

CAVE TOURISM IN THE POLISH-SLOVAK TRANSFRONTIER AREA

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Abstract: The aim of this paper is to present the issues of cave tourism on the Polish-Slovak borderland, either in the present or in the past. In the presentation, the beginnings of the cave tourism in the 18th and 19th century and the first facilitated caves will be introduced. However, the main considerations will be focused on the present day, when touring the caves became not only a popular form of spending one's spare time, but also an important branch of local economy. All of the caves on the borderland, which are currently opened for tourists, will be characterised. The specific of the Polish and Slovak caves will be presented as well.

Keywords: cave tourism, show caves, speleohistory, borderland

INTRODUCTION

Today there are many caves available for visitors in the world. Each year millions of people practice cave tourism. It is one of the most dynamically developing forms of tourism. Polish-Slovak borderland has notably great potential in this field. The area is the one of the richest karst regions of Poland and Slovakia. Since the 19th century there have been an intensive development in cave tourism there. Today there are 7 caves available for tourists on Polish side of the borderland, including 6 in Tatra Mountains (Mroźna, Mylna, Raptawicka, Oblązkowa, Smocza Jama, Dziura) and one in Silesian Beskids (Malinowska Cave). In turn on Slovak side of the border there are 6 caves opened for visitors (Demianowska Cave of Liberty, Demianovska Ice Cave, Bielska, Ważecka, Dobszyńska Ice Cave, Stanisowska). The borderland is taken as a whole in this paper due to the geographical closeness and large interest of Polish tourists in Slovak caves.

The aim of this article is to present comprehensively an issue of cave tourism on Polish-Slovak borderland, both in contemporary and historical point of view. To start with, the origins of cave tourism in the 19th and the beginning of 20th century will be presented. However, the main considerations will focus on current situation – the times when visit-

ing caves is not only a way of spending spare time, but also an important branch of local economy. All caves, which are currently available for tourists on the borderland, will be characterized. The uniqueness of Polish and Slovak show caves will be presented as well. The opportunities and threats of the development of cave tourism on common borderland will also be described. The conclusions of this article could be used for creating a strategy of development of cave tourism by managing institutions, which function in that region, particularly by Slovak Caves Administration and Tatra National Park Administration.

HISTORY OF THE BORDERLAND CAVE TOURISM

The caves from the borderland have been penetrated since the end of the 13th century. At the beginning the most accessible ones were used as shelters for hunters and shepherds. Since the 14th century gold-diggers and miners started to search the caves. Locals also visited them in search of mythic treasures or natural values, which could be used, for example, in curing. In 1672 the first notification about Tatra cave was published. The description of what was supposed to be Magurska Cave, was made by Johann Peterson Hain, who was a physician in Presov. In the beginning of the 18th century the caves of Bielskie Tatra

were examined by the chancellor of Kežmarok high school, Georg Bohusch. Later on, Georg Buchholz Junior, who became the chancellor of the same school, also examined caves, for example Demianovska Ice Cave, of which he produced the first plan. The research that Bohusch and Buchholz did was used by Matej Bel in his historical and geographical works (Parma *et al.* 1989: 50-51).

With the beginning of 19th century a new era of Tatra caves' exploration started. It lasted until 1860s Tourism development contributed in progressive discovering of caves' values, which resulted in their exploitation in tourist and scientific aims. The greatest interest of that time focused on caves in Kościeliska Valley, as well as Magurska Cave and Dziura. In Bielske Tatra the most popular cave was Alabaster Cave. A Polish poet, Seweryn Goszczyński, visited Wodna pod Pisaną Cave for several times in 1832. Because of the his motivation of this underground trip, which was simply curiosity, he is recognized as a trailblazer of cave tourism. On the other hand, the first scientist who examined Tatra caves was Ludwik Zejsner. He was a geologist and in 1849 he undertook hydrological research in Lower Kasprowa Cave. Between 1881 and 1882 Gotfryd Ossowski also conducted some archeological research at Tatra region (Siarzewski 2005: 54-56).

After 1860s the interest in caves on the borderland increased, so some of the first ones were opened for tourists. That was the time when the access to Demianowska Ice Cave was provided. The same thing happened with Dobszyńska Ice Cave in 1871. What is more, in 1887 an artificial lighting has been installed there. Owing to that Dobszyńska Ice Cave is recognized as the first illuminated cave in the world. Bielska Cave, which was re-discovered in 1881, was made available for tourist a year later and very quickly also became a popular tourist attraction (Bella 2003: 11-30). The development of cave tourism on Polish side of the borderland was strictly connected with the speleological activity of Jan Gwalbert Pawlikowski. Between 1879 and 1885, together with a guide, Maciej Sieczka, he searched Tatras looking for caves. He published the results of his exploration in

an article entitled *Podziemne Kościeliska (The Underground of Kościeliska)*. It consisted of descriptions or a least short notices of more than 30 caves, including some in Slovakia (Brestovska, Bielska). Additionally schematic plans of Mylna and Raptawicka Caves were attached. Pawlikowski was also the first to determine the tourist values of these caves: hidden entrance, scope of the view, forest location, branching of passages, existence of an alternative entrance, dripstone structures, occurrence of water and ice, acoustics and light. He also addressed a postulate to forbid using torches in the caves due to the damages they cause to the walls (Pawlikowski 1887: 33-48). Pawlikowski took an initiative on blazing the trails to Mylna Cave and Zbójnickie Okna, which were done by the Tatra Association in 1886. In the following year paths to Raptawicka and Zimna Caves were built, moreover, in 1889 a trail to Magurska Cave was renewed (Siarzewski 2005: 56-57).

The information about the tourist caves in the borderland were published in popular Polish guidebooks by the end of the 19th century. *Ilustrowany Przewodnik do Tatr, Pienin i Szczawnic (Illustrated Guidebook for Tatra, Pieniny and Szczawnice Mountains)* by Walery Eliaszy, which was published in 1870, contained information about several Tatra caves, including Magurska Cave. In the second edition of that book author added descriptions of his visits to Demianowska Ice and Dobszyńska Caves, and later on in the third version he also mentioned about Bielska Cave. In the interwar period these descriptions were used by Tadeusz Zwoliński in his own guidebooks. All caves of the borderland were characterized only in 1885 in Antoni Rehman's book, entitled *Karpaty opisane pod względem fizyczno-geograficznym (Carpathian Mountains described in respect of physical and geographical terms)* (Lalković 1998: 105-106; Wójcik 2005: 68-71).

In the interwar period the most significant issue connected with cave tourism was the discovery of Demianowska Cave of Liberty by Alois Král in 1921 – it was also known as the Chram Slobody (Temple of Liberty), in honor of newly created Czechoslovakia. The charm of the cave resulted in undertaking certain activi-

ties to provide access to the cave for visitors. Within a year a special commission for making Demianowska Caves available was established. In 1923 an artificial lighting was installed and in 1924 the first section was opened for tourists. In a year, the commitments of the commission were taken by a new institution – Demianowska Caves Association. In the 1930s other parts of the cave were opened for visitors, as well as new entrance was dug. One of the chambers was named the “Polish House”. The discovery of Demianowska Caves gave an impulse to develop speleology and cave tourism in Slovakia. Another searching for caves started being organized. Already in 1922 Ważecka Cave was found. The same year, František Havránek rented it for next 30 years. At that time he started works providing access to the cave. The opening celebration took place in 1928. After a complete renovation it was reopened in 1954. Same works were held after the II World War in Demianowska Ice Cave, which was made available for the second time in 1952 (Bella 2003: 19-59). Since the 1950s works for providing access to Demianowska Cave of Peace were also undertaken, however, eventually it has never been ready to receive visitors. Since 2010 tourists are able to see Small Stanisłowska Cave, which is located in Low Tatras.

The interwar period on the Polish side of the borderline was characterized, on the one hand, by stagnation in cave tourism, while on the other hand, by remarkable speleological activity of two brothers, Tadeusz and Stefan Zwoliński. One of the aims of their works was to find caves in Polish Tatras with rich drip-stone structures, which, similarly to Bielska Cave, could be available for tourists. In 1934 Stefan Zwoliński discovered Mroźna Cave. It was opened for visitors in 1953. In the following years some further modernizing works were conducted. Lighting system was also installed. Finally, the Mroźna Cave was opened for mass tourist traffic in 1959. Zwoliński brothers discovered also some new sections in Mylna and Oblązkowa Caves (Parma *et al.* 1989: 79-80). Malinowska Cave, which is located in Silesian Beskids, is relatively new object available for individual tourists (Szewczyk *et al.* 2009: 93-94).

REVIEW OF THE BORDERLAND SHOW CAVES

Most of the caves on Polish borderland are situated in Western Tatra Mountains, strictly in Kościeliska Valley. The best-known tourist attraction there is Mroźna Cave, located in the Organy massif in the eastern part of Kościeliska Valley. The cave forms a nearly 500 m corridor, piercing through the whole massif. The time of touring is estimated 30 – 40 min. The most interesting sections of the cave are: the Great Chamber, the Garden, the Sabala Lake, and Sand Lakes. It is the only cave on Polish borderland that is equipped with lighting. Moreover, only in this one a fee for touring is collected.

Another cave that is available for visitors is Smocza Jama, which is located in Cracow Ravine. The cave itself it is just a steeply inclined and slightly curved rocky tunnel through calcareous rocks. Tourist route is 40 m long and it could be passed within a couple of minutes. The passage is steep and it is secured with protective chains. Own lighting is required.

Three other caves are located on the hillside of Raptawicka Peak. The first one is Raptawicka Cave itself. The entrance hole is situated about 120 m above the bottom of Kościeliska Valley. You come in the initial chamber through a steel ladder. The chamber has a cluttered character and its bottom is filled with calcareous blocks. Periodically an underground rain occurs there, which in the winter results with dripstones. A few others corridors are available for tourists as well. In one of those corridors there is a little chapel. Entirely, the cave is about 150 m long. It is available a whole year round. For visiting the deepest sections of the cave own lighting is required.

The second cave of Raptawicka Peak is Oblązkowa Cave. It does not consist of drip-stone structures. In early spring some icy dripstones occur only just by the entrance to the cave. The length of the whole cave is 120 m, however, only first 20 m are available for tourists. It is opened year long. Own lighting is necessary.

Just by Oblązkowa Cave there is one of the most interesting caves from the point of view

of average tourist. It is called Mylna Cave. It forms a really complex maze of corridors and chambers, were it is highly likely to get lost – in 1945 a tourist died there. In total, the length of the cave is estimated 1300 m, of which about 270 m are provided for tourist traffic. The tour takes around 60 min. The most enchanting sections of that cave are: Pawlikowski's Windows, the Great Chamber, the Choirs and the White Street. Own lighting is required.

The last cave that is available for tourists in Polish Tatras is Dziura Cave, which is located in the direct vicinity of Zakopane, in the Towards the Dziura Valley. It is 180 m long, while the drop is 43 m. In touring the cave an additional lighting might be helpful. The main attraction of that cave is a 9 m high stone chimney tipped with the upper entrance. During the winter icy dripstones could be found there (Barczyk *et al.* 2007: 35-41).

The only cave described in this paper, which is located outside Tatra Mountains, is Malinowska Cave. It is placed in Silesian Beskids. Its length is 230 m, of which 100 m are available for visitors. It is not a karst cave, so it does not have any dripstone structures. It consists of numerous corridors and chambers created in Carpathian flysch. The cave is wet and in many places a cave rain occurs as well. Own lighting, proper equipment, clothing and footwear are required.

Bielska Cave is the only one that is available for tourists in Slovak Tatras. It is located in the northern slope of Kobyli Wierch in Bielskie Tatras. The cave is 3018 m long, of which 1370 m are open for visitors. The approximate time of touring is 70 min. The cave has rich dripstone structures. It is worth to pay attention on gathering waterfalls, pagoda stalagmites and underground lakes.

Wążecka Cave is situated in so-called Wążecki Karst in Slovak Sub-Tatra region. The length of the cave is 530 m and the tourist route is 235 m long. The cave has a very interesting yellow dripstones. Simultaneously, it is an important palaeontological site. Numerous bones of cave bear have been found there.

Demianowska Cave of Liberty is located in Demianowska Valley in the northern part of Low Tatras. The cave is 8126 m long. There are two tourist routes prepared there: the long

one, which is 2150 m for 100 min, and traditional, when within 60 m you pass 1145 m. The cave is abounding in multicolored dripstone structures. Special attention should be paid on dripstones resembling water lilies, flowstone waterfalls, sphaerolitic stalactites, moonmilk and cave pearls. Two conical stalagmites, often called "Rococo Girls" are symbols of that cave. The most charming places in the cave are: the Pink Hall, Royal Gallery and the Great Dome.

There is also Demianowska Ice Cave in the same valley. Its length is 1975 m, of which 850 m are available for tourists. The tour usually lasts 45 min. In the lower sections of the cave there is an ample accumulation of ice. It also has attractive icy dripstone structures. The walls of the one of the chambers are full of inscriptions, which come from the 18th century and the following years. In the past, there could be found some bones of different vertebrates there, including cave bear.

Janska Valley in Low Tatras locates another show cave – Small Staniszkowska Cave. This structure is 730 m long, however, tourist can visit only a route of 410 m. The time of touring is 45 – 60 min. There are some inscriptions from the beginning of the 20th century there. A shamanic village is placed there as well. The cave does not consist of artificial lighting, so by the entrance tourist are given helmets equipped with lamps.

The last cave, called Dobszyńska Ice Cave, is located in Slovak Paradise. It is the only cave on the borderland which is on UNESCO List. The cave is 1,483 m long, of which 515 m are available for visitors. The tour lasts about 40 min. What is specific about this cave are the enormous amounts of ice – it is 26.5 m in the thickest extent. Due to the type of glaciation that cave is one of the most valuable ice caves in the world (Bella 2003: 10-59).

CHARACTERISTICS OF THE BORDERLAND SHOW CAVES

The above characterization indicates to some differences between caves on Polish and Slovak sides of the borderland. Apart from Mroźna Cave, all others on the Polish borderland are not adapted for mass tourist traffic (undeveloped caves). There are relatively short

and small (variety of 20 – 500 m). They do not consist artificial lighting. Moreover, there are no concrete, or at least wooden pavements installed inside. There are no guided tours organized there, as well as any tolls for the visit are provided – there is only a fee for entering the Tatra National Park and Mroźna Cave, which is 3 pln (0,8 euro). Tatra caves have been used as a tourist attraction for 150 years and that is why their conditions are far from the original state. The caves are devastated and strongly distorted. They do not have dripstone decoration. Due to the research made by Tatra National Park Administration in 1999 the Smocza Jama cave was visited by 214,000 people, Mroźna Cave had nearly 200,000 visitors, about 100,000 people toured Obłazkowa, Raptawicka and first part of Mylna Caves, and through the Dziura, situated just by Zakopane, around 60 000 people walked. Yearly, Tatra caves are visited by about 750,000 – 800,000 tourists (Siarzewski 2002: 4). There are no sufficient information in terms of Malinowska Cave. It is visited mostly by individual tourists. Some private firms organize integration-al courses for their employees there (refers to Association of Cave Protection “Malinka” Group 2010).

However, caves in Slovakia can be characterized in totally opposite way. All of that local caves are prepared for mass tourist traffic. The cave are relatively big and long (variety of 235 – 2150 m). They are provided with high standard tourist infrastructure. There are educational boards placed along the path to the caves. Tickets offices offer souvenirs, such as albums, books or postcards, in Polish as well. Apart from Small Staniszwowska Cave, all caves own artificial lighting. The access to the caves is paid between 4 and 14 euro. Guided tours are available for visitors as well. The guides play recordings in many different languages, including Polish. From time to time classic music is played too. It should also be emphasized that Slovak caves are not only used in strictly tourist purposes. Dobszyńska Ice Cave is the best example, where in 1890 a concert in memory of Karl Ludwig of Habsburgs was organized there, while since 1893 summer ice skating park have been arranged there too. Moreover, between 1993 and 1998 a spe-

leootherapy sessions were held in Demianowska Cave of Liberty.

Slovak caves, similarly to Polish ones, are in tourist use since the 19th century. The number of tourists visiting those places is increasing year by year. In 1931 about 21,000 people visited Dobszyńska Cave. The same year, the attendance to Demianowska Cave of Liberty amounted 10,000 visitors, and in 1932 it was already 12,000 (Przegląd Turystyczny 1933: 15). According to the data of Slovak Caves Administration from 2008 over 180,000 people toured Demianowska Cave of Liberty, while in case of Bielska it was 146,000, Demianowska Ice 103,000, Dobszyńska Ice 76,000, and Wążecka received 20,000 tourists. At total, between 2002 and 2008 the previously mentioned caves were visited by 520,000 people a year, a great number of whom were Polish. A breakdown in cave tourism occurred in 2009. The attendance to Slovak caves decreased of 34 % in comparison to previous years. It is assumed that besides introducing euro currency in Slovakia the main reason of the decline was the global economical crisis (refers to Slovak Caves Administration 2010). Despite their intensive use, Slovak caves did not undergo any transformations and distortions, unlike caves in Polish Tatra Mountains. All of the caves have well-preserved, often unique, drip-stone structures. They are also an important archeological sites.

OPPORTUNITIES AND THREATS OF TRANSFRONTIER CAVE TOURISM

The analysis of cave tourism on the borderland inclines to draw several fundamental conclusions. The impact of Poland's and Slovakia's accession to European Union and Schengen Agreement on the development of transfrontier tourism should be considered absolutely positively. In recent years there was an increase in the number of communication connections, which run in the vicinity of Slovak caves. In Zakopane there are a few companies which run bus connections on the routes between Zakopane-Poprad and Zakopane-Liptowski Mikulasz. Both in summer and winter seasons the buses also run between Cracow and Demianowska Valley.

Since 2009 there is a possibility to fly with plane from Warsaw to Poprad. One-day trips around Tatra Mountains, which are offered by travel agencies, are also very popular among tourists.

Tourist attractions on both sides of the borderland are complementary to each others. Slovak caves, which are professionally prepared for mass tourist traffic, are large, with rich dripstone structures, and they are a great attraction for guests from Poland. On the other hand, there are Polish caves, which are “wild”, undisturbed, unlit, and practically free, however, they could be an interesting sights for Slovak tourists. What is a great asset of Slovak caves is the institutional support. Tourist caves are managed by Slovak Caves Administration, located in Liptowski Mikulasz. This city also holds the seat of the Museum of Nature Protection and Speleology. These both institutions do not have their equivalent in Poland. All Polish caves in Tatras are subordinated to Tatra National Park Administration, but Malinowska Cave is under supervision of Vistula Forest Inspectorate.

However, there are some threats that stand in the way to cave tourism development. The main problem is the financial issue. Introducing euro currency in Slovakia seems to be a disputable question. Available analysis indicates that the new currency evoked the crisis in borderland's tourism. High price of euro caused a notable decrease in the number of Polish tourists visiting northern Slovakia in 2009. It also influenced on the lesser attendance in Slovak caves. This occurrence escalated due to the global economic crisis since 2008. As a consequence of price rise for tourist services in Slovakia, Polish tourist changed their visiting targets. Zakopane region became much more attractive for them instead of Slovakia's parts of Tatra Mountains. Simultaneously, the number of Slovaks, who visited Polish border cities for shopping, significantly increased. However, it is a typical trade tourism, which is connected with the price differences in those countries. The solution of that situation could be lowering of payments for visiting Slovak caves. Introducing some discounts for organized groups, bigger reductions for children, students and pensioners or fam-

ily tickets should be considered as well. It is also worth reflecting on abolishing or at least introducing a huge lowering of the charges for photographing and filming in the caves, not to mention car park fees.

The second fundamental issue is the lack of sufficient promotion of the caves on the both sides of the borderland. In this case the situation in Slovakia looks much better. Slovak Caves Administration runs a professional website, where basic information about all of the tourist caves, such as the description, payments, visiting hours, are posted. The site is available in 5 languages, including English and Polish. Unfortunately, in Polish version the “current events” section is not updated. Small Staniszwowska Cave also has its own website, which is available in 6 languages. The Administration provides a lot of promotional materials in several languages. In Poland information about the caves could be found on the website of Tatra National Park, as well as some tourist portals. In 1978 and 1989 there was a publication of a guidebook entitled *Jaskinie turystyczne Tatry (Tatras tourist caves)*, which was written by Christian Parma and Apoloniusz Rajwa. Apart from the description of Polish caves Slovak ones were also included. So the guidebook in fact had a transfrontier character. Only 20 years later, in 2009 another speleological guidebook was published. It was *Jaskinie. Polska, Czechy, Słowacja (Caves. Poland, Czech, Slovakia)* by Izabela and Robert Szewczyk. It consisted of the descriptions of the most important show caves in those three countries. Despite the existence of guidebooks mentioned above, it is necessary to develop a new, common one, describing show caves of the borderland. It should be bilingual – both in Polish and Slovak. It could also have a multimedia character. The guidebook could be financed with the exploitation of European Union's funds within the framework of Polish-Slovak Transfrontier Cooperation Programme 2007 – 2013. At least 2 organization on both sides must submit a proposal of micro-project in the Tatra Euroregion Office for the program implementation.

The third and the last problem is the issue of reconciling cave tourism with the requirements of environmental protection. This dif-

ficulty occurs mainly on Polish side of the borderland. In the beginning of the 1990s Tatra National Park Administration undertook research of human's influence on the exact state of environmental condition of Tatras' caves. Obtained results confirmed the information about the progressive degradation, destruction and pollution of many caves. A good example of such negative processes provides Mroźna Cave, which today's actual conditions are far from the original state. Since the moment of its discovery, the cave's walls were covered with sediments nearly to their tops. Long-standing works for making Mroźna Cave available for visitors, during which a new entrance and hundreds of meters of new corridors were discovered, caused essential changes in the cave's original environment. Moreover, in 1958 precious dripstone decoration was destroyed by the tourists during the opening celebration of the cave. In the beginning of 1990s a fresh trace of digging an underground passage to the neighboring Naciekowa Cave was found. Today the main problem of visiting the cave is insufficient tourist infrastructure. In the vicinity of the cave there is shortage of litter bins and toilets. Some tourist handle with their physiological needs in the nearby of the entrance to the cave. The same thing refers to throwing out the litter. The absence of guides enables destructive behaviors inside the cave, for example signings on the walls or destruction of dripstone structures. Moreover, insufficient lighting is conducive for the development of lampenflora on the walls (Grodzicki *et al.* 1999: 1-46).

Slovak caves are preserved in much better conditions. But also in cases of them some unfortunate decisions were made. In the 1930s an experiment of artificial glaciations of Bielska Cave was undertaken. In the beginning a plentiful glaciation was received due to the process. Unfortunately, during the summer season the ice has melted and it resulted in total destruction of dripstone structures in this part of the cave. In 1920s a group of rough-mannered tourists destroyed dripstone structures in Demianowska Ice Cave. What is more, they took away all of the bones that were placed there as well. During explorative works that were conducted between 1950 and 1952

(among other, Cave of Peace was discovered then) the cave's thermal balance was disturbed, and as a result, significant parts of the ice cap has also melted. In subsequent years some works in aim of reviving the level of glaciation were conducted (Parma *et al.* 1989: 99-109).

For protecting the caves form further degradation there are some essential steps that should be taken. First, it is necessary to organize a constant program of cleaning the caves. Second, construction of suitable infrastructure, such as litter bins, toilets, security means, at the most attended places, is a must. Third, a control system of cleanness for all of the caves and their surroundings should be established. Fourth, it is necessary to hold research on the tourist influence on the caves and their environmental conditions (Grodzicki *et al.* 1999: 45). It is also important to rise ecological awareness of visitors through educational programs, as well as media campaigns. All of these activities could be conducted not only by representatives of state institutions, but also by members of NGOs and volunteers.

Conclusion

Polish-Slovak borderland is one of the most important karst regions both in Poland and Slovakia. Today, 13 caves are functioning there as tourist attractions. These caves are very diverse. The analysis made in this paper indicate significant differences in Polish and Slovak tourist caves. In this comparison, Slovak caves go much better. Specificity of Polish caves in Tatra Mountains shows a certain complementary of the studied region. Today the development of transfrontier cave tourism is dependent, to a high degree, on external conditionings, such as Schengen Agreement, euro currency in Slovakia, or global economic crisis. Despite a certain collapse in mutual relations, cave tourism is still a very profitable business. Tourist attractions very often wind up the economic situation in the whole region around the caves. However, the above analyse shows that nonetheless some problems occur on the borderland. On the Polish side they refer to the lack of sufficient infrastructure, inefficient environmental protection and bad promotion of tourist

caves. In Slovakia too expanded commercialization of cave tourist is the biggest obstacles. The fees for visitors, as well as for other tourist services, are too expensive. It discourages Polish tourists to visit Slovak caves. To solve

these problems it is necessary to take up common activities by institutions on both sides of the borderline. A good example of that type of initiative would be a preparation of a common, transfrontier tourist guidebook.

References

- Barczyk G., Ładygin Z. 2007: Jaskinie dla turystów. Tatry, special edition, pp. 35-48.
- Bella P. 2003: Jaskinie słowackie udostępnione dla zwiedzających, Liptowski Mikulasz, pp. 10-59.
- [No author] 1933: Frekwencja turystów w jaskiniach słowackich, Przegląd Turystyczny, 2, p. 15.
- Grodzicki J., Rociński K., Siarzewski W. 1999: Antropogeniczne zmiany w wybranych jaskiniach tatrzańskich cz. 1, Zakopane, pp. 1-46.
- Lalkovič M. 1998: Poliaci a záujem o jaskyne na Slovensku. Časť I. – Do roku 1918. Slovenský Kras, 36, pp. 105-106.
- Parma Ch., Rajwa A. 1989: Turystyczne jaskinie Tatr, Warszawa, pp. 50-109.
- Pawlikowski J. G. 1887: Podziemne Kościeliska. Pamiętnik Towarzystwa Tatrzańskiego, 11, pp. 33-48.
- Siarzewski W. 2002: Ochrona i udostępnianie jaskiń w Tatrzańskim Parku Narodowym. Materiały z X Międzynarodowej Szkoły Ochrony Przyrody i Obszarów Krasowych. Smoleń-Złoty Potok 25-27.09.2002, p. 4.
- Siarzewski W. 2005: Z dziejów poznania jaskiń w Tatrach, Tatry, 11, pp. 54-57.
- Slovak Caves Administration website, www.ss.sk, [available 01.10.2010].
- Szewczyk I., Szewczyk R. 2009: Jaskinie. Polska, Czechy, Słowacja, Warszawa, pp. 93-94.
- Wójcik W. 2005: Gdzie byś poszedł w góry? Słowacki obszar Euroregionu Tatry w polskiej literaturze przewodnikowej. Pogranicze Polsko-Słowackie, 2, pp. 68-71.