

IDENTIFICATION AND EVALUATION OF GEOSITES ALONG EXISTING TOURIST TRAIL AS A PRIMARY STEP OF GEOTOURISM DEVELOPMENT: CASE STUDY FROM THE SPIŠ REGION (SLOVAKIA)

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Abstract: Geotourism as a rapidly growing form of tourism provides opportunities of development for each region with significant natural monuments of regional, national or international importance. Such places may be found along existing tourist trails. They can be transformed into geotourism trails with relatively minimal expenses. This paper is focused on characteristics of geosites along one of the most beautiful tourist trails in Slovakia - Sivá Brada. Results of the research indicate undisputed geotourism significance of the tourist trail. Based on this fact, proper identification, description and promotion of such geosites may play a key role in the process of (geo)tourism introduction and sustainable development within regions located outside geopark areas as discussed in this paper.

Key words: geosite identification, tourist trail, geotourism, Spiš

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INTRODUCTION

Geosites, as a term, have appeared in publications (e.g. Cowie, 1992; Cowie & Wimbledon, 1994) from 1990's. Nowadays, as geosite concept is widely accepted and geosites are discussed by many authors (e.g. Gavrilă & Anghel, 2013; Ilieș & Josan, 2009; Joyce, 2008; Martínez-Torez et al., 2011; Wimbledon, 1996; Wimbledon et al., 2000; Wimbledon & Smith-Meyer, 2012), several geosite definitions including uniqueness, geological heritage (geoheritage) and significance were introduced. One of the most applicable and clear definitions of geosite was given by Reynard (2004). He defines the geosite as follows: "Geosites are portions of the geosphere that present a particular importance for the comprehension of Earth history. More precisely, geosites are defined as geological or geomorphological objects that have acquired a scientific (e.g. sedimentological stratotype, relict moraine representative of a glacier extension), cultural/historical (e.g. religious or mystical value), aesthetic (e.g. some mountainous or coastal landscapes) and/or social/economic (e.g. aesthetic landscapes as tourist destinations) value due to human perception or exploitation."

Identification and characterization of geosites are inevitable steps not only in the process of their preservation for future generations but also for planning and

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management of (geo)tourism development activities at present. One of the opportunities of possible geotourism development within existing tourism attractive area, located outside of established or planned geopark, is to identify, characterize and, in appropriate way, introduce to tourists geosites that are located e.g. along existing tourist trails.

This article is focused on analysis of selected tourist trail in order to (1) identify and characterize geosites present at or near the trail, and (2) set the value of each identified geosite and specify geotourism potential of the trail. For this purpose, one of the most beautiful tourist trails in Slovakia (Turistický atlas Slovenska, 2005) – Sívá Brada was selected (Figure 1). It passes several monuments including the Spiš Castle, which is enlisted in the UNESCO World Heritage List, the town monument reserve (Spišská Kapitula), national culture monument (the church in the Žehra village), two natural reserves (Sívá Brada, Dreveník) and two natural monuments (Jazierko pri Pažiti and Ostrá hora).



Figure 1. Location of selected tourist trail
(Source: TuristickaMapa.sk, 2014; modified)

METHODS

Archive study, field work, analysis of tourist trail and geotourism potential evaluation were the four major steps within the research presented in this paper.

Archive study, as a first stage of the research, includes study of tourism related literature and maps of selected area. This is a very important part of the research due to the fact that many useful information can be found in older publications based on which the most suitable trail is selected.

Field work is a primary data source for the trail analysis and evaluation. Therefore, proper attention should be paid on it. During the field work, photo-documentation was made and each potential geosite on or along the trail was marked on the map and GPS coordinates of each geosite were recorded. Characteristics of each marked geosite were recorded into the field diary.

After extensive field work, analyses and evaluation of the trail followed. It includes an assessment of the trail difficulty, accessibility, current state and evaluation of geosites based on selected method. At present, geosite evaluation is very discussed topic and several authors have proposed different methods of geosite evaluation (e.g. Baca & Schuster, 2011; Bruschi et al., 2011; Fassoulas et al., 2012; Kubalíková, 2009; Pereira et al., 2007; Poirier & Daigneault, 2011; Reynard et al., 2007; Rybár, 2010; Tucki, 2004; Warszyńska, 1970, 1974; Wimbledon et al., 2000; Zouros, 2007). Despite the fact that there are different geosite evaluation methods defined, universal application of any of these methods is limited (Štrba et al., 2015). Quantitative assessment method proposed by Rybár (2010) was used in this study because this method allows to specify value of natural and/or anthropogenic object. Although, anthropogenic object evaluation was originally proposed to set the value of the mining heritage objects, after partial modification of assessment criteria, it can be used for evaluation of any historical object. Such an approach gives not only information about geotourism potential of each geosite in the study area but also additionally informs about cultural –historical value of the area of the tourist trail.

CHARACTERISTICS OF THE TOURIST TRAIL SIVÁ BRADA

Yellow marked tourist trail Sivá Brada located in eastern part of Slovakia (Figure 1), in one of the most significant regions of the country from historical and cultural point of view, is 9,3 km long trail (Figure 2) with seven main standpoints: Sivá brada, Spišská Kapitula, Spišské Podhradie, Spiš Castle, Dreveník, Žehra, and it can be completed in 2 hours and 25 minutes (Turistický atlas Slovenska, 2005).

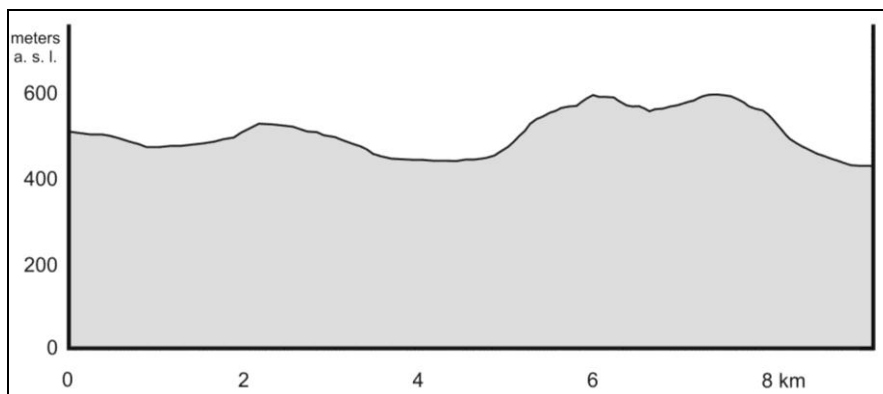


Figure 2. Elevation profile of the tourist trail Sivá Brada

The trail starts on the Sivá Brada – national natural reserve. There is also a pension Sivá Brada in this area and, a hundred meters from this accommodation facility, a travertine hill with mineral springs and rare flora of Central European importance towers about the ground. At the top of the hill, a baroque chapel – “Kaplnka sv. Kríža” – was built in 1675 (www.slovenskyraj.sk). The trail continues to the chalet and behind it the trail turns to right to the lake Jazierko na Pažiti, which is declared as a natural monument and protected area. Near the trail continuing to the Spišská Kapitula, on its right side, two chapels are located. From Spišská Kapitula the trail continues to Spišské Podhradie and Spiš Castle hill (law protected area) with the Spiš Castle, one of the largest castles in the Central Europe, on its top. Then, the trail leads through Ostrá hora to the Natural National Reserve Dreveník – one of the biggest and oldest travertine hills in Slovakia with its unique “stone city”. From Dreveník, the trail follows to the plain, where one can have view at wide surroundings, and turns southward to the Žehra village which is the final standpoint of the trail. Here, the Early Gothic church enlisted in the UNESCO World Heritage List can be visited.

GEOSITES ALONG THE TOURIST TRAIL

During extensive geotourism based field research of the tourist trail Sivá Brada supported by archive study, five geotourism potential areas were selected where nine significant geosites were identified (Figure 3) and evaluated (Table 1). They cover several fields of interest including different geological disciplines (environmental geology, hydrogeology, paleontology, sedimentology, karst geology), history, archaeology, and botany. *Sivá Brada* (Figure 4B) is 25 m high and, at its foot, 500 meters wide typical travertine hill. At its top, in the middle of the pramenite lake, springing CO₂ rich earthy mineral water continuously bubbles reminding of boiling water. Thin layers of pramenite, which actually created the whole hill, precipitates at the edge of the lake and turn into the travertine. As an active spring is present at this locality, the site is a perfect example of travertine hill forming. This 10 000 year old travertine hill is, from geological point of view, very young. Influenced by the range of human activities, Sivá Brada is one of the most endangered National Natural Monuments in Slovakia. Impact of motorism, uncontrolled tourism overload, agricultural production and accumulation of chemicals cause extensive area devastation and disappearance of many of its natural values.

Surroundings of the Sivá Brada travertine hill is known for its *mineral water springs* (Figure 4A), which were widely used by visitors. The water was used for spa purposes. Digestive system and metabolism diseases were healed here in the miniature spa. During the exploratory drilling for the spa, overpressure spring was met at the foot of the hill. At present, the spring, in the form of geyser, erupts up to 3 meters. In spite of the non-natural origin of the geyser, it is a popular tourist area. *Jazierko na Pažiti* is a unique geomorphological form - depression on the travertine hill Pažiť. From 1990, it is declared as Natural Monument. Two chapels (Chapel of St. Ján from 18th century and Chapel of St. Rozalia from 17th century) were built near the lake.

National Natural Monument *Spiš Castle hill* (Figure 4E) is a locality of geological, tourism and archaeological interest. It is considered to be one of the oldest (Miocene-Holocene) travertine hills in the area with more than 50 meters thick travertine layers which are intensively destructed by geodynamic processes affecting not only the hill but the historical building of the Spiš Castle also.

Ostrá Hora is 293 240 m² wide law protected area. It consists of two individual travertine hills – Ostrá hora and Kozia hora. Major peak reaches 608 meters above sea level (a. s. l.). It was formed at the end of Tertiary, when massive layers of travertine had precipitated from mineral waters springing at the faults of the flysch sublayers.

The travertine hill was formed on the tectonic line of N-S direction which is perpendicular to the direction of the fault on which Sobotisko and Sivá Brada evolved. The original shape of the hill is better preserved compared to adjacent travertine hill, Dreveník. Xenotherm plant communities with occurrence of endangered species including *Pulsatilla slavica*, *Anemone sylvestris*, *Campanula carpatica*, *Aconitum anthora*, *Ophrys insectifera*, *Linum flavum*, *Linum austriacum* are under law protection.

National Natural Monument *Dreveník* (Figure 4D) is a table-like travertine hill formed from mineral waters at tectonic fault. It arose of the junction of several limestone-travertine heaps. Together with the Spiš Castle travertine hill, it is the eldest travertine formation in the area and the most extensive travertine area in Slovakia. It has numerous rock formations including the most famous and attractive: Peklo (“Hell”) and Kamenný raj (“Rock Heaven”). Three caves were found on its slopes. The name of the travertine massif of *Dreveník* has probably been derived from a wooden fortress that used to stand on it before the Spiš Castle itself was erected. Even nowadays, this significant archaeological locality reveals its secrets giving evidence reaching as far in the past as the times of the Neanderthal man. The mammoth bones, as well as items from Late Stone Age, Bronze Age and fortified settlement era have also been found (<http://slovakia.travel/entitaview.aspx?l=2&idp=18313>).

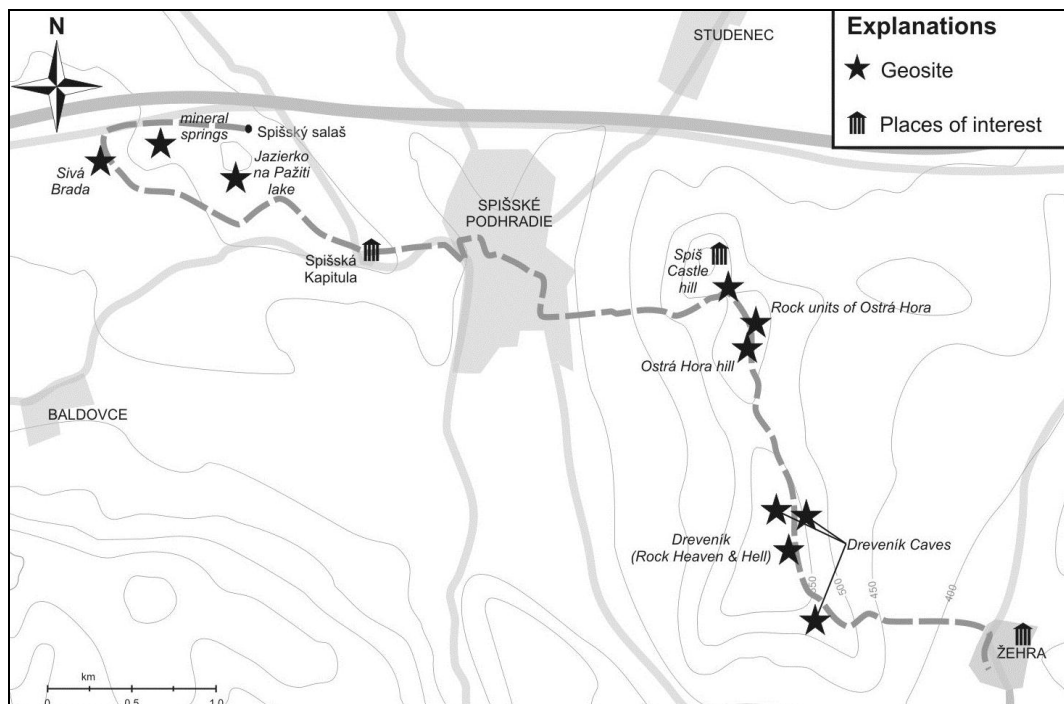


Figure 3. Map of identified geosites along the tourist trail Sivá Brada (Source: TuristickaMapa.sk, 2014; modified)

Description of each geosite should represent complex information basis of the locality. One of the very good examples of such descriptions including geosite location, GPS coordinates, geographical and geological characteristics, site valorization and site characteristics was given by Slomka (2012). A complex geosite description is given in following text on the example of the Spiš Castle hill.

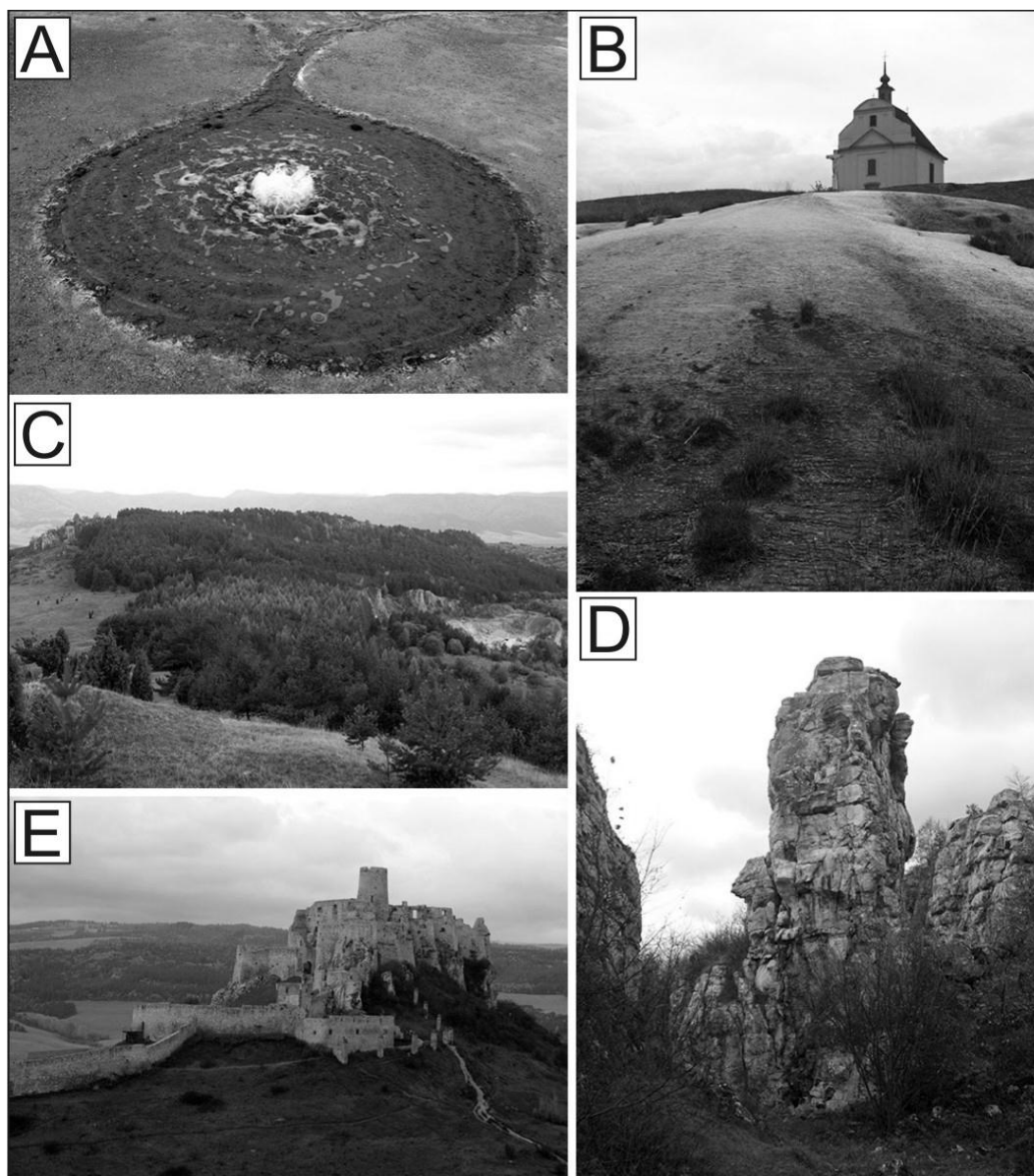


Figure 4. Geosites along the tourist trail Sivá Brada: A – mineral water spring at the foot of the Sivá Brada hill; B – Sivá Brada travertine hill with the baroque chapel of Holy Cross (“Kaplnka sv. Kríža”); C – view from the Ostrá Hora hill on the Dreveník travertine hill, D – one of disintegrated travertine blocks (Rock Heaven) of the Dreveník travertine hill; E – Spiš Castle hill and the Spiš Castle (view from the Ostrá Hora hill)

SPIŠ CASTLE HILL

Spiš Castle travertine hill (632 m a. s. l.) is National Natural Monument on which Natural Cultural Monument enlisted in UNESCO World Heritage List - the Spiš Castle – was built. It belongs to the cadastral area of the Žehra village and is under the administration of the National Park Slovenský Raj (Slovak Paradise).

Identification and Evaluation of Geosites Along Existing Tourist Trail As a Primary Step
of Geotourism Development: Case Study from the Spiš Region (Slovakia)

Location	Region: Košice District: Spišská Nová Ves Township: Žehra
GPS Coordinates	48°59'59" N 20°46'6" E
Geosite evaluation score	88% - international importance

Table 1a. Evaluation of identified geosites according to Rybár (2010), along tourist trail Sivá Brada

Criterion	Sivá Brada		Mineral Springs		Jazierko na Pažiti Lake	
	Category	Pts.	Category	Pts.	Category	Pts.
Primary geological properties	Object not listed in any geosites network, but due to its character should belong there	5	Object not listed in any geosites network, but due to its character should belong there	5	Object of local importance	3
Uniqueness of the object	Object typical for region	3	Object unique within hiking distance	4	Object unique within hiking distance	4
Accessibility of the object	Comfortable access	8	Accessible for a person with average fitness condition	7	Comfortable access	8
Existing scientific and professional publications	Scientific and professional geological literature	8	Scientific and professional geological literature	8	Map records only	4
Conditions of observation (research)	Suitable	8	Suitable	8	Suitable	8
Safety criteria	Object, surroundings safe	8	Object, surroundings safe	8	Object, surroundings safe	8
Availability of information about the object	Available and quality information on the Internet	8	Existence of educational-popular form of information	6	Available and quality information on the Internet	8
Visual value of the object	Object in plain landscape with great view	6	Object in plain landscape with great view	6	Object in plain landscape with great view	6
Value of provided services	Object with no provided services	0	Object with no provided services	0	Object with no provided services	0
Object in the tourist area	Object marked on maps, underpinned by marketing	8	Object visited by holidaymakers	5	Object visited by holidaymakers	5
Total		62		57		54

Table 1b. Evaluation of identified geosites according to Rybár (2010) along tourist trail Sivá Brada

Criterion	Spiš Castle hill		Ostrá Hora		Rock units of Ostrá Hora	
	Category	Pts.	Category	Pts.	Category	Pts.
Primary geological properties	Object not listed in any geosites network, but due to its character should belong there	5	Object of local importance	3	Object not listed in any geosites network, but due to its character should belong there	5
Uniqueness of the object	Object typical for region	3	Object typical for region	3	Object unique within hiking distance	4

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Accessibility of the object	Comfortable access	8	Accessible for a person with average fitness condition	7	Accessible for a person with average fitness condition	7
Existing scientific and professional publications	Scientific and professional geological literature	8	Map records only	4	Map records only	4
Conditions of observation (research)	Suitable	8	Difficult	4	Difficult	4
Safety criteria	Object, surroundings safe	8	Object, surroundings safe	8	Object, terrain in dangerous environment, without security elements	0
Availability of information about the object	Available and quality information on the Internet	8	Incomplete information	2	Incomplete information	2
Visual value of the object	Object in mountainous landscape with great distance and depth views	8	Object in mountainous landscape with great distance and depth views	8	Object in mountainous landscape with great distance and depth views	8
Value of provided services	Stores selling minerals, historical objects, books and advertising objects	6	Object with no provided services	0	Object with no provided services	0
Object in the tourist area	Object marked on maps, underpinned by marketing	8	Object marked on maps, underpinned by marketing	8	Object visited by holidaymakers	5
Total		70		47		39

Table 1c. Evaluation of identified geosites according to Rybár (2010) along tourist trail Sivá Brada

Criterion	Hell - Dreveník		Rock Heaven - Dreveník		Dreveník Caves	
	Category	Pts.	Category	Pts.	Category	Pts.
Primary geological properties	Object not listed in any geosites network, but due to its character should belong there	5	Object not listed in any geosites network, but due to its character should belong there	5	Object not listed in any geosites network, but due to its character should belong there	5
Uniqueness of the object	Object unique within The Western Carpathians	6	Object unique within The Western Carpathians	6	Object unique within hiking distance	4
Accessibility of the object	Accessible for a person with average fitness condition	7	Accessible for a person with average fitness condition	7	Inaccessible for different reasons	0
Existing scientific and professional publications	Scientific and professional geological literature	8	Scientific and professional geological literature	8	Locality without description	0
Conditions of observation (research)	Suitable	8	Suitable	8	Difficult	4
Safety criteria	Object, terrain in dangerous environment, without security elements	0	Object, terrain in dangerous environment, without security elements	0	Object, surroundings, secured by security elements, protection tools at disposal	5

Identification and Evaluation of Geosites Along Existing Tourist Trail As a Primary Step
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Availability of information about the object	Available and quality information on the Internet	8	Available and quality information on the Internet	8	Incomplete information	2
Visual value of the object	Object in mountainous landscape with great distance and depth views	8	Object in mountainous landscape with great distance and depth views	8	Object in mountainous landscape with great distance and depth views	8
Value of provided services	Object with no provided services	0	Object with no provided services	0	Object with no provided services	0
Object in the tourist area	Object marked on maps, underpinned by marketing	8	Object marked on maps, underpinned by marketing	8	Object not underpinned by marketing	0
Total		58		58		28

General information

Spiš Castle travertine hill was declared as National Natural Monument in 1990. The protected area of geological, tourism and archaeological importance has an area of 242 064 m². The rocks of the travertine hill are intensely destructed erosional processes such as karstification and slope movements (Wróblewski et al., 2010) which represent one of the most important denudation processes.

This process leads to laying bare rock surfaces due to wasting and disintegration, and gradually reduction in relief of landforms (Mukherjee & Jha, 2012). Its evolution differs from other travertine hills in the Hornádska kotlina depression which is disrupted by the fault tectonics and membered into blocks mutually shifted both in vertical and horizontal direction. According to the latest knowledge, mineral and thermal waters, which deposited extensive and massive travertine hills, reach the surface along faults from Miocene to the present. Hydrologically, the area belongs to the Hornád river basin. The top of the hill is in 634 meters a. s. l.

Geological description

Spiš Castle travertine hill is considered to be, together with the Dreveník travertine hill, the oldest travertine hill whose evolution started in Miocene. Its dominating height can be explained by formation of younger upper “tower-rock-like” travertine layers during Pleistocene. According to Vlčko (2004), the travertine under the Spiš Castle reaches some 52 meters in thickness, has white to yellow color, is micro- to macro-porous with fluidized structure. Travertine bodies are destructed by intensive denudation processes which were confirmed by geophysical measurements in the area of the Spiš castle in 1980 and 1992. Results of these studies identified different intensity of creeping movements. Creeping slope movements cause deformations in the form of block disintegration, shifts and block fields (Figure 5). They also affect the building of the castle. Rock falls on steep to almost vertical rock walls occur along the outer perimeter of the castle hill (Figure 6). These falls result from slow creeping of perimeter blocks and mechanical weathering of travertine. Surface and subsurface karst forms (karrens, caves) are also present in this area, e. g. Podhradská jaskyňa cave located in the southern part of the hill, near the castle entrance gate, under the Perúnova skala rock.

Places of interest near the geosite

As the described geosite is located in significant cultural and historical region of Slovakia – Spiš, there are many places of interest that should attract visitor of the Spiš Castle hill including natural and cultural monuments – Spiš Castle, Dreveník travertine hill, Sivá Brada travertine hill with mineral water springs, Ostrá Hora hill, Spišská Kapitula and Church in the Žehra village.

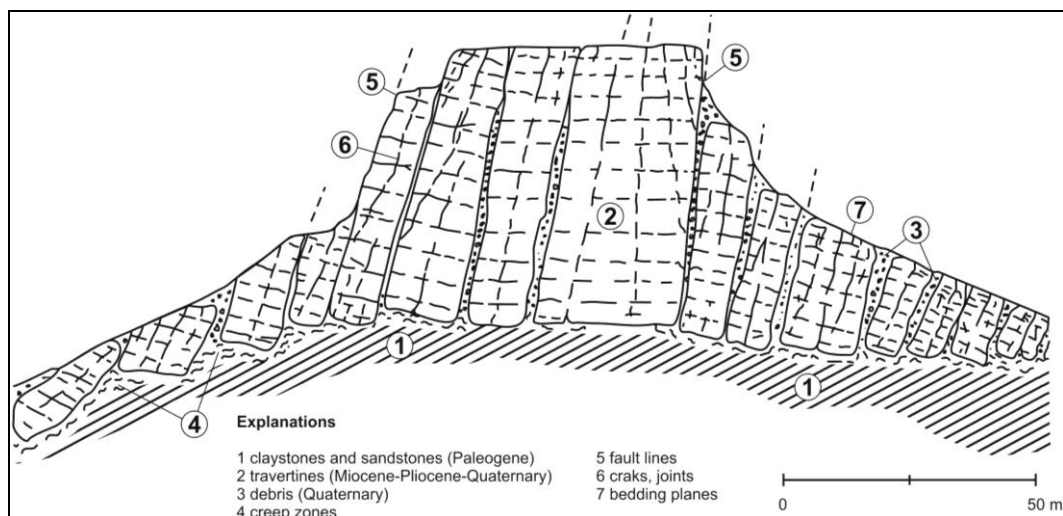


Figure 5. Spiš Castle hill cross-section
(Source: after Malgot in Vlčko et al., 1993)

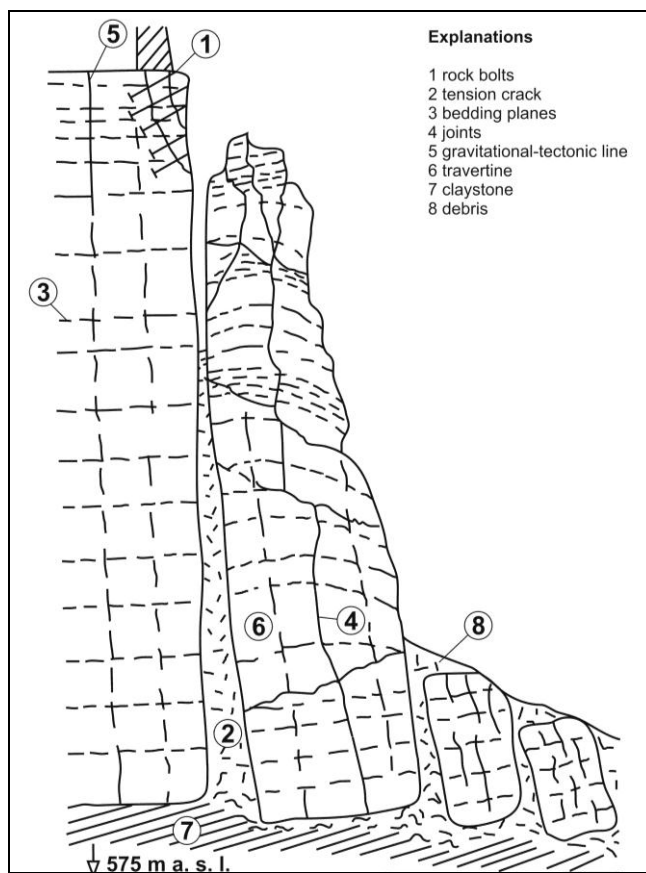


Figure 6. Displaced travertine cliffs below Romanesque Palace of the Spiš Castle
(Source: after Malgot in Vlčko et al., 1993)

SIGNIFICANT TOURIST MONUMENTS LOCATED NEAR THE TRAIL

As the analyzed tourist trail is located in the area of the Spiš region, which is one of the most important cultural-historical regions in Slovakia, in addition to many attractive natural sites, unique and significant tourist monuments are present near the Sivá Brada tourist trail including: Spiš Castle, St. Martins Cathedral and Holy Spirit church (Figure 7, Table 2).

Table 2. Evaluation of anthropogenic geosites according to modified assessment method of Rybár (2010) along tourist trail Sivá Brada

Criterion	Spiš Castle		St. Martins Cathedral (Spišská Kapitula)		Holy Spirit church (Žehra)	
	Category	Pts.	Category	Pts.	Category	Pts.
Age	Medieval object	6	Medieval object	6	Medieval object	6
Historical value	Object of international cultural-historical significance	8	Object of international cultural-historical significance	8	Object of international cultural-historical significance	8
Aesthetic value	Architecturally preserved works (house, mansion, church, archaeological findings)	8	Architecturally preserved works (house, mansion, church, archaeological findings)	8	Architecturally preserved works (house, mansion, church, archaeological findings)	8
Authenticity	Preserved authentic elements and details	8	Preserved authentic elements and details	8	Preserved authentic elements and details	8
Value of municipalities and cultural routes reconstruction	Object connected to the cultural route	8	Object connected to the cultural route	8	Object connected to the cultural route	8
Excellence	Listed in UNESCO World Heritage List	8	Listed in UNESCO World Heritage List	8	Listed in UNESCO World Heritage List	8
Emotional value	Object related to famous person or event of global/international/national significance	8	Object related to famous person or event of global/international/national significance	8	Object related to the figure or event of regional significance	4
Utility value	Historical reenactments	6	Object used for exhibitions, masses, concerts	5	Object used for exhibitions, masses, concerts	5
Value of rovided services	Guided tours	8	Guided tours	8	Guided tours	8
Safety criteria	Object safe, requiring no safety measures	8	Object safe, requiring no safety measures	8	Object safe, requiring no safety measures	8
Total		76		75		71

Construction of the medieval *Spiš castle* on a travertine hill dates back to the beginning of the 12th century. The oldest written reference to the castle is from 1120. At the beginning it was a boundary fort placed at the northern frontier of an early feudal Old Hungarian state. Afterwards, it became the seat of the head of the Spiš region for many centuries. At present there are the collections of the Spiš Museum placed in the castle documenting its history, along with medieval arms and feudal jurisdiction. As a National Cultural Monument, Spiš Castle with its area of more than four ha, and partially in ruins, is one of the largest castle compounds in Central Europe. Spiš Castle was included in the UNESCO World Heritage List in 1993 (<http://slovakia.travel/en/spisky-hrad-castle>).

The most important building of Spišská Kapitula, enlisted as a UNESCO World Cultural and Natural Heritage, is the Late-Romanesque *St. Martins Cathedral*. This chapel of the Zápoľský family imitates the French chapel of Saint Chapelle. Baroque traits

were erased by reconstruction in the years 1873-1889 in an attempt to give it a medieval character in line with the taste of the period of Romanticism. The stone sculpture of Leo Albus from the second third of the 13th century is one of the oldest of its kind in Slovakia (<http://slovakia.travel/en/st-martins-cathedral-spisska-kapitula>).

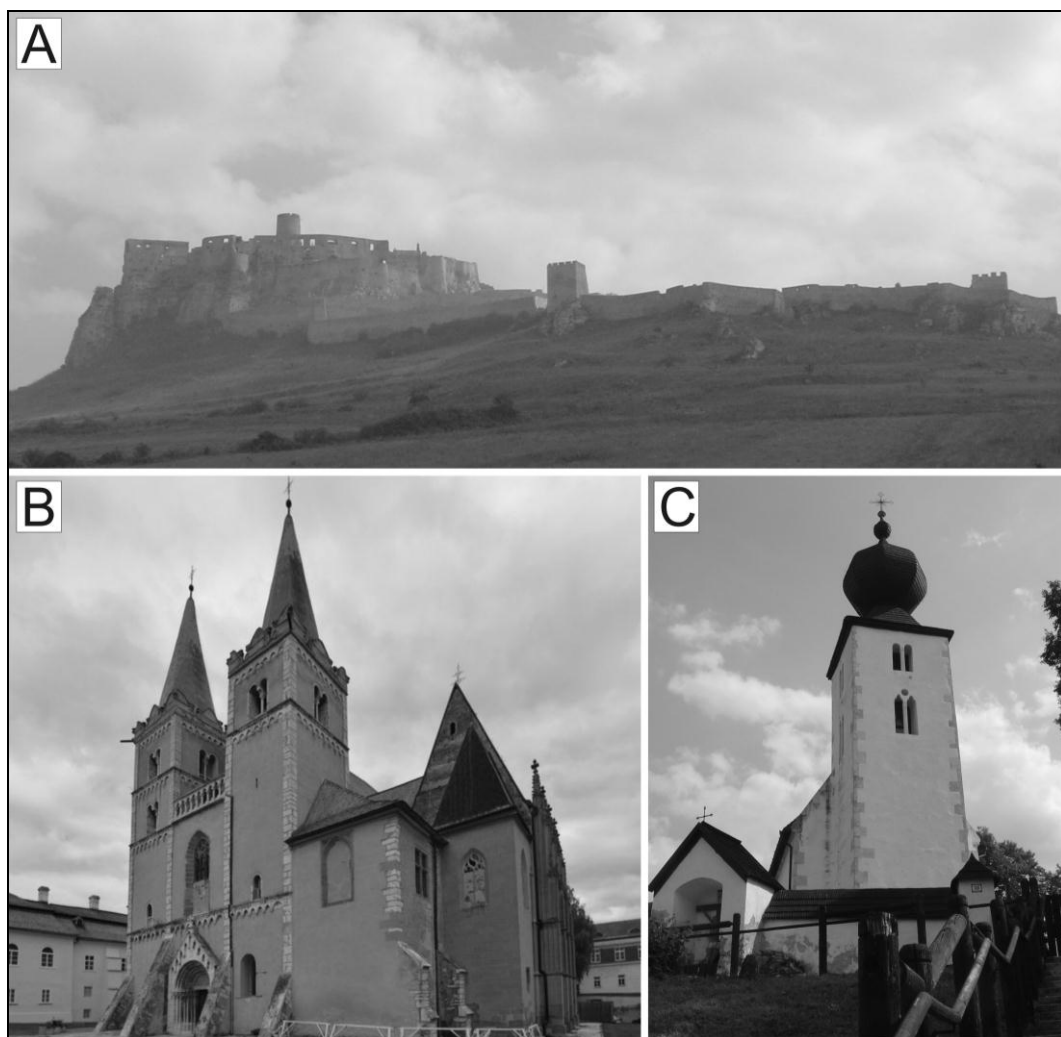


Figure 7. Significant tourist monuments located near the Sivá Brada tourist trail“ A – Spiš Castle, B – St. Matrins Cathedral (Spišská Kapitula), C – Holy Spirit church (Žehra)

The Spiš community of Žehra is known for its precious local Roman-Catholic *Holy Spirit church* (Kostol Ducha Svätého) that is, along with other monuments around the Spiš Castle, included in the UNESCO World Heritage List. The oldest part of the two-nave church with a square presbytery is a mixture of two styles preserved until the present time. It is a sensitively accomplished combination of the Romanesque and Early Gothic building elements. The temple paintings in Žehra are remarkable for their artistic quality and unusual thematic diversity. They depict various Biblical stories and legends of the saints (<http://slovakia.travel/en/holy-spirit-church-zehra>).

DISCUSSION

As tourists look for new and/or alternative forms of tourism, geotourism as a rapidly growing form of tourism all around the world provides a great opportunity for many regions to promote unique and/or rare sites or locations of different type (Dowling, 2011). One of relatively inexpensive methods of sustainable geotourism development in regions located outside geopark area is transformation of tourist trails area into geotourism educational trails. This process includes several major steps: (1) identification of possible sites of interest – geosite; (2) evaluation of each geosite identified and selection of the most significant geosites based on the evaluation score, (3) descriptions of selected geosites and (4) trail modification in the field (including e.g. text corrections on existing information panels, installation of new information panels, etc).

Evaluation scores of geosites identified along the Sivá Brada tourist trail indicate that the area of the trail undoubtedly represent significant region of geotourism interest. Based on this fact, there is a high potential of transformation of selected tourist trail into geotourism educational trail. As the evaluation scores primarily provide information on locality significance to scientist or professionals in the field of geotourism, characterization and description of geosites to general public as the major part of geosite visitors require different approach, e. g. by appropriate way of information presenting via information panels (Hose, 2000), QR codes (Canadi et al., 2010), or the guide on the trail.

Modern educational tourist trails all around the world are built to be devoted to one specific field of interest, about which information are provided along the whole trail: e.g. if the trail leads along significant karst forms, the educational trail is dealing with the forms, describes them and provides important information about them.

Most of older educational trails in Slovakia comprise static information panels devoted to different topics (e.g. one panel provides information about geology of the locality, another describes fauna and/or flora, etc.). Common problem of such trails (dealing with general information) is that they become uninteresting for visitors because it is often difficult to read "scientific-like" text on the panels and remember information from variety of topics presented on the panels. Form of the information presentation and information itself should be attractive to visitors. If the information is provided in catchy manner or through some kind of experience, it becomes easy to remember (Gebhard et al., 2007). Character of many Slovak educational trails does not change even after their innovation or reconstruction. There is no modernization in the form of information provision and no optimization of the educational trail theme. If the trail provides variety of information on different topics, tourist does not learn about important and/or specific values of the area. Thus, there is no increase in tourist's natural heritage awareness, no change of attitude towards nature in positive way and no motivation to preserve such sites for future generations.

According to the suggestions given by The Trail Planning Guide recommended by the UNESCO (Gebhard et al., 2007), it is necessary to provide such information that will be relevant to tourist on each interpretative panel along the trail (Carter, 1997; Gebhard et al., 2007; Moreira, 2012). Therefore, when discussing geotourism educational trail construction, passing such trail should bring enrichment and benefits in form of new knowledge gain (Hughes & Morrison-Saunders, 2002).

CONCLUSION

Combined with other tourism form, geotourism adds another dimension and diversity to the natural area tourism product (Dowling & Newsome, 2006). In the article, alternative view into possible use of existing tourist trail via identification and characterization of geosites along the trail and its transformation into geotourism

educational trail was presented. Results of the study showed that the selected tourist trail has significant geotourism potential. Similar approach may be applied in any location worldwide. Nowadays, as the educational trails represent important tool of tourists' education and may change their attitude to natural heritage and its preservation for future generations, it is necessary to focus on such steps that may help in this process.

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