

Monitoring and management of visitors on Pohorje Mountain active raised bogs (Slovenia)

Jurij Gulič, Institute of the Republic of Slovenia for Nature Conservation, Slovenia, jurij.gulic@zrsvn.si

Sebastjan Štruc, Institute of the Republic of Slovenia for Nature Conservation, Slovenia

Nika Debeljak Šabec, Institute of the Republic of Slovenia for Nature Conservation, Slovenia

Slovenia is due to its picturesque nature and unique natural resources identified as a country with great potential for the development of green, responsible tourism. Protected areas offer visitors to experience nature qualitatively; at the same time tourism and recreation increasingly affect these areas. Preserved natural areas attract people, so visits to these sites are becoming more frequent and numerous. It is in most cases impossible to leave these areas to nature conservation only; therefore it is necessary to actively regulate visits or guide the visitors away from the most preserved natural areas to areas which are less sensitive and less valuable from the point of nature conservation importance. It is the role of the site manager to properly arrange possible visits to the vulnerable nature areas with suitable infrastructure (notice, information, channelling/redirecting, warning boards) and in addition attracting visitors to less vulnerable areas in nature. Suitable infrastructure also raises awareness and environmentally educates visitors to such an extent that they feel obliged to respect the rules of behaviour in the natural environment.

Research into movement of visitors is essential if we want to design the infrastructure so that it regulates visitors' activities in a way that minimizes its effect on nature but at the same time still preserves the attractiveness. Data gathered from the field (recording with counters, observation of visitors, etc.) should be meaningfully incorporated in the planning of visitors channelling (construction of new trails, the relevant information and interpretational infrastructure, construction of classrooms in nature, etc).

When monitoring visits, it is necessary to use both qualitative and quantitative methods, since only a combination of both gives good information about the visits in a given area, which is monitored. Data gathered from monitoring of visits to protected areas are an important basis for communication with stakeholders in the areas with high nature value (tourist companies, foresters, agrarians, nature conservationists, hiking clubs) and help facilitate coordination of various activities in the area. Harmonization of activities in a given area requires considerable coordination, time and patience, but it is essential for successful implementation of planned activities.

This paper deals with the monitoring of visitors in protected wetlands on Pohorje Mountain range (Slovenia) and presents implemented activities dealing with visitor management in the area. Activities were carried out through the project WETMAN - Conservation and Management of Freshwater Wetlands and Slovenia (LIFE + Nature; LIFE09 NAT/SI/00374; Y2011-2015). Wetlands are one of the most endangered habitats in Slovenia, providing ecosystem, cultural, touristic and aesthetic services for both nature and people. The aim of the project was the restoration and improvement of the conservation status of six Slovenian wetlands, which include the Pohorje bogs. Visitors monitoring and assessment of their behaviour in the area of wetlands in

Pohorje was the basis for the planning of construction of hiking infrastructure in the area of Pohorje wetlands.

The three target wetlands lie within the Pohorje forest reserves and are included in the Natura 2000 ecological network (SCI 3000270 Pohorje, Pohorje SPA 5000006). Areas are popular tourist points and are accessed by hiking trails. Most of the hiking trails have improper signage and individual parts are poorly maintained. In the initial phase the inventory of the state of the infrastructure was carried out (state of: the trail, route marker, information, notification and directional signs and objects). For the purposes of reconstruction of the tourist infrastructure and designing the channelling of visitors in the areas we monitored visitors through qualitative and quantitative method in a period of 1. 10. 2011 – 30. 9. 2013. Counting of visitors is being carried out by means of electronic infra-red sensors (PIR) from the 1st of October 2011 onwards. Sensors were installed at entry points on three active raised bogs (Ribniško barje bogs, Lovrenško barje bog and Črno jezero bog). Two-year monitoring showed that the areas are visited by over 53,000 visitors per year. In the four periods of the year, a visit was distributed as follows: 4% of visitors during the period from 01.01. - 31.03, 28% between 01.04. and 30.06, 57% between 01.07. and 30.09., and 11% of visitors in the period 01.10. till 31.12. The highest visitation was in August (30% of total annual visits), which is expected since this is vacations' time. A maximum daily and hourly visit to all three areas was detected during weekends and holidays. The peaks were reported in the month of August and during Labour Day holidays. The majority of visitors throughout the day are classified between 11 and 14 hours. The qualitative method gave us the patterns of retention of visitors on the areas as well as the structure of the visitors (groups, families and individuals). The structure of the data showed that existing infrastructure is needed to be comprehensively regulated and adjusted according to the patterns of visitors' movements. The information infrastructure was established before entering wetland areas, which include signalling and routing content. Existing old wooden pathways were replaced and upgraded with elements of the circular path using local natural materials with low carbon footprint. A total of 2000 meters of wooden paths were reconstructed and a watching tower renovated. Parallel, a new wooden footpath was put into use, with a purpose to shift visiting from natural sensitive bogs to a less sensitive one. By properly setting up infrastructure, which serves limiting the negative consequences of visitors' activities on the natural environment the area got recognizable facilities. These are now used also for the implementation of environmental education and provide visitors a better understanding of the area and emphasize the importance of preserving high conservation value areas (HCVA).

Picture: A case of new environmental infrastructure on active raised bogs of Pohorje (Slovenia)



References

Project WETMAN (2011-2015). Conservation and Management of Freshwater Wetlands in Slovenia. LIFE+ nature. LIFE09 NAT/SI/00374. URL: <http://www.wetman.si/?lang=en>. Accessed 31 March 2014.

Farrell T. A., J. L. Marion (2002). The Protected Area Visitor Impact Management (PAVIM) Framework: A Simplified Process for Making Management Decisions. *V: Journal of Sustainable Tourism*, 10 (1), 31-51.

Eagles P. F. J., S. F. McCool, C. D. Haynes (2002). *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. IUCN Gland, Switzerland and Cambridge, UK.

Baldauf, M. et al. (2011). *Infrastruktura za doživljanje in spoznavanje narave: smernice za inovativno načrtovanje / Infrastruktur zur Naturvermittlung (Empfehlungen für innovative Planung)*. Triglav National park. Bled. 103 p.p.