

RECREATIONAL POTENTIAL OF URBAN FORESTS IN THE YOUNG GENERATION OPINIONS. A CASE STUDY OF WARSAW (CENTRAL POLAND)

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Abstract

The research aimed to check how Bielański Forest (BF) users perceive its recreational function and what types of activities they undertake. The results indicate that regardless of the age of the respondents, the urban forest area located in Warsaw was chosen because of its proximity to the surrounding housing estates. Almost 72% of the respondents indicated that the road to the forest is covered on foot and that it takes them less than 15 minutes. Next, they indicate that the reason for choosing this place to rest is that it does not feel crowded and is calm and quiet. Less important to them is the cleanliness of the air and the equipment (e.g., trash cans, benches, etc.). The most common form of activity is walking, which applies to all age groups, and in the following order, cycling; in this adjective, it was observed that slightly more often, this type of activity was undertaken by people after 50 years of age. Regardless of age, BF presents its users as a safe space (75 - 87% depending on age) for recreation.

Key words: questionnaire survey, site observation, protected areas, sport activities, ecosystem services (ES)

Introduction

Interest in the benefits of outdoor physical activity in the natural environment is becoming an increasingly common research topic. Forests and natural environments are recognized as one of the primary resources that can positively affect health (Kolster et al., 2023). This topic is crucial for residents of large urban agglomerations and high-population neighborhoods. According to research conducted by the United Nations Department of Economic and Social Affairs (UN/DES, 2018), more than 55% of the world's population are urban dwellers, and the trend toward urbanization is increasing. Therefore, the value of the natural environment and green areas is becoming increasingly significant, which applies to environmental and health values (Stier-Jarme et al., 2023). Research by Oh et al. (2017) shows that contact with nature positively impacts almost every aspect of human health and well-being. The team also points out that this is particularly important for people who experience a strong sense of stress and lonely people.

The Warsaw Metropolitan Region is inhabited by 3.27 million people, making it the sixth most populous capital of the European Union. In Warsaw alone, 1.86 million people live in the CUS (Government Statistics, 2025). The city's total area is 517 km², and green areas occupy almost a quarter of the total city area (Kaczyńska, 2024). These areas consist of small residential parks and green areas along streets or in courtyards, tree-lined avenues, large historical parks, nature conservation areas, and urban forests on the city's outskirts. The urban forests comprise 27 forest complexes, the largest of which are the Młociński Forest, the Kabacki Forest, and BF (Górecka, 2009). The latter is considered the most valuable in terms of nature. The Bielański Forest occupies an area of 151.83 hectares, and its natural qualities are determined primarily by the unaltered character of the trees. The forest is located on the left bank of the Vistula River and bounded north by the Sports Club "Hutnik" (north) areas, on the south by a street. The forest area is crossed by the Vistula Valley on the east and by the Marymoncka Street on the west. The forest area in the north is crossed by the running street Dewajtis (Fig.1). Due to its exceptional natural qualities, it is protected as a reserve under the NATURA 2000 program. This value consists in particular of a significant forested area with a diverse age and species of trees, a wealth of fauna and flora still maintaining a significant degree of naturalness, and the presence of many species unique to the city and the region (e.g., the oak-barked goat and the oak bark). The forest is also among the most important links in Warsaw's biodiversity reservoirs and ecological corridors. The forest constantly comes under urban pressure, which is the result not only of the fact that it is limited in the east, west, and south by high-traffic streets but also the functioning in the northern part of the monastery complex of Kamedulów and the campus of the UKSW, which leads to Dewajtis street.

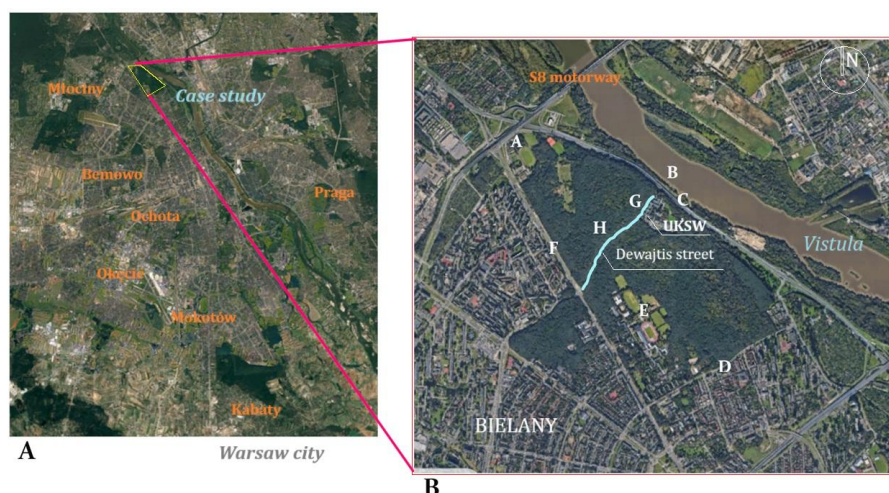


Fig. 1: A – location of the Bielański Forest (BF) in Warsaw city (Central Poland); B – boundaries of the Bielański Forest and facilities where: A – area of the Hutnik Club; B- Vistula river, C- national road; D – Podleśna Street, E – buildings of the Academy of Physical Education, F – Marymoncka Street, G – monastery complex and UKSW campus, H – Dewajtis Street (also marked with blue line).

The work aimed to check how users of BF perceive its recreational function and what types of activities they undertake. In addition, the Academy of Physical Education buildings are located in the southwestern part of the forest. Since two of the forest's boundaries are dense multifamily buildings, the forest area is considered an attractive place recreationally (Górecka, 2009).

Materials and methods

The study method is based on an anonymized survey consisting of several single and multiple-response questions. A total of 116 people took part in the study. The statistical analysis was performed in Statistica 13.0. In 2022, QR codes were hung on billboards in BF, directing respondents to the survey content. 116 persons participated in the study, including 61 men (52.1%) and 56 women (47.9%). Due to the small group size, the respondents were divided into 3 categories: < 30 years, 30-50 years, and over 50 years old. Most respondents were people with higher education (76.90%) and those active in work or learning, as shown in Table 1.

Tab. 1: Characteristics of the investigated group

	Age [years] n [%]		
	< 30	30-50	.> 50
Male (n=61)	12 [19.7]	35 [57.4]	14 [22.9]
Female (n=55)	15 [27.3]	34 [61.8]	6 [10.9]
Education level	Higher	Secondary	vocational or basic
	90 [76.9]	24 [20.6]	3 [2.5]
Professional activity	Working/learning	Pensioner	Not working
	106 [91.4]	7 [6.0]	3 [2.6]

Results

Table 2 shows the percentage of respondents who chose the proposed answers as necessary (other answers indicated and suggested by respondents were not analyzed in more detail at this point due to volume limits). In the case of the question as to why they chose the forest as their resting place, regardless of age, it was selected because of the distance from their residence. Another question we asked the respondents was how long it takes them to reach the forest and how they reach it. As a result, we learned that for all age groups, the most common (71.5%) respondents needed less than 15 minutes to reach the forest on foot. While the users of the BF attach less importance to its amenities, the peace that prevails in it is crucial for them. Interestingly, however, the percentage of people indicating this reason decreases with age (although this is a statistically insignificant decrease). For the participants, the fact that the air in the forest is cleaner than in the roadside alleys and squares in nearby settlements is also an essential aspect of the choice. Respondents also noted that they did not

feel the rush and crowding surrounding them daily in the forest. Interestingly enough, for people over 50, this reason for choosing the BF is less critical for people over 50. Respondents asked about what type of recreation they undertake in the BF, most often indicating walking. This form of recreation is the most common regardless of the age of the respondents. Next in order is cycling, which is slightly more common among the respondents over 50. The collected results also show a tendency to use the forest space as a place to meet up with friends and, for example, to collect mushrooms. It should be noted that this type of activity is more often undertaken by people over 50. It should also be noted that collecting mushrooms in the BF is prohibited.

Tab. 2: Reasons for choosing BF (Bielański Forest) and the form of activity taken depending on age.

Question 1. Why choose Forest Bielański as a place of daily rest?		Age [years] n [%]			Chi square
		< 30	30-50	.> 50	
A1	is close to where you live/ on your way to school or work	24 [88.9]	52 [75.4]	16 [80.0]	p = 0.3377 (chi2 =2,1; df=2)
A2	is well equipped with necessary and well-maintained equipment	5 [18.5]	11 [15.9]	3 [15.0]	p = 0.9382 (chi2 =0.12; df=2)
A3	It's quiet and peaceful here	21 [77.8]	49 [71.0]	11 [55.0]	p = 0.2296 (chi2 =2.94; df=2)
A4	The air here is clean and fresh	18 [66.7]	48 [69.6]	15 [75.0]	p = 0.8252 (chi2 =3.91; df=2)
A5	I don't feel the rush and rush here	20 [74.1]	52 [75.4]	12 [60.0]	p = 0.3905 (chi2 =1.88; df=2)
Question 2: What forms of activity/recreation do you undertake in the Forest of Bielański?		< 30	30-50	.> 50	Chi square
A1	Walking	22 [81.5]	56 [81.2]	14 [70.0]	p = 0.9382 (chi2 =0.13; df=2)
A2	Running	4 [14.8]	12 [17.4]	3 [15.0]	p = 0.7692 (chi2 =1.81; df=2)
A3	Cycling	9 [33.3]	18 [27.5]	11 [55.0]	p = 0.0727 (chi2 =5.24; df=2)
A4	Others, etc. as mushroom picking and meetings with friends	3 [11.1]	6 [8.7]	6 [20.0]	p = 0.0349 (chi2 =6.71; df=2)

Due to the nature of the BF, which results from the fact that it is a nature reserve, we asked respondents whether they feel safe in it and whether they pay attention to issues related to the protection of this place during walks and other activities. This is important because, in addition to the natural aspect, it may involve restrictions on users' access to certain parts of the forest or risks related to damage caused by broken trees and branches during storms. Answers to this part are listed in Table 3. Regardless of age, respondents feel safe in the BF. In the free part of this question, they point out that this is not only because police, city guards, and forest rangers are relatively common in the forest. They also note that trees that could pose a potential threat (especially those overgrown and rotted) are cut down and decomposed. After the storms, the area next to the hiking and biking trails is gradually cleared. Moreover, the trails themselves are very well-marked. Similarly, regardless of age, respondents say they pay close attention to the nature around them. In addition to this question, they emphasize that bird sightings play a special role, especially those that sing. They also note that far fewer large mammals exist in the BF. One of the questions we asked respondents was whether even protected parts of the forest should be made accessible to users. What surprised us was that almost everyone who participated in the study said this should be the case.

Tab. 3: Safe and nature in the BF area.

		Age [years] n [%]			Chi square
		< 30	30-50	> 50	
Q3	I feel safe in the BF, and I see no threat to my safety.	23 [85.2]	58 [86.57]	15 [75,0]	p = 0.5585 (chi2 =1,16; df=2)
Q4	I pay close attention to the nature around me.	23 [85.2]	58 [86.57]	16 [80,0]	p = 0.5585 (chi2 =2,99; df=2)
Q5	Being in the forest has a positive impact on our health	27 [100.0]	67 [97.1]	20 [100.0]	p = 0.5000 (chi2 1.39; df=2)
Q6	Forest areas, even those with strict protection, should be accessible to forest users	26 [96.3]	66 [95.6]	20 [100.0]	p = 0.8252 (chi2 =3.91; df=2)

Discussion

Biologically active areas play a vital role in the structure of a city, and increasing their coverage, especially in large urban centers, is an activity with several advantages. In the case of the BF, on the one hand, it is an important reserve area. On the other hand, it is a popular holiday destination, especially since it includes walking, cycling, educational paths, educational fields, and places intended for camping and passive recreation. According to the results carried out by Górecka (2009), the main recreation sites were just mentioned camping sites, and users paid slightly more attention to the equipment of the forest with small architecture. Our research shows that there has been a certain turnaround resulting from a more pro-ecological and pro-health view of active recreation, as well as recreation in green areas. From the point of view of the promotion of this type of recreation, the research must emphasize the impact on both systemic diseases and mental illnesses, including depression as well as neurodegenerative diseases (Tomlinson et al., 2012; Luo et al., 2021; Constable et al., 2022; Lasy miejskie, 2025). An interesting phenomenon is that this trend is noticeable regardless of the age of the respondents. In our opinion, this state of affairs can be explained by the presence in the public space of pro-ecological and pro-health campaigns, the prevention of cardiovascular diseases, and the fight against overweight and obesity, which have increasingly entered the public space in recent decades.

In our opinion, it is also interesting that, on the one hand, users want to relax in the BF, emphasize its natural character, and at the same time demand access to even the most naturally valuable parts of the forest. In our opinion, this phenomenon requires, first of all, more thorough research and, secondly, the application of the appropriate kind of education by naturalists involved in protecting the Bielański Forest. This is especially important because urban pressure is becoming more and more noticeable, and according to the statistics of the Municipal Forests, the number of BF users is steadily increasing.

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Souhrn

Pozitivní vliv lesů a jejich činností se odráží v názorech uživatelů a vědců. Hodnota zeleně, zejména lesů, roste úměrně s růstem míry urbanizace. Bielański les (BF) ve Varšavě (střední Polsko) poskytuje možnost pozorování přírody a téměř všichni dotázaní se domnívají, že kontakt s přírodou a lesem má pozitivní vliv na zdraví. Zároveň se však ne všichni domnívají, že i přísně chráněná území by měla být zpřístupněna pro rekreaci mladým uživatelům lesa.

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