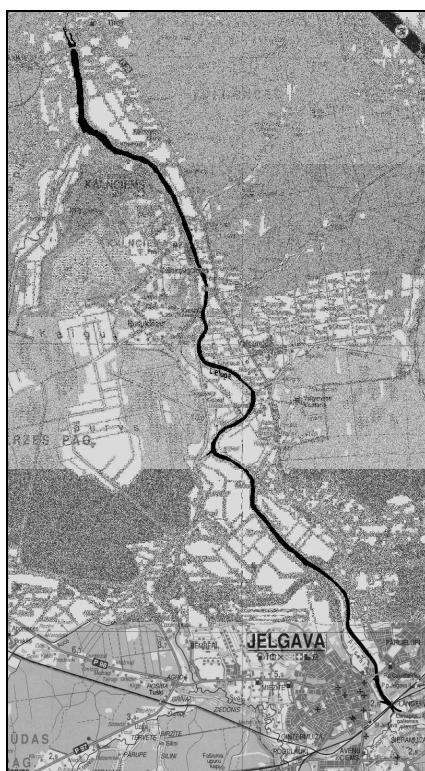


Figure 2. Location of study area of river Lielupe.



Figure 3. Characteristic natural landscape features – trees.

protected and also cultural areas near river in area from Jelgava to Kalnciems. These are landscapes with high heritage, natural, biological values and also living, recreation place for people. There is one important restricted area – ornithological reserve which is located in Jelgava city and may be accessible place for people ecological education and recreation. Other interesting areas for people are bangs of river with wild natural landscape (Žukova, 2001). There are a lot of possible activities connected with fishing, swimming and other recreational resources.

#### Methods

The outdoor investigations were carried out in autumn 2006, and two main methods to collect data were used. First, the photographs with a digital camera were taken in different weather conditions – sunny, cloudy and rainy days, and broad daylight. Second, the video material from the same places as photographs was taking. It was a help to sense more of sensations in landscape, such as sounds, feel of whole surrounding, weather conditions.

The role of the human viewer is acknowledged at one level by the importance of viewpoints, locations the viewers see the landscape. Therefore, all the photographs were taken from places accessible and visible to general public for a better and more complete analysis of the site and views (Daniel, 2001; Ziemeļniece, 1998). These were views from the main traffic and smaller roads, recreation routs used by tourists, fishermen and swimmers.

From 300 photos, 20 most typical slides for the landscape aesthetic quality assessment were chosen. The criteria for preference were quality aspects of the photographs: contrast, darkness, lightness, colors, absence of the sunlight and smudgy defects; typicality or representation of

area; and specific elements or actions represented on slides (Gracia Perez, 2002; Rodiek and Fried, 2004; Kaltenborn and Bjerke, 2002; Koole and Van den Berg, 2006).

#### Expert Questionnaire

Two experts – landscape planning professionals – analyzed selected photographs in auditorium. The expert or design approach was used in aesthetic quality analyzing process of the landscapes represented in views. There were three main groups of evaluation criteria of protected landscape aesthetic quality. These covered design and compositional outlines.

First group was the presence of characteristic or non-characteristic landscape features. The characteristic features in protected areas are natural elements (Figure 3): trees, bushes, meadows, water features and others. Non-characteristic features are man-made elements – buildings, communication constructions and others (Figure 4).

The second criteria group was quality of landscape features. These were translating into formal design parameters which assumed to be universal indicators of landscape quality from classical models of human perception and aesthetic judgment (Daniel, 2001; Hehl-Lange, 2001). The parameters were analyzed by composition outlines: form, color, texture, scale, temporal and spatial movement. These qualities are more marketable in the natural protected areas than urban areas because of domination of natural features (Figure 5.). These are more changeable in temporal and spatial scale than man-made structures in urban areas (Kundziņš, 2004).

The third criteria group was relationships among landscape features and unity with surrounding landscape. These were rhythm,

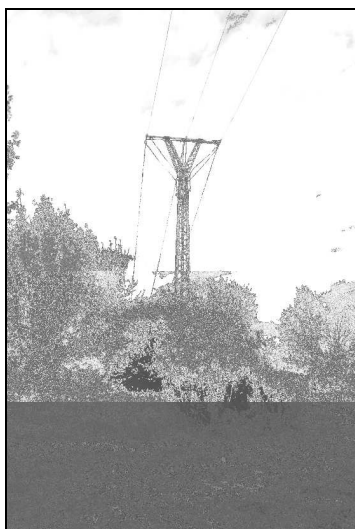


Figure 4. Non characteristic natural landscape feature - communication construction.

proportion (Figure 6.), symmetry, harmony (Figure 7.), arrangement in space (e.g. foreground, background etc.).

## Results and Discussion

### *Evaluation criteria*

In first group of evaluation criteria - presence of characteristic or non characteristic landscape features – results showed that landscape aesthetic quality was more influenced by:

- From characteristic landscape features – Lielupe River together with small water elements in surrounding landscape (Figure 6.). This was specified as positive element in the protected landscape. Either, most of characteristic landscape features were detected as positive in aesthetics.

- From non-characteristic landscape features – communication structures (mainly – high – tension electricity transmission) (Figure 4.). These and often different other man-made elements (e.g. post soviet architectural buildings, roads, etc.) were negative aspects in the landscape.

In the second group - quality of landscape features – results were mostly positive because of dominance of natural elements in the landscape. Natural elements (Figure 3.), such as trees, bushes, terrain, etc., have great diversity in all of their parameters – color, form, texture and others. That positively affects evaluation level of protected landscape aesthetic quality.

The third criteria group was the most controversial, because of non-correlation in many episodes between aesthetic and ecology in



Figure 5. Parameters of landscape features – texture and color.



Figure 6. Relationships among landscape features – criterion - proportion.



Figure 7. Relationships among landscape features – criterion - harmony.



Figure 8. Controversy between aesthetic (low) and ecology (high biodiversity).

aspect of relationship among landscape features. Harmony was positive criterion in assessment theory of aesthetic quality, but in many cases from ecological point of view more appropriate level of harmony was chaos which is the lowest rating of this criterion. Especially it covered territories with high biodiversity (decaying trees and branches, overgrowth of vegetation, etc.) (Figure 8). Similar experience was observed with criteria – rhythm and symmetry which in higher evaluation level were rarely found in relationship among protected landscape features. These were more appropriate for urban landscapes.

#### *Some Recommendations for Future Prospects*

Developed further it becomes possible to compare sites and analyze changes over time with regards to visual quality, and hence be an

important complement to other types of indicator data used (ecological and recreational).

## Conclusions

It is important to include ecological criteria such as increase of biodiversity and naturalness next to landscape's aesthetic quality as a criterion for environmental planning and management. It has become more substantial in protected landscape planning and management where aesthetics should be distinguished from ecological values.

However, there is an extra need for further investigation of the linkage between the aesthetic and ecological aspects and their attributes in order to identify the most significant parameters which can be used in creating evaluation criteria of protected landscape aesthetic quality.

## References

- Bells S., Nikodemus O. (2000) Rokasgrāmata meža ainavas plānošanai un dizainam (Forest Landscape Planning Handbook), Rīga, Valsts Meža dienests, 76 p. (in Latvian).
- Brīķis J., Buka O. (2001) Teritoriālā plānošana un pilsēt būvniecība (Territorial Planning), Rīga, TU, 219 p. (in Latvian).
- Buka O., Volrāts U. (1987) Pilsēt būvniecība (Urban Planning), R: Zvaigzne, 251 p. (in Latvian).
- Chenoweth R.E., Gobster P.H. (1990) The Nature and Ecology of Aesthetic Experiences in the Landscape. *Landscape Journal*, 1, pp. 1-9.
- Daniel T.C. (2001) Whither Scenic Beauty? Visual Landscape Quality Assessment in 21st Century. *Landscape and Urban Planning*, 54, pp. 267-281.
- Gracia Perez J.D. (2002) Ascertaining Landscape Perceptions and Preferences with Pair-wise Photographs: Planning Rural Tourism in Extremadura, Spain. *Landscape Research*, 3, pp. 297-308.
- Ellis L., Ficek C. (2001) Color Preferences According to Gender and Sexual Orientation. *Personality and Individual Differences*, 31, pp. 1375-1379.
- Hehl-Lange S. (2001) Structural Elements of the Visual Landscape and their Ecological Functions. *Landscape and Urban Planning*, 54, pp. 105-113.
- Kaltenborn B.P., Bjerke T. (2002) Associations Between Environmental Value Orientations and Landscape Preferences. *Landscape and Urban Planning*, 59, pp. 1-11.
- Koole S.L., Van den Berg A.E. (2006) New Wilderness in the Netherlands: An Investigation of Visual Preferences for Nature Development Landscapes. *Landscape and Urban Planning*, 78, pp. 362-372.
- Kundziņš M. (2004) Dabas formu estētika (Aesthetics of Forms in Nature), Rīga, SIA Madris, 168 p. (in Latvian).
- Leymarie F.F. (2001) Art and Visual Perception by Rudolph Arnheim. USA, pp. 10 , <http://www.lems.brown.edu/vision/people/leymarie/Refs/VisualArt/Arnheim/ArtVisualPercept.pdf>, 22.03.2007.
- Melluma A., Leinerte M. (1992) Ainava un cilvēks (Landscape and Man), Rīga, Avots, 175 p. (in Latvian).
- Ode Ā. (2003) Visual Aspects in Urban Woodland Management and Planning. Doctor's dissertation, Alnarp
- Rodiek S.D., Fried J.T. (2004) Access to the Outdoors: Using Photographic Comparison to Assess Preferences of Assisted Living Residents. *Landscape and Urban Planning*, 73, pp. 184-199.
- Thompson I.H. (1999) Ecology, Community and Delight, E&FN Spon, London, UK, 188 p.
- Tyrväinen L., Silvennoinen H., Kolehmainen O. (2003) Ecological and Aesthetic Values in Urban Forest Management. *Urban Forestry & Urban Greening*, 1, pp. 135-149.

18. Ziemeļniece A. (1998) Estētiskā kvalitāte ainaviskajā telpā (Aesthetical Quality in Landscape Space), Jelgava, Latvia University of Agriculture, 98 p. (in Latvian).
19. Žukova Z. (2001) Latvijas zili zaļā rota (Blue Green Adornment of Latvia), Rīga, Jumava, 330 p. (in Latvian).
20. Яргина З.Н. (1991) Эстетика города (Aesthetics of City), Москва, Стройиздат, 367 с. (in Russian).