

## Recreation in nature reserves – preferences and satisfaction of tourists visiting the Polesie National Park

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**Abstract.** The aim of this work was to determine preferences and satisfaction of tourists visiting the Polesie National Park (PPN). Preferences were defined in terms of the motives for visiting, ways of spending leisure time, the length and frequency of visits, knowledge of tourist attractions and awareness of the Park's financing.

A survey was conducted in July–August 2019 gathering responses from 125 adults visiting the PPN tourist and bicycle paths. 100 correctly completed questionnaires were analysed using the CART method to determine the respondents' satisfaction with spending leisure time in the Park.

The most frequently mentioned reasons for visiting were the beautiful landscape (28%) and the species richness (27%) of the PPN. 39% of respondents visited the area for the first time and 47% came for one day. Most visitors (65%) had very good knowledge of the tourist attractions in the PPN. Walking was the most common way (37%) for visitors to spend their leisure time in the Park. More than half of the respondents (58%) would be willing to accept additional fees in order to help maintain and protect the PPN. The vast majority of the respondents indicated that they are satisfied (42%) or very satisfied (48%) with their visit to this area.

Our statistical analysis indicated that asking the question about financing the Park greatly impacted the responses to the question about visitor satisfaction, but was also correlated with the respondent's place of residence as well as their knowledge of tourist attractions. The unique character, landscape as well as the natural, historical and cultural richness of the PPN combined with the well-maintained infrastructure are crucial to ensure a high level of visitor satisfaction.

**Keywords:** Forms of leisure, CART method, tourist preferences, recreation, satisfaction with leisure time

### 1. Introduction

Due to environmental richness and numerous tourist attractions, national parks are frequently visited by the tourists inside and outside their country. It refers also to other forms of nature protection, for instance reserves or landscape parks. In Poland, there are 23 national parks. They are spatial forms of nature conservation unique in many aspects. Main purpose for their creation is protection and restoration of species richness of animate and inanimate nature and landscape values (Act 2004). Nevertheless, Gałązka (2009) noticed that tourism and recreation is one of the most important functions of national-

parks, and provisions of the Nature Conservation Act emphasize special connection of nature protection and tourism and recreation. Therefore, national parks (or their parts) are available for society for educational, cultural, touristic, recreational and sport purposes. It should be done in a way that will protect the nature from destruction (Radecki 2011). In conservation plan of a national park, and until its prepared – in protective tasks, the maximum number of tourists that can stay in the park at the same time is established. To this aspect, we draw attention also to Janeczko (2017) and Kruczek and Przybyło-Kisielewska (2019), because national parks, as a popular goal for tourist trips, can become a potential area of conflict between their

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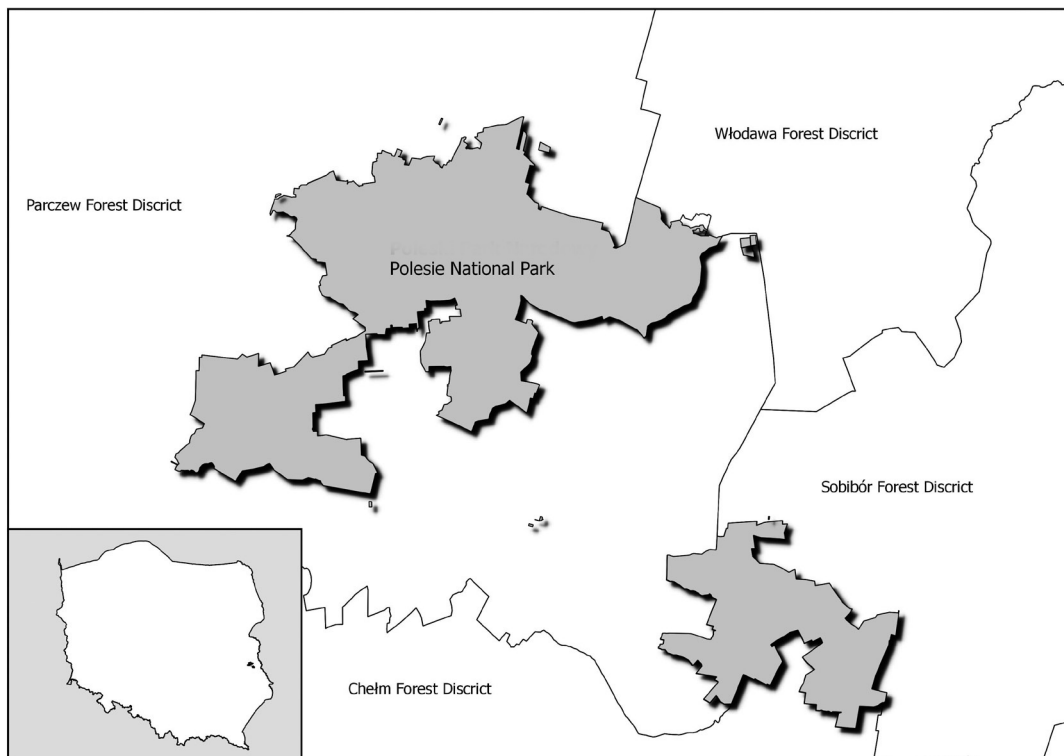
conservation and making them available to the society (Dudek 2014, 2017). To avoid such a situation, a tourist space is demarcated on the area of parks, which is concentrated mainly near tourist trails and among the most popular attractions. National parks are budget units in the light of public finance regulations. Therefore, fees for entry can be charged and the amounts are set by park's director (Act 2004). Janeczko (2017) presents that according to the regulation of the ministry of the environment (Regulation 2013), fees for entry are charged in the following parks: Biebrza, Bieszczady, Karkonosze, Magura, Narew, Tatry and Wigry National Parks. Whereas on the area of other parks, i.a.: Babia Góra, Białowieża, fees are only charged for staying on some demarcated areas of the park. It should be remembered that these fees are of administrative character and are not market prices (Mandziuk 2014), because they are not shaped by the law of demand and supply. It results from non-market character of touristic values of a park as a public good (Płotkowski 1995). Gaworecki (2008) states that development of tourism in difference from other branches of the economy depends in greater degree on the state of natural environment and from its attractiveness. That is why nowadays tourism on areas of conservation must include three basic aspects: environmental, social and economic.

Subject matter of the research regarding spending leisure-time on area of nature conservation is quite universal in the literature

on the topic (Hammit et al. 1993; Bowker, English 2002; Gałązka 2009; Barniak, Banaś 2015; Janeczko, Gucma 2015; Dumitras et al. 2017; Dzioban 2017; Janeczko 2017; Mandziuk et al. 2019), including Polesie National Park (Radwan, Chmielewski 1995; Buczyński, Piotrowski 1998; Kimbar 2011). It refers mainly to tourist's preferences in this regard. There are only few elaborations, however, regarding defying the level of tourist satisfaction from their stay on environmentally valuable areas (Geng-Qing Chi 2007; Polish Tourism Organisation 2016). This elaboration is an attempt of filling this gap. In the light of above considerations, the aim of the research was to define the preferences and the level of satisfaction from tourists' stay on the area of Polesie National Park. Preferences were defined in terms of motives for the arrival, forms of spending free time, length and frequency of visits, knowledge of tourist attractions and the awareness of Park's financing.

## 2. Research site

Polesie National Park (PPN) is situated in the area of Lublin Province, Włodawa powiat and on Łęczyna-Włodawa Plain, on the Polish side of Polesie. It was created on 10 April 1990 (Regulation 1990) and its area in subsequent years was increased and demarcated as protection zone (Regulation 1994). Presently, the Park's area amounts to 97.6 km<sup>2</sup>, and buffer zone – 137.03



**Figure 1.** Polesie National Park location

km<sup>2</sup> (Fig. 1). Almost 50% of the PPN's areas are forests but within the area of strict protection is only 1% of the Park (therein 97% are forest areas) (the Polish Central Statistical Office 2019). The area of the Park, along with the surrounding Sobiborski Landscape Park, is one of the richest in waterfowl areas of Poland. PPN is opened for tourists thanks to the network of well-developed recreational infrastructure. In the area of the Park, there are three environmental trails – ‘Dominik Oak’ trail, ‘Splawy’ trail and ‘Perehod’ trail. There is also historic trail ‘Insurgent Camp’, didactic trail ‘Czachary’ and biking and nature trail ‘Mietulka’ and ‘Urszulin-Perehod’ eco-trail that connects all the environmental trails and also the system of 7 observation towers situated over extensive peat bogs. Besides trails, an important role – not only educational, but mainly conservation – is roleplayed by Pond Turtle Protection Centre and the Educational-Museum Centre of the Polesie National Park in Stare Załucze. In its area, there were created: a museum, covered museum area for tourists, a ‘Following nature’ educational trail and the ‘Żółwik’ educational path with a waterhole, an Animal Rehabilitation Centre with an aviary for birds and other recreational infrastructure (Grądział, Różycki 2005).

### 3. Research methodology

Survey research regarding preferences and satisfaction of tourist from their stay in the PPN was conducted in July and August of 2019 in the area of the Park. In the survey, 125 grown-up respondents took part, who were visiting for tourism and biking trails. After initial verification, 100 properly filled survey questionnaires qualified for further analysis. Average time of filling up one form amounted around 10 minutes. Every tenth person entering the Park's area was asked for a consent to examination. Tourists who answered affirmatively took part in the research. Survey questionnaire consisted of 12 main questions and respondent's particulars. 7 questions were analysed and 5 of them concerned: motives for arrival – name main reasons for visiting the PPN, frequency of visits – ‘How often do you visit the PPN?’, forms of spending free time – ‘How do you spend your time on the area of the Park?’, length of stay – ‘How long does your stay on the PPN last?’ – one day, two days, a weekend – from Friday afternoon until Sunday or a week. Respondents' knowledge of touristic attractions of the PPN was also analysed. The purpose of subsequent question was to study the level of knowledge on the PPN's financing and a will of possible participation of society in Park's support. It was possible thanks to the respondents' reference to the following issue: Knowing that costs of the PPN maintenance cover State Treasury's budget, do you agree with below statements: 1) State Treasury budget should not finance such purposes even if caused complete restriction of access to such places; 2) I would be willing to carry some

costs connected with maintenance of the Polesie National Park, for instance pay the fee for entering the Park; 3) Present situation is suitable. If I had to pay extra for rest in such places I would cancel my trip. The last question was connected with defying the level of satisfaction from the rest on the area of the PPN. The level of satisfaction was defined on the basis of question that reads as follows: If you were to sum up money spent on coming here and convert it into benefit or loss that results from this trip, then would your opinion be similar to the following statement: 1) I think, that the sum of money spent on this trip is much smaller than benefits I received. It was money well spent; 2) I think, that the sum of money spent on this trip is slightly higher than benefits I received, and 3) I think, that the sum of money spent on this trip is much higher than benefits I received. I lost my money on this trip.

Respondent's particulars included in questionnaire of the survey allowed for sociological characteristic including age, sex, place of residence, education, employment status and income.

Statistical analysis was made for question regarding respondents' satisfaction from spending their free time in the area of PPN. For statistical analysis, Classification and Regression Tree (CART) method was used that allows for building models for solving regression problems – dependent variable is quantitative feature, and classification problems – variable dependent is qualitative feature. Traditional CART method was made widespread by Brieman et al. (1984) and Ripley (1996). General rule of interpreting answers to questions (for instance satisfaction from the stay in the PPN, and especially its variability) is that the answer is formed the most by this feature (question), which is situated on the first branch. Following branches divide answers to a question (feature) into two groups, where on the right one placed is fulfilment of the condition (yes), and on the left one answers that don't meet the condition (no). This rule is repeated on each level. As a result, for the given group, the average value of answers and number of surveys (respondents) is obtained. Those variables, which as a result of the conducted analysis were presented on the graphs, had significant participation in forming this variability. Remaining variables (questions) did not shape this variability. Answers to the analysed questions are independent of questions that did not appear on the graphs.

Obtained results of the research applies only and exclusively to the group of respondents participating in the survey research.

### 4. Results

Most frequently listed by the tourist motives for visiting the PPN were landscape aspect (28%) and species' richness (27%) of the Park (Fig. 2). Visitors also declared a will to get to know touristic values of the Park (23%). For a group

of 39%, it was a first visit to this area (including 27% of respondents who came for 1 day, and 1% – for a week). On average, every 6 months, the Park was visited by 26% of the respondents (10% came for two days and 10% for a weekend, 1% – for a week), only 7% of people asked spent there their leisure time once a week (5% – one day, 1% – two days and a weekend) (Fig. 3). Almost half of the respondents (47%) came for one day, and only 3% for a week (Fig. 4). Tourists asked about their knowledge of the PPN’s tourist attractions claimed they know them very well (65%), another 29% of respondents was interested in getting to know them, and for remaining 6%, they were not an object of interest. Taking into consideration the forms of spending free time, it was noticeable that most tourists (37%) preferred walks, then pointed was nature observation (19%) and biking (17%). The smallest number of respondents took part in organized trips with a guide (12%) (Fig. 5).

By analysing the method of financing the PPN and possible generosity of respondents in that matter, it was stated that more than half of them (58%) would be willing to carry some costs connected with the Park’s support, like for instance, buying a ticket for entering the Park, if it would help to maintain such places. Another 22% of tourists indicated that the budget of the State Treasury should not in any way support the PPN’s maintenance, even if it resulted in complete limitation of entrance and touring. Last group of respondents (21%) claimed, that the present way of Park’s financing and its activity is suitable, and if they were to pay extra for spending their leisure time in such places, they would resign.

When considering the level of satisfaction from the stay in the area of the PPN, it was noticeable that almost half of the respondents (48%) declared that the sum of money spent on their arrival to Park was much smaller than benefits they received from their stay – therefore, they were very pleased with their stay in this area. Another 42% were also satisfied with their journey to the PPN, because they felt that the received benefits slightly outweighed the costs they had to incur connected with their journey and stay. Only 10% of the respondents claimed that money spent on the journey to the PPN was wasted.

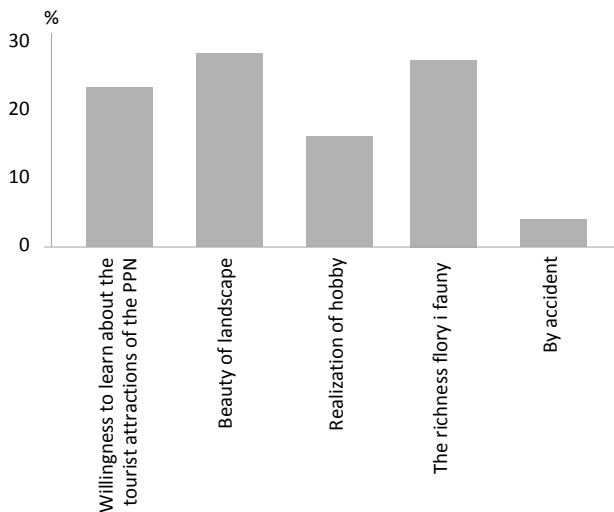


Figure 2. Motives for visiting the Polesie National Park

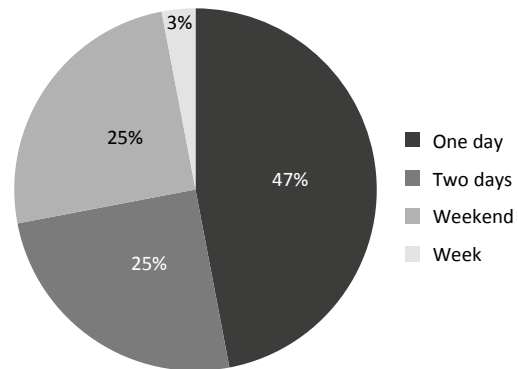


Figure 4. Length of stay in the Polesie National Park

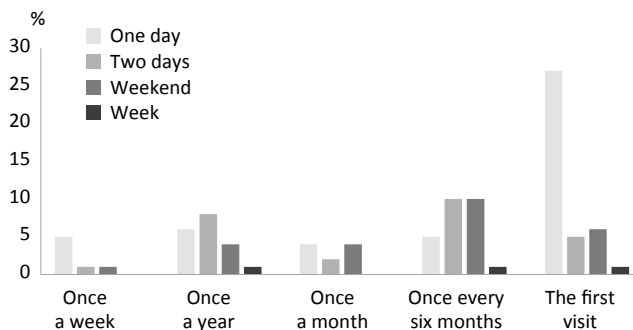


Figure 3. The frequency of visits to the Polesie National Park

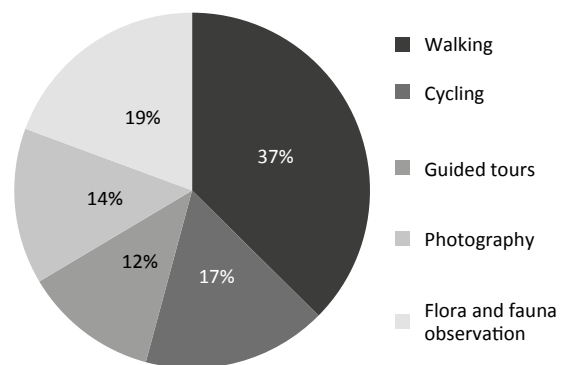


Figure 5. Forms of spending leisure time in the Polesie National Park

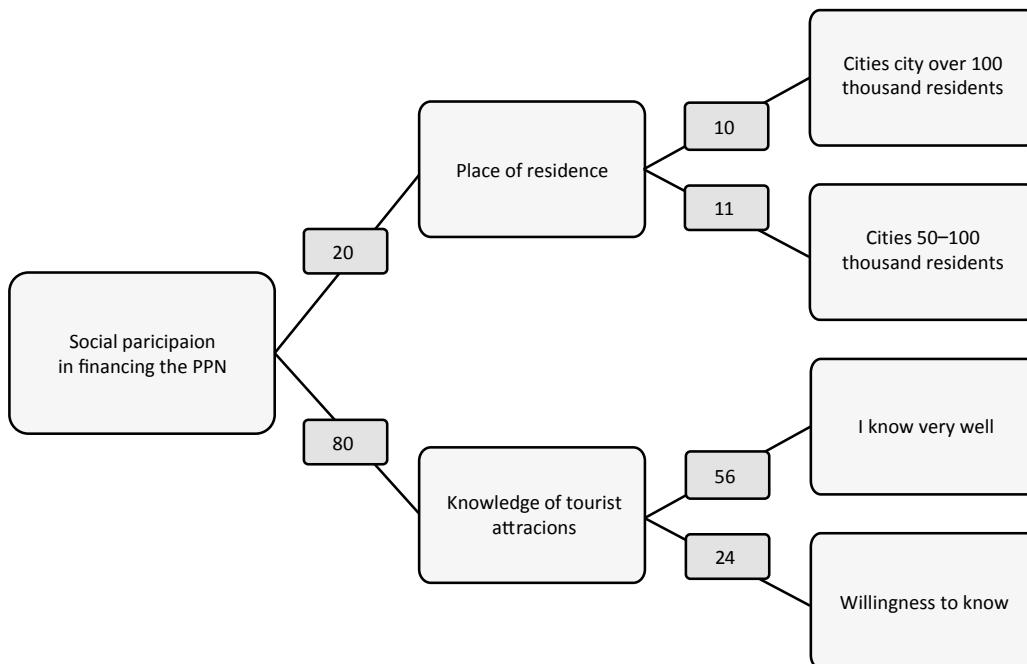
The result of the statistical analysis carried out using CART method stated that the question about ways of Park's financing had the greatest influence on the question about satisfaction from the stay in the Park. In this group of answers, 80% of respondents claimed they were very pleased with their journey and stay in the PPN, and remaining 20% thought that the sum of benefits slightly prevailed costs of rest here. Influence on shaping the answer on satisfaction from stay secondly had answers to question about place of residence of the respondents and their knowledge of the tourist attractions of the Park (Fig. 6).

## 5. Discussion

Tourism, and also silvatourism (leisure on forest areas) can be pleasant and be a source of joy and life satisfaction (Gaworecki 2008). Gołos (2018) notices, that the choice of forest as a place for rest and recreation is not accidental. Each man makes a decision on the basis of acquired knowledge on the given space and expects to be satisfied with his choice. One also makes an analysis of the incurred costs and achieved benefits. To the most commonly considered, belong expenses on the journey and stay and expected benefits, which in case of touristic and recreational functions are of intangible character (non-financial). Tourism from its nature is a form of consumption (Gaworecki 2008), for which effects are hard to measure in an economic aspect.

As a measure of level of satisfaction from spending leisure time in the area of PPN, the respondents were offered a comparison (relation) of the value of costs carried for a journey to the Park with the satisfaction achieved from this trip. The vast majority of respondents claimed, that in this relation, satisfaction prevailed (in lesser or greater extent) from the rest in the PPN. Almost half of the tourists felt that benefits they received are significantly (relatively) greater than costs they carried. It can be assumed that on such a situation, there was exceptional influence of character and environment, landscape, history and culture richness of the Park. Method of its management and care for recreational infrastructure is also important. It should be noticed that there is no unequivocal indicator that expresses satisfaction from tourism. It will always be a subjective and individual feature for each tourist. Cichowska (2020) presents different types of benefits received from leisure in forest areas. The author includes in this group: being and relaxing in the forest in situation where there are no other tourists around, clean air, peace and quiet and health properties. It is an interesting point of view since authors of other elaborations treated listed factors as motives for visit.

Tourists visit protected areas for different reasons. In research on the area of the PPN, the respondents paid attention foremost to landscape diversity (28%), species richness (27%) and a will to get to know the touristic values of the Park (23%), just like people resting in Promotional Forest Complex Janowskie Forests (FPC JF), 28% of respondents



**Figure 6.** Tourists' satisfaction with the rest in the Polesie National Park – CART analysis

indicated environmental values and 24% – landscape richness (Mandziuk 2011).

In the area of the PPN, most popular were short-term trips. Almost all respondents (98%) came for 1 or 2 days (including weekend). This trend is confirmed by the theses of Vander Stoep and Duniava (1992) and Šišak (1996). Confirmation of this fact can also be found in research: in Mazovian Landscape Park (MLP) conducted in 2000 and 2012 by Janeczko et al. (2017), in the area of Janowskie Forests Landscape Park, where 68% of tourists spent 1 day (Mazurek-Kusiak 2016) and in FPC JF, where 85% of tourists came for period from 1 to 3 days (Mandziuk 2014, 2015; Mandziuk, Parzych 2017).

To the most frequently chosen forms of spending leisure time on protected areas are walks. It is proved in the research conducted in the PPN – 37% respondents, on the area of ‘Nad Tanwia’ nature reserve – 50% (Mandziuk et al. 2019), in MLP – 22% (Janeczko et al. 2017). It finds confirmation also in the research in Forest Promotional Complexes all over the country: in FPC JF – 72% (Mandziuk 2014), in PFC Oliwsko-Darżbulskie Forests – 71% and PFC Beskid Śląski Forests – 65% (Gołos 2018), in PFC Beskid Sądecki Forests – 33% (Janusz, Piszczyk 2008), in PFC Sudety Zachodnie – 56% (Janusz, Pochopiń 2011), and also scientific elaborations of Vander Stoep and Duniava (1992) and Gołos and Janeczko (2002). Well-developed network of biking trails and the possibility of renting this means of transport favours biking tourism – in the PPN 17%, and in MLP 16% (Janeczko et al. 2017) of respondents spending their time there rest in such a way. Forms of rest indicated by tourists should be taken into account by landlords and owners of areas attractive in terms of tourism. It refers to adjusting (building and modernising) objects (for instance trails, paths, beauty spots) of touristic utilisation to preferences of visitors. It will allow for safe and satisfying rest on areas of large tourist pressure, with preserving conservation requirements (Radecki 2011).

Despite the fact that national parks cover around 1% of the country’s area, they are popular place of rest for people. It refers especially to inhabitants of large urban agglomerations. They are also a destination of individual and organized trips. It happens because within their borders, there can be found areas rich and diverse in terms of landscape, environment, geology, culture and history (Czarnecki 2009; Gałązka 2009). It should be kept in mind that tourism in protected areas depends on many factors, therefore, it must take place with preserving environmental protection rules. Proper man’s attitude towards nature is necessary for achieving various (including social and economic) benefits (Gaworecki 2007). Society’s care for nature fits in with Leave No Trace idea, which is a specific environmental ethics in promoting proper behaviour patterns during rest in the forest

(Posłonka 2019). Its rules are implemented and respected also in national parks. An example is educational project of Akademia Górską and Tatr National Park (<https://tjn.pl/nawosci/tatrzańskie-leave-no-trace>).

## 6. Summary

The rules for staying and access to the PPN for tourists regulate Director’s Regulation no. 4/2019 (Regulation 2019). Listed there were places for camping, lighting campfires and smoking and using sources of light of open fire. This document includes regulations for staying in some areas of the Park for scientific, educational, touristic, recreational and amateur catch of fish purposes. Also included is information on fees for entering these nature trails: ‘Dominik Oak’ trail, ‘Splawy’ trail, ‘Peherod’ trail and ‘Insurgent Camp’ trail (Regulation 2013). In the area of the Park, educational trails were also demarcated. An access to hiking, biking and horse tourist trails was given and trails for realizing quests, which are available free of charge.

Shaping needs and expectations of tourists being in the area of the Polesie National Park results from the change in the model of the rest. An answer to the reported preferences will be a high level of tourists’ satisfaction and their will for coming back to the Park to fulfil their needs in the aspect of broadly understood recreation. In Prószyńska-Bordas (2013) research on the area of the PPN, the respondents paid attention for a necessity of better and fuller tourist information, and as Gołos (2013) noticed, existing accommodation and food base in Park’s surrounding is under development. Realisation of tourism and recreation in national park is an important task for their employees. It requires for them to have cooperation with other institutions, local government units, agrotourism farms, gastronomic and other entities of tourism industry.

## Conflict of interest

The authors declare lack of potential conflicts.

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## Authors' contribution

A.Ś. – survey research, data summary, results' interpretation; A.M. – conception, assumptions, methods, data summary, results' interpretation, writing, typescript preparation, editing, proofreading, coordination, data verification in the tables, literature review; M.S. –statistical analysis, results' interpretation.