

VISITOR MONITORING AND IDENTIFICATION OF THE BENEFITS OF PODYJÍ NATIONAL PARK FOR REGIONAL DEVELOPMENT

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Abstract

Tourism plays a crucial role in regional development, particularly in peripheral regions with limited economic alternatives and higher unemployment rates. The COVID-19 pandemic, subsequent inflation, and rising energy prices have significantly impacted the tourism sector. This study focuses on the effects of these crises on the tourism industry in the Podyjí National Park, a protected area in the Czech Republic. It highlights changes in cross-border cooperation, the resilience of local entrepreneurs, and their ability to adapt to crises. Using a combination of visitor-monitoring methods, including automatic counters, surveys, GIS, and interviews with service providers, the research evaluates the economic, environmental, and social impacts of tourism in the region. The results show that Podyjí National Park serves as a tourism magnet, contributing to regional economic development by supporting local businesses and attracting investment. At the same time, it emphasizes the need for a balanced approach between tourism growth and nature conservation, ensuring the park's long-term sustainability. The findings offer valuable insights for park management and for the sustainable development of tourism in protected areas.

Keywords: Podyjí National Park, Visitor Monitoring, Sustainable Tourism, Regional Development, Indicators

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Introduction

Tourism is one of the key factors in regional development, especially in peripheral regions with limited economic activity alternatives, leading to higher unemployment. The COVID-19 pandemic, subsequent inflation, and rising energy prices have had a significant impact on the tourism sector. Šindelář (2023) shows that there have been substantial changes in cross-border cooperation in border regions such as Podyjí/Thayatal. Research in the region also focuses on the resilience of entrepreneurs and their ability to adapt to crises. Residents often assess the contribution of national parks in terms of quality of life and business opportunities in accommodation and food services. The role of tourism in the post-COVID period is also emphasized by But (2024) in his analysis of the competitiveness of Czech regions. However, in protected areas like the Podyjí National Park, it is necessary to carefully balance its benefits with environmental limits. One of the fundamental management tools that allows tracking visitor numbers, behaviour, and impacts on nature and local communities is visitor monitoring (Kaprová *et al.*, 2017). For Podyjí National Park, which is unique both in size (the smallest national park in the Czech Republic) and ecological and cultural value, data on the intensity and spatial distribution of visitors are crucial for formulating an effective management strategy. Visitor monitoring allows for the identification of spatial concentrations of visitors, the analysis of temporal trends, and the evaluation of the impacts of tourism activities on the natural environment. Systematic monitoring of visitors helps better understand visitor behaviour, identify stressed locations, and propose measures that contribute to the long-term sustainability of tourism in Podyjí National Park.

Visitor Monitoring

Sustainable tourism is defined as development that considers environmental, economic, and social aspects and maintains a balance between nature conservation and human needs. Among the international frameworks addressing this issue, the Limits of Acceptable Change (LAC) is worth mentioning, which defines environmental carrying capacity using indicators and threshold values (Stankey *et al.*, 1985). In the USA, the Visitor Use Management Framework (IVUMC) is used to establish desired conditions, indicators, and action

thresholds (IVUMC, 2019). The global framework for visitor management in protected areas is provided by the IUCN Guidelines, emphasizing adaptive management and public participation (Leung *et al.*, 2018).

Methods of Monitoring

One of the basic paths to sustainability is properly set-up visitor management (Czechtourism, 2025). In protected areas, visitor monitoring plays a key role, providing data for planning and management (Zelenka *et al.*, 2013). Visitor monitoring includes data collection on the number of visitors, their motivations, movement paths, temporal distribution, and satisfaction. Visitor monitoring in protected areas, including Podyjí National Park, uses a combination of methods that provide a reliable and comprehensive picture of visitor behaviour:

- Automatic counters installed on tourist trails and entry points, providing continuous data on visitor passage over time. The advantage is long-term monitoring with high temporal accuracy, while the disadvantage is the inability to distinguish groups based on sociodemographic characteristics (Pettebone *et al.*, 2010).
- Surveys and interviews focus on motivations, preferences, and visitor satisfaction, providing information on the sociodemographic profile, length of stay, and activities, and also track visitors not captured by counters (e.g., in less-frequented areas).
- Geographic Information Systems (GIS) serve spatial analysis of visitor movement, identifying stressed locations and visualizing spatial patterns of visitation. Combined with other data (e.g., on erosion processes, ecosystem sensitivity), they provide a tool for predicting potential impacts.
- Observations and manual counting are used primarily for short-term supplementary surveys, providing more detailed information, such as visitor behaviour in specific situations (Muhar *et al.*, 2002).

Combining these methods allows for the collection of both quantitative (number of visitors, temporal distribution) and qualitative (motivations, preferences, spatial behaviour) data.

Economic Effects of Tourism

Tourism in protected areas can generate both direct income from visitor services (admission fees, guiding services, parking) and indirect effects on the local economy (accommodation, food, transportation, souvenirs). Over the long term, benefits associated with branding, marketing, and investments in infrastructure may also emerge. Studies by Stemberk *et al.* (2018) show that a larger park management budget and high-quality services positively influence the number of visitors. Conversely, a larger number of employees (without adequate funding or infrastructure) may sometimes correlate with more complicated management, which could complicate visitation. Good access, signage, parking areas, and service offerings (accommodation, dining) increase attractiveness. Border areas often benefit from cross-border cooperation and transport connectivity. A park as a brand (= branding) offers advantages such as facilitating financing, attracting visitors, and enhancing regional visibility.

Benefits for Regional Development

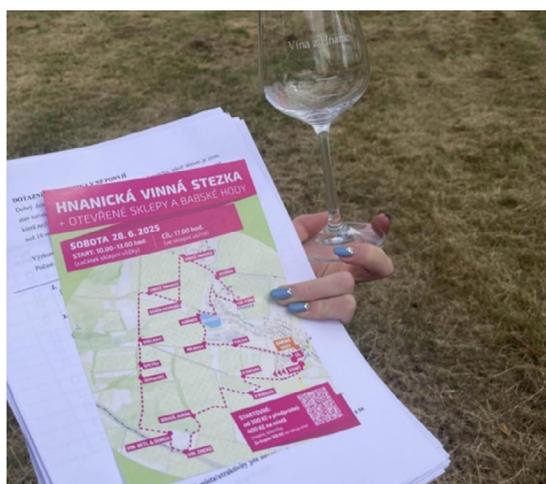
A national park serves as a magnet for tourism and creates space for business development in accommodation, gastronomy, and recreational services. Tourist visitation stimulates the local economy through increased visitor spending, which leads to job creation and supports small entrepreneurs. The presence of a national park also attracts investments in transportation and technical infrastructure, thereby increasing the overall competitiveness of the region (Cihar, 2006).

From a social and cultural perspective, a national park raises local awareness of the value of nature, supports cultural traditions, and enhances the quality of life. In terms of nature protection, regular monitoring helps identify pressures (erosion, vegetation degradation, problematic movement), enabling appropriate interventions. This helps maintain the ecological value of the area, which forms the basis for its tourist appeal.

Methodology

The aim of the monitoring is to repeatedly survey the visitation of Podyjí National Park. The first survey took place in 2019, before the COVID-19 pandemic and the energy crisis. The research project follows the classic four stages of statistical investigation: data collection – data processing – data analysis – presentation of results. The main data source will be primary data obtained through a quantitative research method (survey) and a qualitative research technique (structured interview).

The main part of the survey took place in the summer of 2025, with face-to-face questionnaires containing questions assessing visitor satisfaction, their main routes, frequency of visits, accommodation costs, dining costs, and other expenses, as well as demographic information. The survey was conducted at various locations within the park, one of which was the Hnanice Wine Trail, which annually attracts many visitors (Fig. 1). The survey has been completed with 309 fully filled-out questionnaires, and the results have been partially processed for this contribution. Descriptive statistics and frequency distribution tables have been used for the data analysis. Later, correlations between survey questions will be tested using Pearson's chi-square test. A comparison of results from 2019 and 2025 will also be made, and these results will be published subsequently.



1: Survey Process
Source: Author's archive (2025)

The second part of the survey, structured interviews with randomly selected providers of accommodation and food services, is still ongoing due to the busy season. Service providers are being asked about the impact of the national park and its visitors on their business, as well as the effects of COVID-19, inflation, and the energy crisis on their revenue. The questionnaire and interviews also include questions on economic data, from which necessary overviews of the economic impact of Podyjí National Park on the Znojmo region will be obtained.

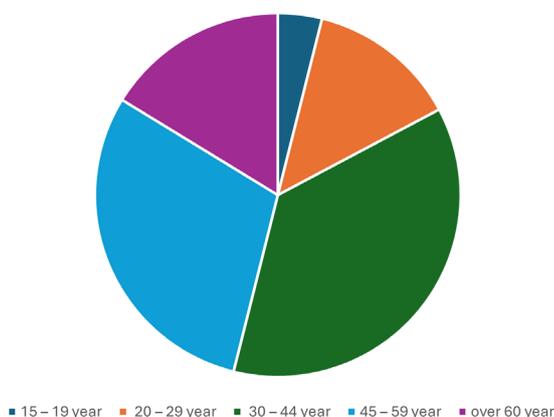
All processed data will be available to the management of Podyjí National Park, which has shown interest in participating in the research. Another cooperating party is the Partnerství Foundation, which supports environmentally sustainable development of the area. The foundation provides secondary quantitative data on visitor movement obtained through installed automatic counters, which will be integrated into the overall data processing.

Data from the completed questionnaires were edited into an Excel database, pre-processed, and further calculations are carried out in Statistica 14. Data retention follows the internal data management rules of Mendel University.

The monitoring methodology follows the methodology for socio-economic assessment of protected areas by Braun Kohlová *et al.* (2017). Alternatively, the BOKU methodology used for assessing socio-economic benefits in the Šumava National Park / Bavarian Forest can be applied.

Results

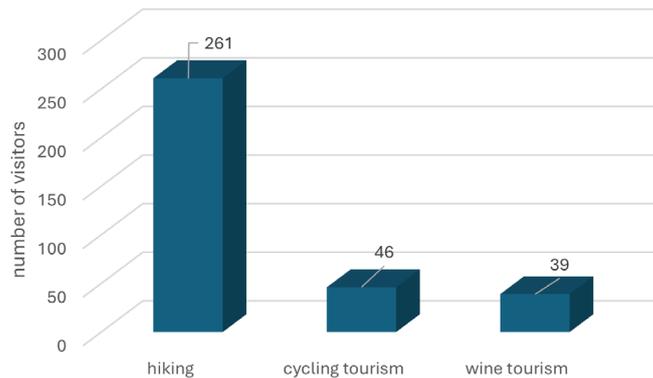
In the first part of the survey, the questionnaire survey among visitors to Podyjí National Park, 309 fully completed questionnaires were collected. The survey was conducted in the locations of Čížov, Gránické údolí, Hnanice, Šobes, Vranov nad Dyjí, and Hardegg.



2: Respondents by Age
Source: Author's processing, 2025

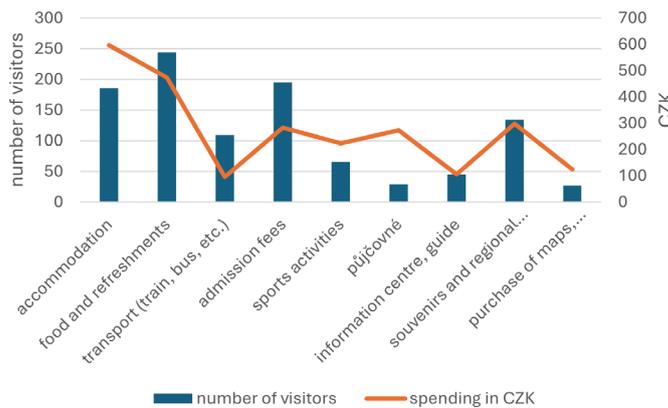
The survey involved 169 women and 139 men. The most frequent participants were visitors aged 30–44 years (see Fig. 2). Respondents primarily had secondary education (53.4%), followed by higher education (42%), and just under 4% had basic education. Eight percent of respondents were foreign tourists, with the majority being from the Czech Republic.

Respondents most often came from small towns with populations up to 3,000 (28%), while 27.8% came from large cities with populations over 100,000. Eighty-four respondents visited the national park for the first time, while 222 respondents had visited it multiple times. Most respondents plan to visit the park again, with only 2 respondents indicating they would not. For 42% of respondents, it was important that



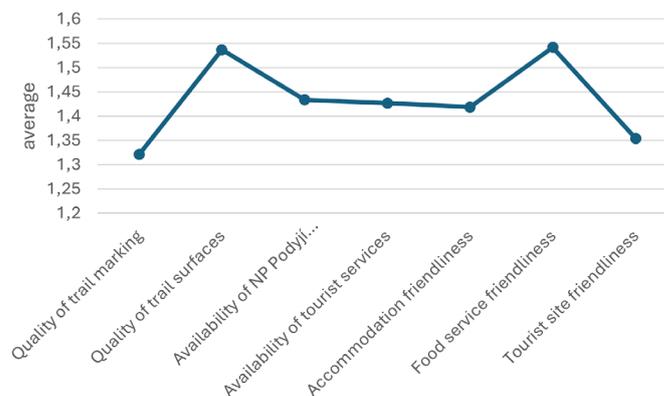
3: Most Frequent Activities

Source: Author's processing, 2025



4: Services Used and Average Spending on Them

Source: Author's processing, 2025



5: Visitor Satisfaction with Characteristics

Source: Author's processing, 2025

the location is a national park. Visitors were most often informed and motivated to visit by friends (156) or the internet (144).

Visitors most frequently came with their partner (150), followed by family (99) or friends (99), with only 15 respondents visiting alone, and one for work purposes.

As shown in Fig. 3, the most common activity in Podyjí National Park is hiking. Visitors most frequently arrived by car.

Most respondents used dining and refreshment services, followed by entrance fees to tourist sites, cultural and entertainment venues, and accommodation. Visitors often spent money on souvenirs from Podyjí National Park (Fig. 4). Regarding average daily spending per visitor, the order changed due to service prices. Visitors spent the most on accommodation, followed by food.

When staying overnight, most tourists used guesthouses (or hostels), followed by hotels and then campsites. Among those who stayed overnight, most preferred staying for 2 nights. Of the respondents staying overnight, 55% did not use dining services, while 32% opted for breakfast (usually included with accommodation).

Fig. 5 shows the average satisfaction score for the listed characteristics, with 1 being very good and 5 being very poor. Visitors were generally very satisfied with the offered characteristics of Podyjí National Park. The highest satisfaction was with the quality of trail signage, for which the Czech Republic is well known. The second-highest rating was for the preparedness and friendliness of tourist sites towards visitors. The lowest rating (still good) was for the preparedness and friendliness of food services for tourists. In the area of refreshments, service providers could improve.

Based on the conducted research, the typical visitor to Podyjí National Park is a Czech woman in her forties with secondary education from a small town, who repeatedly visited the park by car on the recommendation of friends, and went hiking with a partner.

Discussion and Conclusion

Tourism in Podyjí National Park plays a vital role in regional development, contributing to both the local economy and the broader tourism sector. The park has demonstrated resilience in the face of crises such as the COVID-19 pandemic, inflation, and rising energy prices. However, the research highlights key areas where improvements are needed to ensure both sustainability and an enhanced visitor experience.

First, based on open-ended responses from visitors, there is a need to improve the responsiveness and preparedness of food services in the park. Visitors reported dissatisfaction with the high prices in dining, accommodation, and tourist facilities, which could potentially deter future visitation. Additionally, the separation of hiking and cycling trails is a frequent suggestion, as the mixed use of paths may create safety concerns and reduce the quality of experience for both groups. Another key recommendation is the extension of the tourist season, allowing the park to better accommodate visitors and optimise its economic impact throughout the year. Addressing language barriers at tourist sites, particularly for foreign visitors, would also contribute to a more inclusive experience. On the other hand, visitors expressed high satisfaction with several aspects of the park. The natural beauty, tranquillity, and cleanliness of the park stood out as major positive factors. Additionally, the friendliness of residents, as well as the availability of accommodation and food services, were frequently mentioned. The presence of stroller-friendly trails also received praise, indicating that the park is accessible to a wide range of visitors, including families with young children.

To further enhance the park's potential as a sustainable tourism destination, it is crucial that management focus on addressing these issues. By improving the quality of services, expanding the tourist season, and enhancing infrastructure to better accommodate both visitors and nature, Podyjí National Park can continue to thrive as a natural and economic resource for the region. The findings of this study highlight the importance of adaptive management in balancing visitor needs with conservation goals, ensuring that the park remains both an attractive destination and a protected area for future generations.

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