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Importance of Forest Ecosystem within Important Plant Areas (IPAs) for the Development of Nature-Based Tourism—A Case Study of Fruška Gora National Park

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Abstract: Botanical areas under international protection are important for preserving plant and animal ecosystems. Forest ecosystems within Important Plant Areas (IPAs) are essential for preserving biological and species diversity. In AP Vojvodina (Northern Serbia), there are 27 IPAs, totaling 328,208 ha. Fruška Gora National Park (FGNP) territory is under international protection as an IPA. A large part of this park is covered by a forest ecosystem comprising various deciduous and evergreen trees, shrubs, and grasses. The forest ecosystem in FGNP is rich with natural attractions that are important for hiking, mountaineering, trekking, scientific tourism, wildlife, bird and animal watching, and community tourism. In this article, the authors used a quantitative method of collecting and processing data obtained through survey research. For this research, 610 respondents (325 residents and 285 visitors) were surveyed. Using questionnaires, the respondents expressed their opinions about the tourism potential of FGNP, as well as the satisfaction of tourists with current tourism development. The research results indicate that the forest ecosystem within the FGNP and IPA area has an important potential for the development of nature-based tourism (NbT) and that this tourism form significantly affects not only the satisfaction of the respondents but also increased awareness of the preservation and protection of these areas.

Keywords: forests; forest ecosystem; nature-based tourism; local-community; protected areas; IPA areas



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1. Introduction

Fruška Gora National Park (FGNP) covers the area of the mountain with the same name, which is located between the Danube and Sava rivers in Srem (southwestern Vojvodina). This protected area covers 26,672 ha [1,2]. A large part of the surface of FGNP consists of a forest ecosystem with various types of flora. Since certain plant species are rare or endangered, an international IPA protection regime has been established. The total area under forest today is 23,000 ha [3,4].

The forest ecosystem is important primarily for protecting uncommon and threatened plant and animal species. To protect plants, animals, and geological landforms in this area, in 1960, the protection status of part of Fruška Gora was established by creating a national park [5]. The main resource of this park is precisely the forest, which provides various opportunities for NbT. In the FGNP area, basic tourism infrastructure was built, which

helped the development of walking, hiking, trekking, wildlife, bird and animal watching, and scientific and community-based tourism. In addition, the resources of the park enable trips, sports, events, wine tourism, and the development of cultural and religious tourism forms.

Forests are the most important resource of this natural asset (NA), so the subject of this article is the analysis of the importance of the forest ecosystem for tourist activities. The nature and preserved area of the national park provide opportunities for the development of specific tourism forms. Given that tourism can often harm natural resources, its development must be in harmony with nature to preserve this rare forest ecosystem in the best possible way.

The main goal of this research is to examine whether nature-based tourism affects the satisfaction of residents and visitors. The specific goal is to determine which forms of tourism have the most significant impact on the development of tourism in FGNP. This study uses a questionnaire as its research instrument and is based on the survey method. To obtain more reliable scientific results, the sample consisted of two groups of respondents. The sample consisted of 610 respondents (325 locals and 285 visitors). They expressed their views regarding certain phenomena and opportunities for developing various NbTFs, such as walking, hiking, trekking, wildlife, bird and animal watching, and scientific and community-based tourism. In addition, the interviewees declared the impacts of nature-based tourism forms (NbTFs) on their satisfaction, and it is our primary objective to study this area.

The results of this research can be used in the development of strategic and planning documents concerning the expansion of tourism within this protected forest ecosystem. It is clear that certain NbTFs are not sufficiently developed. Some of the current tourism forms and anthropogenic activities may represent a basic threat to the FGNP ecosystem. Therefore, a proper analysis of resources and tourism potential could contribute to the improvement of this rare forest ecosystem's protection [6,7].

The enhancement of natural and anthropogenic values in FGNP can be facilitated by the development of NbT types [8]. Conservation and tourism can be strategic objectives when planning, developing, and controlling sustainable tourism development [9–11].

2. Literature Review

The study of ecosystems and how they affect the users of space and certain activities at the destination can provide important data regarding the possibility of developing tourism that uses different resources and potentials. NbT can be used as a resource revitalization factor in destinations such as NAs. Because it enhances destination values and utilizes available resources, this type of tourism is responsible [12–14]. The NbT is usually associated with NAs dominated by forest or wetland ecosystems or with different geological and pedological values [15–17]. Well-developed tourism in these areas, with a significant role for the local population, may not only reduce or decrease negative impacts but also lead to the recovery of nature and the preservation of flora and fauna [18–20].

The significance of ecosystems, soil, vegetation, water, air, and animals for NbTD inside NAs is emphasized by Eagles [21]. These are the resources that are important for proper management and monitoring. By improving the system and model of protection within destinations with sensitive forests or other ecosystems, the results of nature-based activities can be expected [22–24].

In NAs, it is necessary to develop tourism forms based on nature that strengthen area protection systems, build destinations, and achieve benefits for residents, visitors, and stakeholders [25–27].

Tourism planning in NAs contributes to the improvement of the entire infrastructure [25,28,29]. On the other hand, tourism consumption indirectly invests in improving environmental protection [30]. If all of its elements function, it represents a very significant circular system, which achieves positive economic, socio-cultural, and ecological results [31,32].

Various ecosystems, such as forests and wetlands, are factors that represent a significant basis for researching conditions for NbTD [33–37]. According to the same authors, the formation and development of a tourism destination and the protection of the environment are influenced by various factors at the destinations themselves, the most important of which are flora, fauna, and geological forms.

In addition to the basic attractive tourism factors, NbTD can be influenced by other factors such as the protection and intensity of space use, capacity occupancy, the local community's role in tourism development, socio-cultural influences, the contribution of tourism to the local economy, development control, waste management, etc. [38–40].

Unplanned and detrimental tourism development within NAs can have certain effects that need to be considered. First, this refers to the level of space degradation caused by an excessive number of visitors, air and hydro pollution, harmful anthropogenic activities affecting the living world and landscape, infrastructure construction, soil erosion, social impacts, etc. [41,42].

Buckley [43] examines the possibilities of treating NbTD as an important segment of protected area tourism. The research used a qualitative methodology to examine the importance of tourism for destinations with sensitive ecosystems. The examined indicators are grouped into three levels, namely ecological, economic, and socio-cultural levels. The research results indicate that environmental factors play an important role in the positioning of NAs as tourist destinations. The following issues influence the destruction of the ecological value of these destinations: the absence of protection measures and ethical codes, the lack of protection zones, and the carrying capacity. The importance of this research is that the applied model of measuring sustainability indicators can be used in examining the state and possibilities of NbTD in other NAs.

Spenceley [44] analyzed the state of tourism in selected NAs, with the research objective being to identify weaknesses in tourism development. Using qualitative methods, scientific information was gathered indicating that certain aspects of tourist growth in NAs should unquestionably be considered:

- Tourism encompasses a wide range of linked activities, making it challenging to pinpoint causes and effects;
- Determining the enduring consequences of tourism poses a challenge;
- The reason why actual physical modifications to a location might not necessarily be detrimental to survival;
- It is unclear what steps should be taken to recover the environment after different damages.

This study makes a substantial scientific contribution by providing valuable information that can be utilized to develop strategies for the expansion and progress of tourism in areas with fragile ecosystems. The last thoughts highlight the fact that tourism can contribute to environmental sustainability under certain conditions of control and rehabilitation, even when various impacts damage NAs [45].

The aim of the study of Huayhuaca et al. [46] was to examine the importance of nature-based and sustainable tourism for the local population in Frankenwald Nature Park in Germany. A quantitative methodology was used in the research, which included surveying the local population and using a written questionnaire as an instrument. The research was carried out using the PoS (Prism of Sustainability) model, which was designed to measure the respondents' perception of four investigated dimensions of tourism development. In addition, the influence of dimensions on the satisfaction of locals, with tourism development based on the protection of natural and anthropogenic values, was examined by applying regression analysis.

For the authors, the research mentioned above served as a basis for defining the objective of the examination, namely the impact of nature-based tourism on the satisfaction of respondents. The main research question refers to the examination of the state of the forest ecosystem and the function that the ecosystem has in the development of certain

forms of tourism such as walking, hiking, trekking, science tourism, wildlife, bird and animal watching, and community-based tourism.

In this research, four independent variables are examined. These are walking, hiking, and trekking; scientific tourism; wildlife, bird, and animal watching; and community-based tourism. The value of these variables can be measured by examining certain phenomena. In this research, those phenomena are defined and formulated with the statements in the questionnaire. This means that the potential for the development of sustainable tourism in the protected area can be viewed through a set of different factors [2]. These factors can be natural or social in origin. The values of independent variables (types of nature-based tourism) can be identified by assessing the degree to which specific characteristics appear for the growth of tourism in the region. These are the level of development of the destination, the existence of facilities for tourism development, the state of nature, the attitude of visitors to the protected area, the role of residents in the development of tourism, the application of regulations for the protection of FGNP, the role of complementary tourist motives in defining the tourist offer, education, the scientific basis of tourism, and other factors.

The scientific contribution of this research is that the expected results can give a clear image of whether nature-based tourism has a beneficial or negative effect on the users of this area. To determine this impact, the research will examine the potential of this protected area, which can be the basis of tourism development. When a scenario points to vulnerabilities or dangers related to the growth of sustainable tourism, it can have an impact on how essential corrections or interventions are developed and should be incorporated into planning laws and regulations. Another aspect that this research contributes is the idea that the findings may be used to identify the needs of both inhabitants and visitors and then adapt the tourism offer properly. Considering that the research area is a destination with a sensitive forest ecosystem, the needs of visitors and residents must be aligned with ecological principles. The findings of this study have the potential to help NPFG to implement significant recommendations and regulations.

Analyzing the previous research results, there is an assumption that the development of tourism in the protected area affects the respondents to a certain extent.

The unique feature of this survey is that respondents self-report the existence of and potential for NbTD in a pre-selected area. Additionally, the research is distinguished by gauging the respondents' level of satisfaction with various sorts of tourism. There are two categories of respondents: locals and guests.

3. Research Area

FGNP covers an area of 26,672 ha. This national park is located on the border of Srem and Bačka in Vojvodina (Northern Serbia). It extends over the mountain of the same name, located on the right bank of the Danube River, which forms part of the Danube Basin in Serbia. The course of the Sava River, an important natural area, is located to the south of this protected area.

The favorable geographical and tourist position of FGNP is demonstrated by the proximity of Hungary and Croatia, as well as the country's and the region's major cities and the Danube River, which forms the northern border of FGNP, gives this area a special value [2,3]. The position of FGNP can be seen in Figure 1.

In some parts of the national park, you can find one-hundred-year-old species of trees with distinct dimensions that create an indescribable atmosphere for visitors. An exceptional wealth of flora has been preserved on this mountain, with 1450 autochthonous species of registered higher plants, of which about 1000 are located within the borders of FGNP. This number of plants is a consequence of isolation during the existence of the Pannonian Sea and the influence of different climates. If we add numerous allochthonous species that have spread naturally or have been brought to these areas by humans, the total number exceeds the figure of 1500 species [47,48].



Figure 1. Position of Fruška Gora National Park. Source: Trišić, I., author.

FGNP is primarily a forest area, with a smaller share of meadows and steppe vegetation.

The unique and noteworthy quality of FGNP is the combination of forest, steppe, and meadow habitats created due to anthropogenic influence throughout history [49]. The forests of this area are museums of woody species and are made up of over 50 species of trees and even more species of shrubs. The following species dominate: *Tilia tomentosa*, *Quercus petraea*, *Fagus moesiaca*, and *Carpinus betulus*. Besides them, there are other types of oaks, such as *Quercus cerris*, *Q. pubescens*, *Q. virgiliana*, *Q. daleschampii*, *Q. frainetto*, *Tilia cordata*, *Acer campestre*, *Acer pseudoplatanus*, *Acer platanoides*, *Prunus avium*, *Sorbus torminalis*, *Acer tataricum*, *Fraxinus ornus*, *Salix* sp., *Populus* sp., and other woody species [47,48].

Almost 70 of the total number of plants protected as natural rarities of Serbia grow in FGNP. Among them, there are many orchids, as many as 31 species, which belong to forms of vascular flora of international significance. Apart from orchids, which are important on a wider scale from the aspect of preserving global diversity, in the park area, you can find *Centaurea scabiosa* subsp. *sadleriana*, *Kitaibelia vitifolia*, *Daphne laureola*, *Sternbergia colchiciflora*, *Pulsatilla vulgaris* subsp. *grandis*, *Crambe tataria*, *Adonis vernalis*, etc. [2,3].

The layout of Fruška Gora National Park can be seen in Figure 2.

In addition to the plants, the natural value of FGNP is represented by the faunas that inhabit the forest area. The bird fauna consists of a total of 211 species. The international importance of the bird fauna of Fruška Gora was verified in an area of 25,000 ha in 1989 when it was included in the IBA area. FGNP is among the most important nesting areas of rare species of birds of prey in Vojvodina and Serbia. Among them, *Aquila heliaca* should be singled out, for which this protected area is now the only active breeding ground in the whole of Serbia. Primarily due to the reduction in food options, the population decline caused *Aquila heliaca* to be on the IUCN Red List of Threatened Species with the status of Vulnerable (VU). Apart from these species of birds of prey, *Hieraaetus pennatus* and *Aquila pomarina* are also present. Nowadays, a winter-feeding ground for *Aquila heliaca* is functioning in FGNP, equipped with all the necessary infrastructure for the development of birdwatching as a unique offer [47].



Figure 2. The layout of Fruška Gora National Park: (a) information board with the notice “forest = oxygen, forest = water, forest = life, your Fruška Gora National Park”; (b) hiking trails; (c) exposed species of trees growing in the national park area; (d) tourism infrastructure facilities. Source: Trišić, I., author.

Besides birds, there are also rare species of mammals, such as *Erinaceus concolor*, *Sorex araneus*, *Spermophilus citellus*, *Spalax leucodon*, *Vulpes vulpes*, *Canis aureus*, *Martes martes*, *Martes foina*, *Meles meles*, *Felis silvestris*, *Mustela nivalis*, *Mustela erminea*, and other species [2,3,48].

FGNP has international protection status areas, namely Important Bird and Biodiversity Areas (IBAs), an area with 49,210 ha being of importance for rare birds; Important Plant Areas, namely “Fruška Gora” and “Koviljsko-Petrovaradinski Rit” with a total of 142,376 ha; Prime Butterfly Areas in Europe, namely an area of importance for day butterflies with 34,771 ha; and an EMERALD area, which is a part of “Parks Dinarides” and the NATURA 2000 network [47].

Within FGNP, there are important tourist sites, facilities, and picnic areas that attract a significant number of visitors to this protected area. The most important areas for trips are the forests of Čortanovci and the localities Stražilovo, Partizanski Put, Iriški Venac, Hopovo, Glavica, Popovica, Zmajevac, Letenka, Hajdučki Breg, Andrevlje, Testera, and others. Among the important social and natural facilities for the development of tourism in the FGNP, the following are mentioned: an information center, an eco-camp, facilities for the reception of tourists, and sports activity areas such as Letenka; lakes Sot, Bruja, Moharač, Međeš, and Vranjaš; and other attractions. This can be seen in Figure 3.



Figure 3. Significant tourist attractions and facilities in FGNP: (a) information center; (b) eco-camp; (c) Sot Lake; (d) Letenka resort. Source: Trišić, I., author.

4. Materials and Methods

In this research, the authors used a quantitative methodology. Responses regarding the state and possibilities of NbTD in FGNP were collected using the survey technique.

In the questionnaire, the items were designed according to the methods of Cottrell et al. [50] and Stojanović [51]. In those studies, the PoS model (Prism of Sustainability) was used, which uses a standardized questionnaire to survey respondents. In this research model, items are grouped into independent variables. These independent variables can be manifested in different forms. They can be dimensions of sustainable tourism, as well as forms of tourism or certain grouped factors, that can contribute to the development of tourism in the observed area. The scales used show convergent validity because the comparison was made with an instrument that has similar measurement items. All the items in the questionnaire (a total of 40 items) are adapted to the examination of tourism in this protected area and the impact on the respondents' satisfaction. The measurement of the impact of tourism on the satisfaction of respondents was carried out using simple linear regression. In the application of the regression analysis, the basic p value = 0.05 was taken. If the regression analysis indicated that there are connections between the observed phenomena to a certain extent ($p > 0.05$), we could determine the existence of the influence of nature-based tourism on the satisfaction of the respondents. If the analysis indicated a value of $p < 0.05$, the null hypothesis was rejected, and it was considered that NbT had no effect on the satisfaction of the respondents.

Respondents ranked their answers according to a Likert scale—answers of 1 represented absolute disagreement, answers under 3 meant a neutral attitude, and answers up to 5 showed absolute agreement with the statement [52].

The questionnaire, with a total of 40 items, comprises three sections. The first section discusses the respondents' gender, age distribution, and educational attainment as well as other sociodemographic characteristics. The second part concerns four forms of NbT and contains 36 items. The items are grouped into four variables. The first group refers to the state and possibilities of NbTD, namely walking, hiking, and trekking (WHT); the second group concerns the possibility of developing scientific tourism (ST); the third group relates to wildlife, bird, and animal-watching (WBA); and the fourth group of variables deals with community-based tourism (CBT).

The four comments about respondents' pleasure with NbT in the FGNP are included in the last part of the questionnaire.

The conceptual research model can be seen in Figure 4.

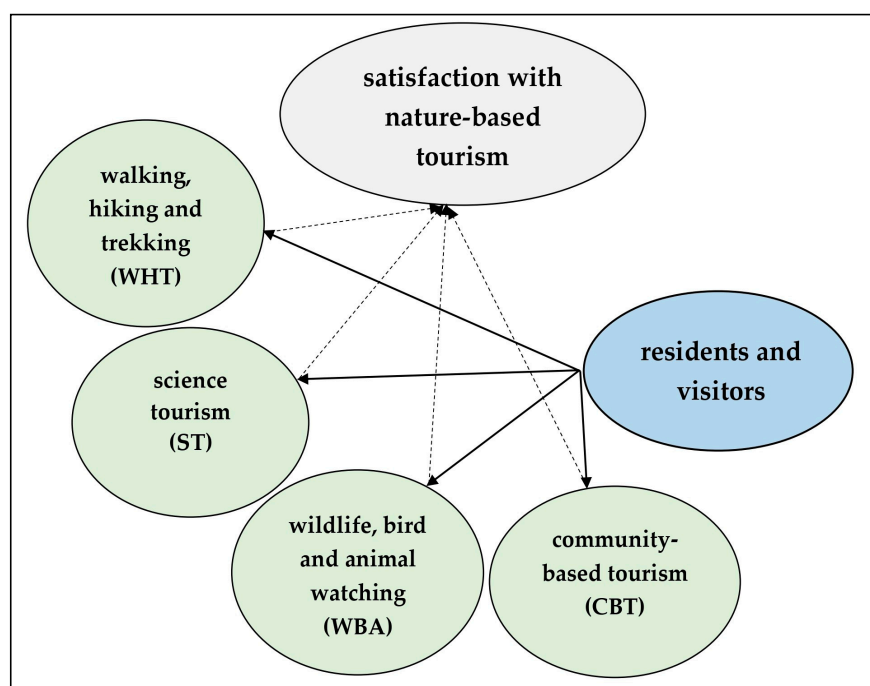


Figure 4. The conceptual research model. Source: Trišić, I., author.

When the research model was analyzed, it was concluded that it was planned to examine the impact of four forms of tourism (four independent variables), i.e., walking, hiking and trekking (WHT); scientific tourism (ST); wildlife, bird, and animal watching (WBA); and community-based tourism (CBT), to the satisfaction of the respondents (dependent variable).

For this research, 610 respondents (325 residents and 285 visitors) were interviewed.

The method of random sampling was used to select the respondents. The poll was administered online and through personal interactions.

Counting all respondents (610), a personal survey was conducted, with 250 respondents in total (175 residents and 75 visitors). Using an online questionnaire, a total of 360 respondents (120 residents and 240 visitors) were evaluated. Collecting responses from two groups of interviewees was carried out to obtain more reliable research results. Thematic groups within social networks were used for the online survey. The collected data were processed and analyzed using SPSS v.21 software (IBM, Armonk, NY, USA) and presented using tables for each group of respondents separately.

Completely anonymous responses to the questionnaires were received. Each respondent could withdraw from the questionnaire filling process at any time. By completing the questionnaire, each respondent consented to the possibility of the results being published,

along with their usage in scientific studies. Each questionnaire contained instructions for filling it in, which aimed to ensure the validity of the answers.

For every completed questionnaire, the validity was verified separately. Within the statistical software, Cronbach's alpha (SPSS v.28) was used to assess the reliability of the responses provided within the grouped variables. According to Cortina [53], Nunnally and Bernstein [54], and Ristić et al. [55], all values that are equal to or greater than 0.60 ($\alpha \geq 0.60$) can be considered reliable if there are six or more statements to test within one independent variable. A simple linear regression was used to determine the level of influence of NbTFs on the satisfaction of respondents.

The research was conducted in two stages. The first stage of surveying was carried out in September and October 2023, while the second stage and data processing were completed in May 2024.

5. Results

After conducting the survey and checking the completed questionnaires, it was concluded that all questionnaires were filled in correctly. There was a total of 610 questionnaires for analysis. Overall, 325 residents and 285 visitors were surveyed. The polled residents were inhabitants of the settlements Sremski Karlovci, Petrovaradin, Vrdnik, Irig, and Beočin. Of all the visitors surveyed, 71% came from within the country. Hungary, Croatia, Romania, Bosnia and Herzegovina, Montenegro, the Republic of North Macedonia, Switzerland, Austria, and other foreign countries accounted for 29% of the total number of international visitors.

In-person surveys were conducted in the following locations: Letenka, Stražilovo, Iriški Venac, and Zmajevac. These are significant FGNP picnic areas. Random selection was used to approach the respondents; no other factors were taken into consideration. Furthermore, the responders were not chosen based on a set of criteria.

In each group, women make up most responders. (53%). The average age is 32 years old (minimum 18, maximum 79). Of all the respondents (in both groups), 54% have a secondary education, 13% have only primary education, 31% have a college degree or higher education, and 2% have an MSc or a PhD degree.

Table 1 shows the " α " values obtained after examining the reliability of the variables and the average value of the responses regarding the respondents' views on the state and possibilities of NbT in FGNP.

Table 1. Perceptions of nature-based tourism (n = 625).

Items	Residents (n = 325)		Visitors (n = 285)	
	α	Mean	α	Mean
Tourism forms				
Walking, hiking, and trekking (WHT)	0.740	3.87	0.822	3.77
There are hiking trails in the park		4.11		4.02
There are marked road signs in the park		3.68		3.87
There are brochures with maps in the park		4.02		3.96
Equipment for hiking and walking in the forest can be rented in the park		3.11		3.02
Bicycles can be used in the park		4.84		4.62
Drinking water is available in the park		4.13		4.05
There is an educational or info center in the park		4.22		4.06
Protection zones are marked in the park		3.01		2.64
It is possible to hire a guide		3.44		3.27
There are facilities for rest and recreation in the park		4.09		4.18

Table 1. Cont.

Items	Residents (n = 325)		Visitors (n = 285)	
	α	Mean	α	Mean
Tourism forms				
Science tourism (ST)	0.703	3.86	0.802	3.83
The information center provides the necessary information about the park and endangered species		4.04		4.13
Educational schools are organized in the park		3.01		2.99
Expert guides provide important information about the national park		4.11		4.21
In the park, resource devastation (land, trees) is avoided		3.03		3.23
There are collective scientific activities aimed at the protection of species		4.09		3.89
Flora, fauna, and nature can be studied in the park		4.31		4.17
Schools in nature for students are being organized in the park		4.06		3.91
Activities aimed at increasing the number of species are carried out in the park		4.22		4.09
Wildlife, bird, and animal watching (WBA)	0.788	3.95	0.769	3.91
Information on bird, animal, and nature watching can be obtained in the park		3.84		3.56
Facilities for feeding birds and animals have been built in the park		4.14		4.05
Bird-watching facilities have been built in the park		4.37		4.21
In the park, expert guides provide important information about the species		3.44		4.01
In the park, care is taken to avoid disturbing the species		3.69		3.74
There are information boards about endangered species in the park		4.22		4.17
In the park, we can find information about forest devastation prevention		3.89		3.41
Investments in the preservation of nature and species are visible in the park		4.01		4.11
Community-based tourism (CBT)	0.801	3.94	0.763	4.05
Visitors can gain knowledge about local culture and daily life		3.84		4.02
Local events are available to visitors		4.03		4.14
Visitors can make contact with the local population		4.15		4.22
Locals offer visitors local products		3.69		3.91
The local population is employed as guides and educators		3.63		3.74
The local population supports tourism development in the park		4.02		4.10
There are joint activities of visitors and residents in the park		3.94		4.01
Locals explain to guests why it's important to preserve the park		3.79		4.03
Local culture is available to visitors		4.02		4.16
Historical sites are accessible to visitors		4.31		4.18

Items measured on a 5-point Likert agreement scale. α —Cronbach's alpha reliability.

Figure 5 illustrates the average values for each category of tourism type for both respondent groups.

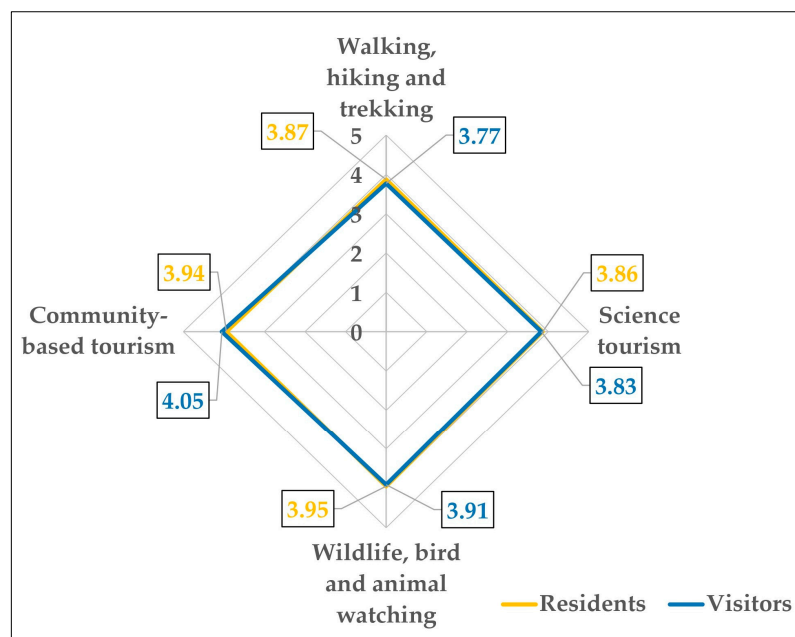


Figure 5. Graphic representation of average values.

In Table 2, you can see the average values of the analyzed respondents' answers regarding satisfaction with NbTF in FGNP.

Table 2. Satisfaction index (n = 610).

Index	Residents (n = 325)		Visitors (n = 285)	
	α	Mean	α	Mean
	0.789	3.82	0.816	4.00
I am thrilled that the park offers a variety of opportunities for nature-based tourism		4.10		4.09
I am content since the park uses tourism to promote nature protection		4.01		4.11
I am satisfied that nature and species are protected through nature-based tourism forms		3.64		3.87
Considering nature-based tourism, I am satisfied with the national park's current situation		3.52		3.91

By applying a simple regression analysis, we can examine the individual impact of NbTFs on the satisfaction of the respondents, which can be seen in Table 3. There is an assumption of satisfaction of 39% for residents and 38% for visitors ($R_1^2 = 0.387$; $R_2^2 = 0.379$) (Table 3).

Table 3. Regression analysis of satisfaction levels (n = 610).

Satisfaction	Residents		Visitors	
	β^1	p-Value	β^1	p-Value
WHT	0.159	0.110	0.205	0.051
ST	0.209	0.101	0.311	0.114
WBA	0.174	0.208	0.231	0.121
CBT	0.162	0.123	0.205	0.271

¹ Standardised β value used. $R_1^2 = 0.387$; $R_2^2 = 0.379$.

6. Discussion

Based on an analysis of Table 1's data, we may infer that locals' replies are essentially the same as those of tourists. This means that both groups of respondents recognized certain phenomena related to certain tourist activities within FGNP in an almost identical way. Identical results obtained in this way can indicate reliability during their analysis. Wildlife, bird, and animal watching and community-based tourism received the highest values for both groups of respondents (average value from 3.91 to 4.05). The respondents rated these NbTFs as the most represented and most important because of the permanent activities that must be in harmony with nature in FGNP. This means that the capacities, facilities, guides, and professional services that help with the realization of these tourism forms can be strengthened. According to the interviews, the local community plays a crucial role in the development of NbT. Representatives of the local population can play a significant role in the promotion of and education on the importance of forest ecosystem protection. Moreover, residents can present their culture and socio-cultural values in their particular way, which is certainly compatible with nature protection and NbTD. When planning tourism development in FGNP, this information can be extremely important. Forms of tourism such as bird and animal watching can represent primary tourist activities in which the carriers (guides and educators) are precisely the representatives of the locals. Thus, the conditions are created so that tourism development can have a sustainable connotation.

Walking, hiking, and trekking, as well as scientific tourism, have slightly lower average values (from 3.77 to 3.87). Scientific tourism has a slightly higher average value. Compared to other tourism forms, lower values may indicate the absence of capacity and infrastructure for the growth of these two types of tourism. Several factors that will be crucial to the growth of various types of NbT can be strengthened, including educational institutions, high school and university curricula, and outdoor learning environments. Expeditions and scientific tourist tours can be organized in NPFG, which would result in a more significant role for the local population. The interaction between visitors and residents would certainly be enhanced through these activities, which would also have a sustainable character. Strengthening scientific tourism could be achieved by organizing the observation and monitoring of certain significant flora and fauna populations through monitoring vulnerability, reintroduction (re-return to the protected area), and monitoring the feeding and reproduction of some species. This is the way in which the participants' awareness of the importance of species' existence and tourism sustainability could be developed. Additional construction of capacities for walking, hiking, and trekking would increase the number of these tourism activities' participants. Introducing additional equipment rental options and providing instructions for these mountain and forest activities is particularly significant. Nature, healthy lifestyles, and collective activities aimed at protecting nature can be directly promoted through this tourism form [56–60].

The values of the variables were subjected to Cronbach's alpha measurement to determine the reliability of the given answers for further investigation. According to the research of some authors like Cortina [53], Nunnally and Bernstein [54], and Trišić et al. [61], the value $\alpha \geq 0.60$ can be taken into consideration. By analyzing these values in Tables 1 and 2, it can be concluded that the coefficient " α " has a value from 0.703 to 0.822. This means that all answers and obtained values can be considered reliable for statistical analysis.

If we analyze the values obtained in Table 2, where the data related to the respondents' satisfaction with NbT are presented, we can conclude that NbT has a slightly greater impact on the satisfaction of visitors (4.00). Visitors and residents singled out the possibility of the development of various tourism forms in FGNP and the promotion of nature protection as vital factors. The current state of tourism and its promotion have slightly lower values for both groups of respondents. If we subject the obtained results to a simple linear regression, we can draw a conclusion that NbT brings significant satisfaction to both groups of respondents ($0.010 > p > 271$). It is particularly significant to note that respondents are satisfied with NbT, although the obtained individual average values of WHT, ST, WBA, and CBT are relatively different. This information confirms the worth of tourism development

in protected areas, albeit in those forms that are in harmony with nature and have nature protection connotations.

Analyzing the research results obtained in this way, it can be deduced that NbTD in FGNP can be crucial, both for the preservation and promotion of nature and its values, as well as for visitors and residents [62,63]. Through this tourism form, relations between man and nature can be promoted in the best way [64,65]. More active local population involvement in planning NbT has multiple benefits. Residents can educate visitors about the significance of properly protecting nature [66,67]. Furthermore, by strengthening mutual interaction between visitors and the local population, knowledge about local culture, customs, local crafts, local events, and other socio-cultural values is strengthened [68–70]. Joint activities can prevent further reductions in the number of plant and animal populations. These data are also extremely important for legislators and managers, for whom these activities should be primary considerations in all action documents. Further development of the infrastructure in FGNP should certainly be in accordance with the stated needs of this protected area's users.

If these research results are compared to earlier ones, a relative identity with the needs and objectives of tourism development in protected areas can be reported. The primary aim of tourism development is to protect nature and to strengthen environmentally friendly activities. The community's involvement is essential, and all initiatives should be planned accordingly. Tourism infrastructure development in FGNP must certainly be in harmony with the surrounding environment. Control of the use of resources from the protected area is also a regular and vital planning activity. The zoning of the forest area and implementing carrying capacity should be permanent tasks of the management processes.

What distinguishes this research from the previous studies is that the results of our research indicate that we should plan the development of NbTFs such as walking, hiking, trekking; wildlife, bird and animal watching; and scientific and community-based tourism within protected areas with forest ecosystem as their primary habitat type. Other tourism forms can be an integral part of tourism development strategies, but they should have a complementary character [71,72]. In this way, we can design a unique and authentic tourism offer [73,74] in which, with adequate promotion, different target groups of tourists would be interested [75].

7. Conclusions

In the area of Northern Serbia, there are two mountains with rich forest ecosystems. Fruška Gora, with the highest peak in Vojvodina, abounds with trees in a community with other woody and herbaceous plants, fungi, animals, and microorganisms. The FGNP area is vital to the growth of the tourism industry in the entire region, which was the basis for this study. The FGNP forests and their use and sustainable management play a very important role in establishing the proper development of tourism through its specific types. In addition, these forest ecosystems provide various functions, such as protective–regulatory, social, cultural, and tourism functions [76,77]. Special emphasis is placed on the sustainable management and sustainable use of this resource through tourism.

Forest ecosystems are unfortunately still under threat, having been so since the dawn of mankind. In Serbia, several measures and procedures are being undertaken to protect forest ecosystems. Large areas are protected within the framework of various natural assets—national parks, nature parks, landscapes of exceptional quality, and special reserves [78,79]. One of the methods used in FGNP to expand the area covered by forests is the restoration of forest cover, or afforestation. Due to the destruction of forests, many animals lose their habitats and disappear [80].

This article's study of sustainable forest development is actively included through the establishment of chances for the growth of tourism. In FGNP, the growth of specific types of tourism will contribute to the improvement of the overall natural and anthropogenic values of this part of the mountain [81]. The research results indicate that certain forms of tourism such as walking, hiking, trekking, wildlife, bird and animal watching, and

community-based tourism significantly contribute to the satisfaction of the users of this protected area. This is important for the managers of this protected area because they can plan these forms of tourism when creating planning and strategic documents related to tourism in FGNP.

This research is based precisely on the intangible benefits of forest ecosystems. However, the development of tourism generates significant economic income for local communities [82,83]. NbT, thus, contributes benefits that can be expressed through economic effects [84]. To broaden the scope of the FGNP's tourism products, the responses examined in this study indicate the necessity of creating a variety of unique types of tourism. In this way, a broader basis is created for the employment of the local population, the return of the younger and active population, and increasing investments in accommodation and alternative kinds of capacities important to improve tourism [85,86].

Knowing that there are three key aspects of forestry, protection, production, and recreation, the authors, through this work, approached the study of different forms of tourism that can support the long-term growth and sustainability of forest ecosystems through the example of FGNP.

The inquiries were conducted primarily in the field through observing the current situations of the area, as well as through desk research, comparing the data with the actual situation in the field [87,88]. The biggest help was provided by the survey of visitors and residents as a basis for drawing the conclusions of this research.

Because of the enormous economic value of forests, this study examines the significance of developing tourism in those areas of forest ecosystems where it is feasible to do so without compromising the environment [89]. The authors had in mind the fact that forests and forest areas, together with agrosystems and other natural resources, represent the backbone of the development of the Republic of Serbia. Forest ecosystems, by increasing their area and exerting an influence on other resources (air, water, soil, climate, landscape), will have a positive impact, among other things, on the development of tourism [90].

To develop forest ecosystems sustainably and provide future generations with a healthy environment and a world abundant in bio-ecological facilities, we must first fulfill our commitment to protect forests and forest ecosystems. To preserve the stability of forest ecosystems, the biodiversity component, through its preservation and protection, is particularly important [91,92].

The introduction of educational programs for tourist activities in FGNP can influence the development of ecological awareness among visitors and residents. Such an ecological perception concerns the importance of protecting flora and fauna, geological values, strengthening the interaction between man and nature, strengthening the interaction between visitors and residents, and fostering traditions of going out in nature. Environmental attention can be greatly enhanced by scientific and educational tourism.

When the findings of the research are examined, it is possible to draw the conclusion that tourism based on natural resources can be the primary form of tourism within FGNT. Specifically, these types of tourism include wildlife, bird and animal watching; walking, hiking, trekking; and community-based tourism. Sustainable tourism can offer socio-cultural, economic, environmental, and sustainability benefits by actively incorporating the local population into these forms of tourism. The growth of these eco-friendly tourism forms is supported by the expressed opinions of both locals and tourists.

The values that show how much nature-based tourism affects respondents' satisfaction are almost the same for both locals and tourists. We can conclude that respondents' pleasure is strongly impacted by NbT. These data support the previous study level, which identified nature-based tourism as a significant form of tourism in the FGNP. It is recommended that managers utilize this protected area information for both marketing and management purposes. The tourist destination of FGNP can be promoted as an eco-destination for sustainable tourism.

It is best to avoid expanding tourism into the most sensitive and central zones and ecosystems inside the FGNP. Scientific research activities should be properly planned in

these parts, especially those aimed at monitoring plant and animal populations, planning measures for ecosystem protection, the reintroduction of extinct species, and the development of strategic and planning measures. In this way, the ecosystem would not be negatively affected. In the zones around the most sensitive points, nature-based forms of tourism can be organized to improve forest ecosystem values. The areas surrounding the protective zones should provide facilities for tourists.

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