

Networking of Fruška Gora Lakes Tourist Offer through System of Cyclepaths – Case Study Sot, Bruje and Moharač (Serbia)

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Abstract

Fruška gora lakes Sot, Bruje and Moharač are the lakes that can be used in many ways for sports and recreation tourism. Nevertheless, the current tourism offer in these lakes is based only on offer for sports fishing. Bearing in mind that Fruška gora National Park, where there are three zones of protection, is of great importance the fact that the second and third zones are, with regard to territorial perspective, areas where it is desirable to develop sports and recreational tourism. Cycling is becoming an increasingly popular form of sports and recreational tourism, so tourism networking of Fruška gora lakes with system of cycle paths would represent only the first step to turn the whole mountain into the European cycle mainstream. In this sense, the aim of this paper is set to map the FJSA cycling paths connected to the system. The field research resulted in the mapping of the terrain. The interviews with experts from the Provincial Secretariat of Environmental Protection, the National Park and the Cycling Association of Vojvodina helped in the SWOT analysis of cycle tourism on Fruška gora lakes.

Key words: Cycling tourism, Fruška gora lakes, Networking

Introduction

Continuing work is a step closer towards positive change because the work is the only force that leads a man to get fulfilment, continuous advancement and improvement. To keep up with the pace of changes is the assumption for survival within the business processes that are under the constant influence of the environment. If something changes with the aim, it is logical to assume that it also improves. Networking is exactly such change in the way of

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previous work in our society, a change that the main objective is continuous improvement of business processes by raising the level of attraction of the whole system. This, however, is not an easy job, especially in the areas where still dwells one kind of dominance that is reflected in the presentation of resources to only one aspect of tourism: Fruška gora lakes where only organized fishing is possible (Vujko, 2008).

Networking of the area with the system of cycle paths would bring several benefits and changes. First of all, it would become the development link of the lake not only as a fishing shaft, but also as a resource for many other forms of sports and recreational activities (swimming tourism, visits to places of interest within the course and therefore direct the development of cultural, event, wine, and other forms of tourism (Plavša, 2007)).

Expansion of supply would affect the arrangement of space for relaxation purposes and provision of sanitary and catering services that would enable the opening of many jobs and yield benefits for the local population (Barnett, 2004). The expected benefits of such a system of cycle paths would be the utilisation of these paths for other, complementary forms of tourism (hiking, horseback riding, carriage rides). The development of an area for sport and recreation tourism depends on its natural-geographic predispositions to develop certain activities and also the affinity, health and physical condition of tourists (Plavša, Romelić, Vuksanović, 2009); therefore, the importance of networking is obvious for not only the localities but also for the activities coordinated there. Furthermore, the networking would imply continuous development of the whole area (particularly the connections with the Republic of Croatia and the continuation of cycle paths FJSA¹ of cycle paths in Vukovar-Srem county and Osijek-Baranja county), and connecting to a network of cycle paths (Croatia, Slovenia, Hungary, Austria), would result in European cycling transversal that would create other tourist products.

In this sense, the aim of the research is the proposal of cycle paths connected to the system that would be used as a basis for setting appropriate SWOT analysis of cycle tourism around the Fruška gora lakes, obtained by examining current opinion of decision makers in tourism in this area. The purpose of this paper is that the observed connectivity of the lake system with cycle paths and raising the attractiveness of the entire area are utilised for production of specific innovative projects (Cutumisu, Cottrel, 2004) that would develop the system of internal and cross-border partnerships that would contribute to sustainable development, encouraging entrepreneurship and growing number of users in cycle tourism of Fruška gora mountain.

Research Methodology

The research was a combination of quantitative methods (statistics and web analysis) and qualitative methods (interviews, discussion and written documents). Bibliographic speculative was used in the phase of defining the theoretical framework, and descriptive method for data processing and results interpretation. The proposal of cycle paths given on the map was the result of field research (cycling on the potential cycle path FJSA by one of the authors (Aleksandra Vujko), aimed at examining the feasibility of cycle paths and resulted in terrain mapping). The maps were drawn by internet software Google map. In order to obtain the

¹ FJSA-abbreviation of *Fruška Gora lake cycling path* and the letter A stands for the name of *Aleksandra Vujko*, who first used this formulation

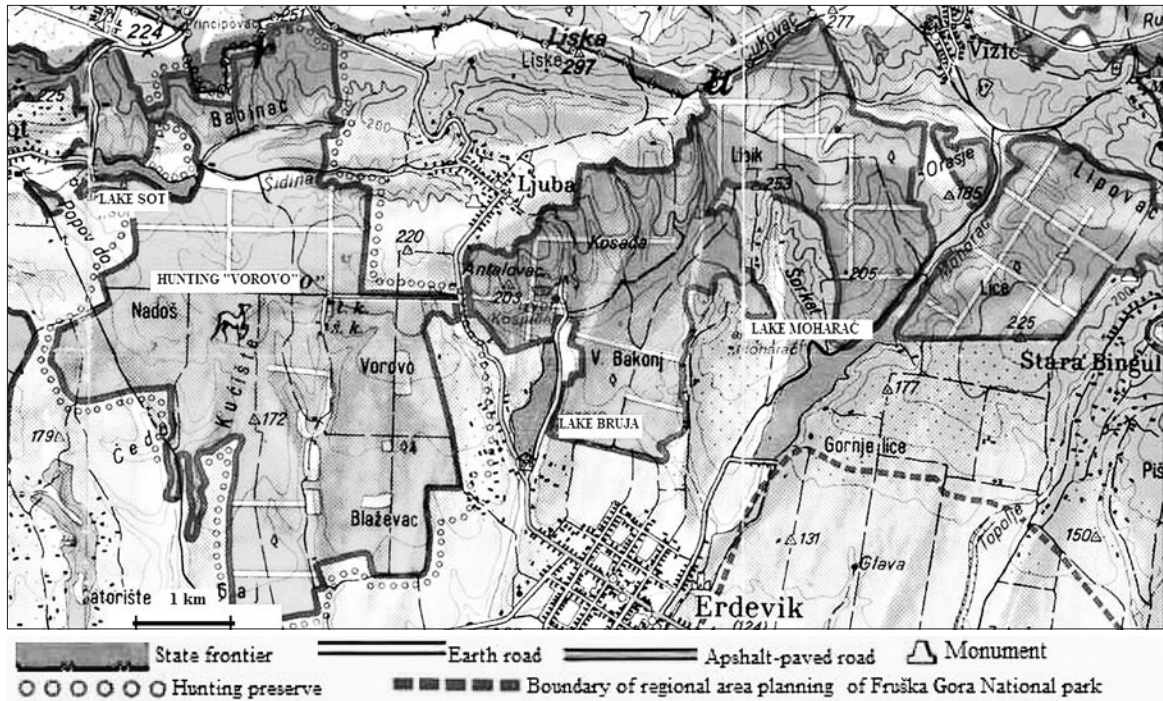


Figure 1 West part of Fruška Gora mountain with lakes Sot, Bruja and Moharač
(Scale: 1:60000; Source: base Geokarta - finishing A. Vujko)

best results possible, SWOT analysis of planning cycle paths in the territory of these three lakes. Also the interviews were conducted with everyone directly or indirectly involved in functioning of tourism in the national park and its surrounding, and everyone who could contribute to its development. The interviewees were: MSc Dragiša Savić, PhD Aleksandar Marić and PhD Goran Matić from Fruška Gora National park, Gvozden Perković from Tourism organisation of Vojvodina (TOV), Tamara Stojanović, person in charge for Fruška gora mountain from Provincial Secretariat for the Environment and Nebojša Subić, President of Cycling Association of Vojvodina.

Results and Discussion

Within the Fruška gora national park boundaries there are artificial lakes Sot, Bruje and partly the Moharač. These three lakes are located on the western part of Fruška gora mountain being the most beautiful lakes in the Fruska Gora environment (Jovičić, 1962). Lake Sot, the most western lake, is near the village of the same name, on the creek Šidina.

Partly, this lake is located in the surroundings of the hunting woods Vorovo and is one of the most beautiful lakes on the Fruška gora mountain. The lake covers the area of 33 ha with average depth of about 4 m. Altitude of this lake is about 141 m. This is also where the European record was beaten by hooking a carp that weighed exactly 42 kilograms.

Lake Bruja is located near Erdevik, and was built in the creek Kosjači. It covers about 15 hectares with the average depth of about 3.5 m, with water partly coming from aquifers of thermal water 200 meters from the lake. The lake is 600 m long and 400 m wide situated

at 128 m altitude and surrounded by asphalt road. Lake Moharač and the creek of the same name are located between the villages Erdevik and Vizić; covering the area of 67 hectares it is the largest Fruška gora lake. The lake is an impoundment with dozens of groundwater springs, with pure water rich in oxygen. The depth of the lake ranges from 2 to 11 m and its altitude is 132 m (Bogdanović, 1980).

According to MSc Dragiša Savić from the National Park, the second (Table 1) and third zone (Table 2) with regard to territory are the areas where it is desirable to develop sports and recreational tourism.

Table 1 Areas of the second degree of protection in the National Park Fruška Gora

The sites of important forest ecosystems	– All-natural indigenous forest ecosystems and culture in restoration of forest land features in the National Park “Fruška Gora”.
Geological and geomorphologic sites	– Paleontological site “Grgeteg” (part), – Grgurevačka cave in Popov čot (part), – Volcanic tuff near the village Rakovac, – Paleontological site “Šakotinac”.
Individual trees and groups of trees	– Stands of black alder in Andrevlje, – Stands of black alder – on Testers, – Park monastery “Beočin”.
Significant habitats of insect species	– Kulin – Valley Spa at Ljube, – Valley of Velešič creek.
Significant habitat of endangered bird species	– Forest Čortanovci, – Creek Moharač with accumulation, – Gložanj–pastures above Grgurevci, – Small–Sancho–meadows below Đurđevci.
Surface Mining - scientific research and educational purposes	– Goat Hill, –Silver (part), – Popov Čot, –Red–limy, – Opčište, –Erdelj, Transylvania.

Source: National Park Fruška Gora, 2010.

In areas with other levels of protection any changes are prohibited (Ahmetović-Tomka, 1995). However, permitted activities are more than favourable for routing all of these cycle paths (among other issues, the following is permitted: collecting wild fungi, plants and animals in accordance with the legal provisions about controlling the collection, use and trade of wild plant and animal species, the establishment of monitoring, protection, preservation and promotion of protected plant and animal species and their communities, informative presentation, promotion and education in natural values, the controlled use of soft unclassified roads with the use of protective measures by erosion, construction and motion controlled on local roads, controlled the movement of visitors (hikers, mountain climbers, etc.), controlled rerouting and construction of hiking trails and other). All this would mean that in these areas rerouting path is feasible and desirable.

In areas with the third level of protection, the use of natural resources is selective and limited; the activities are controlled in concordance with the function of a national park or related to the inherited traditional forms of conducting economic activities and housing, including construction for tourism purposes. Among the permitted issues are: tourism development in accordance with spatial capacity, the development of sport-fishing tourism in accordance with the developmental functions of the National Park, initiation of programme for protection and utilization of fish fauna, hunting in accordance with the hunting grounds, sport fishing on accumulations, building facilities (tourist / recreational, health and rehabili-

Table 2 Areas of the third degree of protection in the National Park Fruška Gora

Individual trees and groups of trees	<ul style="list-style-type: none"> - <i>Quercus petraea</i> on the ridge road near Zmajevac, - Three black walnut trees in the area of Kosača, - Beech-tree in the landscape Spa, - Lime-star on the stretch knitted Anta, - Cerris-tree on the ridge road near Letenka, - <i>Quercus petraea</i> on the ridge road near Đurđin hornbeam, - <i>Quercus petraea</i> on the ridge road near Lipov čot, - Tree <i>Sorbus torminalis</i> on the ridge road near Letenka, - Black-hornbeam on Stražilovo, - Birch-tree on the move Brankovac, - Cerris-tree near the monastery Đipša, - A group of black pine trees at the monastery Hopovo, - Group of chestnut trees in the monastery Beočin, - Iron-wood stands in the forest Maruša, - Black walnut stands in the forest, Maruša.
Tourist recreational sites	<ul style="list-style-type: none"> - Čortanovci, - Iriški venac, - Vrdnik spa, - Spa Erdevik, - Susek, - Koruška, - Lipovača, - Zmajevac, - Andrevlje, - Brankovac, - Osovlje, - Glavica, - Popovica, - Paragovo, - Testera, - Letenka, - Rohalj baze, - Janok, - Gypsy camp, - Viline vode, - Stražilovo and Monasteries.
Surface Mining, tourist and recreational, cultural and educational purposes	<ul style="list-style-type: none"> - Stražilovo-I, - Stražilovo II, - Majdan, - Paragovo - Orlovo bojište, - Paragovo, - Iriški venac, - Rakovac-old quarry, - Erdevik, - Kulin, - Ležimir, - Silver (part), - Srednje brdo.
Forest Ecosystems	<ul style="list-style-type: none"> - Natural and artificial forest ecosystems around the roads and artificial ecosystems in the border zone of national park - Tree-nursery Beočin.
Accumulation	<ul style="list-style-type: none"> - Sot and Bruja
Buildings of public interest	<ul style="list-style-type: none"> - TV tower on Crveni čot, - Anti-hail capacities at Kraljeve stolice - Military facilities.
Arable land in private possession.	Private estates in the immediate vicinity of the lake
The area between the borders of the forests and national parks boundaries (edge part).	Private estates in the immediate vicinity of the lake

Source: National Park Fruška Gora, 2010.

tation, cultural education) in accordance with sensitivity of space, in the traditional style, the construction of necessary facilities and infrastructure for tourism purposes, cottage housing, etc., traditional agricultural production according to functions and the needs of the National Park (fruit growing, viticulture, medical herbs, organic food production, apiculture, etc.), traditional economic activities in the function of the National Park (crafts, trade, catering), participation of the local population in planned activities and in overall tourist offer, maintaining existing roads, without expansion of roads, organisation of excursion and other areas, controlled and directed motion of visitors (hikers, mountaineers, travel tours, etc.), controlled use of soft unclassified roads with the use of protective measures from ero-

sion, controlled construction and motion on the local roads, controlled rerouting and building of hiking and other trails.

This implies that the cycling tourism represents a sustainable form of tourism on Fruška gora lakes. Bicycle is a fully ecological means of transport. It is noiseless at it is not polluting the environment, improves fitness, strength and health of users. Then, the costs of exploitation in relation to a car are 14 times smaller and in relation to the use of public transport 4-8 times. A car requires about 86 percent of the total area of roads and performs only about 21 percent of all travel. A bicycle takes 2.9 percent of the total space traffic 7.4 percent of trips. This means that a car requires about 30 times more space for only 2.8 times more travel. In addition, a bicycle improves overall health of a cyclist. Life expectancy of people who cycle is longer and investment in cycling infrastructure reduces the cost of medical care for certain categories of population in relation to 1:20 (Simonsen et al, 1998).

The starting point on the FJSA would be Erdevik from which the connections would be made to other areas and cycle paths within Fruška gora route. This connection would be realised over a village Divoš, 7 km from Erdevik (Bukurov, 1952). What would certainly be favourable for the development of cycle tourism in the lakes is the fact that the average water temperature in all three lakes, measured during the summer period, ranges from 24.5 to 28.2°C (Bogdanović, 1980). The natural beauty of the lake, an impressive fish fund (carp, grass carp, catfish, perch and pike), a reasonably furnished and extremely clean coast make this part of the paths to be particularly considered in the context of the development of cycle tourism linked to other sports and recreational facilities that could be developed in the lakes.

North of Erdevik, FJSA would lead extremely uphill to village Ljuba which is predominantly a Slovak settlement. In the centre of the village, next to the church there is a little park with a drinking water fountain. Further, the paths of FJSA would pass by lake Bruja, lake Moharač and hunting area Vorovo. From there FJSA could go down and through Ilok into neighbouring Croatia.

The leg of FJSA heading towards Šid, would pass, on the first half of the route, by a high fence built around hunting Vorovo and then continue on paths through the vineyards and acres, right next to the forest and to the lake of breathtaking beauty. One of the bases could be made there for breaks and refreshments or mending some damage, replace tyre, etc. It is,

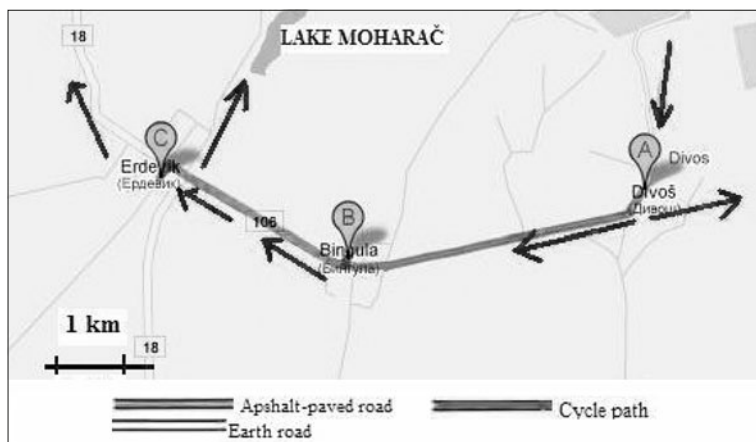


Figure 2 Leg on the cycle paths FJSA (Scale: 1 cm on the map corresponds to 1 km in nature;

Source: Google base map - finishing A. Vujko)

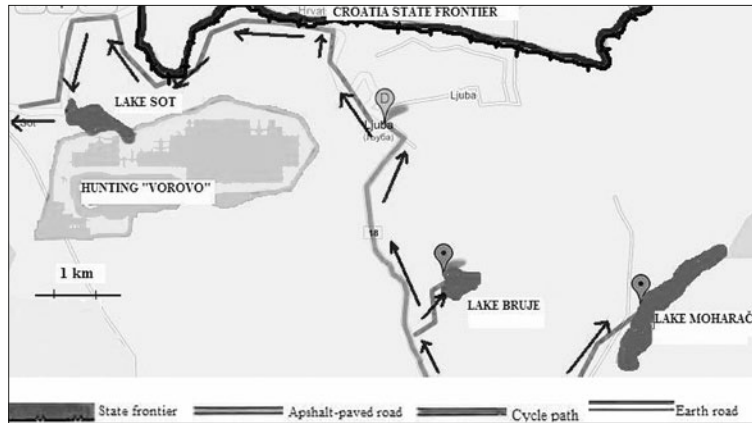


Figure 3 Leg on the cycle paths FJSA (Scale: 1 cm on the map corresponds to 1 km in nature;
Source: Google base map - finishing A. Vujko)

actually, Lake Sot. Only 1 km from the lake FJSA would lead through the village Sot and 2 km away from Sot, to the village Bikića do. At the entrance to the village Bikića do, FJSA would split into two parts, the one on the right would lead to the monastery Privina glava and the other on the left would lead to Berkasovo where in the northern outskirts FJSA would lead to the picnic site Lipovača.

The settlement, the outskirts of Šid at present, has a rich history. It emerged around the medieval town (fortress) Berkasovo, which was the capital of the famous Zmaj Ognjeni Vuk and one of the strongest fortifications on Fruška gora mountain at that time. Today, the castle is a ruin due to the fact that in the 17th or 18th century the building material from the fort was spent to build Catholic churches in Kukujevci. From Berkasovo to Šid, FJSA would go

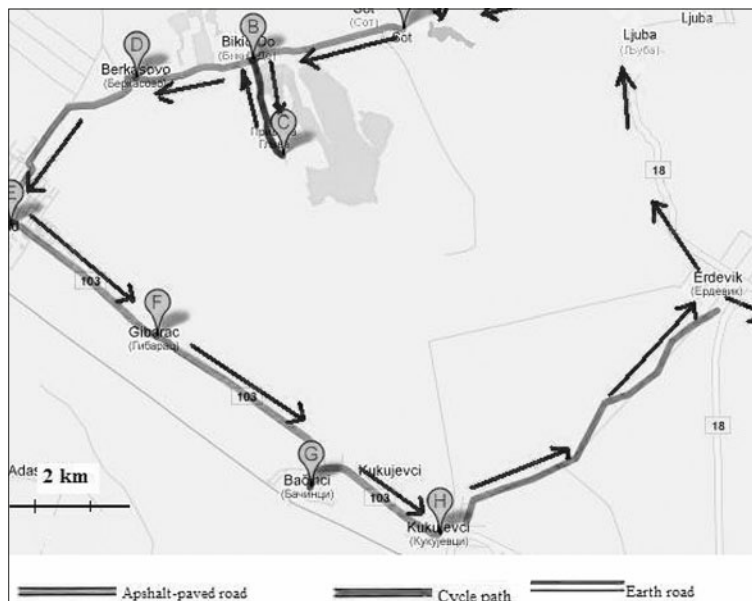


Figure 4 Leg on the cycle paths FJSA (Scale: 1 cm on the map corresponds to 2 km in nature;
Source: Google base map - finishing A. Vujko)

Table 3 SWOT analysis of the lake Sot, Bruje and Moharač for cycling tourism

The strengths of cycle tourism on the lakes of Fruska gora mountain
<ul style="list-style-type: none"> - Sustainable form of tourism for the national park territory Fruska gora mountain; - The possibility of using the lake as a place for rest and swimming tourism as part of cycling tourism; - Rich cultural and historical heritage of the environment; - Altitude with the epithet of air spa; - Suitable paths for a cycling; - The possibility of practicing complementary activities at already set paths (field riding, hiking); - Interesting local customs; - Ethnology and Oenology (wines of Erdevik) of great importance;
The weaknesses of cycle tourism on the lakes of Fruska Gora mountain
<ul style="list-style-type: none"> - Conflict of interest of different users; - Wild beaches visited daily by up to 1,000 people; - Low awareness of citizens (a large proportion of the population does not see the potential, but considers it a normal thing); - Difficult access to the desired location in some parts of the lake; - The lack of accommodation; - Lack of integrated tourism; - Lack of internal communication; - Lack of information centre; - The lack of camping space; - The lack of public toilets and places for disposal of waste; - Lack of tourist signalisation.
Opportunities for the development of cycle tourism on the lakes of Fruska gora mountain
<ul style="list-style-type: none"> - Creating the image of a destination that will bring the development of bicycle tourism in our country and thus become well known brand in our country and in the world; - For the time being, it is possible to use only parts of the lakes Moharač and Sot for cycling tourism, whereas lake Bruje has an asphalt road around it; - Networking of businesses, individuals and cycling fans to create their own offer and development of cycling; - Improving of offer through joint ventures; - Foreign and domestic investment; - Participation in cross-border projects; - Specialisation of hospitality and tourism offer; - Increasing the number of events; - Standardisation and improvement of quality of facilities; - Youth Education about the importance of cycle tourism in a region; - Extraordinary natural wealth that rests the soul and relaxes the body and thus becomes part of the anti-stress programme combined with cultural values could be renamed into a real cycle adventure from one to several days; - Creating an appropriate mascot or souvenirs, the future image of the destination when cycling is in question; - The Danube cycling route, as the basis which can be upgraded with Fruska gora cycle route and many others; - Mapping the terrain; - Renting bicycles at certain locations; - The existence of complementary tourism offer (hiking, field riding, wine tasting in local cellars, the hospitality and kindness of the hosts, very specific and authentic forms of accommodation in the mountains, abundance of lakes, multiculturalism and tolerance at high level).
Threats for the development of cycle tourism on the lakes of Fruska gora mountain
<ul style="list-style-type: none"> - The economic power of local guests; - Devastation of natural resources by increasing the traffic of tourists; - Not understanding the importance of joint offer and the importance of networking; - Poor coordination with the neighbouring regions and countries; - Significant political changes; - Neglecting of sports and recreational tourism by decision makers.

parallel to the valley of Šidina creek and end on its re-arrival to Erdevik from the opposite direction, through the villages of Gibarac, Bačinci and Kukujevci.

Bearing in mind that the Fruška gora lakes are potential for the development of cycle tourism, it was necessary to proceed to the second step, the SWOT analysis of cycling around the lake as well as development of such form of tourism in the future.

The analysis of the results revealed very interesting data. Potentials for the development of cycling in the Fruška gora lakes are real and cycling tourism even desirable form of tourism to the territory of the Fruška gora National Park. The observed problem regarding property issues is the ownership of the lakes, since 70% of the territory is owned by local self-government and the rest is shared between water management (Public Water Management Company "Vode Vojvodine") and the National Park. Presumably, those are mere excuses for the lack of initiative and lack of understanding of the importance that cycle tourism can have for this region.

There are ample opportunities for the development of cycle tourism, even if we exclude the option that cycle paths have to draw a circle around each lake. It would be enough to adapt only particular areas around the lake and bicycle trails on that part for the cyclists to stop, have rest and maybe stay overnight in the camp near the lake. Certainly, it is necessary to regulate the areas for movable toilets, trash baskets and benches (Standeven et al, 1999). Together with cycle path signalling, it would be almost imperceptible expenditure for the budget of local self-government, National Park or Provincial Secretariat for Environmental Protection.

Conclusion

Within the project "Development of cycle tourism in the Danube region", our country participated jointly with the German Federal Ministry for Economic Cooperation and Development as well as with all the Danube countries and became the part of International "Danube route" (Cycling Association of Vojvodina), along which the international signalling was set and also cycle maps were produced and web pages were created. The total length of the path through Serbia is 588 km. EuroVelo is one of the main initiators of the construction of cycle paths in Vojvodina (Serbia).

The territories which can achieve cross-border cooperation through cycle paths are of great importance. Bearing in mind that the Osijek-Baranja and Vukovar-Srem Counties are also parts of the "Danube route" and that the lakes Sot, Bruje and Moharač, as parts of FJBS, are in direct contact with these counties due to its border location, it is clear that routing the path would lead to rerouting of many other cycling trails on Fruška gora mountain, with a tendency to "Danube route" through our country has two branches, one of which would go through Fruška gora mountain.

In this context, there are projects that were selected for co-financing in the competition for the award of grants for co-financing of construction and reconstruction of cycle trails in many populated places in Vojvodina. The European Cyclist Federation produced preliminary designs for all the European tracks and elaborated in detail the route on the basis of common criteria and standards. The task of our country is to clearly define cycle route throughout all the municipalities and provide detailed and precise planning and project documentation. Ministry of Construction considers the initiative to start drafting the Master Plan of the transport infrastructure of spatial plan of the transport network infrastructure. It has

been proposed to advise all the municipalities to include the routes into in the local spatial and urban plans.

Therefore, we can say that it has been planned to a certain extent that overall image of the situation of bicycle tourism in Serbia and Vojvodina may be improved. Potentials exist and the awareness of the importance of cycle tourism is slowly raising, but until a unique offer of all current subjects in cycling is made, we can barely speak of any progress. It is necessary to network all subjects involved in cycling and tourism and located in the vicinity of FJBS and also to organise a joint meeting and present the opportunities for the development of cycle tourism because only jointly, with the desire to succeed, we can formulate a strategy for the development of cycle tourism in our country.

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