Evaluating the Aesthetics and Ecology of Urban Green Spaces: A Case Study of Latvia

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Abstract. The current situation of planning and managing urban green spaces in Latvia suggests that there is a necessity for new concepts for improving the aesthetic and ecological quality of public green spaces developed in the Soviet era. Urban green spaces with high qualities in both characteristics are assumed to be more attractive for local residents and to provide better conditions for ecological processes. Thus, there is much discussion on how to balance aesthetics and ecology in the urban environment – and whether both can be optimised or whether there are trade-offs. The aim of this research was to consult experts from different scientific fields and to clarify and rank criteria used for assessing the aesthetics and ecology of urban green spaces. Twelve criteria were selected for the landscape assessment from different theories of aesthetics and ecology: compositional unity, uniqueness, coherence with architecture, condition of constructed elements, decorative quality of plants, maintenance and upkeep, naturalness, landscape typicality, wilderness, the presence of wildlife, vegetation structure and the use of local plants. These were assessed and analysed through a combination of a Delphi study and in-depth expert interviews of twelve Latvian and foreign experts from different fields (architecture, landscape architecture, biology, environmental science). The data obtained from the research were processed with mathematical statistics methods such as determination of descriptive statistics and Mann-Whitney U test. The results include a summary of expert statements of definitions, assessment methods and characteristics of selected criteria. The correlation of criteria showed differences in the experts’ opinions. Naturalness was one of the most important criterions according to both, Latvian and foreign experts. Foreign experts more likely ranked Presence of wildlife as important compared to the Latvian experts. The results also showed differences on how experts could express criter ia related to their research field. The final assessment of criteria confirmed the interconnections between the selected 12 criteria. Results of the criteria ranking discovered that all the experts got consensus on the most important criteria, while on not so important criteria experts shared different views. This research prepared criteria for the assessment of aesthetical and ecological values of green spaces according to definitions and rankings given by different experts.

1. Introduction

When issues of adaptation to climate change, urban sustainability and healthy living environment have become topical, the aesthetic and ecological quality of the urban landscape remains equally important [1, 2]. Increasing numbers of ecologically-based design solutions are offered in both scientific and professional literature for the development of new public areas [2-5]. However, it is equally important to make improvement to existing urban green spaces which may have been laid out many years ago for different purposes and under different conditions. One example, not studied widely until now, is
parks developed in the era of Soviet functionalism, which was based more on visual and ideological, less on ecological design principles [6]. Landscapes of collectivisation and functional design were typical in all Baltic countries after Second World War, when Estonia, Latvia and Lithuania were occupied by the Soviet Union [7]. The Soviet legacy is reflected in the city landscape with the use of standardized design to highlight the equality between the Soviet republics and their people, places, urban and rural areas. Standardized design included the use of certain plant species (e.g. *Tilia sp.*, *Populus sp.*) and materials, standardised city plans, buildings and green spaces and the use of ideological symbols and metaphors (monuments, memorial sites etc.) in all Soviet republics [6]. Urban green spaces created in that era in Latvia are characterized by large, monochrome areas with lawn, perennials and annuals that create background for groups of trees, bushes and perennials [8]. As a result of this standardized design, the cultural and ecological diversity, individual character and identity of the original places were lost [7, 9, 10].

Only at the beginning of the 21st century, ten years after Latvia regained its independence, the concept of sustainable landscape planning including ecological, aesthetic, social, cultural and economic aspects emerged. Thus, the current situation of public green spaces in Latvia displays different circumstances from most other European countries, where this issue has been discussed and resolved for over 40 years. It is necessary to create a new set of principles for the design and stewardship of urban green spaces in Latvia, considering that current system retains a strong influence from the legacy of the Soviet Union.

When undertaking the sustainable planning of public green spaces an important primary task is the evaluation of the current situation as a precursor to conserving or improving a specific place. Therefore, the objective of this paper is to identify appropriate criteria for assessment of aesthetic and ecological quality of already existing urban green spaces. The research question is: to what extent can the balance between the aesthetics and ecology in the urban environment be achieved when restoring or re-developing these parks?

The need for a balanced interaction between aesthetics and ecology, as well as many other landscape characteristics developed within the sustainability concept and ideas of environmental protection and the sustainable use of resources, was influenced by the environmental philosophy theories of the 1960s and 1970s [11]. At that time, Ralph Smith introduced the concept of the “aesthetosphere” [12], the function of which was to understand the link between aesthetics and ecology. This concept showed that the criteria which are often used in ecology to describe the structure of ecosystem can be similar to terms that characterise the formal qualities of aesthetics (e.g. unity, balance and harmony) and have the potential to be used together to outline one single unified environment [11-13]. The discussions among the art and design professions on nature aesthetics, ecology and the environment were continued with concepts such as ‘ecological aesthetics’ [7, 14, 15], the idea of ‘messy ecosystems orderly frames’ [16, 11] and theory of ‘visible stewardship’ [17, 18]. However, the conclusions of several authors suggested that other traditional criteria for aesthetic evaluation, such as contrast, accent and balance are not so easily adaptable in the design of ecologically highly valued landscape [14, 17].

The first studies where evaluation criteria for aesthetics and ecology were used related to recreational forest landscapes [15, 18, 19]. The main questions were – whether visually attractive landscapes are sustainable and vice versa – are sustainable landscapes visually attractive [18]. When studying these questions, it was found out that human perception, based on the established traditions and understanding of what is aesthetically and ecologically qualitative, plays an important role in understanding the interaction between landscape aesthetics and ecology. Nassauer [20] believes that human perception of landscape, cognition and evaluation are closely connected processes which
influence human’s aesthetic experience. The ecological quality of the place is more difficult to see without having a thorough knowledge of ecology.

More recently, when research into the interaction between aesthetics and ecology became an issue in urban public green spaces, the role of human perception became the key element in the evaluation of aesthetics and ecology. Thus, criteria describing the relationships between the individual observer and their surrounding environment [21] were involved in the assessment [22, 23, 24].

The assessment of the urban public green spaces is complicated, since it covers several areas - architecture, landscape architecture, ecology, geography, history, social sciences, etc. [25, 26]. Thus, when assessing aesthetic and ecological characteristics of urban green spaces, it is necessary to involve experts from various sectors for a more accurate selection and description of the evaluation criteria.

2. Material and methods

In order to achieve the aim of research reported here, the Delphi technique was used together with a number of follow-up individual in-depth interviews of Latvian and foreign experts from areas of architecture, landscape architecture, ecology and environmental science. For a more precise clarification of the criteria used in the assessment of the aesthetics and ecology of urban green spaces as well as for their interpretation and value assigning, the following tasks were set:

1. selection of criteria from the scientific literature and results of previous research;
2. preparing interviews and surveys for a more precise clarification and interpretation of the selected criteria and assigning values to these criteria;
3. carrying out interviews with local and surveys with foreign experts in two stages using the Delphi technique;
4. summarising a more precise clarification of the criteria obtained from the interviews and surveys, grouping the criteria according to their significance.

The aim of the Delphi method was to obtain different opinions from Latvian and foreign experts from different research fields. There were three stages carried out, as it is normal in a Delphi study. At the first stage the literature review was used to identify appropriate criteria for aesthetics and ecology of urban public green spaces [27]. The Colquhon’s concept of juxtaposing ‘the natural’ or ‘evolutionary’ with ‘the artificial’ or ‘man-made’ [28] was chosen as a basis for the selection of evaluation criteria of aesthetics and ecology of green spaces, since those are where the interaction between nature and man-made elements is most vividly reflected. Therefore, the following criteria for the assessment of aesthetics of the green spaces were selected from the scientific literature: compositional unity, uniqueness, coherence with architecture, condition of constructed elements, decorative quality of plants, and maintenance and upkeep. For the assessment of ecology naturalness, landscape typicality, wilderness, the presence of wildlife, vegetation structure and the use of local plants were selected. The selected criteria are based on the various theories of landscape preference and are applied in the assessment of the visual character of landscape as well as the other senses of perception. The Delphi method is based on involvement of experts of a particular field. Therefore before the stage 2 experts for the survey were selected and invited. In this study there were involved 12 experts from areas related to landscape architecture, architecture, ecology and environmental science. The distribution of the experts by the professional area is shown in the figure 1. Local experts from different scientific fields were selected based on their knowledge about urban green spaces. Mainly they were practising architects, landscape architects, dendrologist and botanists. In addition, most of them were employed in academia. The foreign expert group consisted of specialists from the Netherlands, Estonia, Sweden, Russia and Poland. The foreign experts were selected from countries
which are very close to Latvia or countries with already developed research on landscape and urban planning and with similar climate and geographical conditions to Latvia.

\[\text{Table 1. Distribution of professional areas of the interviewed experts. LV – experts from Latvia, NL – expert from Netherlands, EE – expert from Estonia, SE – expert from Sweden, RU – expert from Russia, PL – expert from Poland. Most of the experts were linked with the interdisciplinary fields of landscape architecture and biology.}\]

At the stage 2 each expert was asked to characterize and give definitions of criteria selected from the literature review. The questions were divided into two sections: the questions about six criteria related to aesthetics and six criteria related to ecology. There was comprised interviews of seven Latvian experts and questionnaires to five foreign experts. The interviews with the Latvian experts took place in their workplaces by using already prepared questions with open answer options for the definitions and assessment methods of selected criteria. Some of the experts (2) just filled the given papers, but the other experts (5) answered the given questions in face to face interview that included discussion of different aspects related to selected criteria. The questionnaires for foreign experts were sent by email and, thus all five foreign experts received identical questions. The questionnaire included both open ended and multiple-choice questions with answer options and suggesting explanations to the titles of criteria. It was very important to realize that the experts understand selected criteria in the same way as the questioner. Experts gave definitions and described how they understand twelve criteria included in the survey. After discussion or description of experts’ opinion of each criterion, the criteria were rated according to their perceived significance in each section – the aesthetic and ecological. This stage ended with analysis of the results and a summary of the findings followed by the preparation of the interview and questionnaire for stage 3. In stage 3 all experts received the final questionnaire with a summary of the answers from stage 2. The aim of this stage was to allow the experts to re-evaluate their previous rankings, noting whether the criteria for the assessment of aesthetics and ecology of urban green spaces were understandable and applicable. Experts had to repeat the rating of the criteria and they could compare it with the total average rating from the previous stage. After discussions, experts filled Delphi questionnaire and rated selected criteria in two fields – aesthetics and ecology.

The aim of Delphi was not to achieve consensus, but to get out different opinions from different fields of specialists. When processing the data obtained from the expert rankings of selected criteria of aesthetics and ecology, the indicators of descriptive statistics were determined (mean, median, standard deviation). Mann-Whitney U test was done to observe differences of rankings inside expert groups (local – foreign). Expert opinions from interviews and open-ended questions were entered and summarized in a database.

3. Results
As a result of the expert interviews and surveys, individual titles of the aesthetic and ecological assessment criteria of urban green spaces were clarified, the ranking of the twelve selected criteria was carried out, into the most significant criteria, thus giving an additional value to the aspect being
assessed, and the less significant criteria, the assessment of which was lower than the most significant ones. In the repeated assessment, each expert had an opportunity to see the total assessment of all the experts after the first round (Table 1 first part) and to change their initial assessment (Table 1 second part).

According to Latvian experts, *Naturalness* and *Uniqueness* were the most important criteria after the two rounds while the least important criteria were *Decorative quality of plants*, *Maintenance and upkeep*, *Presence of wildlife* and *Wilderness*. However, the foreign experts ranked *Compositional unity* and *Naturalness* as the most important criteria. After two rounds of assessment for foreign experts, *Condition of constructed elements*, *Maintenance and upkeep*, *Wilderness* and *Vegetation structure* were the least important criteria.

The Mann–Whitney test was used to compare the results for the two samples and the importance of the variables. The results of first assessment show statistically significant differences between the Latvian and foreign experts and their opinions to the criterion *Presence of wildlife* ($U=1.50$, $Z=-2.67$, $p=.003$). The foreign experts were more likely to assess this criterion as important compared to the Latvian experts.

**Table 1. Assessment of criteria according to the expert surveys**

| Experts’ initial assessment | Latvian experts | Foreign experts | Mann-Whitney $U$ | $Z$ | Sig. |
|-----------------------------|-----------------|-----------------|-----------------|-----|-----|
| Criteria                    | N   | Mean | Median | Std. Deviation | N   | Mean | Median | Std. Deviation | $p$  |
| AESTHETICS                  |     |      |        |                |     |      |        |                |      |
| Compositional unity         | 7   | 2.4  | 1      | 2.1            | 5   | 2.4  | 1      | 1.9            | 16.500 | -.18 | .438 |
| Uniqueness/Particularity    | 7   | 2.6  | 2      | 1.3            | 5   | 2.0  | 2      | 0.0            | 12.500 | -.97 | .216 |
| Coherence with architecture | 7   | 2.7  | 3      | 1.1            | 5   | 3.2  | 3      | 1.8            | 15.500 | -.34 | .378 |
| Condition of constructed elements | 7 | 4.0  | 3      | 2.0            | 5   | 5.4  | 6      | 0.9            | 10.500 | -1.22 | .134 |
| Decorative quality of plants | 7   | 4.6  | 5      | 1.4            | 5   | 4.0  | 4      | 0.7            | 11.000 | -1.11 | .172 |
| Maintenance and upkeep      | 7   | 4.7  | 5      | 0.8            | 5   | 4.0  | 5      | 2.0            | 15.500 | -3.4  | .378 |
| ECOLOGY                     |     |      |        |                |     |      |        |                |      |
| Naturalness                 | 7   | 1.0  | 1      | 0.0            | 5   | 1.6  | 1      | 0.9            | 10.500 | -1.75 | .134 |
| Typicality                  | 7   | 3.6  | 2      | 2.0            | 5   | 4.6  | 5      | 1.7            | 12.500 | -.86  | .216 |
| Wilderness                  | 7   | 5.0  | 6      | 1.4            | 5   | 4.2  | 4      | 1.5            | 11.500 | -1.02 | .172 |
| Presence of wildlife animals| 7   | 4.7  | 5      | 0.8            | 5   | 2.4  | 3      | 1.3            | 1.500  | -2.67 | .003 |
| Vegetation structure        | 7   | 3.6  | 4      | 1.0            | 5   | 4.6  | 5      | 1.5            | 8.000  | -1.59 | .075 |
| Local plants                | 7   | 3.1  | 3      | 1.1            | 5   | 3.6  | 3      | 1.5            | 14.500 | -.51  | .320 |

| Experts’ final assessment   | Latvian experts | Foreign experts | Mann-Whitney $U$ | $Z$ | Sig. |
|-----------------------------|-----------------|-----------------|-----------------|-----|-----|
| Criteria                    | N   | Mean | Median | Std. Deviation | N   | Mean | Median | Std. Deviation | $p$  |
| AESTHETICS                  |     |      |        |                |     |      |        |                |      |
| Compositional unity         | 7   | 2.4  | 3      | 0.8            | 5   | 1.4  | 1      | 0.5            | 5.500  | -2.06 | .024 |
| Uniqueness/Particularity    | 7   | 1.6  | 1      | 1.1            | 5   | 2.6  | 2      | 2.1            | 11.500 | -1.09 | .172 |
| Coherence with architecture | 7   | 2.1  | 2      | 0.7            | 5   | 3.8  | 4      | 1.5            | 5.000  | -2.13 | .024 |
| Condition of constructed elements | 7 | 4.7  | 4      | 1.0            | 5   | 5.4  | 6      | 0.9            | 10.500 | -1.23 | .134 |
| Decorative quality of plants | 7   | 5.4  | 6      | 0.8            | 5   | 3.8  | 4      | 0.8            | 3.000  | -2.44 | .009 |
| Maintenance and upkeep      | 7   | 4.7  | 5      | 1.0            | 5   | 4.0  | 5      | 1.4            | 12.500 | -.91  | .216 |
| ECOLOGY                     |     |      |        |                |     |      |        |                |      |
| Naturalness                 | 7   | 1.7  | 1      | 1.1            | 5   | 1.4  | 1      | 0.9            | 14.000 | -.68  | .318 |
| Typicality                  | 7   | 3.4  | 3      | 2.2            | 5   | 3.8  | 3      | 1.6            | 15.000 | -.41  | .377 |
| Wilderness                  | 7   | 5.1  | 6      | 1.5            | 5   | 5.8  | 6      | 0.4            | 13.000 | -.88  | .265 |
| Presence of wildlife animals| 7   | 4.0  | 5      | 1.5            | 5   | 3.2  | 3      | 0.8            | 9.000  | -1.43 | .101 |
| Vegetation structure        | 7   | 3.7  | 4      | 1.3            | 5   | 3.4  | 4      | 1.8            | 17.000 | -.08  | .500 |
| Local plants                | 7   | 3.0  | 3      | 0.8            | 5   | 3.2  | 3      | 1.3            | 16.500 | -.17  | .438 |
After initial assessment there was no distinction between the experts from Latvia and those from other countries regarding to the criteria Compositional unity, Coherence with architecture, Maintenance and upkeep and Local plants. In the final assessment a statistically significant difference was found between the Latvian and foreign experts and their rating of the criteria Compositional unity (U=5.50, Z= -2.06, p=.024), Coherence with architecture (U=5.00, Z= -2.13, p=.024) and Decorative quality of plants (U=3.00, Z = -2.44, p=.009). Experts had different opinions on the order of the most important criteria. There was no distinction after the final assessment between Latvian experts and foreign experts regarding the criteria Vegetation structure, Local plants, Typicality, Naturalness and Wilderness.

The summarized results of the ranking of the criteria are presented in Table 2. It can be seen that from the aesthetics criteria Uniqueness and Compositional unity have been assessed as most significant. It was concluded that these criteria include the criteria that have been ranged lower - Maintenance and upkeep, Decorative quality of plants and Condition of constructed elements. It means that if the evaluated landscape is well maintained, includes decorative plants and aesthetic natural vegetation, new or qualitative constructed elements – it will raise the overall rating of Compositional unity and Uniqueness. Coherence with architecture is also assessed as important criterion, however it is dependent from both highest evaluated criteria.

Table 2. The relative importance of the selected criteria

|                      | Experts’ initial assessment | Experts’ final assessment |
|----------------------|-----------------------------|---------------------------|
|                      | N  | Mean | Median | Std. Deviation | Mean | Median | Std. Deviation |
| **AESTHETICS**       |    |      |        |               |      |        |               |
| Compositional unity  | 12 | 2.4  | 1      | 2.0           | 2.0  | 2      | 0.9           |
| Uniqueness/Particularity | 12 | 2.3  | 2      | 1.0           | 2.0  | 1      | 1.6           |
| Coherence with architecture | 12 | 2.9  | 3      | 1.4           | 2.8  | 3      | 1.3           |
| Condition of constructed elements | 12 | 4.6  | 6      | 1.7           | 5.0  | 6      | 1.0           |
| Decorative quality of plants | 12 | 4.3  | 4      | 1.2           | 4.8  | 5      | 1.1           |
| Maintenance and upkeep | 12 | 4.4  | 5      | 1.4           | 4.4  | 4      | 1.2           |
| **ECOLOGY**          |    |      |        |               |      |        |               |
| Naturalness          | 12 | 1.3  | 1      | 0.6           | 1.6  | 1      | 1.0           |
| Typicality           | 12 | 4.0  | 4      | 1.9           | 3.6  | 3      | 1.9           |
| Wilderness           | 12 | 4.7  | 6      | 1.4           | 5.4  | 6      | 1.2           |
| Presence of wildlife | 12 | 3.6  | 3      | 1.5           | 3.7  | 5      | 1.3           |
| Vegetation structure | 12 | 4.0  | 4      | 1.3           | 3.6  | 3      | 1.4           |
| Local plants         | 12 | 3.3  | 2      | 1.2           | 3.1  | 2      | 1.0           |

From the ecological assessment criteria in the initial evaluation, most experts (10 out of 12) were unanimous in giving the highest value to Naturalness. In the final assessment, it still had the highest score, followed by Local plants and Typicality of landscape, Presence of Wildlife and Vegetation structure. The assessment of Naturalness significantly differs from the other criteria that complement it. Wilderness obtained the lowest score, since this criterion characterises negative aspects as well [19, 15], unless it is connected with the assessment of other criteria, for example those of naturalness or dominance of local plant species.

During the interviews and surveys, the experts gave their characterisation of the assessment criteria of aesthetics and ecology of urban green spaces as well as suggestions for their determination and assessment. The results showed differences between Latvian and foreign experts and their research field. Experts of landscape architecture and architecture could express themselves in definitions of criteria that were selected for aesthetics, especially on abstract criteria (e.g. Compositional unity, Uniqueness and Coherence with architecture). Expanded opinion on Decorative quality of plants and Maintenance and upkeep had experts from field of natural science including suggestions of plant
selection for natural look landscapes and different techniques for park management to improve ecological and aesthetical landscape quality. The assessment criteria of the ecology of urban green spaces and their characterisation were very well discussed with experts from natural sciences. Foreign experts from landscape architecture field are very competent also in ecology field, they marked sustainable landscape design and urban planning, biodiversity, landscape ecology, ecological networks, urban forestry as their study fields and research interests.

Foreign experts had an option in their survey questionnaires to mark the most appropriate characteristic features of certain criteria. According to the opinions of several experts, Compositional unity is characterised by the composition (4) and function of the territory (4). Additionally – the landscape structure was mentioned which would also characterise compositional unity. For characterising the principle of Uniqueness most often the spirit of the place Genius loci (4) and different landscaping design (4) were mentioned. Three experts mentioned heritage objects and impressive buildings and structures. According to experts, landscape Maintenance and upkeep in the green spaces can best be judged by a mown lawn (3), tended flower beds (3) and clean surfaces of hardscapes (3). Apart from the aforementioned characteristic features, the experts also mentioned Nassauer’s cues of care and sustainability of upkeep and conserving. The features characterising Naturalness are local plant species (5) and wild animals (4). Oftentimes naturally looking water elements and landscape pattern (3), including natural habitats (3) were mentioned. Wilderness can be stated by the succession of vegetation (5) and overgrowth degree (3). Nature processes, landscape structure boarders and transitional areas between the managed territories of different intensity were mentioned.

According to the results of expert interviews, correlation among the selected criteria was established, taking into consideration those criteria, which are in opposition to each other and the criteria that complement some other criterion. According to similar research [22, 23], a scheme for showing the correlation/interconnections of criteria was developed (figure 2).

**Figure 2.** Correlation of the selected criteria

*Wilderness* is opposite to landscape Maintenance and upkeep, however, *Naturalness* is in between those two criteria. The Typicality of landscape includes Local plants and Vegetation structure, which overall is a complement to the value of Naturalness. The presence of Wildlife is influenced by both – Typicality of the territory and Wilderness. The Uniqueness of landscape in urban environment will be influenced by Architecture, Compositional unity of the territory, rare plants, which are included in the criterion Decorative quality of plants. However, in the urban environment the Uniqueness of landscape is also affected by the Naturalness indicator, because completely natural territories will be a rarity. Maintenance and upkeep includes Decorative quality of plants and Condition of constructed elements, and landscape territory will be directed towards the status of an artificially formed territory.
4. Discussion
This study presents a selection of criteria for assessment of aesthetical and ecological quality of green spaces. The findings provided importance of selected criteria in opinions of different experts. The final assessment carried out by the experts confirms the interconnections between the selected 12 criteria. The experts acknowledged that some criteria are more significant (Compositional unity, Uniqueness, Naturalness) and they involve the other criteria. Thus, the values of most significant criteria will influence the values of the other criteria as well.

The differences in the first and repeated assessment of the criteria in the expert surveys are not significant. The experts changed their opinion after the first assessment, but the total results were not affected significantly. The criteria, which were assessed higher – Compositional unity, Uniqueness and Coherence with architecture, Naturalness and Local plants retained their assessment, similarly to the lowest assessment – Condition of constructed elements and Wilderness increased the lower place score prevalence over other criteria. Changes pertained to averagely assessed criteria, which according to the results of expert interviews were characterised as equal in value.

Recent investigations mentioned that there are differences of opinion between the experts from field of ecology and professions related with landscape aesthetics [29, 1]. The experts with deeper knowledge of architecture gave a wider description of aesthetics criteria, especially those regarding landscape composition. The criteria associated with the assessment of ecology regarding plant species, wildlife, regional features of landscape were described less than others. The experts who have knowledge in ecology described the criteria of ecology in a convincing way, adding the terminology pertaining to the field. However, the characterisation of aesthetics criteria (Compositional unity, Uniqueness) not always coincided with the views of those experts involved in the areas of architecture, because some criteria were given a different meaning. The experts having knowledge in both areas gave substantiated answers on the assessment criteria of both ecology and aesthetics. Therefore, the characterisation of the criteria presented by these experts is the most accurate for applying them in assessment of aesthetics and ecology of urban green spaces.

Experts’ answers from interviews and questionnaires indicated that experts from Latvia have different practical experience in planning and maintenance of green spaces than experts from other countries. In addition, experts from other countries based their definitions on different theories and approaches. This shows a necessity using experts with different experience that can help to improve the current situation of green spaces in Latvia. For example, foreign experts evaluated Presence of wildlife higher than local experts. In Latvia there is a lack of public urban green spaces that offer possibility to watch wild animals, especially small mammals contrary to urban green spaces in other European countries. It shows that environmental issues still are not the first choice in Latvia and the knowledge should be promoted.

The study prepared twelve criteria to assess landscape aesthetical and ecological quality of green spaces, based on the level of their importance. The use of experiences from different locations in development of planning and maintenance principles is important in assessing the quality of urban areas. Selected criteria of this research would be necessary and usable in development of an assessment tool for aesthetic and ecological quality of green spaces.

5. Conclusions
The results of the research indicate that there is a connection between the expert answers on the criteria and the field of their research and location where their knowledge and practice is gained. The aim of this study was to define and characterize criteria obtained from the literature among experts from Latvia and countries abroad. The research question was – is it possible to select criteria which would be understandable and usable for the assessment of aesthetical and ecological values of green
spaces in general, or it would be applied only in Latvia. The results of combined Delphi method and expert interviews showed different opinions from experts regarding to their location and field of study and indicated a little change of expert’s opinion based on the summary from all experts. All the experts got consensus on the most important criteria. Comparing the views of experts from different locations, the way how green spaces are managed and maintained in Latvia has to be improved by including modern approaches from the countries abroad. In the aspect of the aesthetic and ecological quality of the urban green spaces of Latvia, results of expert discussions showed that there are small regional differences that could characterize each urban green space, related to the geobotanics, topography and architecture. The urban green spaces are designed according to various regulatory and planning documents, the priorities of which are not the preservation of the regional and wildlife specifics. Discussions with experts did not show separate results, that urban green spaces in Latvia should have different planning and treatment for places designed during the Soviet Era. Still the practice to use standardised plant material influence development of natural look urban green spaces. However, the aesthetic and ecological quality should also be balanced and included in the planning of the urban green spaces of the Latvian cities.

**Acknowledgment(s)**

We would like to acknowledge and thank to Dr. Simon Bell (Estonian University of Life Sciences, Department of Landscape Architecture) for suggestions, corrections and comments on the manuscript, and also for recommendation of Delphi technique. We thank Dr. habil.sc.ing. Peteris Rivza (Latvia University of Life Sciences and Technologies, Department of Computer Systems) for assistance with statistical analysis and interpretation of collected data. We are also grateful to all the experts who participated in interviews and surveys.

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