

## **OPPORTUNITIES FOR DEVELOPMENT OF PAINTBALL AS PART OF SPORTS RECREATIONAL AND ANTI-STRESS TOURISM IN FRUŠKA GORA MOUNTAIN (SERBIA)**

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**Abstract:** in the natural environment Paintball affects the entire bio-psycho-social status of a society; therefore the activity itself will be one of the best means to remove the negative effects of modern life. The basic hypothesis was to show the potential of Fruška Gora Mountain for paintball. In this sense, the goal of this paper was to show the benefits paintball may have for health and also the potential of Fruška Gora Mountain regarding such activities. Interviews with experts from the Provincial Secretariat of Environment, the National Park and paintball club "Monks" from Vrdnik, assisted in the SWOT analysis. Benchmark analysis was used to compare the similar ground (the Apuseni Mountains and Fruška Gora Mountain) and to display examples of good practice.

**Keywords:** Recreation, Sport and recreational Tourism, Paintball, Fruška Gora Mountain, the Apuseni Mountains

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### **INTRODUCTION**

There are many positive examples of recent development of sports and recreational tourism in many countries where until recently this form of tourism trends almost did not exist (Greece, Poland, Romania, Bulgaria and others). Following their examples we can come to the conclusion that there are numerous reasons for the activation of sport and recreational tourism, and one of them is the natural environment (Papadimitrou and Gibson, 2008; Krukowska and Skowronek, 2009; Bădulescu and Băc, 2009).

Fruška Gora is one of the two mountainous regions in Vojvodina (Serbia), and one of the most attractive recreational regions for the two largest emissive centres in Serbia, Novi Sad and Belgrade. With its west - east direction, and the total length of 80 km, this low mountain with tops such as Crveni čot (539 m), Orlovac (512 m), Iriški venac (490 m) etc., represents a mountain with a potential for development of different activities including paintball (Petković, 1976; Obradović, 2006).

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The Apuseni Mountains (Cucurbăta Mare 1849 m) are located in the Western part of Romania. The Apuseni Mountains are part of the Western Carpathians and comprise a variety of geographical forms, beautiful landscapes and traditional livelihoods. What makes them special are the unique limestone phenomena, the local people who inhabit them and their lifestyle, as well as the extraordinary mixture between these two: human beings and nature (Baron, 2002; Turnock 2006; Bădulescu and Bâc, 2009).

It has been widely acknowledged that sport tourism is a growing niche in the world tourism market (Standeven, De Knop, 1999; Plavša, 2007; Papadimitrou and Gibson, 2008; Weed, 2008), and its different variations provide countless attractions for differentiating the sport-related tourism product. Active sport tourism represents one of the three broad types of sport tourism that have been identified in the literature (Papadimitrou and Gibson, 2008). Specifically, Papadimitrou and Gibson define active sport tourism as taking part in sporting activities while involved in leisure-based travel, as opposed to passive forms, such as event sport tourism that involve travelling to watch sport. Sports and recreational tourism occupies the mind and become a form of meditation that expands the range of approaches and solutions to the problems. Activities that are practiced are a way of combating stress and thereby have positive effects on health and physical condition. But there are still a number of positive impacts that sport and recreation can have on the human health in the modern society: effect on self-esteem, confidence, and many other positive images of themselves and the world around us. In addition to many psychological effects, sports and recreation have multiple effects on biochemical mechanisms. Experts assume that physical activity is the best medicine (Standeven and De Knop, 1999; Hayward, 2001; Hudson, 2003, Buckley and al, 2007; Weed, 2008; Vujko, 2008). Thus, *sports and recreation tourism* is the specific form of tourism in which sports and recreation are basic motifs of travel and staying at a destination. Sports and recreational tourism involves tourists doing sports and recreational activities with the aim of satisfying the need for exercise, play, active vacation, recreation, entertainment, etc. (Standeven and De Knop, 1999; Plavša, 2007; Papadimitrou and Gibson, 2008; Weed, 2008).

There are sports and recreational tourists whose way of combating stress is reflected in the constant search for new excitements provided by endorphins and adrenaline. It is scientifically proven that physical activity influences the increase of endorphins, substances that stimulate good mood. Endorphins are type of enzymes and neurotransmitters occurring in the hypothalamus. Studies have shown that endorphins, the products of nerve cells similar to morphine, can reduce the feeling of pain and stimulate a sense of euphoria. Marathoners, whose level of beta-endorphin increases after the race, are confident that they are very deserving of that substance to the phenomenon known as "*racing fever*" (a condition that is compared with the situation after making love, enjoying the chocolate etc. It is actually a state of euphoria and satisfaction). Therefore, increased levels of endorphins in the blood stream as a hormone that acts as a narcotic (example of this is that about 20 minutes of running produces a sense of relief. That is the period when the level of beta-endorphin increases, and this means that if running continues, relief comes soon and natural pain killers: beta-endorphins are responsible for these). In contrast to the endorphins, adrenaline is a stress hormone. Stressful situations lead to the secretion of adrenaline from the adrenal gland. Adrenaline blood comes to almost all organs and causes the following changes: acceleration of the heart, increasing the power of the heart, constriction of blood vessels of peripheral tissues, the expansion of blood vessels of the heart, brain, muscle and some other important organs. Then, it affects the spread of the bronchi, excessive heat generation or sweating, the breakdown of glycogen and increase blood glucose concentrations, the breakdown of adipose tissue and increases the concentration of free fatty acids in the blood and extending pupils. In translation, adrenaline prepares the body for fight or

runaway. So, one of the main motives for the exercise of most “*extreme*” sports or “*adrenaline*” sports is actually a feeling of euphoria that occurs when the “*dangerous situation*” passes. However, we can not accurately determine what an extreme sport is. (Hayward, 2001; Hudson, 2003, Buckley and al, 2007).

The development of an area for sports and recreational activities within the sports and recreational tourism primarily depends on the natural and geographic predisposition of this area and the affinity of tourists and their fitness and health predisposition (Weed, 2008; Plavša, Romelić Vuksanović, 2009). On the mountain there are a considerable number of resources that deserve proper attention on defining the potential fields for paintball. It is important to define whether tourism offer would be based on paintball only, or it would be a complementary to other activities in the mountain (e.g. biking, hiking, spa tourism, etc.).

According to this, we identified several objectives which we attempted to achieve in the paper. The first was to present paintball as an “*Endorphin*” activity, significant activity in the fight against stress and suitable for almost all populations. Another objective would be to promote Fruška Gora Mountain for paintball. The aim of the promotion may be reflected in the cartographic representation of potential paintball fields. The third objective is the SWOT and a comparative analysis (benchmarking). In this context we presented the positive experience of the organizers of paintball on the Apuseni Mountains.

## **METHODOLOGY**

The research was a combination of quantitative methods (statistics and web analysis) and qualitative methods (interview, conversation 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 paintball locality given on the map was the result of field research (the results of field research carried out in an extensive research project have been used (Vujko, 2011). The maps were drawn by internet software Geokarta. In order to obtain the best results possible, SWOT analysis of planning paintball fields in the territory of Fruška Gora Mountain. Also, the interviews were conducted with every person directly or indirectly involved in tourism operations in the National Park and its surrounding, and every person 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 Nikola Dževerdanović, President of paintball club “*Monks*” from Vrdnik. The last step was benchmarking. Benchmarking is designed and systematic approach to improvement of processes and activities in an organization that goes through their comparison with the same or similar processes, which are objectively and reasonably considered the best, whether these processes take place in other parts of the organization or outside it. Benchmarking consisted in detecting, identifying and understanding the processes and activities which are elsewhere (the Apuseni Mountains) performed in a better way and their transfer and adaptation to Fruška Gora Mountain. The aim of the benchmark analysis was to improve paintball activities, to set new standards of activities that will contribute to the mountains to stand out from the competition. For evaluation of paintball tourism in the region we selected the Apuseni Mountains in Romania in terms of speed of reaching the necessary level of service quality. Organizers of the paintball on the Apuseni Mountains have developed their own standards for defining the specific areas suitable for development of paintball. The study was aimed to investigate the paintball sites, whether sites are well marked and

labelled, their website and whether the paintball there is a sustainable form of tourism.

## RESULTS AND DISCUSSION

Obesity, stress and hypokinesia are the major causes of all known diseases in the modern society. It is believed that hypokinesia or too little physical effort, driving and excessive television viewing, movies or other content from the discs, sitting in very comfortable chairs, armchairs and the Internet contribute to the reduction of human life.

Today, it is normal to buy online, but people forget that while performing these they weaken their locomotor, cardiovascular, immune, endocrine systems and metabolism. This new imbalance (unknown to the people half a century ago) weakens the body. On the other hand, too much food intake causes obesity. Mental exertion and stress on the one hand, and hypokinesia and under-relaxation on the other hand, are the typical working conditions and living environment of modern society (Kaprra, Cervone, 2003). Modern tourism has characteristics closely associated with the trend of the tourism market, and sports and recreation is a top selective tourism that meets *the need for health*. Thus, sports and recreation is the best medicine, and paintball is one way to have rehabilitation.

Paintball was created in America 1976 when two Americans, returning from the hunt, came up with the idea to be able to hunt each other and be safe. The very idea, however, has its roots in the 1950s when they used a rifle to fire coloured beads for marking trees and livestock ([www.paintball.in.rs](http://www.paintball.in.rs)). There are many different types of games and a variety of terrain (natural environment, built fields and inflatable fields, mobile fields that are customizable on every occasion), while in the game there is no limit regarding the number of the participants (from two to one hundred participants), the only important issue is teamwork and communication among the players. Also, this activity is not subject to seasonality, it can be practiced throughout the year. The most important rule of the game is that the face masks must not be removed for any reason, because the players can be hurt. As a very unusual sport, paintball came to Serbia in 2001 and today the country has about thirty clubs, competitive and recreational. Regarding the game, paintball is the game of tactics and team work and then the skill, speed and imagination. The equipment includes coveralls, masks and guns. Players usually play the game "*elimination*" or "*capture the flag*". On Fruška Gora Mountain there are many potential fields for paintball. What may be of particular importance in this context, are the inflatable polygons. It is important to point out that this polygons can be placed almost anywhere, especially near populated areas (Club "*Monks*" near Vrdnik (Fruška Gora) or Scarisoara (figure 1) on the Apuseni mountain), or other accommodation facilities, which would allow the exercise of activities as well as additional content, accommodation facilities and tourist sites.

In order to better present the paintball fields, it is necessary to look at their characteristics. The chain of Fruška Gora Mountain is broken and the mountain is basically composed of three parts: the area of Telek in the west, which is barely noticeable, Slankamen in the east and the central part of the mountain, which extends from Đipša in the west to Banstol in the east, which forms a ridge about 40 km long, and 440-460 m high. This is the part that is asymmetrical and dissected or broken with numerous valleys, with the developed source crest. The central part of the mountain has the shape of a long anticline, east-west, with a fragmented appearance of the wings and partial phishing. Anticline is symmetrically preserved, except in the far eastern part where it sank beneath the northern flank of the Danube fault. The mountain base is surrounded by two loess plateau areas, 130-150 m and 110-120 m high. The mountain is partly covered with thick or thin layers of loess and loess deposits that ease severity and sudden transitions that are characteristics of older and more compact rocks, which is certainly in

favour of sports and recreational tourism as a viable and accessible mountain in almost all its parts (Petković and al, 1976; Dragutinović, 2000; Obradović, 2006). This relatively low mountain with gentle folds is recognized for its picnic areas. The picnic areas are one of the best locations for paintball fields (figure 2). Some of these resorts are: Stražilovo, Glavica, Popovica, Iriški venac, Vrdnik, Zmajevac, Osovlje, Crveni čot, Letenka and Testera.



**Figure 1.** Paintball polygon on the Scarisoara (Apuseni, Romania)  
(Source: [www.apuseniadventure.ro](http://www.apuseniadventure.ro))

Stražilovo is a hill 321 m high and located in the eastern part of Fruška Gora Mountain, near Sremski Karlovci. Nearby, there is a restaurant “*Brankov čardak*” with bungalows and mountain lodge “*Stražilovo*” for holiday accommodation. This mountain lodge features football fields, sand volleyball and basketball courts for the lovers of classic sports, recreation guaranteed (Medeši, 1997).

Glavica is a picnic area 9 km from Novi Sad. It is accessible by car on asphalt road. It is situated at an altitude of 328 m.

Popovica is a picnic area with small lake and several mountain huts: “*Železničar*”, “*Orlovac*”, “*Penzioner*” and “*Medicinar*”. It is situated at an altitude of 300 m.

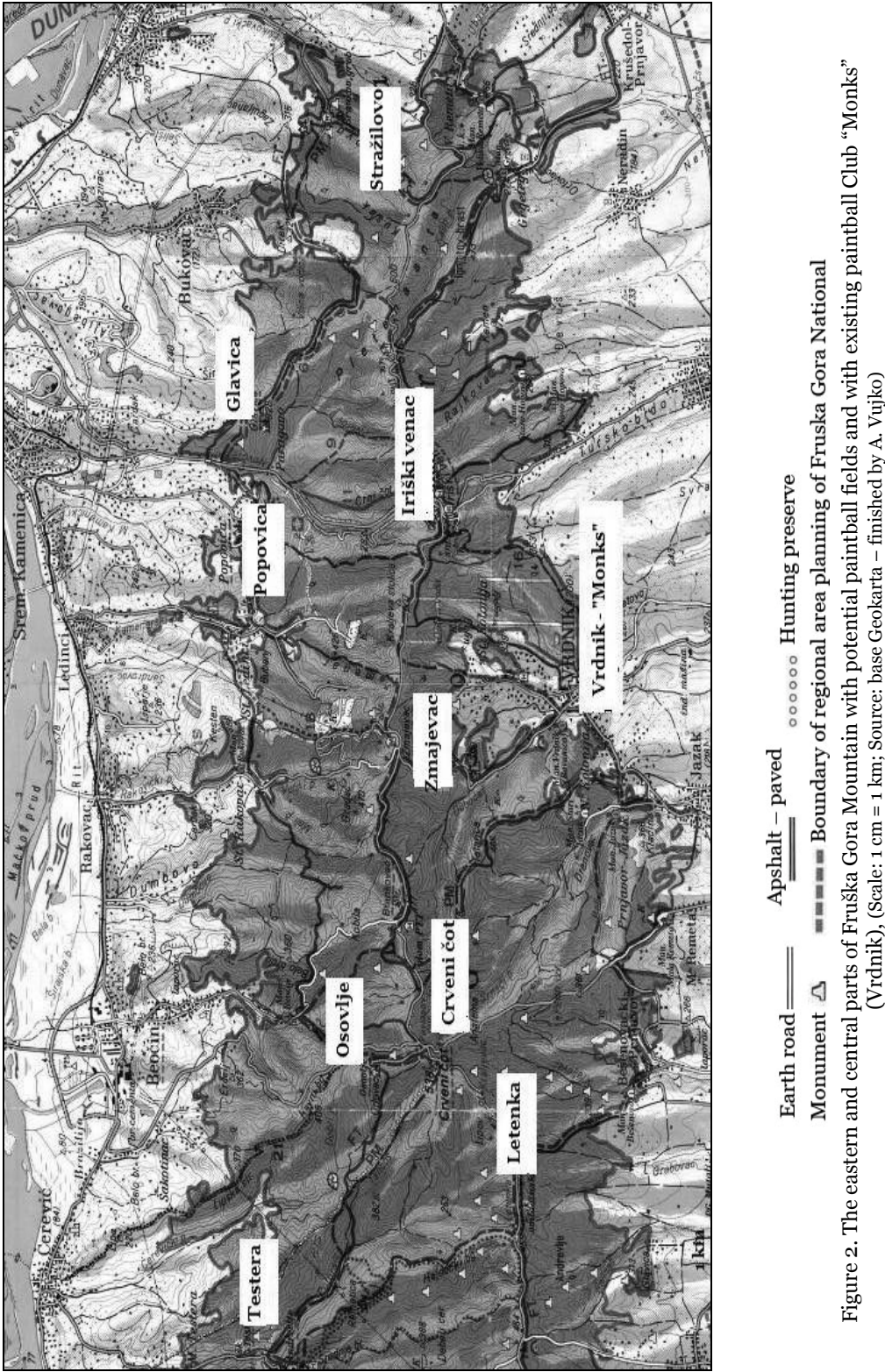
Iriški venac is the top height of 502 m. The nearest settlement is a small town Irig. Iriški venac is located in the central part of the mountain, and near it there is Brankovac and hotel “*Norcev*”.

Zmajevac (453 m) is a picnic area located by the road that connects Iriški venac and Vrdnik. About half an hour walk from Vrdnik, there is also a panoramic view of most of Srem and the ruins of Vrdnik Tower.

Vrdnik is a village in the municipality of Irig in the district of Srem on the south slope of Fruška Gora Mountain. Vrdnik is located at an altitude of 181-260 m, and therefore, has steep streets and houses on watersheds. Mountain range protects Vrdnik from cold air masses intrusion from the north, making the air warmer here than in some places that are further southwards, but were exposed to the north.

Crveni čot is the highest peak of Fruška gora with 539 m height above sea level. It is located in the municipality of Sremska Mitrovica. The nearest village is Bešenovački Prnjavor. Crveni čot is located in the central part of the mountain, a few kilometres far from Letenka, a famous picnic area on the mountain and children’s recreation place. Osovlje is located at 420 m altitude close to Crveni čot.

Letenka is located in the municipality of Sremska Mitrovica. Its location is ideal, since it is connected by an asphalt road to the surrounding municipalities and centres. Today, Letenka is known as an important resort on the mountain and children’s summer camp. Elevation is about 200 m.





Testera is located 25 km from Novi Sad, at an altitude of 250 m, near the village Čerević. Testera recreation centre was constructed for child care, athletes and fitness enthusiasts, meeting all the standards: housing, nutrition, education, education and medical care. The resort consists of three pavilions for accommodation, dining, kitchen, classrooms, common rooms and clinics (Obradović, 2006).

All these sites are linked to cross-roads, as well as longitudinal gravel-old asphalt through the entire length of the ridge. This travel route has been drawn by a unique "*Fruška Gora Mountain traverses*" which organize the traditional Fruška Gora Marathon. These sites, due to the global distribution line and interconnection, form a unique "Fruška Gora tourist zone" (PPPN, 2003).

Artificial lakes of Fruška Gora as hydrological objects could have the biggest recreational tourism value, some of them in particular. They were designed 20-30 years ago and all with the length of between one kilometre and three kilometres (Petrović and others, 1973). During their construction, the idea was to reduce the shortage of water, and to provide the water to be used for irrigation, water supply and recreation purposes. All these lakes are in stream valleys, and all are in some ways similar. In the west there are the lakes: Moharač, Bruje and Sot (figure 3). These lakes are the most beautiful in Fruška Gora Mountain (Bogdanović, 1980). The importance of paintball tourism would be reflected in paintball as an addition to the content of the lakes. Lakes with the most potential, particularly attractive for development of paintball are: Sot, Bruja and Moharač.

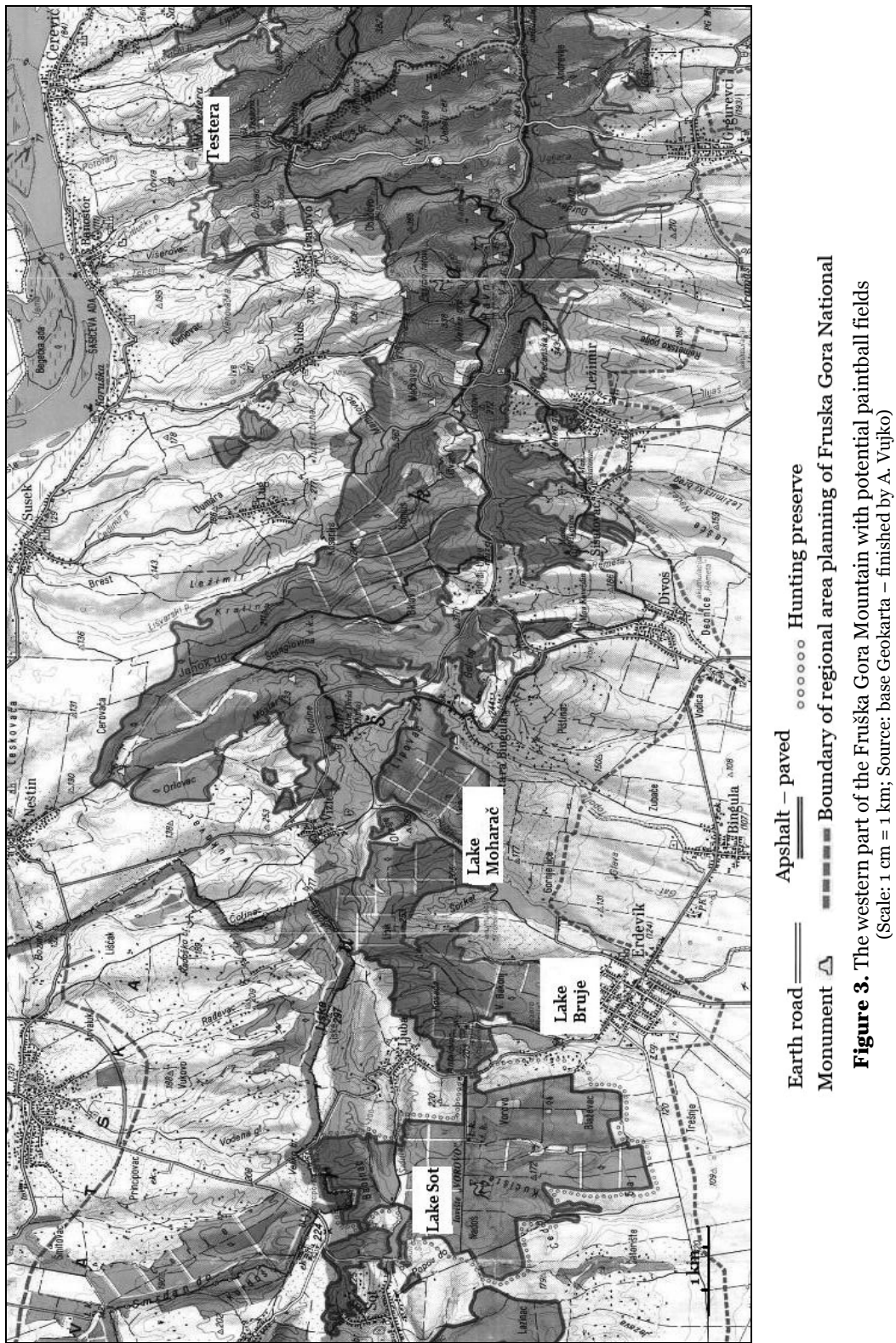
Lake Sot, the most western lake, is near the village of the same name, on the creek Šidina. Partly, this lake is located in the surroundings of the hunting woods Vorovo and is one of the most beautiful lakes on Fruška Gora Mountain. The lake covers the area of 33 ha with average depth of about 4 m. Altitude 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.

**Table 1.** The advantages of paintball development in Fruška Gora Mountain

<b>Strengths</b>
- An exciting Endorphin activities; Recreational activities that help stress reduction; Type of additional content for many other activities on the mountain; Paintball is non-toxic, easily soluble in water and does not pollute the environment.
<b>Weaknesses</b>
- Lack of cooperation with the authorities (National Park, the city of Novi Sad, municipalities, travel agencies, clubs, etc.); Lack of marketing activities to promote the game;
<b>Opportunities</b>
- Networking clubs in order to promote the game on the mountain; The establishment of base camps from which the mobile fields may be transferred to any part of the mountain;
<b>Threats</b>
-Lack of arrangements based on the paintball as a form of additional offer; Lack of information for citizens about the existence of the field, No Internet presentation etc.

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; Vujko and Plavša, 2010).





With regard to the fact that paintball helps stress reduction and that Fruska Gora Mountain is the potential for sport and recreational tourism development, it was necessary to proceed to the second step, the SWOT and benchmark analysis of paintball in the mountain as well as development of such form of tourism in the future.

The analysis of the results revealed highly interesting data. Potentials for the development of paintball in Fruska Gora Mountain are great and paintball tourism is even desirable form of tourism to the territory of the Fruška gora National Park (figure 4). The observed problem regarding property issues is the lack of cooperation between decision makers in tourism. Presumably, those are mere excuses for the lack of initiative and lack of understanding of the importance that paintball tourism can have for this region.



**Figure 4.** Paintball organized by the club „Monks“ – Vrdnik (Photo: N. Dževerdinović, 2010)

Further work will be done by benchmarking to understand the necessary steps to implement similar examples. The Apuseni Mountains hold attractions for numerous types of tourists (Cianga and Surd, 2003; 2005). „*Apuseni Experience*“ are specifically designed outdoor experiences related to caving, climbing, hiking, trekking, walking, horse riding, touring skiing, down hill or alpine skiing, winter hiking (including snowshoeing), show cave visits, cultural tours, bird watching, horse cart trips, craft demonstration, wild flowers, wildlife tracking, paintball etc. This organization provides guided trips as well as self guided trips in Padis Plateau, Ariesului Valley, the Trascau Mountains, the Padurea Craiului Mountains, the Bihor Mountains and the Vladeasa Mountains. „*Apuseni Experience*“ is a trademark of Eco Transylvania Ltd., and they are members of Association of Ecotourism in Romania and partners of the Apuseni Nature Park. According to them paintball is organized in the region where it is allowed (Ghetarul, Scarisoara, Ghetarul Vartop, Varful Runc, Valea Verde and Groapa Ruginoasa).

Polygons are made of natural materials (wood, straw, etc.) so it is light furniture, which is handled effectively (figure 5). It is important that the offer of paintball is permanent which means that the paintball can be constantly practiced, regardless of weather conditions. Information about paintball can be found on the Internet ([www.apuseniadventure.ro](http://www.apuseniadventure.ro), [www.apuseniresort.com](http://www.apuseniresort.com)). The vast spectrum of activities and the numerous attractions in this mountain region are noticeable. The tourist base around the paintball polygon is well developed. The variety of accommodation or catering facilities, and sport and recreational activities are additional elements attracting tourists. The most important reasons for visiting the Apuseni Natural Park are: the spectacular scenery and sport and recreational tourism (45 %), the fauna and the flora (12 %), and the brand of the region (3 %). Most of the tourists prefer to stay in tents, in order to stay close to the main attractions. Mainly they choose to camp in Padis or Glavoi Plateaus. On average, a

tourist stays in the park for 6 days. The activities of the tourists are: hiking (92 %), caving (21 %), alpinism (12 %), horse Băck riding (8 %), cycling (4 %) (Bădulescu and Băc, 2009). Although paintball has not been scientifically researched form of sports and recreational activities yet, it has been carried out to complement the content of many other activities. Bearing in mind that the average length of stay in the Apuseni is 6 days, the most common mountaineering activity is staying in tents, which is very popular among tourists. To conclude, those who stay on the mountain certainly would try paintball, especially if the courts are situated near the camp sites.



**Figure 5.** Paintball polygon on the Scarisoara (Apuseni, Romania)  
(Source: [www.apuseniadventure.ro](http://www.apuseniadventure.ro))

## CONCLUSION

In conclusion, there is a strong connection between sustainable tourism and paintball. They are both attempting to decrease negative impacts of modern society and tourism. Sustainable tourism should be applied on all types and forms of tourism, whereas paintball is a very well defined new form of alternative tourism.

In recent years Fruška Gora Mountain experienced stagnation in sports and recreation offer and degradation of all activities. Mountain has been neglected, untidy, unmarked and certainly has deserved more discussions about the problems. The biggest problem of tourism development on Fruška Gora Mountain is the lack of clearly defined drivers of tourism development, then tourists should not feel the consequences of insufficient or inadequate use of space, and finally there have not been developmental programmes implemented. The most important issue is that it seems that there is no fundamental decision whether sport and recreational tourism is needed on the mountain. Modern tourist market requires the development of specific programmes offered through attractive programmes by marked trails. The advantages of paintball development as a form of sports and recreational tourism on the mountain are reflected in planning and equipping the area of Fruška Gora Mountain to serve the function of this form of tourism and providing conditions for active holidays and recreation (Ahmetović-Tomka, 1995; Tomić, 2004; Lazić, 2008; Vujko, Plavša, 2010; Vujko, 2011).

Regarding this, the development of paintball on the mountain should focus on furnishing, decoration and use of space in line with the principles of sustainable development which include meeting the needs of protection, preservation and improvement, but also to provide conditions to stay in that environment. The following benefits would be reflected in their commitment to those types of sports and recreational tourism that are specific (relying on the primary attractions of space), or that are in short supply on the tourism market of Serbia and the environment (sports and recreational

offer based on paintball in Serbia is scarce, for that reason, it is on the establishment of such deals to reflect a major opportunity for tourism development on the mountain). Therefore, development of paintball as a form of sports and recreational tourism should be designed to run continuously in time and space, and in the first phase to decide on those areas in Fruška Gora Mountain which an organization can start immediately and without major financial investment. This means that one of the chances for developing this form of sports and recreational tourism lies in developing all of those areas in Fruška Gora Mountain that do not require large investments but are looking for a good organization and a complete tourism marketing. Bearing in mind, that the theme of health (Standeven and De Knop, 1999; Plavša, 2007; Hayward, 2001; Hudson, 2003; Buckley et al., 2007; Weed, 2008; Vujko, 2008; Vujko, 2011) is one of the leading motifs of modern sports and recreational tourism, established all the necessary determinants of paintball as a form of sports and recreational tourism, therefore, the pace of its development depends only on the human factor.

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