Perception of Flower Beds in Public Green Areas

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Summary

Flower beds are one of the aesthetically most striking elements of public green areas. Regardless of such an important role, there is very little research dealing with flower beds as an individual element in space. Research is most often based on studying flower species in a broader context.This research tried to ascertain to what extent citizens and professionals perceive flower beds in their everyday lives. Results show that more than half of the subjects notice flower beds on a daily basis. Furthermore, statistically significant differences were determined in the professionals' and non-professionals' knowledge of certain locations in which flower beds are present, and in their tendency to participate in projects involving the design and maintenance of flower beds. Namely, professionals are more acquainted with the locations of flower beds, and are more likely to participate in a project involving the design and maintenance of flower beds. Results point to the importance of flower beds and the need for further research of their role as a part of urban green spaces.

Key words

perception, flower beds, urban green spaces

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Introduction

Green spaces play a significant role in urban areas. Following urban population growth (United Nations, 2011) the importance of green spaces is also increasing, especially because for a part of the urban population these areas are the only contact with the natural environment.

Although there is a great number of studies on the importance of greenery in urban areas in general, they mostly focus on trees as the most important element of urban green spaces (Schroeder and Cannon, 1983; Dwyer et al., 1991; Sommer et al., 1992; Kaplan et al., 1998; Schroeder et al., 2006). In this context, very little research deals with flower beds that are, for the urban population, the most important element of urban green spaces after trees (Poje, 2012).

Most of the existing research is based on studying flower beds or the use of flower species in a broader context. A study of the preferences of spectators in a busy corridor in the South of Utah showed that flowers were the single most important characteristic of the landscape for which subjects stopped to enjoy the view (Clay and Daniel, 2000). A study of various types of spatial arrangement of forests and forest edges lead to the conclusion that the placement of flowers beneath trees, in this case a monoculture of oxeye daisies (*Leucanthemum vulgare* Lam.), has no effect on the perception of safety and preference. Furthemore, that combination of flowers beneath trees was the most preferred (Jorgensen et al., 2002). According to Todorova et al. (2002), the interest in flowers amongst subjects is pointed out by Iwamura and Yokohari (2001) where the local population participated more actively in the maintenance of parks with flower beds, and less in those without flower beds.

Less research focuses on flower beds as individual elements. Thus Todorova et al. (2004) explored preferences for various street-planting models, particularly those with different compositions of flowers in combinations with or without trees. Results show that subjects preferred a combination of trees and flowers over a combination of trees and hedges, grass or plain ground.

The design of public areas should, to a certain extent, be based on the needs and wishes of their users, although professionals often use plants only taking into consideration their own views and personal preferences (Kravanja, 2006). For that reason it is important to gather information from future users so that the area would be as functional as possible. Along the same line, it is important to determine the differences in the preferences of professionals and those of non-professionals, and try to reach a compromise between their views on what the area should look like. Certain research shows that expertise affects perception (Kaplan, 1973; Buyhoff et al., 1978; Brush et al., 2000; Herzog et al., 2000) and that professionals are generally unaware of those differences among themselves and the general public (Kaplan and Kaplan, 1989; Strumse, 1996). Scott (2002) points out that "ordinary citizens" view the landscape as a whole, whilst professionals differentiate between elements out of which it is comprised. These differences between the professionals and the general public are also noticed in a study of visual preferences (Kaplan and Kaplan, 1989). Rogge et al. (2007) point out that farmers, experts and country-dwellers have a different perception of agrarian landscapes in Flanders. For these reasons, Kaplan and Kaplan (1983) warn about the negative effects of overlooking these differences between the groups.

The expenses of maintaining flower beds can be reduced to a minimum by including the end-users of the area. Todorova et al. (2002) point out the fact that users of public areas are ready to participate in planting and maintaining of flower beds, but with the help of local authorities that would provide seedlings and a planting plan.

The aim of this study was to investigate how urban dwellers perceive flower beds in their everyday life, to determine differences in perception between professionals and non-professionals and willingness of professionals and general population to participate in the process of designing and maintaining flower beds.

Subjects and methods

The study was conducted by method of survey (N=348). The sample covered part of the professional (N=105) and part of the general public (N=243). The professional public was represented by experts in the field of landscape architecture and ornamental plants, and students from the Faculty of Agriculture graduating in Landscape Architecture and Horticulture – Ornamental Plants. The general public is represented by part of the public whose profession is neither of the above-stated professions. The above sample was chosen because of differences in preferences between professionals and the general public, which is explained in the previous section.

The survey was conducted in April 2012 combining the personally administered (N=105) and electronic survey method. Personally administered questionnaires were filled by a part of expert students at Faculty of Agriculture and part of general public at Faculty of Humanities and Social Sciences. Electronic survey method was conducted via questionnaire which was filled out in a website specially created for this purpose (N=243). Advantages and disadvantages of electronic survey method were summarized by Roth (2006).

The questionnaire was comprised of a series of questions concerning the perception of flower beds and knowledge about flower beds, along with a series of questions aimed at measuring the socio-demographic characteristics of the subjects. The series of questions about noticing flower beds and knowledge of them included the following indicators: frequency of noticing flower beds in daily movements, the ability of linking flower beds to particular locations in the city of Zagreb, estimation of the sufficiency of flower beds in public green spaces in the city of Zagreb, the degree of knowledge of the existence of flower beds in certain locations in the city of Zagreb and willingness to participate in projects of designing and maintaining flower beds.

The data were analyzed using descriptive statistics and the chi-square test. Chi-square test was used for the comparison of frequencies. As statistically significant was considered $p<0.05$.

Results and discussion

The purpose of the first indicator was to determine the frequency of noticing flower beds. Figure 1 shows basic descriptive statistics displaying answers to the question "How often do you notice flower beds in your daily movements". The majority of respondents (53%) notice flower beds often or daily in their everyday movements. On the other hand, 25% of respondents rarely or never notice flower beds in their daily movement.

A high percentage of subjects (67.5%) are able to link a flower bed to its particular location in Zagreb, be it a district, street or city square. Answers to the question "Can you link a flower bed to a particular location (district, street, city square) in Zagreb" are presented in Figure 2.

The questionnaire provided an open-ended question; subjects who were able to link flower beds to locations also filled blank space with the name of the district, street or city square that they recognized as the spot containing the flower bed. The aim of this question was to check which locations with flower beds are parts of respondent's memory. For that reason, they were not offered any locations as in another part of research which will be shown later in text. They mostly mentioned the locations in the center of the city such as the Marshall Tito Square, the space in front of Mimara Museum, the Nikola Šubić Zrinski Square, the Strossmayer Square and those outside the city center such as Maksimir Park (the area in front of the main entrance), Bundek and other locations.

A statistically significant difference is determined in the ability to link a flower bed to a particular location between the two types of public. Professionals were able to link a flower bed to its location to a greater extent than the general public (χ^2=9.099; df=1; p<0.05). This is logical considering the field of interest of the professional public.

A statistically significant association is determined between noticing flower beds in daily movements and linking the flower bed to a particular location in the city of Zagreb (χ^2=11.689; df=2; p<0.05). The more often the subjects noticed flower beds in their daily movements, the greater the extent to which they were able to link a flower bed to its location. Those subjects who do not notice flower beds in their daily movements had a higher tendency of not being able to link a flower bed to its location.

When asked to give an estimate about whether there are enough green areas with flower beds in Zagreb, more than half of the subjects feel that there are too few flower beds in Zagreb (53.2%), whereas 10.3% of subjects feel there are too many (Figure 3).

A statistically significant difference is determined between the two types of public in terms of their opinion of the sufficiency of flower beds in Zagreb (χ^2=20.741; df=3; p<0.05). A significant part of the professional public agrees that there are enough flower beds in public green areas of Zagreb. It is members of the general public who think that there are too few or too many flower beds. The stated opinion of the general public regarding estimated sufficiency of flower beds in Zagreb can be explained through their preferences for flower beds.

A statistically significant difference is determined between linking flower beds to their locations and the perception of sufficiency of flower beds in Zagreb (χ^2=10.048; df=3; p<0.05). Following this fact, those who can relate a location to a flower bed feel that there are too few or enough flower beds in the city. Those who cannot relate a location to a flower bed feel that there are too many flower beds in Zagreb. That can be explained by their disinclination for flower beds because it's contradictory to think that there are too many flower beds and don't know a single location of one flower bed.

In further research willingness of the subjects to participate in a project of designing and maintaining flowerbeds was examined. About a quarter of the subjects expressed an affinity to join the project (26%), whereas less than a quarter of the total number of subjects (23%) is uninterested in such an idea (Figure 4).

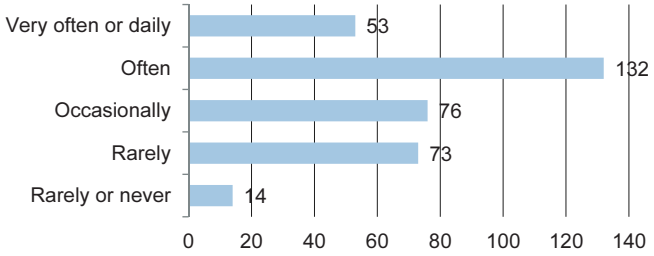

Figure 1.
Frequency of noticing flowerbeds in daily movements

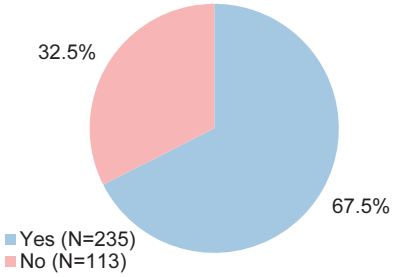

Figure 2.
Perception of flowerbeds according to their locations in Zagreb

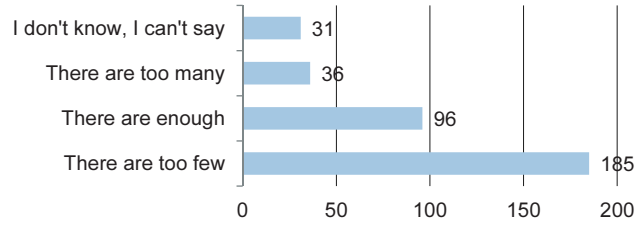

Figure 3.
Perception of the sufficiency of flowerbeds in the city of Zagreb

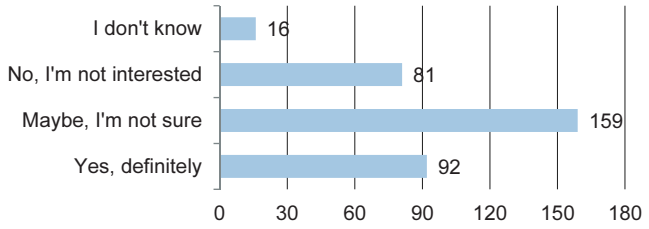

Figure 4.
Willingness to participate in projects of designing and maintaining flower beds

Roughly half of the subjects was unsure whether or not they would participate (*Maybe, I'm not sure*), which could have a positive connotation considering one of the options was also *I don't know*. It is assumed that such a group of subjects would express a willingness to participate, if it were explained to them in detail what such a project would include and what could be expected of them. Existing research shows citizens' consent to participate in such projects. Todorova et al. (2002) determined that 34% of users were willing to participate in planting, while 28% were inclined to engage in the maintenance of flower beds, but were disinclined to participate in the process of planning such a project. The same authors stated that 40% of the subjects were unwilling to participate in such a project. However, this research shows a lesser percentage of so inclined subjects (23.3%).

A statistically significant difference is determined between the general and professional public concerning the willingness of participating in such a project (χ^2=23.374; df=2; p<0.05). The professional public is more inclined to participate in a project in which citizens would help design and maintain flower beds, while the general public would be less inclined to do so. It means that the professional public is more interested in such a project, which is relevant in the context of project designing, work that is in the domain of professionals. Namely, professionals participating in such a project would decrease the expenses of project design in the total budget.

For the purpose of examining the knowledge of the placement of flower beds in certain locations in the city of Zagreb, a measuring instrument was constructed. It consisted of question "Are there flower beds in following locations in Zagreb" and a list of fifteen preferred locations, alongside which three categories of answers were provided for the subjects: *Yes*, *No* and *I do not know this location*. Last category meant that subject doesn't know specific location in Zagreb.

Among the locations in which there are flower beds, the subjects identified the Marshall Tito Square and the spaces surrounding the Croatian National Theatre to the greatest extent (97.1%), along with the spaces in front of Mimara Museum in the immediate vicinity of the square mentioned (88.2%), while the location least recognized for containing flower beds was the area in front of the Zagreb Bus Station (24.1%).

Out of the locations without flower beds that were offered, most subjects identified the Ban Jelačić Square (93.4%), whereas the area least identified as a location in which there are no flower beds was SRC Jarun (35.3%). Answers to the question "Are there any flower beds in the following locations in Zagreb" are presented in Table 1.

Table 1. Percentage of correct answers on the presence of flowerbeds in these preferred locations

Location	Percentage of correct answers
In front of the Croatian National Theatre	97.1
In the Ban Jelačić Square	93.4
In front of Mimara Museum	88.2
In the Kvaternik Square	82.5
In front of the Cibona Tower	82.5
At the entrance of the Zagreb Student Center	80.7
In the Flower Square	80.7
In front of the new National and University Library	73.6
In the Crotian Heroes Square	71.3
In the Černomerec tram station	59.8
By the Ljubljanica tram depot	58.0
In front of the Cathedral	48.6
In front of the Vatroslav Lisinski Concert Hall	38.5
In SRC Jarun	35.3
In front of the Zagreb Bus Station	24.1

It is evident that, regardless of the accuracy of their response, most subjects did have an opinion on the locations in the center zone of Zagreb, which can be explained by the fact that these locations are much more familiar to most subjects than those in the periphery of the city. Certain locations such as green areas surrounding the Croatian National Theatre and spaces in front of Mimara Museum, which were areas mentioned by a significant number of subjects as locations linked with flower beds, can be considered elements of the city's visual identity.

In the context of linking flower beds to their locations, a larger portion of the professional public was able to identify the location of a flower bed, which is perfectly understandable taking into consideration their range of interest.

Conclusion

The low count of world-wide studies conducted about flower beds as a part of public green spaces is difficult to explain. The above would, to some extent, be easier to grasp if the users of public green spaces were indifferent towards flower beds, but seeing as flower beds are – along with trees – one of the most desired elements of public green spaces (Poje, 2012), the lack of research cannot be supported by the indifference of users towards flower beds what results of this paper indicates.

Since a representative sample was not used in this particular research, the findings cannot be inferred from the sample to the general population. Although a representative sample was not used because of financial reasons, the results can still be considered indicative and provide solid grounds for future studies of flower beds.

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