Researches Reviews of the Department of Geography, Tourism and Hotel Management
43-1/2014

Original scientific paper UDC 338.48:502.72(497.113)

POSITIVE AND NEGATIVE INFLUENCES OF THE TOURIST ECOPATHS IN SPECIAL NATURE RESERVE "SELEVENJSKE PUSTARE"

Biljana Govorušić[I], *Jovan Plavša*[I], *Tamara Višnić*[I]

Received: June 12, 2013 | Accepted: December 8, 2013

ABSTRACT: *Special Nature Reserve „Selevenjske pustare" is located between Backi Vinogradi and Horgos, 23km northeast from Subotica and is protected since 1997. This Reserve, with an area 677,03 ha, is consisted of 10 different areas. Ecotourism represents the most important form of tourism in the area. Ecotourism in the Special Nature Reserve „Selevenjske pustare" is based on various elements: natural resources, ecological benefits, ethnographic heritage, archaeological sites, geographical advantages.*

Through the ecopaths, visitors can enjoy and make contact with nature. Ecopaths are designed with tourist infrastructure and complemented by educational and promotional activities in the protected area. There are two ecopaths in Selevenjske pustare: Selevenjska Forest and Lofej - North. Tourism also brings adverse effects on the environment, and therefore it must be restricted in accordance with the possibilities of the Reserve. Sustaining capacity can help in determining the boundaries of tourism growth, and according to EU standards the sustaining capacity of the Reserve is 50 visitors per day.

Key words: *Selevenjske pustare, sustaining capacity, ecopaths, positive influences, negative influences*

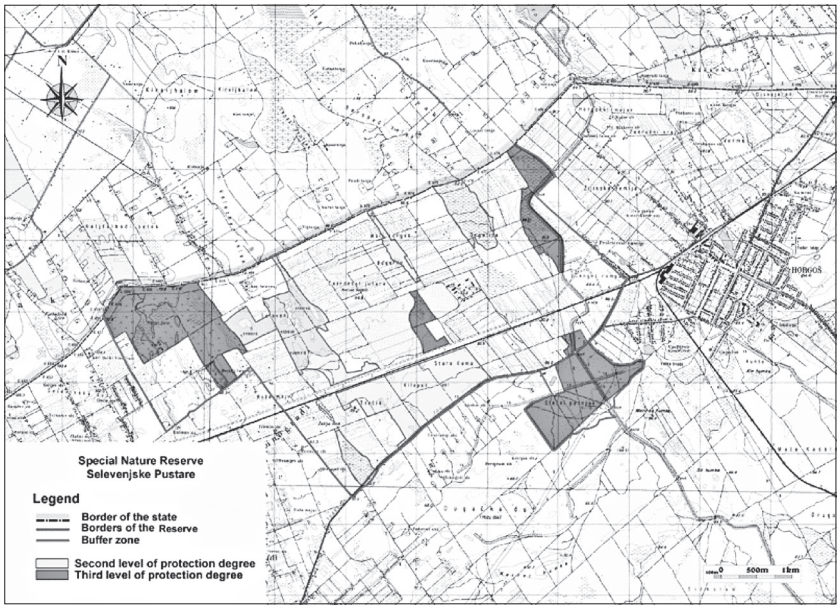
INTRODUCTION

Special Nature Reserve „Selevenjske pustare" is located on the north of Serbia, near the Hungarian border, 23 km east from Subotica and 22 km northwest from Kanjiža (Map 1). Reserve is made up of 10 separate areas.

The Reserve encompass the most valuable areas of Subotičko-horgoška sands (Map 2). Subunits of the Reserve are: Volujski pasture, Degelica, Bogarzo, Templompart, Selevenjska forest, Lofej, Traćik, Kilapoš, Stočni pasture and Čengeš ramp. Geographic cordinates of the central point of the Reserve are Nφ 46°08'37" and Eλ 19°53'37" (Miličić et al., 2002).

[I] University of Novi Sad, Faculty of Sciences, Department of Geography, Tourism and Hotel Management email: biljana.govorusic@gmail.com

Map 1. Geographic position of SNR "Selevenjske pustare" in Vojvodina
(source: http://upload.wikimedia.org/wikipedia/commons/a/a4/Vojvodina_karta.png - modifed)



Map 2. Geographic position of SNR"Selevenjske pustare"
(Source: Management Plan of Special Nature Reserve ''Selevenjske pustare'' for the period 2012-2021)

The name „Selevenjske pustare" was unknown until 1992, when it was mentioned for the first time in the document about the previous protecton of the area. In 1997, this area has been pronounced as Special Nature Reserve by the Regulation of the Goverment of the Republic of Serbia (Butorac et al., 2002).

Protected area is devided into two zones (2nd and 3rd level of protection). 1st level of protection is planned to be endangered so the rare species could be protected from the negative influences.

The total area of the Reserve is 1850 ha (with the buffer zone). Under the 1st level of protection there are 60 places, which represent habitats of specific, unique, endemic and endangered species with total area of about 12 ha. 2nd level of protection covers an area of 292,358 ha, and the 3rd level covers 372,66 ha. Major areas of the Reserve are in the public property (79,13%), while the rest of the Reserve includes private owners lands (Management Plan of Special Nature Reserve „Selevenjske pustare" for the period 2012-2021).

According to the IUCN, Special Nature Reserve belongs to the IV category of protection marked as „Habitat and Species Management Area" (Butorac et al., 2002).

The Reserve has a great wealth of the biodiversity, due to its location at the contact of Backa loess plateau and Subotičko-Horgoška sands. In genetic terms, Subotičko-Horgoška sands represent the entirety which is formed by deposition of sand over loess. As a reflection of the specific relief forms with an average annual rainfall of 540 mm and the slightly saline ground water located very close to the surface, the occurrence of complex plant communities is often caused (Tomić et al., 2004).

Selevenjske pustare is mostly covered by steppe vegatation, and the habitats are open, warm and dry as a reflection of ecological occasions on the contact of loess and sand. Unstable sandstone vegetation gradually became the steppe vegetation with specific fea-

Picture 1. Info panel in the Special Nature Reserve ''Selevenjske pustare''
(photo: B. Jurić)

tures (Butorac et al., 2002). Besides the grass and saline vegetation, there is Selevenjska forest as the only part of the Reserve that is covered by forest vegetation planted in the 19th century (Butorac et al., 1993).

The Reserve posses great floristic values, especial orhids and irises. 22 species are protected and 14 of them are considered endangered by international standards. Important species are: pond frog, sandstone lizard, and a large variety of birds. Some of these species, such as wild flowers, could be found in the Red Book of Serbia, which means that Selevenjske pustare is their only habitat in Serbia. These species are extraordinary examples of sensitive ecosystems in Panonian Basin. It can be concluded that SNR „Selevenjske pustare" posseses great values and it is necessary to implement appropriate measures for its protection (Local Ecological Plan of Actions, 2003).

This area belongs to the artificialy regulated regime of underwater of Horgoško-Martonoški march. On the east side, there is main Horgoš-Martonoš canal, dug in 1960's.

Besides this canal, there are a numerous smaller depresions that provide water for the canals (Management Plan of Special Nature Reserve ''Selevenjske pustare'' for the period 2012-2021).

TOURISM DEVELOPMENT OPPORTUNITIES IN SPECIAL NATURE RESERVE „SELEVENJSKE PUSTARE"

The original character of the landscape posseses cultural, educational, environmental and tourist importance, with special emphasis on biodiversity and sustainable development at local and regional level which is reflected in the representation and uniqueness of the landscape (Tomić et al., 2004).

Ecotourism with all its component parts, represents the most important form of tourism in this area. In 1970's, scientist have warned the public about the degradation of our environment (Stojanović, 2011).

The traffic development and increased fund of free time created the conditions for the expansion of mass tourism. Due to the intense tourist exploitation, the protected areas have been devastated, and negative impacts are reflected in the pollution of natural resources (Čordaš, 2006).

The solution to this problem is seen in ecotourism, where the income from the tourist exploitation of natural resources finances the conservation of nature.

IUCN (International Union for Nature and Natural Resource) defines ecotourism as: „Ecotourism is travel in protected and unspoiled natural areas by a large group of people who are aware of the responsibility and the importance of nature." This awareness, however, does not preclude the group to enjoy in nature or cultural values.

The conservation and sustainable use of natural resources is a prerequisite of long-term development of ecotourism at local and global levels (Bulatovic, 2011).

Natural resource exploitation regime is determined by the guardian of the property. In the case of the Special Nature Reserve „Selevenjske pustare", , the guardian is Palic-Ludaš.

The Reserve has great importance in the protection of natural resources, in the preservation of different types of vegetation as well as a number of communities associated with sandstone and steppe habitats.

Ecotourism in this area could involve controlled visits in organized groups with a professional tour guide. In order to avoid disruption of natural harmony, the access to certain areas of the Reserve would be limited in time and space (Management Plan of Special Nature Reserve „Selevenjske pustare" for the period 2012-2021).

The main motive of the stimulation of ecotourism development activities in the Rreserve are less known biogeographic values, whose introduction would increase awareness of the need for careful protection of these sites.

Ecotourism in the Special Nature Reserve „Selevenjske wasteland" is based on various elements such as: natural resources (forests, forest clearings, various types of pastures and meadows, salt marshes and wetlands), the ecological benefits (wealth of natural scarcity, partly preserved areas), ethnographic heritage (rich heritage, livestock, customs and culture), archaeological sites (excavations at Templompart), geographical advantages (close to the cities, transport capabilities, diversity of landscapes , close to the Hungarian border and to the Corridor 10).

When it comes to promotion the values of the protected area, it refers to the presentation, education and recreational activities.

Activities related to the promotion of protected areas include collaboration with the media, as well as the production of the promotional materials, brochures and maps.

Educational activities will be based primarily on the natural and cultural heritage of the area and will be implemented through a variety of events, workshops and camps in the Visitors Center Ludaš.

Picture 2. Remains of the church Templompart
(Photo: L. Lazić)

From early spring to late autumn, workshops for children from the various associations for the protection of nature have been organized by custodian „Palić-Ludaš" in the Special Nature Reserve „Selevenjske pustare". Workshops are generally closed for public, and participants are mainly children of Primary and Pre-schools, as well as from the various associations from Vojvodina and Hungary (http://www.ludas.rs/content.php?content_id=59).

Ecological camps have traditionally been held in this region for 26 years. Their main goal is to educate young people about nature and its protection, as well as to monitor the state of the bird world in wetlands. Most of the attention is paid to the bird ringing program. About 50000 birds have been ringed so far, and numerous data has been collected and a significant database has been provided.

There are currently three different types of camps:

- camp designed for ecologists,
- camps for children,
- volunteer camps.

The camp intended for ecologists gives the opportunity to the young ecologists to learn about Botany, Hydrobiology and General Ecology. The camp is organized during summer. The organizers of the camp are „Palic – Ludaš" and various other associations. The Visitors Center provides valuable lectures to the students who attend the camp.

Children's camps are held from mid-July to late August at Hajdukovo, at Sunjog Taverns. Children older than 12 years or younger children accompanied by parents can participate in these camps. Accommodation is organized in their own tents or bungalows. Nutrition is organized in Sunjog Tavern. There are two groups, ornithology and biology group. Group leaders are professionals experienced in managing children. They organize lectures in Serbian and Hungarian languages. The focus of this camp is placed on monitoring, education and protection of the Reserve. The aim of this camp is to gain a basic understanding of Ecology, Entomology, Ornithology and other biological disciplines. Marking the paths is one of the activities that is conducted to the eco camp (http://www.ludas.rs/content.php?content_id=59).

In the future, using all the benefits of the Cross-border Co-operation Programme, it is possible to include a greater percentage of the population in the protection of the Reserve, to educate them and show them the importance of having these types of habitats in their neighbourhood.

Activities that should be undertaken in the future should apply to preservation and protection of protected areas. It is necessary to encourage the development of ecotourism that is consistent with the nature.

By the Ministrial Protocole from 1997, the areas that were already protected in Subotica Municipality could be be declared as Cross-border area, together with Kireš River in Hungary. This area represents significant natural heritage of the Panonian Basin, but it is necessary to implement and increase the awareness of safety. In the next few years it is necessary to synhronize the activities with cross-border partner in order to improve the protection of the areas.

The Special Nature Reserve „Selevenjske pustare“ has governed two educational paths:

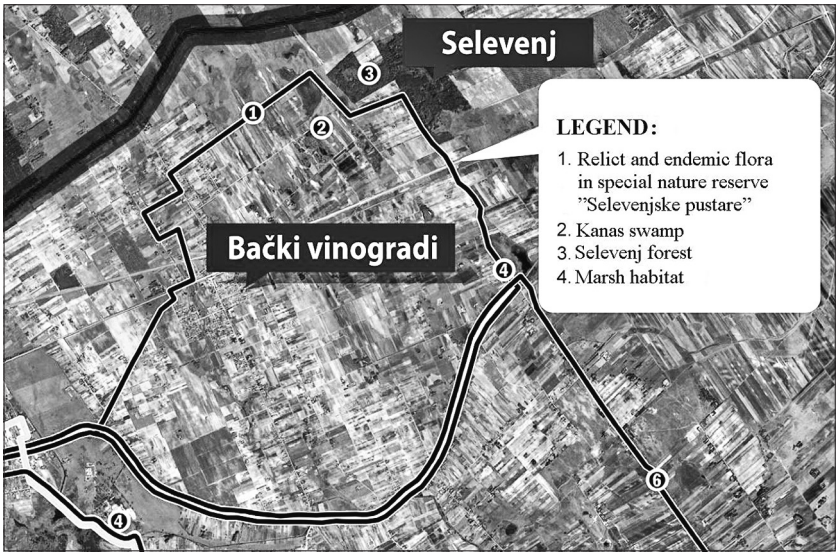
1. direction Selevenj forest
2. Lofej-north direction.

In addition to the promotion of the site, the activities brochures, guidebooks and maps, were published (Future Cross-border region Kireš - Visitor Ludaš center, 2006).

SIGNIFICANCE OF THE ECOPATHS IN PROMOTION OF ECOTOURISM IN SPECIAL NATURE RESERVE „SELEVENJSKE PUSTARE“

Ecopaths are specially marked paths in protected areas where movement is possible, without any threats to the existence of bio-geographical, geomorphological and soil elements. Through ecopaths protected area visitors can enjoy and make contact with nature (Stojanovic, 2011).

Ecopaths are designed with tourist infrastructure (paths, observation, infotables) and thus are complemented by educational and promotional activities. Paths should be tailored to different levels of physical activity and should be neither too long nor too short. Also, it is important that the information boards are customized for people who are not experts in the field of ecology, biology and other sciences. Information boards and other informational materials have to be designed to replace the need for a guide, as to create the same experience with visitors who visit the protected natural area individually, as well as those who come in groups with a guide.



Map 3. The map of the ''Selevenjska šuma'' ecopath
(Source: Park Palić, 2008)

Ecopaths are designed to carry visitors through the most interesting places in the Reserve, and they are enclosed by wooden beams that are embedded in the sand. Information boards are made of wood and blended into the surrounding landscape as well as the trash cans. The total length of the ecopaths is about 5 km.

Sand steppes, meadows and salt marshes give the seal to this section.

Path „Selevenj forest", with the total length of 3,8 km, starts from the parking lot at Templompart, near the highway, which is 13 km away from the Visitor Center near Lake Ludaš and it passes numerous endmic habitat types. The next stopping point is a Canas swamp, which offers beautiful views of the surrounding Reserve. This swamp, like most other swamps in this area, represents the memory of the former 1000 lakes in this area. Swamps are created in the Stanišić and Kereš river valleys.

The third stopping point in „Selevenjske forests" path is the only forest complex in the Reserve created by human influence in order to bind the quicksands which have caused major problems for farmers. Ecopath ends at the marsh habitat.

Information boards are placed to inform visitors about the flora and fauna of the Pannonian ecosystems - meadows, steppes, forests and sandstone, and are made of wood to fit into the surrounding landscape and the concept of sustainable development.

Positive and negative influences of tourist ecopaths in the SNR „Selevenjske pustare"

Using the ecopaths, visitors can learn about different types of habitats, as well as the problems in the field of environmental protection in Serbia. These ecopaths emphasize the importance of wetlands and their scientific importance. Ecopaths were mostly designed for biologists, geologists and ecologists, because that aspect of the research is not possible in other natural resources in the region.

Ecopaths in Special Nature Reserve „Selevenjske pustare" have many positive implications for the Reserve (Table 1). The most significant benefit of ecopaths is providing educational opportunities to all interested partners, in order to protect the natural landscape. Therefore, the use of educational paths for the purpose of tourism development leads to the certain financial income that could improve the protection and the locals will achieve a specific benefit.

Unfortunately, despite a numerous positive impacts, ecopaths in the Reserve have negative effects as well, which is primarily reflected in the fragmentation of habitats. Formation of the educational paths takes into account to prevent disruption of natural habitats, but it is more or less modified, so it has a negative impact on wildlife of the Reserve.

Noise caused by visitors has negative impact on wildlife, which is why some species are retreated to deeper and less accessible areas in the Reserve.

In order to prevent degradation, it is necessary to limit the number of visitors. However, in practice it often happens that the number of allowed visitors is exceeded, which emphasizes the negative impact on the nature of the Reserve.

Table 1. Influences of toruist ecopaths in SNR „Selevenjske pustare"

POSITIVE INFLUENCES	NEGATIVE INFLUENCES
Implementation of the project "Mirror"	Habitat fragmentation
Nature protection system regulation	Noise caused by visitors
Educational programs	Degradation of habitats
Forming ecocoridors	Inadequate monitoring
Revenues for the maintenance of habitats	Exceeding the carrying capacity
Maintaining the implementation of the active protection measures	
Implementation of projects of international importance	
Developing relationship with local population in order to develop traditional forms of land use and ecotourism	

Determining the sustaining capacity of the Reserve

The sustainable capacity is a measure of resistance of the locality, or its ability to accommodate external influences without compromising its natural state. It can be defined as the maximum number of visitors that can be found in a particular location without irreversible changes and degradation of the physical environment without compromising the quality of recreational experiences (Jovičić, 2000). The usage of the sustainable capacity could prevent distortion of the tourist destination and its natural, cultural and social values (Stojanović, 2006).

Sustainable capacity is the starting point for the planning and conducting of the tourist activity in the protected areas.

However, the lack the accurate methodology which is necessary in order to determine the sustaining capacity of a tourist destination is a mayor problem. In this regard, different standards, based on previous experiences, have been set. In addition to these standards, each protected natural area has its own characteristics, which are reflected in the complexity of the ecosystems and the attractiveness of different motives, conflict of threatened areas, infrastructure elements, recreational and cultural activities, varying the number and structure of population and area that is under different levels of protection (Vukosav et al., 2007).

In order to obtain quantitative data on the main capacity for certain natural resource, it is necessary to create conditions which include 8 stages: determination of management standards for the tourist destination or a tourism resource, determining the time period for which the carrying capacity is defined (this may be a year, a season, a month, a week, a day); determining the indicators for ecological, socio-cultural, psychological and economic components; defining the measures of sustainable balance for each indicator; establishing a connection between the state of the indicators and the level of use; reasoning about the possibilities of accepting certain impact, determining the carrying capacity is more, less or equal to the determination of tourist visits; determining management strategies which will allow the carrying capacity to be respected (Hall and McArthur, 1998)/

Ecopathes of the Reserve are designed in a way that does not endanger the natural habitat of diverse flora and fauna, and are built so that the visitors could enjoy the natural beauty. However, ekopathes have a negative effect on the Reserve, but in a much smaller extent than the vulnerability existed in the case that allows visitors movement throughout the territory of the Reserve.

The European Union has provided guidance and proposed sustainable capacity in certain areas and activities, and therefore, in a protected natural area such as the Special Nature Reserve "Selevenjske wasteland" it is suggested that the maximum number of guests is 40 persons per day per 1 km pathes (Jovicic, 2000).

Total length of the paths is 3.8 km (during the planning of the second educational path), which means that the Reserve, as proposed by the European Union, could receive 152 visitors per day.

- According to the proposal of the European Union:
  Sustainable capacity = 40 visitors x 1 km path
- Applied to the Special Nature Reserve "Selevenjske pustare":
  Sustainable capacity = 40 visitors x 3.8 = 152 km ecopath visitors per day

However, the controller of the natural resource, "Palic – Ludaš" decided that the study paths in the Reserve can receive 50 visitors per day (even though according to EU directives, the number could be even higher, given the length of the path), because they believe that the wetlands are particularly affected by the presence of man. People cause noise that disturbs animals and endangers the flora, and since the Selevenjske pustare are a home to rare and endangered species, it is necessary to adequately protect them, as it is provided by law. This type of protection that comes from the controller is certainly commendable, as is any protected natural area unique and same standards can not be applied to all. By investing a lot of effort on direct study of the impact of visitors on the reserve, it is possible to get an accurate number of visitors who will not cross the border sustaining capacity of a Special Nature Reserve "Selevenjske pustare".

CONCLUSION

Numerous efforts have been made to link tourism with the protected areas in a sustainable way, because tourism does not have to inevitably threaten the environment. A Special Nature Reserve, "Selevenjske pustare" has a great potential for ecotourism on the teritory of the city of Subotica by association with the other three protected areas, but also by other aspects, as is the case with excursions, educational, cultural and historical tourism. The natural environment is represented by a unique tourist motifs that may contribute to the aesthetic values of the reserve, and as such would need to be on the tourist map of the Republic of Serbia. This is the area where indigenous natural values are protected, but also valorized. However, the proces of valorization has not been finished, given that the tourist zone is not clearly defined, so that it often takes place in areas of strict protection. The development of tourism has destroyed many parts of the protected area. Tourism causes

adverse effects on the environment, such as excessive pollution, degradation of environmental values. It is therefore necessary to limit this type of tourism in accordance with the possibilities of reserve. In determining the boundaries of tourism, sustaining capacity can help, and it can be shaped into a quantitative concept, which determines the limit load of a protected site in the form of the number of visitors the site can take. The definition of physical endurance space is the ultimate goal of natural resource management, and it can help so that the degradation will not be reached.

REFERENCES

Bulatović, D. (2011): *Ekoturizam u zaštićenim područjima Republike Crne Gore*, doktorska disertacija, Subotica, Ekonomski fakultet. In Serbian

Butorac, B., Banjac, M., Habijan-Mikeš, V., Ham, I., Kovačev, N., Kovačević, B., Pavlov, G. (1993): Predlog za zaštitu prirodnog dobra „Selevenjske pustare" kao specijalnog rezervata prirode. Zavod za zaštitu prirode Srbije, Novi Sad. In Serbian

Butorac, B., Habijan-Mikeš, V., Vider, V. (2002): *Opstanak peščara u Vojvodini*. Zavod za zaštitu prirode, Beograd. In Serbian

Čordaš, R. (2006): *Regionalni ekoturizam na teritoriji severne bačke opštine Subotica*. Ekonomika poljoprivrede 53(3): 835-46. In Serbian

Hall, C. and McArthur, S. (1998): *Integrated Heritage Management*. London: The Stationery Office

Jovičić, D. (2000): *Turizam i životna sredina-koncepcija održivog razvoja*. Zadužbina Andrejević, Beograd. In Serbian

Miličić, O., Rafai, J., Sabadoš, K, Sekulić, N. (2002): *Ludaš - jezero na pustari*, JP Palić-Ludaš i Zavod za zaštitu prirode Srbije, Subotica. In Serbian

Stojanović, V. (2006): *Održivi razvoj turizma i životne sredine*, Novi Sad, Departman za geografiju, turizam i hotelijerstvo, Prirodno-matematički fakultet. In Serbian

Stojanović, V. (2011): *Turizam i održivi razvoj*. Departman za geografiju, turizam i hotelijerstvo, Novi Sad. In Serbian

Tomić, P., Romelić, J., Kicošev, S., Besermenji, S., Stojanović, V., Pavić, D., Pivac, T., Košić, K., Lazić, L. (2004): *Zaštićena prirodna dobra i ekoturizam Vojvodine*. Prirodno – matematički fakultet, Novi Sad. In Serbian

Vukosav, S., Garača, V., Jovanović, G. (2007): *Problem utvrđivanja nosećeg kapaciteta u nacionalnim parkovima na primeru nacionalnog parka „Fruška gora"*, Zbornik radova Geografskog fakulteta, sv. 55, 115-124. In Serbian

World Tourism Organization (1992): *Tourism Carrying Cappacity*. Madrid: Report on the Senior – Level Expert Group Meeting held in Paris, June 1990

~

Future Cross-border region Kireš - Visitor Ludaš center, 2006

Local Ecological Plan of Actions, 2003

Management Plan of Special Nature Reserve "Selevenjske pustare" for the period 2012-2021

http://www.palic-ludas.rs/