Monitoring System of Tourist Traffic (MSTT) in Stołowe Mts. National Park in SW Poland

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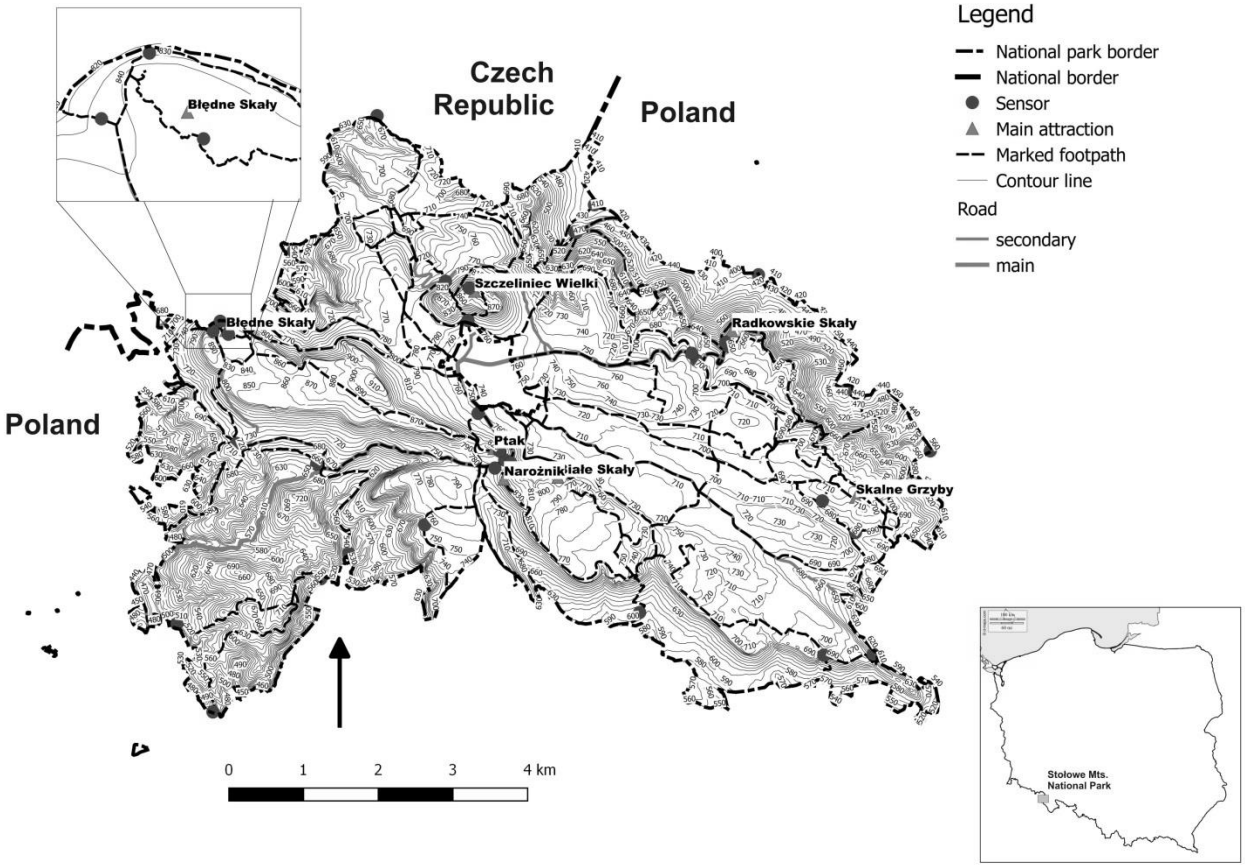
The Stołowe Mts. National Park (SMNP) is located in the Sudetes Mts. in South-West Poland, on the border with the Czech Republic. The total area of the SMNP is 6,340 ha and there are around 100 km of marked hiking trails. Until recently, statistics on the number of visitors in the SMNP were inaccurate and based exclusively on the sale of park entrance fees. Thus the volume of tourist traffic was estimated at the level of ca. 450 thousand visitors annually.



Map 1. Location of Stołowe Mts. National Park and sensors within

Methods

The Monitoring System of Tourist Traffic (MSTT) in the SMNP consisted of the following specific objectives: 1) Qualitative monitoring using questionnaire-based data collection of visitors' motivations and preferences; 2) Quantitative monitoring using 38

infrared sensors ("Eco-counters") to count tourist traffic at the entrances of marked hiking trails within the SMNP border. The majority of sensors were installed at the most popular areas within the SMNP, namely at the "rock-cities" of Szczeliniec Wielki and Błędne Skały. The automatic counts of visitors were performed in 2017, and these data were aggregated into daily, monthly and annual reports, taking into account the direction of the visitors traffic on the studied hiking trails, i.e., entries only (IN), exits only (OUT) and total passings (IN+OUT).

Results

In 2017 there were 847,500 visitors recorded totally (entries only) in the entire SMNP. The highest number of visitors were observed in the summer months (July = 190,600 and August = 189,900), which accounted for 45% of the total number of annual visitors in SMNP (Fig. 1). In May and June there were 163,200 (i.e., 19% of annual visitors number) and 130,900 (i.e., 15%) total visitors recorded respectively.

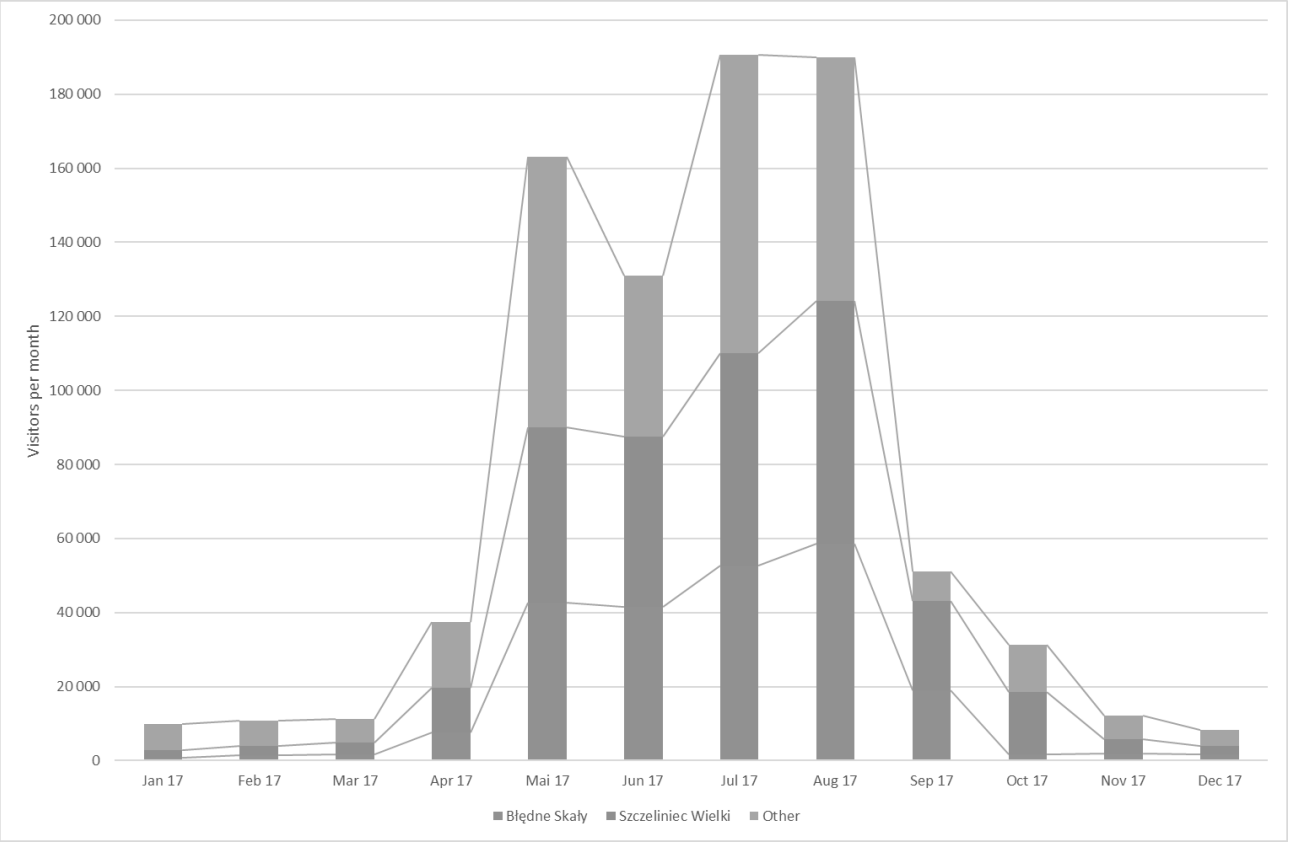


Fig. 1. Monthly distribution of visitors in the Stołowe Mts. National Park (SMNP) in 2017

Seasonal variability of total number of visitors' entries in SMNP allowed delimitation of the tourism season into three periods, i.e., high, medium, and low tourist season. High tourist season was established from May to August. Medium tourist season was established for September, October and April with about 40,000 visitors per month. Low season was represented by the period from November to March with approximately 10,000 visitors per month. Daily numbers of visitors varied substantially. The maximum daily number of visitors exceeded 10,000 on: the 18th of July (14,700), the 1st of May (13,100), the 2 of May (13,100),

the 14 of August (12,200), the 13th of August (11,200), the 15th of August (10,500) and the 15 of June (10,000).

Spatial concentration of the highest tourist traffic was related to the main tourists' attractions in the SMNP. Approximately half of the total visitors' counts were recorded at the summit of Szczeliniec Wielki and the area of Błędne Skały. The number of visits recorded in those two locations was 283,200 and 231,200, respectively in the chosen period. Other attractions within the SMNP borders were less visited: i.e., Narożnik summit (18,700), Radkowskie Skały area (15,200) and Karol's Fort (8,600). The number of visitors' counts compared between the sensors from different locations allowed a spatial calculation of the visitors' frequency in certain areas of the SMNP. The data from the infrared sensors was verified by ticket sales and direct counting. The estimated error is about 10-15%.

The questionnaire survey was conducted within the two most visited spots in the SMNP, namely in the area of Szczeliniec Wielki and Błędne Skały. The survey was conducted in 2015 and 2016, where 998 questionnaires were completed and summarized. The first results revealed relationships between tourist motivations and visit durations in the SMNP, in association with their place of residence. Leisure tourism was the primary motivation to visit the Park for all respondents. Visitors arrived to SMNP from remote regions and stayed in the Park on average from 4 to 7 days. Secondary motivation to visit the Park was to admire the wilderness and pursue active tourism. Tourists visited the SMNP most frequently in the summer (68%) and in spring (37%). This result was confirmed via qualitative monitoring by means of pyro-electric counters.

Conclusions

The Monitoring System of Tourist Traffic (MSTT) developed in the SMNP enabled multidimensional analysis of tourist traffic in that protected area. Additionally, the MSTT became a significant tool in the tourism management in the national park. The main conclusions from the projects are:

- Tourist traffic in the SMNP is characterized by high temporal and spatial variability, including high short-term variations that exceed tourist capacity index;
- Visitors in the SMNP can be divided into three groups: 1) single visitors (20-30 years old) whose main focus while visiting the Park is wilderness, and for whom accommodation location is more important than its standard of quality. The members of this group value high flexibility in planning outdoor trips; 2) families with children whose main focus is "familiary" accommodation, including family-friendly facilities and entertainment; 3) the seniors, who value the comfort and the convenient location and facilities at their accommodation. The main aim of recreation for this group is to rest, take care of their health (motivations related to health treatments and prophylaxis).

Follow-up

The results of the questionnaire survey will be used to prepare recommendations for local tour operators and policy makers in order to create a more suitable tourist offer in the SMNP and its vicinity. Further work using the results of qualitative monitoring conducted by means of the pyro-electric counters will lead to creation of the SMNP visitors' model that will help in forecasting the visitors flows and tourist traffic in the Park. Additionally, the model could

be useful for estimation of illegal dispersion of tourists outside the marked trails within the SMNP.

Acknowledgements

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