

## INTERNATIONAL JOURNAL OF CONSERVATION SCIENCE



Volume 14, Issue 2, April-June 2023: 579-598

#### DOI: 10.36868/IJCS.2023.02.14

## THE IMPORTANCE OF FLORA IN THE PERCEPTION OF ATTRACTIVENESS FOR TOURISM- CASE OF OJCÓW NATIONAL PARK (SOUTHERN POLAND)

# Paweł RÓŻYCKI<sup>1,\*</sup>, Kinga KOSTRAKIEWICZ-GIERAŁT<sup>1</sup>,

<sup>1</sup> Institute of Tourism, Academy of Physical Education, Jana Pawła II, 78, 31-571 Kraków, Poland

#### Abstract

Research on the importance of flora in the perception of the attractiveness as a tourism destination of Ojców National Park was conducted in the second half of July 2021 with a direct diagnostic survey method using a questionnaire. A total of 205 people were surveyed, of whom the respondents were primarily people of Polish nationality, middle-aged, and with higher education. The majority of respondents declared that their motive for coming to the studied area was leisure, and the main advantages of the ONP are inanimate and animate nature (including flora). The diversity of reasons for coming and perceived values increased with the degree of education and was significantly higher among tourists in the middle age group, which may be associated with a greater awareness of the attractions and the possibility of using various forms of recreation offered by the park. Among plants, most tourists paid attention to trees, and among the organs of plants, mainly to the stems of perennials and tree trunks, which can be interpreted by the predominance of forests in the landscape. The importance of flora in the ranking of ONP attractions increased in older age groups, and the appreciation of its importance by tourists from Poland may result from knowledge about the plant species occurring here and the role of the National Park in their protection. Among the most important threats to nature at the ONP, respondents indicated littering, as well as going off the trails and destroying and picking plants. Thanks to the research conducted, the importance of flora in the perception of tourists visiting Ojców National Park has been highlighted. Its importance against the background of other tourist attractions in the area was illustrated.

Keywords: Landscape; National Park; Plants; Questionnaire; Tourism attractions

#### Introduction

Tourism destination attractiveness is defined as the degree of attraction of a given region for a certain type of tourist [1]. Often, tourists come along the way to another destination during a longer trip around the region, at which time they are surprised by specific assets and attractions. This happens in many very attractive places, about which tourists sometimes have only general and cursory information. They come to get to know them, verify what they have heard, or enjoy them once again.

One particularly attractive type of destination for tourists are naturally valuable areas covered by various forms of nature protection [2], among which the leading role is played by national parks [3]. In recent decades, national parks have become an important tourist destination in many countries [4-7].

Most of the surveys conducted among visitors to national parks around the world have focused on assessing the satisfaction of tourists with their stay, taking into account the

<sup>\*</sup> Corresponding author: pawel.rozycki@awf.krakow.pl

impressions generated by the natural assets of the region [8-13]. Previous studies dedicated to the natural assets of national parks have focused on the issues of attractiveness of inanimate nature [14, 15], while survey campaigns on the perception of the values of animate and inanimate nature were conducted, among others, by *A.F. Boshoff et al.* [16], *S.K. Dixit and V.K. Narula* [17], *T. Telbisz et al.* [18], and *A. Martinis* [19]. At the same time, it is worth adding that the problem of raising awareness of the negative impact of tourism on the natural assets of national parks has also been discussed many times [20].

In Poland, research on the perception of selected elements of animate and/or inanimate nature by tourists was studied in Babia Góra National Park [21, 22], Gorce National Park [23], Pieniny National Park [24, 25], and Ojców National Park [26]. At the same time, the attitudes of tourists towards various nature protection issues have been analysed [27-29]. However, despite the growing interest in the perception of various elements of nature by tourists in recent years, there is still a lack of studies on the importance of vegetation and flora in the perception of the attractiveness of national parks as tourist destinations. The research conducted so far has focused on nature protection issues and the natural potential of the area. However, the studies presented in this publication are original, and these issues have never been discussed in scientific research so far. There is a particular lack of studies on the perception of flora in comparison with other tourist attractions in national parks. There is no answer to the question of what place nature occupies among other attractions. Of course, national parks also differ in terms of their cultural attractiveness and assets that influence the overall perception of the area. In view of the above and the unsatisfactory state of knowledge on this subject, research was undertaken to answer the following questions: (i) What is the role of natural assets among the motives for coming to Ojców National Park? (ii) What is the position of flora in the hierarchy of ONP attractions? (iii) Which life forms and plant organs attract the most attention from visitors? (iv) What impressions are generated by visiting the ONP? (v) What, in the opinion of tourists, is a threat to the nature of the ONP?

#### **Experimental part**

#### Study area

### Location, topography, geology and hydrology of Ojców National Park

Created in 1956, Ojców National Park (OPN:  $50 \circ 12'24''$ N,  $19 \circ 49'45'''$ E) is located within the Kraków-Częstochowa Upland (Southern Poland). As of January 1, 2014, the area of the park was 2,163.21ha. A protection zone (buffer zone) with an area of 6777ha has been established around the ONP [30]. Ojców National Park is one of 23 national parks located in Poland.

The geological history of Ojców National Park goes back 150 million years to the Mesozoic era in the Jurassic period. At that time, the Upper Jurassic Sea deposited several types of limestone. Among them were thick-bed, rocky, and plate limestones. The most characteristic forms most often noticed by tourists are the rocky limestones of the Kraków-Częstochowa Upland. They form solitary rocks called outliers. They are remnants of erosive activity in the upper parts of the upland and rocks in the Prądnik Valley. The limestone rocks of this region are rich in the fossilised remains of marine organisms no longer present. They are mainly made of calcium carbonate. These organisms accumulated on the seabed for many millions of years. Thanks to this, thick layers were created, which now attract tourists in Ojców National Park and other parts of the Upland in the form of rare landscape forms. In the Tertiary, which began about 60 million years ago, the advancing Carpathian flysch from the south caused the formed limestone layer to crack. In the Quaternary, about 1 million years ago, the sea completely receded from the analysed area. There was either rapid erosion or the appearance of new deposits. Many of these resulted in the multiple advances and retractions of the Scandinavian ice sheet.

The most interesting and attractive areas in terms of tourism and sightseeing are the areas of Ojców National Park, especially the section from the Kraków Gate through Ojców to Pieskowa

Skała. The most valuable elements of the Jurassic karst landscape can be found all over the area. The Prądnik River carved a valley through the area, the high and steep slopes of which are nowadays covered with a mixed forest. There are ravines, gorges, gates, and even small canyons in the karst landscape. Rock formations take the form of bastions, towers, and a series of rocks called organs. In some places, you can see pulpits, spires, clubs, and shapes resembling an arrangement of fingers. Many of them have unusual names given by local people. Additionally, some of them have a symbolic meaning or appear in legends and fairy tales. The unique and uncommon beauty of the Prądnik Valley also stems from the fact that many side valleys flow into it. There are also over 200 caves and rock shelters in the vicinity of the valley, including 18 large ones. They constitute an asset of exceptional tourist and speleological importance on the scale of Poland [31].

A dense river network did not develop in the area of the ONP. The reason is its geological structure. The easy permeability of Jurassic limestone causes karst phenomena to occur instead; rainwater quickly penetrates the crevices and drains to a great depth. The main river of the National Park is the meandering Prądnik River, which flows into the Vistula River in Kraków. The entire Prądnik Valley was created as a result of the erosive action of the water flowing along its course.

#### Characteristics of animate nature of Ojców National Park

The vegetation of the ONP is characterised by high diversity and a mosaic arrangement of communities [30]. More than 70% of the Ojców National Park area is covered by forests dominated by oak-hornbeam forests, beech forests, and mixed forests covering both plateaus and steep slopes, and in some places even the bottoms of valleys [32]. Today, the most widely spread meadow communities are thermophilic ryegrass meadows, occurring in the middle and lower parts of slopes, most often with south-west and north-eastern exposure, and at the foot of the slopes, in places with a warm and moderately humid microclimate [33]. On the sunny rocks, xerothermic grasslands developed thanks to grazing [34, 35]. Currently, in the area of the ONP and in its buffer zone, cereal and root crops with their accompanying rich flora of weeds are recorded less and less often [36, 37]. The flora of Ojców National Park consists of about 970 vascular plants, of which 84 are legally protected species, including 67 under strict protection and 17 under partial protection [30]. Particularly noteworthy is the abundant flora of orchids, consisting of 22 species inhabiting both forest and non-forest communities [38]. Moreover, the area of Ojców National Park is distinguished by a valuable biota of bryophytes [39, 40], slime moulds [41], and lichens [42]. At the same time, it should be emphasised that the rich flora of Ojców National Park and its buffer zone are accompanied by a vast fauna of invertebrates, including Hymenoptera [43], Hemiptera [45], and Coleoptera [46], as well as vertebrates, e.g., birds [47-49] and mammals [50-52].

#### Characteristics of the cultural assets of Ojców National Park

Due to its significant cultural and landscape values, the vicinity of Ojców was called "the Polish Switzerland" as early as the 19<sup>th</sup> century. Apart from natural assets, cultural assets constitute the basic elements of the division of assets according to the criteria of their origin. In national parks, nature is primarily the magnet that attracts tourists. Cultural assets often complement the basic elements of the environment in such places. Over the centuries, however, culture has left its mark in some attractive regions. This was also the case north of Kraków, in Ojców National Park, along the Prądnik Valley. The oldest anthropogenic traces can be found in the silt near Ciemna Cave. They come from the Middle Palaeolithic, meaning that they are about 150.000 years old. At the dawn of the Common Era, there was a significant influence from the Cieszyn culture from the south. Its traces are visible in the buffer zone of the park. The archaeological sites in Giebułtów are some of the most interesting in Poland; they testify to the cultural exchange between people from the Black Sea and Roman provinces as far as the Atlantic Ocean. From the 6<sup>th</sup> century onwards, defensive settlements were built in the Kraków-Częstochowa Jura. They were centres of power, administration, and shelter during conflicts [31].

In the area of the Kraków-Częstochowa Upland, castles and watchtowers known as the Eagles' Nests were built. Two of them are located in Ojców National Park; these are the castles in Ojców and Pieskowa Skala. Although the castle in Ojców has been rebuilt only to a small extent, it presents quite a sight over the Prądnik Valley and is a landscape asset for tourists. The castle in Pieskowa Skała, on the other hand, is one of the most beautifully situated historical buildings in Poland. It fits perfectly into the landscape, along with the famous geotourism attraction, the Club of Hercules.

In addition, in the National Park there is a monument of a type that is rare in Poland and Europe, the so-called "Chapel on the Water" dedicated to St. Joseph. The chapel was built in 1901 on the site of the former "Goplana" spa baths. The atypical building owes its location to the Tsarist bans during the period of the Partitions, when it was forbidden to build on land in the Ojców area. Therefore, the chapel was erected "on the water" on the Prądnik River. In Grodzisk, there is a hermitage dedicated to the Blessed Salomea, the Church of the Blessed Virgin Mary, and prayer grottoes, which are situated above the level of the road in the Prądnik valley. In Ojców, there is the Władysław Szafer Museum of the Ojców National Park. As early as the 19<sup>th</sup> century, Ojców was an important health resort in the Kraków-Częstochowa Upland [53]. In the Prądnik Valley, the cultural landscape with its historic houses deserves attention. Some of these used to be recreational and spa lodgings in the past, and some of them have now been revitalised.

#### Methods

The research was carried out using the diagnostic survey method with the use of a questionnaire prepared by the authors of the study. In addition, qualitative methods were used [54], consisting in particular of the analysis of scientific materials, direct observation in the field, and photographic analysis as an ethnographic method [55].

The research was conducted in the field in Ojców National Park in the second half of July 2021. The summer holiday period was selected in order to learn the opinions of visitors who came to the park by their own choice (in the case of participants in school trips, this requirement would not be met). A random method was used to select the sample; tourists visiting the National Park were addressed directly after the tour. The minimum age of the respondents was 15 years, because such a minimum age limit is adopted in surveys of tourists' opinions [56]. The authors conducted the research themselves, talking to each tourist individually. Before completing the form, visitors were assured that the questionnaires were anonymous, would take several minutes to complete, and that the collected results would be used only for research purposes. The full questionnaire form with eight closed questions and a record is included in Appendix 1. Most of the tourists willingly participated in the research, although not all of the respondents filled out the form fully. Only a dozen or so people refused to fill out the form, explaining that they did not have enough time, had poor eyesight, or had insufficient knowledge. The statistical significance of differences in the percentage distribution of answers to individual questions provided by respondents representing different genders, nationalities, places of residence, ages, and levels of education was analysed using the  $\chi^2$  test.

#### **Results and Discussion**

Direct contact with tourists and obtaining answers right after visiting Ojców National Park guaranteed the most reliable, random, and representative research material. The sample is representative of visitors to Ojców National Park. 205 people were surveyed, including 121 women and 84 men. There were 12 tourists from abroad and 193 from Poland (Table 1). These proportions are representative and reflect the structure of people visiting Ojców National Park. Also, in other categories, such as place of residence (city or village), education, and employment, the group was representative of tourists visiting the National Park.

Categories		Number (percentage) of	Total
		respondents in each category	
Nationality	Poland	12 (6%)	205
	Other	193 (94%)	-
Place of residence	City	165 (80%)	205
	Village	40 (20%)	
Gender	Female	121 (59%)	205
	Male	84 (41%)	
Age	up to 25	45 (22%)	196
	26-45 years	70 (36%)	
	46-65 years	70 (36%)	
	Above 66 years of age	11 (6%)	-
Education	Primary education	9 (5%)	192
	Vocational	9 (5%)	
	Secondary education	60 (31%)	
	Higher education	114 (59%)	
Employment	Physical labour	26 (13%)	195
	White collar work	115 (59%)	
	Artistic work	6 (3%)	
	Agricultural work	-	
	Unemployed	2 (1%)	
	Pupil/student	36 (19%)	
	Pensioner	10 (5%)	

 
 Table 1. Structure of respondents visiting Ojców National Park by nationality, place of residence, sex, age, education, and employment

At the same time, it is worth noting that [26] recorded similar proportions in the structure of visitors to Ojców National Park. Moreover, similar proportions were observed in Babia Góra National Park [22] and Gorce National Park [23]. Additionally, *B. Pater* [57] states that the majority of visitors to national parks in Poland are in the middle age group or are elderly and have higher education. A similar tendency was also observed in national parks located outside of Poland [58].

The obtained results gave an answer to the question of how tourists perceive the natural assets in the National Park in comparison to other attractions in the area. Among the many studies carried out in national parks, this is an original and pioneering approach.

The most important purpose for tourists coming to Ojców National Park is rest, relaxation, and hiking. Spending time in nature is more often preferred to sightseeing and getting to know the area, respectively (36.1 and 29.3%). For about 20% of respondents, the karst phenomena, especially caves, are a magnet that attracts attention. The presented results are partially consistent with those noted by [26], who emphasised that rest and relaxation are important motives for coming to Ojców National Park, but the main goal is to discover the landscape. Relaxation is also one of the important goals of visiting Gorce National Park [23]. In addition, it is worth adding that relaxation and rest are the main motives for visiting national parks around the world [59, 60]. Many authors [61- 65] indicate that admiring nature is also a significant reason to visit national parks. At the same time, the research presented in this study showed that the diversity of the reasons for visiting the ONP increases with the level of education and is significantly greater among middle-aged tourists (Fig. 1), which may be associated with greater awareness of the attractions and the possibility of taking advantage of various forms of recreation offered by the park. Moreover, this diversity is greater for Poles than for foreign tourists (Fig. 1), which may be due to their better knowledge of the area.



Fig. 1. Percentage of answers regarding the purpose of coming to Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1-rest, relaxation, hiking; 2-being in the great outdoors; 3-getting to know the area, sightseeing; 4-caves; 5-travelling with a loved one; 6-getting away from the day-to-day place of residence; 7-cycling; 8-other. Asterisks indicate the probability that the distribution of the answers does not differ: \* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</p>

The assets that attract the greatest attention among tourists who have reached the area of the National Park are geological assets, including rock formations that surround the Prądnik valley. Monuments are rated slightly higher (34.2%) than vegetation (24.4%). There is considerable interest in inanimate nature, as apart from the karst landscape dominating the study area, there are numerous caves open to tourists (31.2% of the assets that attract special attention). The presented results correspond with the results of Ziarkowski's [26] research, which shows that rest and nature are among the greatest values. At the same time, it is worth emphasising that rock formations also draw the attention of visitors to Gorce National Park [23]. Moreover, the research presented in this paper proves that the diversity of assets that attract attention increases with the level of education and is significantly greater among middle-aged tourists. Finally, this diversity is greater for Poles than for foreign tourists (Fig. 2).



Fig. 2. Percentage of answers regarding the assets which attract the most attention of visitors to Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1- geological assets, e.g., rock formations; 2- monuments; 3- caves; 4- plants; 5- architecture; 6- infrastructure; 7- people; 8-other. Asterisks indicate the probability that the distribution of the answers does not differ: \* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</p>

The research focused on interest in plant life forms. It appears that for tourists visiting Ojców National Park, all plants are a natural tourist attraction. It is noteworthy that trees much more (32.7%) than herbaceous plants (10.7%) and shrubs (3.9%) attract the attention of visitors. At the same time, it should be added that tourists with secondary or higher education paid attention to all life forms of plants, while the rest ignored shrubs. Moreover, interest in trees and shrubs increases among tourists in older age classes (Fig. 3).



Fig. 3. Percentage of answers regarding the forms of plant life which attract the most attention for visitors to Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1- trees;
2- shrubs; 3- herbaceous plants; 4- all. Asterisks indicate the probability that the distribution of the answers does not differ: \* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</li>

Respondents were also asked about which parts of plants in the ONP attracted particular attention. The stems of herbaceous plants and tree trunks (44.4%), as well as flowers (38.1%), were mentioned in the first place. Leaves were rated much lower, as only 15.6% of respondents indicated their special value as an attraction, and fruit were the least noticed (approx. 2%). Such a perception of animate nature may also be associated with forest communities dominating the landscape [30]. At the same time, it should be added that people with higher education were most interested in flowers, and people in the oldest age class were interested in leaves (Fig. 4).

Tourism is often described as a collection of sensations. This is true in the case of Ojców National Park as well. Most often, it is admiration of the landscape (77.1%), while admiration of the flora and admiration of architecture and monuments were chosen by 10.2% of the respondents, respectively. This certainly proves the unique landscape values, which in total

comprise the terrain and specimens of inanimate nature, based on geology, and the green of the forests that grow on the slopes of the valley. Greater interest in landscape assets than in vegetation was also observed in Babia Góra National Park [22]. At the same time, it should be added that foreign tourists showed greater admiration for monuments and architecture, flora, and animals than tourists from Poland. Tourists with secondary and higher education showed admiration for monuments and architecture, flora, animals, and the landscape, while the rest were mainly captivated by monuments, architecture, and the landscape. Tourists in the oldest age class expressed their admiration for the vegetation and landscape (Fig. 5).



Fig. 4. Percentage of answers regarding organs of plants which attract the most attention for visitors to Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1- flowers;
2- fruit; 3- leaves; 4- stems of herbaceous plants and tree trunks. Asterisks indicate the probability that the distribution of the answers does not differ: \* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</li>



Fig. 5. Percentage of answers regarding the impressions taken away from a visit to Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses;
1- enjoying monuments and architecture; 2- enjoying the vegetation; 3- enjoying the wildlife;
4- enjoying the landscape; 5- other. Asterisks indicate the probability that the distribution of the answers does not differ: \* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</li>

The importance of flora for visiting tourists should be emphasised. It was indicated as an important asset in the National Park by 67.3% of the respondents and as the most important asset by 26.3% of tourists. It was neutral to only 4.4% of visitors and insignificant or irrelevant to about 2%. This proves the pro-ecological and aesthetic attitude of tourists who willingly come to the National Park, where they can be surrounded by vegetation and, along with other assets that are sometimes more impressive, are able to absorb the value of the flora. At the same time, it must be added that Poles indicated the decisive importance of flora much more often than foreign tourists. Moreover, the importance of flora increases with the age of the respondents, while the

greatest variety of responses was noted among people with higher education (Fig. 6). Appreciation of the value of flora presented by tourists from Poland may result from their knowledge about the plant species found here, the role of Ojców National Park in their protection, as well as awareness of the existence of local threats.



Fig. 6. Percentage of answers regarding the significance of flora in Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1- the most important; 2- important; 3-neutral; 4- insignificant;
5- irrelevant. Asterisks indicate the probability that the distribution of the answers does not differ:
\* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001</li>

Tourists were asked to make a hierarchy of ONP attractions. Topography and geology are listed first, flora is listed second, and monuments and cultural attractions are listed third. Only in the subsequent places are watercourses, fauna, and tourist facilities mentioned. The value of the landscape and the topography are once again noticed, but the flora also plays an important role and proves that tourists are interested in animate nature more than in cultural assets, the importance and protection problems of which were described by Partyka and Sołtys-Lelek [66]. On the other hand, according to other authors [69], species diversity and the occurrence of rare species of plants and animals are ranked lower than cultural assets in national parks (Fig. 7).



Fig. 7. Percentage of answers regarding threats to the nature of Ojców National Park provided by tourists of different gender, nationality, place of residence, age, and education. Abbreviations: N-number of responses; 1- destruction of plants, picking fruits and mushrooms;
2- catching and scaring animals; 3- littering; 4- going off the trail; 5- practicing rock climbing. Asterisks indicate the probability that the distribution of the answers does not differ:

\* P ≤0.05, \*\* P <0.01, \*\*\* P <0.001

Our research raised the problem of environmental protection and the threat to the nature of Ojców National Park. Tourists pay attention to the problem of littering (70.2%), which is noticed almost everywhere. This is not only the result of relatively high tourist traffic but also of a lack of personal culture and ecological and aesthetic awareness in some people. Despite strict protection in the National Park, various types of problems are noticed and, to some extent, contribute to the discomfort of many tourists who expect a clean, intact, and uncluttered natural environment. The problem of illegal landfills in Ojców National Park has been mentioned many times [68]. At the same time, it is worth adding that the problem of littering was also reported by tourists visiting Babia Góra National Park [22]. On the other hand, *G. Przydatek* [69] points to various solutions enabling waste management within protected areas around the world. Over 13%

of people notice the problem of going off the trail, and 10.7% of respondents see the problem of destroying and picking plants. The phenomenon of going off the trail and the related destruction of plants has been noted in Ojców and in other national parks for a long time [70-72]. A similar phenomenon has also been observed many times in national parks around the world [73]. Few of the respondents noted the risk of illegal rock climbing and its negative effects, as mentioned by *K. Kołodziejczyk* [74]. At the same time, it is worth emphasising the differences in the responses given by Polish and foreign tourists of different ages and education classes. For tourists from Poland, the biggest problem is littering, while for tourists from abroad, it is going off the trails. Tourists with primary education emphasised only the above-mentioned threats, while tourists with vocational, secondary, and higher education also pointed to the negative effects of destroying plants, disturbing animals, going off the trails, and practising illegal rock climbing (Fig. 7). The perception of threats consisting of destroying plants and going off the trail increases in subsequent age classes of respondents (Fig. 7). This phenomenon may be caused by an increase in ecological awareness with age and level of education, which was previously observed in tourists visiting Babia Góra National Park [22].

#### Conclusions

The research conducted allowed us to answer many questions regarding the place of particular assets in the perception of tourists visiting Ojców National Park. The particular aim of the research was to show how vegetation influences the perception of arriving tourists. Ojców National Park has, in addition to its unique geological structure, objects of great cultural importance as well. It appears that nature, both inanimate and animate, and in particular flora, is an important asset of the park. Many of the surveyed tourists were visiting for the first time, and their impressions were based not on detailed knowledge of nature but on their perception of what surrounds them, what they can visit, and what feelings they could take home with them.

The attractiveness of the ONP as a tourist destination is mainly based on the landscape, topography, and geological assets, especially speleological ones. Extending the offer to include floristic attractions seems justified, especially as tourists eagerly pay attention to landscape compositions where geological specimens combine with plant cover blended in with the surroundings. The coexistence of these two worlds, animate and inanimate nature, in Ojców National Park provides an excellent effect for tourists. Such conclusions are based primarily on the research carried out and the results obtained.

First of all, it is worth emphasising that the research is original and that such analyses have not been carried out before. Therefore, it seems that this kind of scientific research aimed at showing the importance of flora in comparison to other attractions in national parks could be carried out on a regular basis. Particular attention was paid to the perception of threats to the natural and cultural environment of Ojców National Park. In this area, sustainable tourism becomes a priority. Maintaining and preserving the natural environment demands continuous work, especially at the stage of educating young people and other tourist communities.

#### References

[1] P. Różycki, Zarys wiedzy o turystyce, Proksenia, Kraków, 2009, pp. 62-64.

- [2] A. Balmford, J.M.H. Green, M. Anderson, J. Beresford, C. Huang, R. Naidoo, M. Walpole, A. Manica, Walk on the Wild Side: Estimating the Global Magnitude of Visits to Protected Areas, PLoSBiol 13(2), 2015, Article Number: e1002074. <u>https://doi.org/10.1371/journal.pbio.002074.</u>
- [3] S.W. Reinius, P. Fredman, *Protected areas as attractions*, Annals of Tourism Research, 34(4), 2007, pp. 839-854. <u>https://doi.org/10.1016/j.annals.2007.03.011.</u>

- [4] P. Fredman, L.H. Friberg, L. Emmelin, *Increased Visitation from National Park Designation*, Current Issues in Tourism, 10(1), 2007, pp. 87-95. <u>https://doi.org/10.2167/cit293.0.</u>
- [5] R. Puhakka, Increasing role of tourism in Finnish national parks, Fennia International Journal of Geography, 186(1), 2008, pp. 47–58.
- [6] J.P. Schägner, L. Brander, J. Maes, M.L. Paracchini, V. Hartje, *Mapping recreational visits and values of European National Parks by combining statistical modelling and unit value transfer*, Journal for Nature Conservation, 31, 2016, pp. 71-84. <u>https://doi.org/10.1016/j.jnc.2016.03.001</u>.
- [7] P. Miazek, Causes of variations of in the scale of tourism in Polish national parks, Tourism, 30(1), 2020, pp. 71-83. <u>https://orcid.org/0000-0002-8372-122X.</u>
- [8] M.M. Okello, P. Yerian, Tourist satisfaction in relation to attractions and implications for conservation in the protected areas of the Northern Circuit, Tanzania, Journal of Sustainable Tourism, 17(5), 2009, pp. 605-625. https://orcid.org/10.1080/09669580902928450.
- [9] G. Arabatzis, E. Grigoroudis, Visitors' satisfaction, perceptions and gap analysis: The case of Dadia–Lefkimi–Souflion National Park, Forest Policy and Economics, 12(3), 2010, pp. 163-172. <u>https://doi.org/10.1016/j.forpol.2009.09.008.</u>
- [10] C.T.B. Chui, F.A. Rahim, F.H. Hassan, R. Musa, J.M. Yusof, R.H. Hashim, *Exploring Tourist Experiencescape and Servicescape at Taman Negara (National Park Malaysia)*, International Journal of Trade, Economics and Finance, 1(1), 2010, pp. 28-31.
- B.P. Kaltenborn, J.W. Nyahongo, J.R. Kideghesho, *The attitudes of tourists towards the environmental, social and managerial attributes of Serengeti National Park, Tanzania,*  Tropical Conservation Science, 4(2), 2011, pp. 132-148. <a href="https://orcid.org/10.1177/194008291100400204">https://orcid.org/10.1177/194008291100400204</a>.
- [12] E. Acquah, P. Dearden, R. Rollins, *Nature-based tourism in Mole National Park, Ghana.* African Geographical Review, 35(1), 2016, pp. 53-69. https://doi.org/10.1080/19376812.2015.1088389.
- [13] A. Arnberger, R. Eder, B. Allex, H. Preisel, M. Husslein, National Park affinity segments of overnight tourists differ in satisfaction with, attitudes towards, and specialization in national parks: Results from the Bavarian Forest National Park, Journal For Nature Conservation, 47, 2019, pp. 93-102. <u>https://doi.org/10.1016/j.jnc.2018.09.005.</u>
- [14] D.A. Vasiljević, M.D. Vujičić, S. Božić, T. Jovanović, S.B. Marković, B. Basarin, T. Lukić, J. Čarkadžić, *Trying to underline the geotourist profile of national park visitors: Case study* of NP Fruška Gora, Serbia (Typology of potential geotourists at NP Fruška Gora), Open Geosciences, 10(1), 2018, pp. 222-233. <u>https://doi.org/10.1515/geo-2018-0017</u>.
- [15] J.A. Ortega-Becerril, I. Polo, A. Belmonte, Waterfalls as Geological Value for Geotourism: the Case of Ordesa and Monte Perdido National Park, Geoheritage, 11(3), 2019, pp. 1199-1219. <u>https://orcid.org/10.1007/s12371-019-00366-1.</u>
- [16] A.F. Boshoff, M. Landman, G.I.H. Kerley, M. Bradfield, *Profiles, views and observations of visitors to the Addo Elephant National Park, Eastern Cape, South Africa*, South African Journal of Wildlife Research, 37(2), 2007, pp. 189–196.

- [17] S.K. Dixit, V.K. Narula, Ecotourism in Madhav National Park: Visitors' Perspectives on Environmental Impacts, South Asian Journal of Tourism and Heritage, 3(2), 2007, pp. 109-115.
- [18] T. Telbisz, P. Gruber, L. Mari, M. Kőszegi, Z. Bottlik, T. Standovár, *Geological Heritage, Geotourism and Local Development in Aggtelek National Park (NE Hungary), Geoheritage, 12(5), 2020, pp. 1-18. <u>https://doi.org/10.1007/s12371-020-00438-7.</u>*
- [19] A. Martinis, Assessing the Environmental Policy of a Natural Protected Area Using Visitor Opinions. Case Study of Parnassos National Park, Greece, Economy, Energy and Environmental Studies, Tourism, 11 (3), 2020, pp. 501-512.
- [20] P. Sterl, C. Brandenburg, A. Arnberger, Visitors' awareness and assessment of recreational disturbance of wildlife in the Donau-Auen National Park, Journal for Nature Conservation, 16(3), 2008, pp. 135-145. <u>https://doi.org/10.1016/j.jnc.2008.06.001.</u>
- [21] J. Baraniak, M. Banaś, Wpływ walorów przyrodniczych Babiogórskiego ParkuNarodowego na ruch turystyczny [The influence of natural values of Babia Góra National Park on tourist traffic], Studia i Materiały CEPL w Rogowie, 17(45/4), 2015, pp. 16-22.
- [22] K. Widawski, Z. Jary, P. Oleśniewicz, P. Owczarek, J. Markiewicz-Patkowska, A. Zaręba, Attractiveness of protected areas for geotourism purposes from the perspective of visitors: the example of Babiogorski National Park (Poland), Open Geosciences, 10(1), 2018, pp. 358-366. <u>https://doi.org/10.1515/geo-2018-0028.</u>
- [23] K. Widawski, P. Oleśniewicz, A. Rozenkiewicz, A. Zaręba, S. Jandova, Protected Areas: Geotourist Attractiveness for Weekend Tourists Based on the Example of Gorczanski National Park in Poland, Resources-Basel, 9(4), 2020, Article Number: 35. https://doi.org/10.3390/resources9040035.
- [24] T. Wójcik, M. Maraj, Pieniński Park Narodowy w świadomości odwiedzających go turystów [Tourists' knowledge of the Pieniny National Park], Pieniny – Przyroda i Człowiek, 15, 2018, pp. 91–97.
- [25] J. Barniak, M. Olucha, Atrakcyjność Pienińskiego Parku Narodowego w opinii turystów [Attractiveness of the Pieniny National Park in the opinion of tourists], Geotourism, 1-2(52-53), 2018, pp. 1-10. <u>https://doi.org/10.7494/geotour.2018.52-53.1.</u>
- [26] D. Ziarkowski, Atrakcyjność krajobrazu Doliny Pradnika w ocenie zwiedzających [Visitor opinion on the atractiveness of the Prądnik Valley landscape], Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, 857, 2011, pp. 63-76.
- [27] A. Kolasińska, Postawy turystów w odniesieniu do ochrony przyrody w świetle badań ankietowych na przykładzie Pienińskiego Parku Narodowego [Attitudes of tourists in relation to environmental protection in the light of a survey based on the example of the Pieniny National Park], Folia Turistica, 22, 2010, pp. 207-216.
- [28] M. Gałązka, Turystyka w Kampinoskim Parku Narodowym w opinii odwiedzających [Tourism in Kampinos National Park in the opinion of visitors], Ecreg Studies, 10(2), 2017, pp. 28-38. <u>https://doi.org/10.2478/ers-2017-0013.</u>
- [29] J. Švajda, S. Koróny, A. Zięba & P. Adamski, Perceptions of natural disturbance in Tatra National Park, Poland, Forestry Journal, 62, 2016, pp. 105-109. <u>https://doi.org/10.1515/FORJ-2016-0011.</u>

- [30] B. Barabasz-Krasny, A. Sołtys-Lelek, K. Możdżeń, Ojcowski Park Narodowy, Współczesna ochrona przyrody w Małopolsce: przewodnik sesji terenowych 58. Zjazdu Polskiego Towarzystwa Botanicznego "Botanika bez granic", red. J. J. Wójcicki, p. Loster, 2019, 1-7 July 2019, Kraków, Polskie Towarzystwo Botaniczne, Instytut Botaniki im. W. Szafera, Polska Akademia Nauk, pp. 119–149. e-ISBN: 978-83-954123-1-8
- [31] J. Zinkow, Orle gniazda i warownie jurajskie, Sport i Turystyka, Warszawa, 1977, pp. 10-15.
- [32] K. Chwistek, Struktura i dynamika drzewostanów Ojcowskiego Parku Narodowego, Monografia Ojcowskiego Parku Narodowego. Przyroda, red. A. Klasa, J. Partyka. Ojców, 2008, pp. 207–240.
- [33] M. Janicka, Charakterystyka ciepłolubnych łąk z podzespołu Arrhenatheretum elatioris alchemilletosum (Ojcowski Park Narodowy) [Characterization of thermophilous meadows of the subassociation Arrhenatheretum elatioris alchemilletosum (Ojców National Park)], Prądnik. Prace Muz. Szafera, 27, 2017, pp. 51-72.
- [34] M. Janicka, A. Sołtys-Lelek, J. Baran, Wpływ wypasu na skład gatunkowy muraw kserotermicznych na eksperymentalnej powierzchni badawczej "Góra Koronna" w Ojcowskim Parku Narodowym [Influence of grazing on species composition of xerothermic grasslands in experimental research area "Góra Koronna" in Ojców National Park], Prądnik. Prace Muz. Szafera, 29, 2019, pp. 7–22.
- [35] A. Sołtys-Lelek, B. Barabasz-Krasny, Zmiany składu gatunkowego murawy kserotermicznej w Masywie Góry Koronnej (Ojcowski Park Narodowy) w latach 2014–2020 [Changes in species composition of xerothermic grasslands in the Góra Koronna Massif (Ojców National Park) in 2014–2020], Prądnik. Prace Muz. Szafera, 30, 2020, pp. 7-22.
- [36] H. Trzcińska-Tacik, A. Stachurska-Swakoń, Zmiany we florze chwastów upraw zbożowych w latach 1950–2010: badania na terenie i w otulinie Ojcowskiego Parku Narodowego [Changes in segetal weed flora during the years 1950–2010: investigations in Ojców National Park and its protection zone], Prądnik. Prace Muz. Szafera, 20, 2010, pp. 397– 408.
- [37] H. Trzcińska-Tacik, A. Stachurska-Swakoń, Zanikanie roślin towarzyszących uprawom okopowym w Ojcowskim Parku Narodowym i jego otulinie [Weed disappearance of root crop cultivation in Ojców National Park and its protection zone], Prądnik. Prace Muz. Szafera. 24, 2014, pp. 47–64.
- [38] A. Sołtys-Lelek, Z. Gajewski, J. Baran, Storczyki Ojcowskiego Parku Narodowego(województwo małopolskie, Południowa Polska) [Orchids of Ojców National Park(Lesser Poland Voivodeship, Southern Poland)], Prądnik. Prace Muz. Szafera, 27, 2017, pp. 35-50.
- [39] B. Fojcik, A. Stebel, E. Fudali, V. Plášek, A. Rusińska, J. Żarnowiec, M. Zmrhalová, R. Zubel, P. Górski, B. Cykowska, M. Wilhelm, *Materiały do brioflory Ojcowskiego Parku Narodowego [Contribution to the bryoflora of Ojców National Park]*, Prądnik. Prace Muz. Szafera, 17, 2007, pp. 79-94.
- [40] B. Fojcik, A. Stebel, Katalog mszaków (Marchantiophyta, Bryophyta, Anthocerotophyta) Ojcowskiego Parku Narodowego [Catalogue of bryophytes (Marchantiophyta, Bryophyta,

*Anthocerotophyta) of Ojców National Park]*, **Prądnik. Prace Muz. Szafera, 30**, 2020, pp. 53-82.

- [41] A. Drozdowicz, G. Paczyńska, M. Pięta, Zmiany w biocie śluzowców (Myxomycetes) Wąwozu Korytania W Ojcowskim Parku Narodowym [Changes in the biota of slime moulds (Myxomycetes)in the Korytaniagorge in Ojców National Park], Prądnik. Prace Muz. Szafera, 17, 2007, pp. 61-70.
- [42] J. Kiszka, Nowe gatunki porostów w Ojcowskim Parku Narodowym [New lichen species in Ojców National Park], Prądnik. Prace Muz. Szafera 17, 2007, pp. 71-77.
- [43] B. Wiśniowski, Dodatki do fauny błonkówek (Insecta, Hymenoptera) Ojcowskiego Parku Narodowego [Additions to the hymenopteran fauna of Ojców National Park (Insecta, Hymenoptera)], Prądnik. Prace Muz. Szafera, 17, 2007, pp. 131-148.
- [44] B. Wiśniowski, Katalog blonkówek (Arthropoda: Insecta: Hymenoptera) Ojcowskiego Parku Narodowego [Catalogue of Hymenoptera (Arthropoda: Insecta) of Ojców National Park], Prądnik. Prace Muz. Szafera, 26, 2016, pp. 95–146.
- [45] E. Bokłak, A. Klasa, Katalog pluskwiaków (Arthropoda: Insecta: Hemiptera) Ojcowskiego Parku Narodowego [Catalogue of Hemiptera (Arthropoda: Insecta) of Ojców National Park], Prądnik. Prace Muz. Szafera, 26, 2016, pp. 61-94.
- [46] A. Kuśka, Niektóre zmiany w koleopterofaunie Ojcowskiego Parku Narodowego po 50 latach gospodarki ochronnej [Somechanges in the beetle fauna of Ojców National Park after 50 years of protection], Pradnik. Prace Muz. Szafera, 17, 2007, pp. 121–129.
- [47] A. Jirak-Leszczyńska, Monitoring wybranych gatunków z Załącznika I Dyrektywy Ptasiej w Ojcowskim Parku Narodowym w 2011 roku [Monitoring of selected species of birds from annex 1 of EU Bird Directive in Ojców National Park in 2011], Prądnik. Prace Muz. Szafera, 25, 2015, pp. 51–70.
- [48] A. Jirak-Leszczyńska, K. Paciora, M. Leszczyński, B. Kusal, Wybrane obserwacje przelotnych i zimujących ptaków szponiastych Accipitriformes i sokołowych Falconiformes w krajobrazie rolniczym otuliny Ojcowskiego Parku Narodowego [Observations of migrating and wintering Accipitriformes and Falconiformes raptors in the open agricultural landscape of the buffer zone of Ojców National Park], Prądnik. Prace Muz. Szafera, 26, 2016, pp. 153–162.
- [49] K. Śnigórska, A. Subel, Monitoring wybranych gatunków sów z Załącznika I Dyrektywy Ptasiej w Ojcowskim Parku Narodowym W 2012 Roku [Monitoring of selected species of owls from annex 1 of EU Bird Directive in Ojców National Park in 2012], Prądnik. Prace Muz. Szafera, 25, 2015, pp. 37–49.
- [50] W. Grzywiński, J. Nowak, K. Kozakiewicz, A. Węgiel, Zimowy monitoring nietoperzy w jaskiniach Ojcowskiego Parku Narodowego [Winter bat monitoring in the caves of Ojców National Park], Prądnik. Prace Muz. Szafera, 25, 2015, pp. 89–104.
- [51] A. Klasa, J. Baran, Wstępne badania aktywności ssaków przy granicyOjcowskiego Parku Narodowego [Preliminary studies of mammal activity at the border of Ojców National Park], Prądnik. Prace Muz. Szafera, 27, 2017, pp. 7–20.

- [52] A. Klasa, M. Palaczyk, Pierwsze stwierdzenie wilka Canis lupus L.w Ojcowskim Parku Narodowym [The first record of a Canis lupus L. gray wolf in Ojców National Park], Prądnik. Prace Muz. Szafera, 29, 2019, pp. 103–106.
- [53] D. Ziarkowski, Zamki na Wyżynie Krakowsko-Częstochowskiej. Problemy konserwacji i udostępniania dla turystyki, Proksenia, Kraków, 2014, p. 25.
- [54] U. Flick, **Projektowanie badania jakościowego**, Wydawnictwo Naukowe PWN, Warszawa, 2010.
- [55] M. Banks, Materiały wizualne w badaniach jakościowych, Wydawnictwo Naukowe PWN, Warszawa, 2009.
- [56] Y. Poria, R. Butler, D. Airey, *The Core of Heritage Tourism*, Annals of Tourism Research, 30(1), 2003, pp. 238-254. <u>https://doi.org/10.1016/S0160-7383(02)00064-6</u>.
- [57] B. Pater, Image and Communication of Polish National Parks, Business and non-Profit Organizations – Global and Regional Aspects, 2012, pp. 279-291.
- [58] F. Cini, M. Saayman, Which Age Group Spends the Most in a National Park? Koedoe, 56(2), 2014, Article Number: 1158. <u>http://dx.doi.org/10.4102/koedoe.v56i2.1158.</u>
- [59] H. Prószyńska-Bordas, Visitor segmentation in the national parks Based on motivations and benefits obtained during the stay, Ekonomia i Środowisko, 2(61), 2017, pp. 149-162.
- [60] M. Kruger, M. Saayman, Travel motivation of tourists to Kruger and Tsitsikamma National Parks: a comparative study, South African Journal of Wildlife Research, 40(1), 2010, pp. 93–102.
- [61] S.S. Kim, Ch-K. Lee, D.B. Klenosky, The influence of push and pull factors at Korean national parks, Tourism Management, 24(2), 2003, pp. 169-180. <u>https://doi.org/10.1016/S0261-5177(02)00059-6</u>.
- [62] T. Kamri, A. Radam, Visitors' Visiting Motivation: Bako National Park, Sarawak, Procedia
   Social and Behavioral Sciences, 101(8), 2013, pp. 495-505. https://doi.org/10.1016/j.sbspro.2013.07.223.
- [63] M. Garms, P. Fredman, I. Mose, *Travel motives of German tourists in the Scandinavian mountains: the case of Fulufjället National Park*, Scandinavian Journal of Hospitality and Tourism, 17(3), 2017, pp. 239-258, DOI: 10.1080/15022250.2016.1176598.
- [64] M. Carvache-Franco, O. Carvache-Franco, W. Carvache-Franco, C. Villagómez-Buele, A. Saltos-Layana, Sociodemographic aspects and their relationship with the ecotourists' motivations in a coastal national park from Ecuador, GeoJournal of Tourism and Geosites, 31(3), 2020, pp. 1075–1082. <u>https://doi.org/10.30892/gtg.31320-543.</u>
- [65] T.E. Jones, M-H. Nguyen, Nature-based tourism motivations and visit profiles of domestic and international segments to a Japanese national park, Quaestiones Geographicae, 40(2), 2021, pp. 77–92.
- [66] J. Partyka, A. Sołtys-Lelek, Ojcowski Park Narodowy: wybrane problemy ochrony przyrody i krajobrazu kulturowego [Ojców National Park: some issues relating to conservation of nature and cultural landscape], Prądnik Prace Muz. Szafera, 29, 2019, pp. 23–60.
- [67] L.T. An, J. Markowski, M. Bartos, A. Rzenca, P. Namiecinski, An evaluation of destination attractiveness for nature-based tourism: Recommendations for the management of national parks in Vietnam, Nature Conservation 32, 2019, pp. 51-80. https://doi.org/10.3897/natureconservation.32.30753.

- [68] A. Gajda, M. Plaza, Wysypiska śmieci w Ojcowskim Parku Narodowym [Unlicensed refuse dumping grounds in Ojców National Park], Prądnik. Prace Muz. Szafera, 18, 2008, pp. 53–62.
- [69] G. Przydatek, Waste Management in Selected National Parks A Review, Journal of Ecological Engineering, 20(4), 2019, pp. 14–22. <u>https://doi.org/10.12911/22998993/102609.</u>
- [70] J. Zinko, S. Błagodyr, I. Sirenko, J. Partyka, J. Glanowski, Ocena oddziaływania ruchu turystycznego na środowisko Ojcowskiego Parku Narodowego [Assessment of the tourist traffic impact on the environment of Ojców National Park], Prądnik Prace Muz. Szafera, 17, 2007, pp. 241–248.
- [71] Z. Witkowski, A. Mroczka, P. Adamski, M. Bielański, A. Kolasińska, Nielegalna dyspersja turystów – problem parków narodowych i rezerwatów przyrody w Polsce [Illegal Dispersion of Tourists - the Problem of National Parks and Nature Reserves in Poland], Folia Turistica, 22, 2010, pp. 35-64.
- [72] A. Kolasińska, P. Adamski, S. Ciapała, J. Svajda, Z. Witkowski, *Trail management, off-trail walking and visitor impact in the Pieniny National Park (Polish Carpathians). eco.mont*, Journal on Protected Mountain Areas Research and Management, 7, 2015, pp. 26-36.
- [73] E. Goh, Walking Off-Trail in National Parks: Monkey See Monkey Do, Leisure Sciences, DOI: 10.1080/01490400.2020.1755750, 2020.
- [74] K. Kołodziejczyk, The negative impact of hiking on the mountain environment the position of Polish scientists in comparison to the global literature, Folia Turistica, 55, 2020, pp. 85-115. <u>https://orcid.org/10.5604/01.3001.0014.2420.</u>

Received: April 20, 2022 Accepted: May 12, 2023

## Appendix 1

# The importance of flora in the perception of the tourist destination attractiveness of Ojców National Park

#### 1. What is the purpose of your visit to Ojców National Park? a. rest. relaxation f. getting to know the area, sightseeing g. being in the great outdoors b. hiking c. caves h. leaving the city d. cycling i. getting away with a loved one e. other sports and recreational activities j. other, which ..... 2. What do you particularly notice in the Ojców National Park? a. monuments g. shrubs b. architecture h. herbaceous plants i. infrastructure c. topography d. geological assets j. people e. caves k. other, which? ..... f trees 3. Which plant life forms attract your attention the most? a. trees b. shrubs c. herbaceous plants d. all of aforementioned 4. Which parts of the plants attract your attention the most? a. flowers b. fruit c leaves d. stems of herbaceous plants and tree trunks 5. What impressions do you take home from Ojców National Park? a. admiration of monuments and architecture d. admiration of the landscape b. admiration of vegetation e. nothing amazed me c. admiration of animals (fauna) f. other, which? ..... 6. What is the significance of the flora of Ojców National Park for you? a. it is the most important b. it is important c. it is neutral d. it is insignificant e. it is irrelevant 7. If you were to establish a hierarchy of attractions, please number the following in order: a. monuments and cultural attractions b. terrain and geology c. watercourses d. flora e. fauna f. tourist facilities 8. What, in your opinion, threatens the nature of Ojców National Park the most? a. destroying plants, picking fruit and fungi b. capturing and scaring animals c. littering d. going off the trail e. practicing rock climbing Imprint Nationality ...... Country and region appropriate! Sex..... Age (up to 25; 26-45, 46-65, 66 and more) underline as appropriate! Education (primary/vocational/secondary/higher) underline as appropriate! Occupational group (physical labourer, white-collar worker, artist, farmer, unemployed person, pupil/student) underline as appropriate!

Thank you for completing the survey and we wish you a pleasant stay in Ojców National Park.