

What are the opinions of UASVM Bucharest students regarding tiny urban forests?

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Manuscript received: 21 October 2024; revised: 10 November 2024; accepted: 11 November 2024

Abstract

The concept of urban tiny forests was pioneered by Dr. Akira Miyawaki in Japan during the 1970s. Since then, tiny forests have been planted worldwide, especially in developed countries across Europe, due to their several benefits provided to the urban population. In comparison with other types of urban green spaces, Miyawaki forests are composed of tens of native tree and shrub species, with a high planting density, usually between 2 and 5 seedlings per square meter. In order to assess the perception of the University of Agronomic Sciences and Veterinary Medicine of Bucharest (UASVM-B) students regarding this concept an online questionnaire including 26 closed-questions, and 2 open-questions was proposed. During the second half of October 2023, the questionnaire was distributed in several WhatsApp groups and 204 responses were recorded. The results clearly indicate a strong interest in increasing the area of tiny forests across Bucharest, especially in deficient areas in forest vegetation.

Keywords: green spaces, Miyawaki, tiny forest, urban green areas

Introduction

Green spaces assure a crucial role in delivering essential ecological services, benefits and products to urban areas and people [1], [3], [28].

Particularly, urban trees and shrubs possess significant potential for carbon sequestration [19], [21], [32] and pollution mitigation [13], [20], [27]. Additionally, they provide seeds and fruits [12] or even sap [10] that could be included in food security projects worldwide, such as public orchards or community gardens [9], [15], [24].

Urban trees have also an important role in energy and water conservation, maintaining wildlife habitat and diversity, community identity or in aesthetics [17], [25], [38].

Moreover, it is widely recognized that exposure to nature, by spending time into the urban forests, for example, can mitigate stress, contribute to both mental and physical well-being, and positively influence individuals' moods [6], [16], [22], [31].

Contemporary city development involves the incorporation of forest-based solutions to address the dual challenges posed by climate change and biodiversity loss [4], [14], [23], [30]. In this context, urban planners are encouraged to diversify the selection of tree and shrub species to mitigate the associated risks [36], [37], by limiting the ones that could generate allergic reaction to sensitive people or damage the urban infrastructure, like the case of Russian olive, for example [11].

In recent decades, worldwide, there has been a growing focus on tiny forests, a concept introduced by Dr. Akira Miyawaki in urban areas, almost half a century ago [7], [19], [29]. Miyawaki forests are regarded as an innovative tool for rapid restoration and valorization of degraded urban and peri-urban areas [26].

These small, compact and diverse patches of woodland consist exclusively of native species [2], [5], [33]. Tiny forests play an important role in tackling ecological restoration, considering both forest function (e.g., habitat provision, temperature regulation, carbon sequestration, enhancing soil quality) and landscape diversification [2], [8].

Furthermore, the Miyawaki forest represents a cost-effective, low-maintenance, and expeditious approach to introduce native vegetation on degraded urban lands [34], [35].

The aim of this study was to assess the opinions of the University of Agronomic Sciences and Veterinary Medicine of Bucharest (UASMV-B) students regarding the importance of tiny urban forests.

Material and Method

To accomplish the research objective, a questionnaire using Google Forms was developed. The survey comprised 28 questions, including 26 closed-ended and 2 open-ended questions covering general information and opinions on tiny urban forests. The questionnaire was distributed through University of Agronomic Sciences and Veterinary Medicine of Bucharest (UASMV-B) students' WhatsApp groups, and the response timeframe spanned from October 12, 2023, to October 21, 2023.

Results and Discussion

A total of 204 students from UASMV Bucharest participated in the questionnaire.

Regarding the students' affiliation (question number 1), 41 students were enrolled in the Faculty of Horticulture, 29 students originated the Faculty of Management and Rural Development, 39 were students of the Faculty of Agriculture, 44 students were enrolled in the Faculty of Biotechnology, 10 students originated from the Faculty of Animal Productions Engineering and Management, 27 students were enrolled in the Faculty of Veterinary Medicine and 14 students were enrolled in the Faculty of Land Reclamation and Environmental Engineering, respectively (Figure 1).

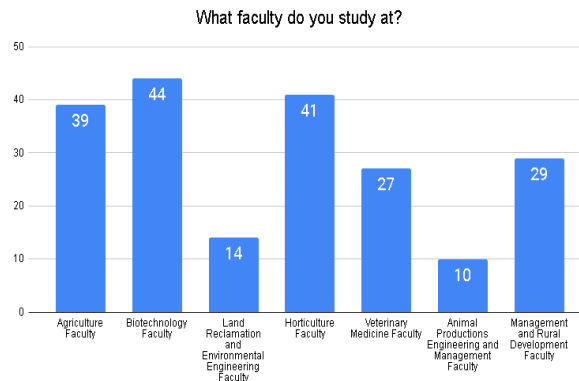


Figure 1. The affiliation of the 204 students

Regarding question number 2 (In which academic year are you currently enrolled?), 39 students were enrolled in the first year, 59 in the second year, 64 in the third year, 32 in the fourth year, 5 in the fifth year and 5 in the sixth year, respectively (Figure 2).

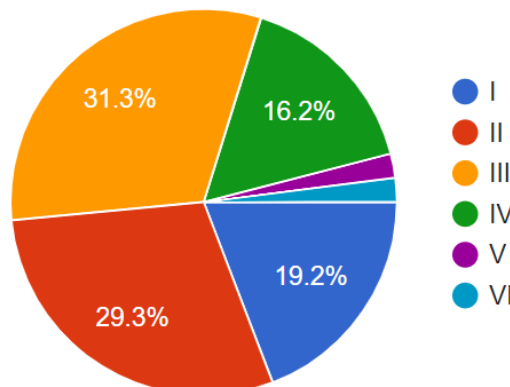


Figure 2. Distribution of students by year of studies

As regards question number 3 (In which sector of Bucharest do you live?), most of the students live in sector number 1 (40.8%), sector number 6 (20.9%) and sector number 2 (13.4%), respectively (Figure 3).

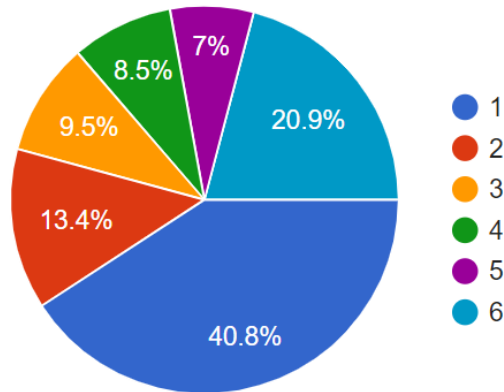


Figure 3. Distribution of students by sectors of Bucharest

The overwhelming majority of survey participants fell within the age range of 10 to 23 years old (responses to question number 4; Figure 4).

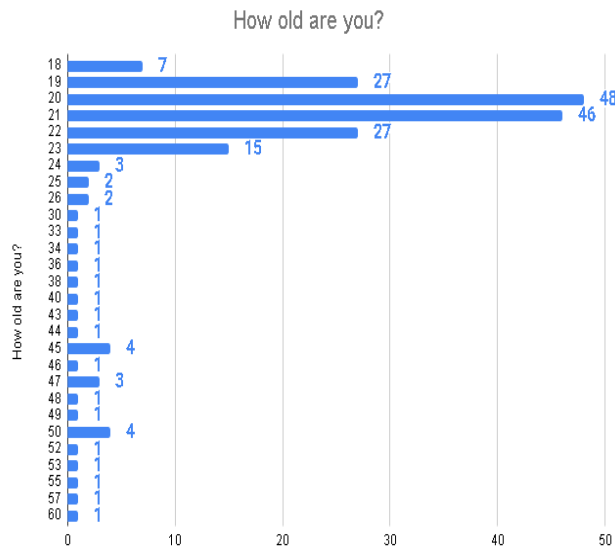


Figure 4. Distribution of students by age

Close to two-thirds of the students identified as female, while one-third identified as male (responses to question number 5).

The majority of students (78%) responded affirmatively to question number 6, indicating that they visited at least one forest near the capital in the past year (e.g. Comana, Băneasa, Snagov, Bragadiru, etc.).

In response to question number 7 (How much do you believe that the urban forests contribute to improving air quality in the capital?), 61.7% of the students expressed a belief that they contribute to a very large extent, 26.9% to a large extent, and only 9.5% to a small extent, respectively.

Question number 8 inquired about whether students believe that the forests/green spaces within the capital influence air quality and overall life quality. A total of 202 responded affirmatively, while only 2 students answered negatively.

Question number 9 was exclusively directed to students who responded “Yes” to question number 8. It sought their opinion on the extent to which the forests/green spaces within the capital could impact air quality and overall life quality. Of the respondents, 67.2% indicated “Very large”, 29.3% chose “Large”, 3% selected “Small”, and 1% opted for “Very small”, respectively.

For question number 10, students were asked to express their opinion on whether the recommended European Union average of 26 square meters of green space per capita is achieved in Bucharest. A total of 182 students responded with “No”, while 22 students indicated “Yes”.

Concerning question number 11, students were asked to express their agreement with the proposition that the area of green spaces should be expanded in the capital. A total of 202 students responded affirmatively, while only 2 students indicated “No”.

For question number 12, students were required to indicate whether they believe that urban forests offer a means to expand green spaces in Romania. Only 4 out of 204 students responded negatively.

As regards question number 13, students were inquired about whether they perceive urban forests as allies against noxious elements. 96.6% of the students responded affirmatively, while 3.4% answered negatively.

Question number 14 inquired whether students believe that urban forests could serve as allies against heat. A share of 97.5% responded affirmatively, while only 2.5% answered negatively.

For question number 15, students were asked whether they believe that urban forests could act as allies against the noise in cities. 88% of the students responded affirmatively, while 12% answered negatively.

Question number 16 (with multiple answers) was an open-ended query where students were asked to provide examples of activities they would like to see/do in an urban forest. Picnic spots, bicycle paths and barbecue spots were in the top (Figure 5).

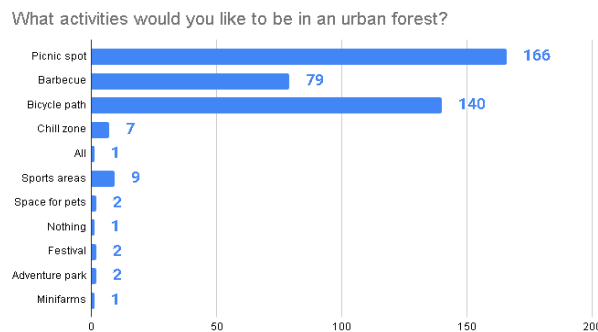


Figure 5. Answers to question number 16

For question number 17, students were asked whether they believe there is space around their homes where a tiny forest could be established. 61% of the students responded affirmatively, while 39% answered negatively.

Question number 18 sought information on how frequently students would visit an urban tiny forest if one was situated around their home. 40% answered “Very often”, 53% answered “Often”, 6% answered “Rare” and 1% answered “Very rare”.

For question number 19, students were asked to indicate who they believe that should establish urban forests. Most of them choose “Ministry of Environment, Waters and Forests” (125 answers), and “Municipalities” (58 answers), respectively (Figure 6).

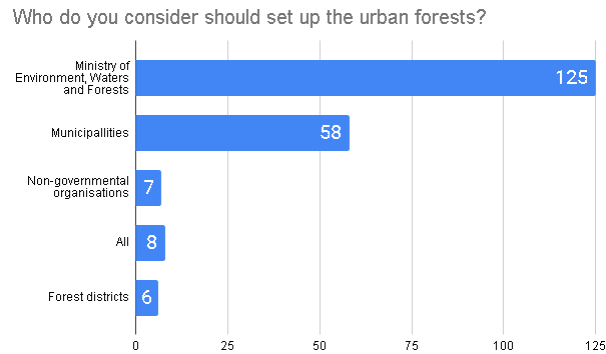


Figure 6. Answers to question number 19

For question number 20, students were asked to express their opinion on who should be responsible for the maintenance of urban forests. The answers were similar with the ones given at previous questions, namely “Municipalities” (91 students) and “Ministry of Environment, Waters and Forests” (80 answers), respectively (Figure 7).

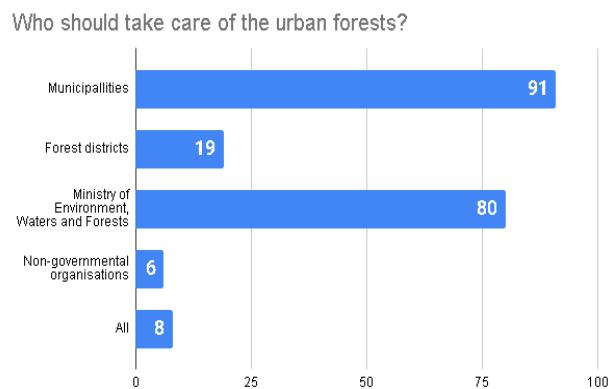


Figure 7. Answers to question number 20

As regards question number 21, students were inquired about their preferences regarding the tree species they would like to see in an urban forest. The responses were as follows: 10 students answered “Only softwood species”, 44 students answered “Only deciduous species”, and 150 students answered “Deciduous species and softwood species”, respectively (Figure 8).

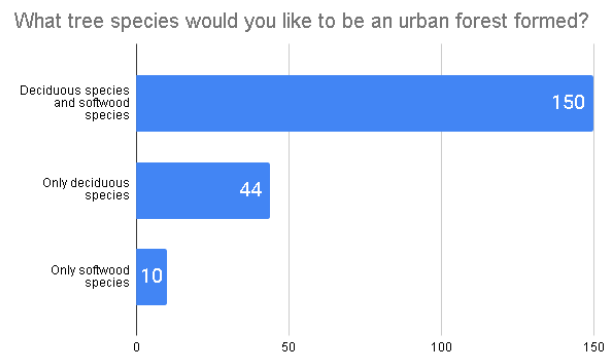


Figure 8. Answers to question number 21

At question number 22, students were queried about their preferences regarding the number of tree species they would like to see in an urban forest. The responses were as follows: 184 students said “Three or more species”, 16 students chose “Two species”, and only 4 students answered “Only one species”, respectively (Figure 9).

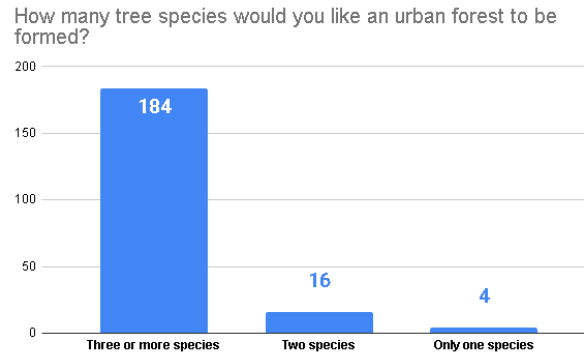


Figure 9. Answers to question number 22

For question number 23, students were asked whether the damaged trees in an urban forest should be registered. A total of 202 students answered “Yes”, while only 2 students answered “No”.

Question number 24 was an open-ended and multi-choice query addressed to those who responded “Yes” at question number 23. They were asked to specify who they believe that should report the identification of damaged trees. The responses included: 90 answers for “Citizens”, 134 answers for “Forest districts”, 75 answers for “Local police”, 101 answers for “Municipality”, 1 answer for “Nobody”, and 5 answers for “All”, respectively.

For question number 25, which pertains to who should be responsible for removing damaged trees from the urban forest, the results were as follows: “Municipality” (97 answers), “Forest districts” (98 answers), “Local police” (8 answers) and “Nobody” (1 answer), respectively.

Question number 26 was related to the establishment of the first tiny forest in Bucharest in 2021, located in Sector number 1. Students were asked whether they believe this initiative contributes to the expansion of green spaces in the capital. A total of 198 students responded affirmatively, while 6 students answered negatively.

In response to question number 27, students were queried about whether there should be a project for establishing several tiny urban forests throughout the entire capital. A total of 188 students answered “Yes”, while 16 students answered “No”.

In the final question, the students were asked whether they believe that air quality and life quality would be improved if the project presented in the previous question were implemented across the capital. All 204 students responded affirmatively.

Conclusions

The questionnaire has garnered significant interest among students, evident from the high number of responses received in a short timeframe. This reflects a heightened interest among students in green areas topics.

A negative perception regarding the average green spaces in Bucharest exists among students.

The results underscore the necessity for the expansion of green spaces in the city and a demand for designated areas for various activities within these spaces or forests. Public institutions and authorities are widely regarded as the primary entities responsible for the establishment and maintenance of urban forests.

Last but not least, the concept of tiny urban forests is viewed as a viable means to expand green spaces in Bucharest, and it is also seen as an effective strategy for mitigation the pollution and the climate change.

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