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The Valuation of the Urban Ecotourism Potential of the Volcanic Geomorphohydrosite Băile Tuşnad in Harghita County, Romania

ABSTRACT

Băile Tușnad, also known as "Little Switzerland", "The Land of Mineral Waters", "The Pearl of Transylvania" or "The Pearl of Spa Tourism in Romania", was once the pride and effervescence of spa tourism in Romania. Officially, it is the smallest town in the country, and through the unique charm of its landscape and natural heritage it has earned its national and international reputation. A new opportunity for the development of the resort in 2023 is the promotion of the town by the Ministry of Entrepreneurship and Tourism (MET) as a new ecotourism destination in the country. Thus, the area might become the 7th ecotourism destination in Romania, being one of the most representative volcanic geomorphohydrosites in the Harghita Mountains (Eastern Carpathians). The objective of the study was to evaluate the ecotourism potential of the settlement and the region using methods applied in academic literature for urban and rural geomorphosites, as well as to justify the importance of this ecotourism destination based on tourist circulation data. In the evaluation process of the ecotourism potential the resort receives 84% of the maximum score according to the methodology, and the tourist circulation data support the important contribution that the resort has in Harghita County, with increasing prospects after the recovery from the pandemic period.

Keywords: Băile Tuşnad, ecotourism, geomorphosite, Transylvania, urban volcanic, geomorphohydrosite

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INTRODUCTION

The case study analyzed (Băile Tușnad, Harghita County, Romania) offers a model of spa tourism and ecotourism by utilizing natural and anthropic tourism resources, both within the boundaries of the ATU and in the surroundings of the town.

Băile Tușnad has a picturesque settlement, situated at 650 meters altitude in the Olt Valley at the foot of the Ciomad Mountain, which is the southernmost volcanic unit of the Oaș – Gutâi – Tibleș – Călimani – Gurghiu – Harghita volcanic chain and the youngest in terms of eruption age.

The first initiatives of tourism development date back to 1845, when 40 villas with a capacity of about 700 places were built to accommodate tourists. In 1890, the Stefania Spa Institution was established, which contributed to a significant development; at the beginning of the 20th century, four pools with mesothermal water were established, which offered an additional leisure activity to the tourists.

Figure 1. Location of Băile Tușnad (1911) within the Carpathians

Source: kepeslapok.files.wordpress.com

Băile Tușnad, also known as "Little Switzerland", "The Land of Mineral Waters", "The Pearl of Transylvania" or "The Pearl of Spa Tourism in Romania", was once the pride and effervescence of spa tourism in Romania (Figure 1). Officially, it is the smallest town in the country, and through the charm of its landscape and natural beauty it has earned its national and international reputation.

In the Transylvanian part of the Eastern Carpathians, we discover a wealth of resorts with elegant villas, pine forests and clean and fresh air, a region nicknamed the land of mineral waters, which is how the effervescence of spa tourism in Romania was described in the 1980s.

In 1980, about 2,000 tourists visited the town every day. In 1987, the number of daily visitors reached 4,000, compared to an average of 116 people per day in 2022, according to Romania's National Statistical Institute. The three big hotels in the resort were always full, while the booking center was making arrangements for treatments a year in advance.

The decline began in the 1990s. Many of the resort's villas, inherited or reclaimed by former owners, are now in poor conditions. Although quite a few have been renewed, dozens of ruins still pollute the town's landscape value. All the natural resources – from springs to mofettas – were leased in 2002 by SC. Tușnad S. A. Out of the 44 natural springs and boreholes (Bálint-Bálint et al., 2016), on the webpage of the ecotourism destination Băile Tușnad and its surroundings, 25 mineral springs are identified, and according to the website of Băile Tușnad City Hall, only 6 are open to the public and can be used for therapeutic purposes.

Many towns and municipalities in Romania would not be able to maintain their current administrative status according to last year's census data if we looked strictly at the letter of the law and the conditions of the population. Law 2001/351 stipulates, among other things, that a city must have at least 5,000 inhabitants and a municipality must have at least 25,000 inhabitants. According to the 2022 census data, almost 40 cities in Romania and just as many cities with county rights do not meet this condition.

Among them is the tourist resort of national interest, Băile Tușnad in Harghita County, which still holds the title of the smallest town in Romania, which – officially – with its 1372 inhabitants is well below the level of 5,000 inhabitants. The town did not meet this condition even when law no. 2001/351 was adopted, when it had 1969 inhabitants according to the 1992 census.

Băile Tușnad has held the title of town for 55 years, since the administrative-territorial reorganization in 1968. The locality earned its title of town due to its international tourist reputation, which is distinguished by its beautiful landscape, clean and oxygen-rich air, rich in aerosols and negative ions, as well as mofettas and mineral waters with therapeutic properties.

LITERATURE REVIEW

In recent decades, tourism in protected areas, i.e. ecotourism, has been on an ascending trend: this form of tourism is beginning to manifest itself more and more as a new branch aimed at showing the new development trends of the global tourism industry. Although it was initially applied only to forms of tourism practiced in natural protected areas, its scope has gradually been extended to other major forms of tourism (Bálint-Bálint et al., 2019).

At the end of the 20th century, ecotourism became a field that began to gain increasing global importance, aimed at utilizing and, at the same time, preserving the natural heritage (Dombay et al., 2008), for example the protected areas (Bálint-Bálint et al., 2019; Lakatos et al., 2023), the caves (Molnár & Magyari-Sáska, 2023) and the cultural-historical heritage of a region (Dombay et al., 2008).

Ecotourism is one of the most intensely developing forms of tourism (Lakatos et al., 2023), as it has rapidly gained popularity under the banner of sustainability (Sobhani et al., 2022), being a form of nature-based tourism that contributes to social and environmental wellbeing. It is also referred to as green tourism due to its environmentally friendly and educational nature (Dincă et al., 2023).

A protected area's purpose is to conserve nature and its environmental, cultural, and socioeconomic value. Providing touristic experiences in protected areas, ecotourism helps nature conservation while offering economic and educational benefits to communities and visitors (Sobhani et al., 2022).

Depending on the country and the preferences of the authors, this type of tourism is known by different names: "gentle tourism"; "green tourism"; "ecological tourism"; "ecotourism". There is practically no difference between these terms, which are, in fact, synonyms in terms of content, criteria, as well as the areas of the application of the concepts and the products they offer. The generally accepted and most widely used term in international literature is ecotourism (Bálint-Bálint et al., 2019).

Ecotourism in an urban environment may be present in areas that have a certain degree of naturalness, with significant modifications by human activities. With all these the concept of urban ecotourism recognizes the significance of ecotourism in facilitating cultural exchange, environmental protection and sustainable urban development. Contrary to classic ecodestinations, urban ecotourism is more acceptable considering the higher load of urban destinations and the potential to renovate locations that have been degraded by industrial development, traffic or other human activities. (Jegdić & Gradinac, 2016).

The harmonization of nature conservation and tourism is the basic issue of destination sustainability (Fodor, 2008; Hajnal & Köbli, 2014), in this sense ecotourism is a new alternative for the use of natural resources in the resort: it will contribute to the development of the resort, favoring new investments in tourism, which will result in new jobs, which will translate into increased living standards. Tourism is the only economic branch that supports the local economy, the majority of residents work in tourism, but, despite this, there is a high rate of unemployment and demographic ageing, with high levels of emigration among the young.

The concept of "Ecotourism Destination" has been developed since 2012 by the central public authority for tourism, in partnership with national representative institutions and organizations (Ministry of Environment, Water and Forests, National Institute for Research and Development in Tourism and the Romanian Ecotourism Association), based on the National Ecotourism Strategy, the Global Sustainable Tourism Criteria (GSTC) and the European Ecotourism Standard (EETLS). At the time, Romania was the first country in Europe to launch such a recognition system for ecotourism destinations, as specified in a media release of Romania's Ministry of Entrepreneurship and Tourism. The Romanian Ecotourism Association (AER) was established in 2003 with the aim of creating a national partnership between the process of development and the promotion of ecotourism (Stanciu et al., 2023).

Băile Tușnad has been recently (2023) promoted by the Ministry of Entrepreneurship and Tourism (MET) as a new ecotourism destination in the country, thus becoming the 7th ecotourism destination in Romania. The certification procedure took four years, and entrepreneurs in the area hope that the number of tourists will increase significantly and business will flourish again. The "Băile Tușnad and Surroundings" area consists of the administrative territorial units (ATU) of Băile Tușnad, and the parishes Cozmeni, Sâncrăieni, Sânsimion, Sântimbru, Tușnad (Harghita county).

This new ecotourism destination successfully combines the healing powers of the mineral waters, a beautiful natural setting and villages where, for the most part, a traditional way of life has been pre-

served (e.g. Lăzărești parish). All these factors have contributed to the development of a particularly attractive ecotourism product, which from 2023 will be recognized by the Ministry of Entrepreneurship and Tourism.

The activities promoted by Accent GeoEcological Association in the ecotourism destination of Băile Tușnad and its surroundings are the following; hiking in nature, horse-drawn sleigh or wagon rides, horse riding, bicycle tours, wildlife watching, relaxing in the thermal water wellness center, bathing in popular baths in the neighboring villages, tandem paragliding, rafting on the Olt River, downhill roller skating, cultural tours, nature photography tours, skiing on the town slope, and ski touring.

Most of these activities can also be considered geomorphotourism activities as they very often rely on landscape tours based on the principle that the Earth's ecological diversity is also expressed by the existence of geosites. with historical-cultural, scientific, economic-social, visual, aesthetic and even geo-aesthetic values (Dincă et al., 2023).

Geomorphosites and geosites as landscapes are considered natural goods not only due to their intrinsic values (scientific, aesthetic) but also due to their external values (ecological, historical, cultural, economic). Thus, they are the primary drivers of geotourism development (Dincă et al., 2023).

Ferreira and Valdati (2023) present a bibliometric analysis of recent studies related to geopark and sustainable development, focusing on the relationship between these concepts. In the presented case studies, beside the presentation and inventory of geodiversity elements, there is a description and characterization of the main features and geosites present in the territories. These characterizations are generally related to theoretical aspects and geology, geomorphology and other areas related to geosciences, and usually try to present the unique character and scenic beauty or the importance of each element of geodiversity, in terms of touristic potential, educational, scientific, and economic values.

The European continent and particularly Romania hold a diverse range of volcanic geological sites that provide valuable insights into our planet's dynamic history. From towering volcanic peaks to unique rock formations and geothermal wonders, these sites are not only geological marvels and often iconic places for tourists, but also significant in terms of scientific research and cultural heritage. Recognizing their importance, geoconservation efforts have been undertaken to protect and preserve these volcanic landscapes, ensuring their longevity for future generations (Nunes & Benton, 2023).

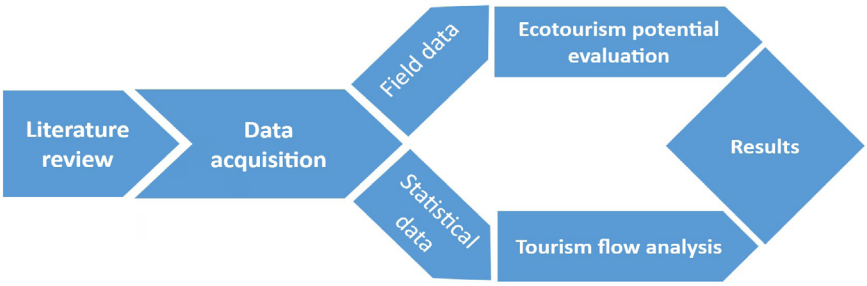
According to Cocean (2010), tourists who opt for Băile Tușnad are spoilt by the attractive surroundings, in addition to the spectacular Olt defile, the only volcanic lake in the country, Lake Saint Ana, and the botanical reserve Mohoș Peat-bog, with numerous endemic and relict plants.

The aim of the study is to present and evaluate the Băile Tușnad volcanic geomorphohydrosite, to create a new typology in the case of volcanic geomorphohydrosites, which can be urban or rural. At the same time, the study intends to highlight and valorize the tourist heritage of the mountain resort, which favors the practice of several forms of tourism, the palette being recently completed by ecotourism, a new niche in local tourism. In order to emphasize the touristic importance of the town within Harghita county, we have analyzed the tourist circulation data of the last 5 years.

METHODS

In order to assess the ecotouristic value of Băile Tușnad and to highlight its present touristic importance, the above illustrated steps were made (Figure 2).

Figure 2. Flowchart of the applied methodology



Source: own editing

Geomorphosites (Hose, 1996, 2000; Reynard et al., 2007) are associated with the concept of geotourism, i.e. the activity of promoting forms of relief through tourist activities (visits, hikes, excursions, sports competitions, recreation, curative and maintenance treatment, etc.). The concept of geotourism, which emerged in the early 1990s, has focused mainly on the role of the form of relief in the tourist promotion of a region through its genetic, evolutionary and aesthetic attributes, integrated into the geographical landscape (Ciangă, 1997; Irimuș et al., 2015; Irimuș, 2010; Irimuș et al., 2011; Irimia, 2014; Panizza & Piacente, 1993; Panizza & Piacente, 2008; Codrea et al., 2022; Pralong & Reynard, 2005; Pralong, 2005).

The valuation of the form of relief in terms of tourism and landscape assessment at the beginning of the 1990s in Romania can be found in the scientific concerns of Ciangă (1997), who consulted the Carpathian mountain area to find a formula for the quantitative evaluation of the impact of the form of relief on a tourist site or region (Irimuș et al., 2015). The evolution of the morphology of volcanic cones and plateaus, volcanic valleys and craters, mofetic manifestations and mineral springs allowed us (based on geomorphological criteria) to separate three subtypes of geomorphosites in the Harghita Mountains: volcanic geomorphosites, volcanic geomorphohydrosites, and volcanic hydrogeomorphosites.

Geomorphosites that are the results of the process of the effusion of lava and eruption products, their consolidation either in the form of lava plateaus and volcanic agglomerate plateaus, necks, dykes, silts, layered cones of lavas and pyroclastic materials, craters, calderas, advective cones, glades, have been assimilated to the subtype of volcanic geomorphosites. Volcanic geomorphohydrosites include barrancos-type valleys with defile sectors (Olt Defile at Băile Tușnad), thresholds, waterfalls and volcanic crater lakes (Saint Ana Lake), while hydrogeomorphosites include volcanic sites whose genesis is related to postvolcanic activity, i.e. mofetic, sulfur deposits, fumaroles and mineral springs (Irimuș et al., 2015; Irimuș, 2010; Pereira & Pereira, 2010).

The volcanic geomorphohydrosites of the upper Olt sector have evolved in the last millennium under the impact of anthropogenic activities, so that the natural characteristics of the geomorphosites (talveg, minor bed, major bed, transverse and longitudinal profile of the gully valleys) have been diminished by the imprint of anthropogenic activities (roads, alleys, bridges, dams, viaducts). They have preserved their genetic configurations (as a product of neogene volcanism, i.e. deep barrancos valleys with steep slopes), but aesthetic and scientific dominance shifts in the analysis to the functional aspects of the volcanic landscape, i.e. the type of the exploitation of the geomorphohydrosite. Thus, we register a substitution of the reliefogenic function of the volcanic landscape with the pragmatic function of economic exploitation (Pralong, 2005; Pralong, 2006; Reynard, 2005; Reynard & Cortaza, 2007), of space, in particular the residential, recreational and bathing function, through the emergence of new subtypes of urban and rural volcanic geomorphohydrosites.

Urban or rural volcanic geomorphohydrosites project their content in these volcanic regions mainly through the new tourism resources they display in the territory (accessibility infrastructure, accommodation infrastructure, bathing infrastructure, health care and restoration, etc.), together with mineral water resources, mofetic resources, aerosol resources, which are generated by the geological evolution of the region. The forms of relief, products of both endogenous and exogenous processes in the volcanic area, will bear the imprint of post-evolutionary evolution. River water was the main agent shaping the relief, resulting in barrancos valleys with defile sectors (narrowing and widening), where later the local population, through its activities, has anthropized the landscape, redefined its functions (Irimuș et al., 2017; Irimia, 2014; Nistor et al., 2018; Codrea et al., 2022; Pop et al., 2019) (housing, tourism, ecology) and created a new type of relationship with the environment (Irimuș et al.; 2015, Irimuș, 2010), aspects that have encouraged the emergence of urban settlements (cities) or rural settlements (villages).

Scholarly literature (Italian, French, Spanish, Swiss, Romanian) and the evaluation methodology proposed by various authors led us to the conclusion that the Pralong method (Pralong, 2005; Pralong, 2006; Pralong & Reynard, 2005), supplemented by Irimuș (2011), Reynard and collaborators (2007) and Mucivuna and collaborators (2022), which we have adapted to volcanic geomorphosites (Irimuș et al., 2015), is the most suitable for the present study, because, in addition to the general value of the geomorphosite, it also highlights its tourist value.

RESULTS

Ecotouristic valuation of the urban volcanic geomorphohydrosite

To illustrate how the analysis was carried out, we present below the geomorphosite sheet of the urban volcanic geomorphohydrosite Băile Tușnad (Table 1), and to calculate the total value (VT) of the geomorphosite, the structural value (Vst) is summed with the functional value (Vfn) from which the restrictive value (Vr) is subtracted, according to the formula (Irimuș et al.; 2015):

$VT = Vst + Vfn – Vr$

Table 1. Geomorphosite sheet of the urban volcanic geomorphohydrosite Băile Tușnad

Name	**Băile Tușnad**	
Callsign	G9	
Location	In the Olt defile in the north-western part of Mountain Ciomad	
ATU	Băile Tușnad, Harghita County	
Tipology	Urban volcanic geomorphohydrosite	
Total Value	**23.75**	
Structural value	11.75	
Functional value	15.75	
Restrictive value	3.75	

STRUCTURAL VALUE

TYPE	POINTS	JUSTIFICATION
Geomorphological	4.75	• Genesis involving at least four morphogenetic factors: tectonic, volcanic, geomorphological and hydrological (1 p) • Relief forms with accelerated dynamics (1 p) • It includes several elements of: geological, tectonic, geomorphological, volcanological, lithological, hydrological, hydro-mineralogical and biological interests (1 p) • Volcanic geomorphohydrosite affected by geomorphological processes (0.75 p) • Nationally unique volcanic geomorphohydrosite (1 p)
Aesthetic	4.75	• Volcanic geomorphohydrosite with unique physiognomy (1 p) • Chromatic contrast (1 p) • Horizontal development 7.8 km (1 p) • Landscape is an essential component of the overall panorama (0.75 p) • Panoramic perceived volcanic geomorphohydrosite (1 p)
Ecological	2.25	• Protected plants found on the red list of superior plants in Romania located in the Piatra Șoimilor (Falcon Stone) Natural Protected Area (1 p) • Faunal biotope representative to the area (0.75 p) • Partially protected area (0.5 p)

FUNCTIONAL VALUE

TYPE	POINTS	JUSTIFICATION
Scientific	5.00	• International scientific representativeness (1 p) • Articles appeared in several scientific papers and in international journals (1 p) • A good example of processes and a good pedagogical resource (1 p) • Volcanic geomorphohydrosite of a very high paleogeographic interest (1 p) • Multiple addressability with interests in geology, geomorphology, volcanology, hydrology, biology (1 p)
Cultural	4.00	• More than 50 representations in works of art (literature, paintings, photography) (1 p) • Orthodox Church "The Assumption of the Virgin Mary" (1 p) • St. Mary Roman Catholic Church (1 p) • Apor Bastion (1 p)
Touristic	6.75	• 13 types of tourism: social, leisure, health tourism, cultural tourism, sports tourism, business tourism, festival tourism, religious tourism, ecotourism, geotourism, slow tourism, scientific tourism (1 p) • Modern full-service centers –Wellness/Spa hotels, Tușnad Wellness Center with thermal water (1 p) • Urban centers and areas with more than 50 000 inhabitants within less than 50 km (0.75 p) • Tourism objective of national interest (0.75 p) • Accommodation and catering services (1 p) • Modern facilities and services within the geomorphosite (0.75 p) • Seasonal tourism operation, with two seasons: summer and winter(0.75 p) • National and international tourism promotion (0.75 p)

RESTRICTIVE VALUE

POINTS	JUSTIFICATION
3.75	• Logging (0.75 p) • Household waste at the periphery of the volcanic geomorphohydrosite (0.75 p) • The site is partially vulnerable (0.25 p) • The presence of wild animals (brown bears) in the city (1 p) • Problems in the drinking water supply (water pipe defects) (1 p)

The establishment and urban development of this mountain resort is due to the presence of hydro-mineral resources and curative aerosols. Furthermore, the town offers a wide range of tourism services and practices several types of tourism (13 types identified): social tourism, recreation and leisure tourism, health tourism, cultural tourism, sports tourism, business tourism, festival tourism, religious tourism, to which we can now add ecotourism, geotourism, slow tourism, scientific tourism and educational tourism. The diverse accommodation offered by the tourism structures (hotel, motel, camping, rooms for rent in family homes, tourist hostels) and the attractive surroundings with the spectacular Olt Gorge and the Ciucaș recreational lake, the Tower Stones (viewpoint), the Apor Tower (viewpoint), the Piatra Șoimilor (Falcon Stone) botanical and geological nature reserve (another viewpoint), a volcanic neck, and the Tușnad Wellness Center with thermal water outline the attractive potential of the town.

Within the administrative limits of the town lies Piatra Șoimilor (Falcon Stone), also called Falcons Cliff, which is a nature reserve, a protected area of national interest of IUCN category IV, i.e. a geological and botanical nature reserve, since 1995; it covers an area of 1 ha. At the same time, it is also a belvedere point offering an astonishing view over the Olt Defile and Băile Tușnad Resort.

The Piatra Șoimilor (Falcon Stone) Nature Reservation is part of the Alpine Biogeographical Region, which is present throughout Europe, from the Pyrenees and the Alps to the Carpathians. In Romania, this biogeographical region encompasses both the Carpathian peaks and the coniferous and mixed forests of the Carpathians, as well as the intramontane depressions and higher hills along the mountain range. The colder and wetter climate, long winters and short summers are conditions to which plants and animals have adapted, including the black goat, the brown bear, the lynx, wolf and others. Various mountains are home to endemic and relict species, both on limestone or metamorphic ridges and in peat bogs. The rocky area, which is the habitat of the endemic species Hieracium telekianum, occupies a small area, surrounded by forest habitats, which can be considered buffer zones for the protected area.

These forests are either predominantly deciduous in the southern part, constituting forest habitat 9180* – Tilio-Acerion forests on steep slopes, ravines and gullies, or a mixture of beech and coniferous, represented by habitat 91V0 – Dacic beech forests, Symphyto-Fagion. The surface of the area, according to the boundaries on the website of the Ministry of Environment, Water and Forests, partially overlaps with these habitats. It should be noted that 11 plant species of the total flora of Piatra Șoimilor (Falcon Stone) Natural Reserve are protected on the Red List of higher plants in Romania: *Abies alba, Dianthus spiculifolius, Sempervivum marmoreum, Sempervivum montanum ssp. carnaticum, Monotropa hypopitys L., Hieracium sparsum ssp. borbasii var. Tubulare, Hieracium telekianum, Cephalanthera longifolia, Cephalanthera rubra, Epipactis helleborine, Platanthera bifolia* (Oltean & Negrean, 1994).

The Piatra Șoimilor (Falcon Stone) Nature Reserve is in the custody of the Accent GeoEcological Organisation; there are no official data regarding the number of annual visitors. It can be visited all year round, excluding winter, and there is no visitor fee. The length of the trail is 1-2 hours, depending on one's physical condition (from the Olt bridge the distance is about 3 km, with a difference in level of more than 200 m). The trail is of medium difficulty and is recommended for trained tourists with experience and adequate physical condition.

This route is not recommended for people suffering from rheumatic, respiratory, locomotive or cardiovascular diseases. There is a 3-meter-tall cross on the Piatra Șoimilor (Falcon Stone) in memory of those who fell off the cliff, a reminder for the daring. From here you can admire the view of the resort, the Olt Gorge and Mountain Ciomad.

The tourist value (Vtour) of the urban volcanic geomorphohydrosite resulted from the sum of scientific value, aesthetic value (landscape), educational value (cultural-historical), ecological value and socio-economic value. The total tourism value of a geomorphosite may not exceed 25 points. These were calculated by assigning scores from 0 to 1 for each structural-functional landmark of the volcanic landscape that ensures its expressiveness, representativeness, integrity, utility and sustainability, according to the formula (Irimuș et al., 2015):

$$Vtour = Vsci + Vsce + Vcult + Vecol + Veco$$

Tourism evaluation sheet of the urban volcanic geomorphohydrosite Băile Tușnad, Harghita County, Romania (Table 2). It is located in the southern part of the Ciuc Depression in the Olt Gorge, between the volcanic cones Pilișca and Ciomad, on geographical coordinates 46°08'58.3 "N 25°51'03.8 "E; accessible by the European road E578 or by the CFR 400 Brașov–Satu Mare railway line.

Table 2. Tourism evaluation sheet of the urban volcanic geomorphohydrosite Băile Tușnad

Value/ landmark						
VSci	Paleogeographic interest	Representativeness	Amplitude	Vulnerability	Utility	**Sum**
Score 0-1/mark	1.0	1.0	1.0	0.5	1.0	**4.5**
Vsce	Viewpoints (nr. 3)	Variety of landscape obs.	Chromatic contrast	Altitude for obs. point	Accessibility of obs. point	
Score 0-1/mark	1.0	1.0	1.0	1.0	0,7	**4.7**
Vcult	Representative for art	Representative for archeology	Representative for religion	Relevant traditions	Relevance for traditional economy	
Score 0-1/mark	0.8	0.2	1.0	1.0	1.0	**4.0**
Vecol	Floristic species	Wildlife species	Rare species	Endemic species	Geomorphosite status	
Score 0-1/mark	1.0	1.0	1.0	1.0	1.0	**5.0**
Veco	Type of exploitation	Access possibilities	Natural hazards	Nr. visitors/ year	Official protection level	
Score 0-1/mark	0.5	0.7	0.5	0.5	0.5	**2.7**
Touristic value		**20.9**				

In order to support the touristic importance of the resort within Harghita County, we have conducted an analysis of the tourism flow data including three periods: before the pandemic, during the pandemic and after the pandemic. The processed data were obtained from the TEMPO database of the National Institute of Statistics and cover the period 2017–2022. We analyzed four tourism indicators both as absolute values for the Băile Tușnad Resort and as values compared to the existing values for Harghita county. The four indicators were: number of arrivals, number of overnight stays, average length of stay and occupancy rate. In the first phase the analysis was carried out for the total values regardless of the type of accommodation units in which they were made, after which we also divided

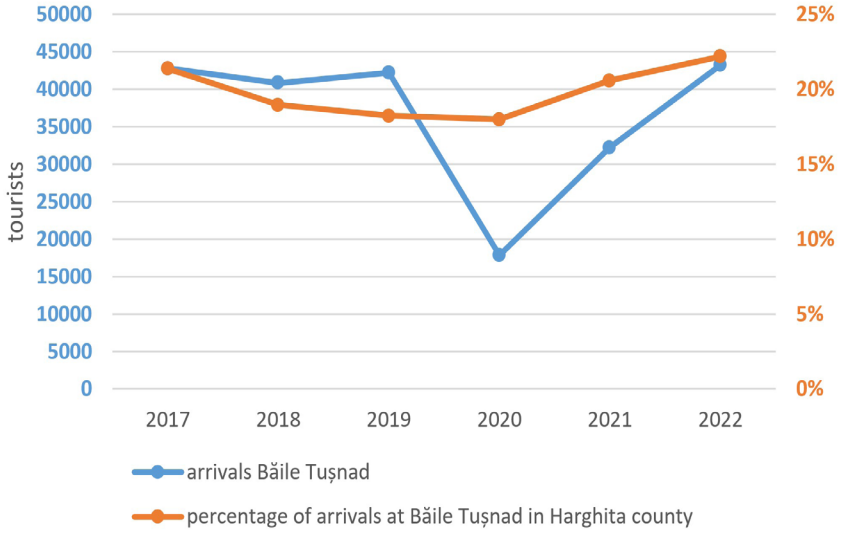
the data into categories, analyzing separately the values for hotels, guesthouses and other types of accommodation units for which there are records for the Băile Tușnad Resort (apartments and rooms for rent, motels).

Arrivals

Regarding the total number of arrivals in Băile Tușnad, after years of stability between 2017 and 2019 there was an abrupt decline in 2020 due to the pandemic (Figure 3). The recovery is achieved quite quickly with significant increases from year to year, so that in 2022 the total number of tourists slightly exceeds (by about 500) the maximum value of the previous period (value recorded in 2017). If we look at the percentage of arrivals in Băile Tușnad in relation to the total number of tourists in the whole county, the previous assessment is maintained: in 2022, 22.2% of the total number of arrivals is recorded in Băile Tușnad, the maximum share so far for the period concerned was 21.4%, in 2017.

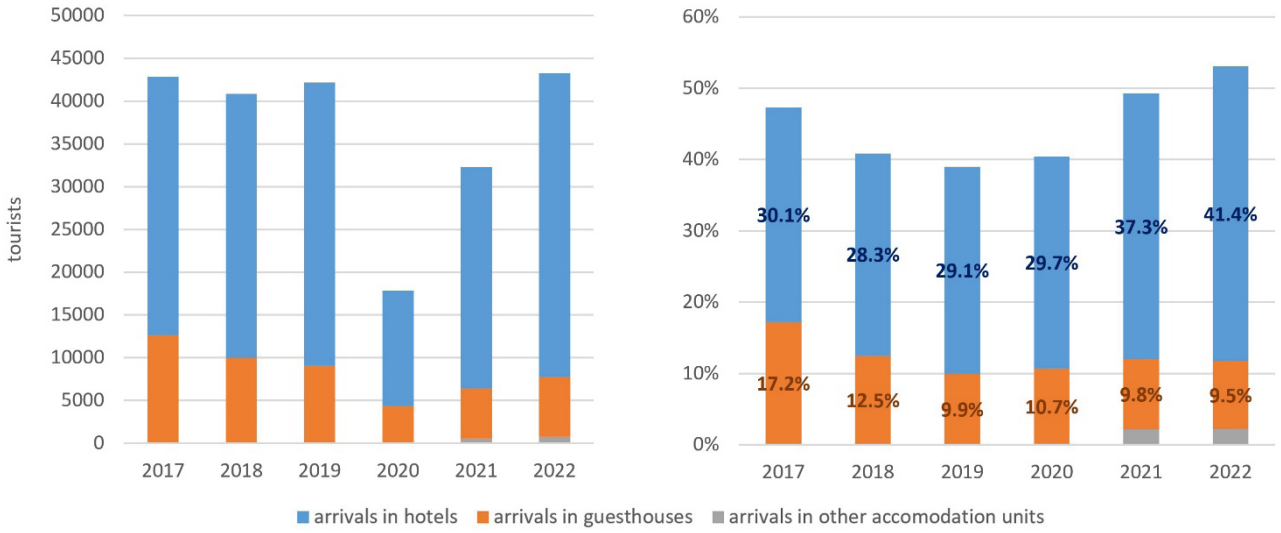
If we look at the charts showing the number of arrivals by type of accommodation, we can see that the increase in absolute values recorded in 2022 is significant, especially for arrivals in hotels (Figure 4). In 2022, we have an increase of almost 2000 over the maximum value recorded in 2019. In the case of guesthouses, the return to the pre-pandemic situation is progressive but slower. The percentage of arrivals in Băile Tușnad compared to the number of tourists arriving in Harghita County in 2022 was 41.3%, by far the highest value ever recorded. In this case, the share in 2021 exceeded the maximum contribution before the pandemic for the analysis period, 2017, with a proportion of 30.1%. The contribution of arrivals in the case of guesthouses does not change significantly for the last three years, with a tiny decrease from 10.7% in 2020 to 9.5% in 2022.

Figure 3. Evolution of arrivals in the Băile Tușnad Resort



Source: insse.ro - National Statistical Institute – TEMPO database

Figure 4. a) Arrivals by categories of accommodation units in Băile Tușnad. b) Percentage for arrivals by categories of accommodation units in Băile Tușnad compared to the values for Harghita County



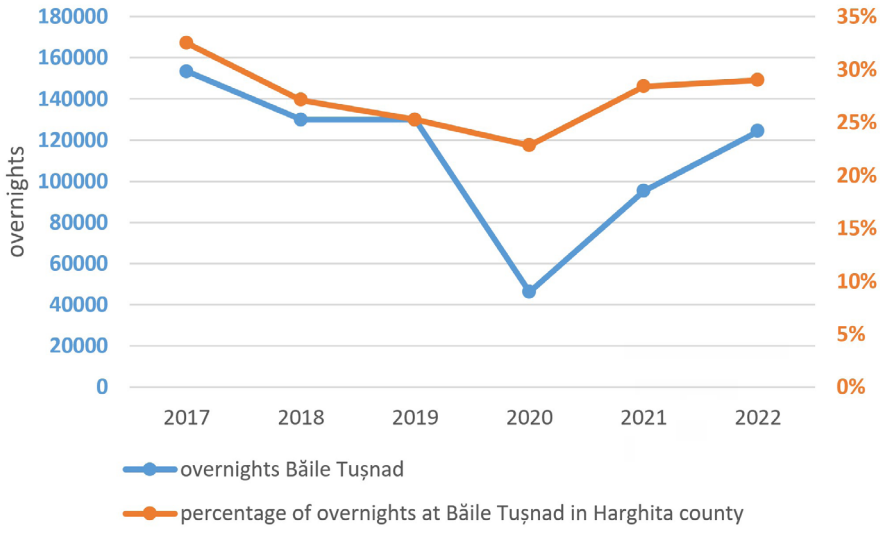
Source: insse.ro - National Statistical Institute – TEMPO database

Overnight stays

The number of overnight stays for the analysis period shows a slightly different trend compared to arrivals. In this case, in the pre-pandemic period after 2017 there is a decrease both in absolute and percentage values compared to the number of overnight stays recorded in Harghita County (Figure 5). After the pandemic (years 2021 and 2022) the data show a significant increase in absolute values; however, the value in 2022 is the only one close to that in 2019. If we consider the share of registered overnight stays in Băile Tușnad compared to the overnight stays recorded for Harghita County, we can see that this recovery in relative terms still exceeded in 2021 the values of 2018 and 2019, and is slightly increasing even in 2022. This situation suggests that Băile Tușnad has managed to come back quite quickly, to improve and consolidate its position, exceeding the contribution of 27.1% and 25.3% that it had in 2018 and 2019, respectively, reaching nearly 29% in 2022.

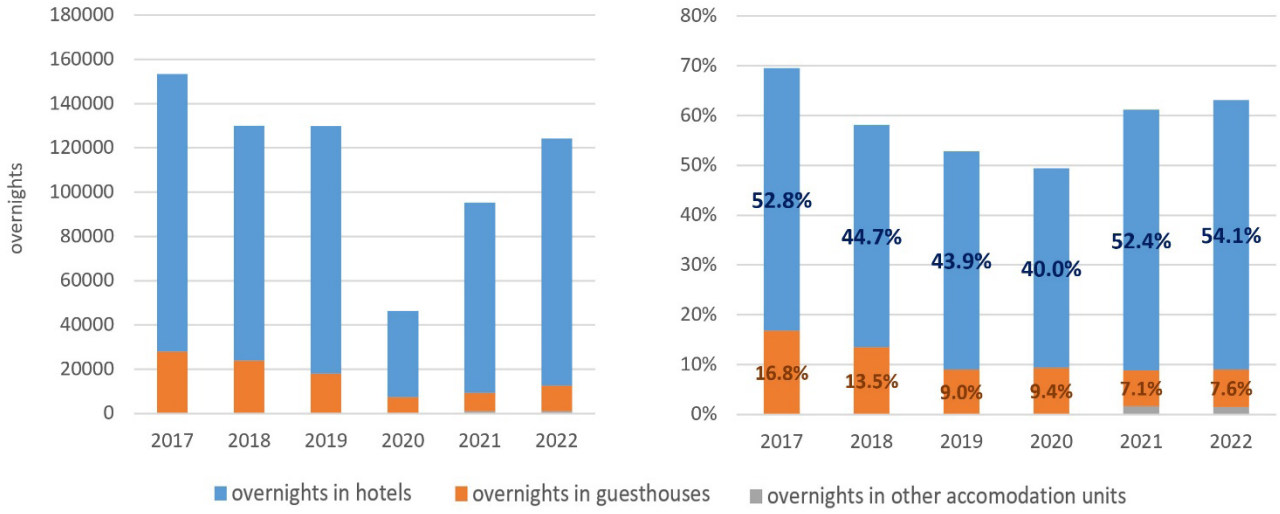
As in the case of arrivals and overnight stays, we can note that the recovery after the pandemic is mainly due to overnight stays in hotels (Figure 6a). This is particularly noticeable if we look at the contribution of overnight stays. Even if the absolute number of overnight stays in hotels in 2022 is lower by almost 14000 than the highest value so far for the period of analysis (value recorded in 2017), from a percentage point of view more than 54% of the total number of overnight stays in Harghita County was made in hotels in Băile Tușnad in 2022 (Figure 6b). This contribution was 52.8% in 2017 (maximum value until 2022 for the period of analysis). Regarding guesthouses, the return to the absolute values before the pandemic is gradually taking slow steps, and the percentage has slightly decreasing values for the last three years, from 9.4% to 7.6%.

Figure 5. The evolution of overnight stays in Băile Tușnad



Source: insse.ro - National Statistical Institute – TEMPO database

Figure 6. a) Number of overnight stays by categories of accommodation units in the Băile Tușnad Resort.
b) Proportion of overnight stays by category of accommodation units in the Băile Tușnad Resort compared to the values for Harghita county



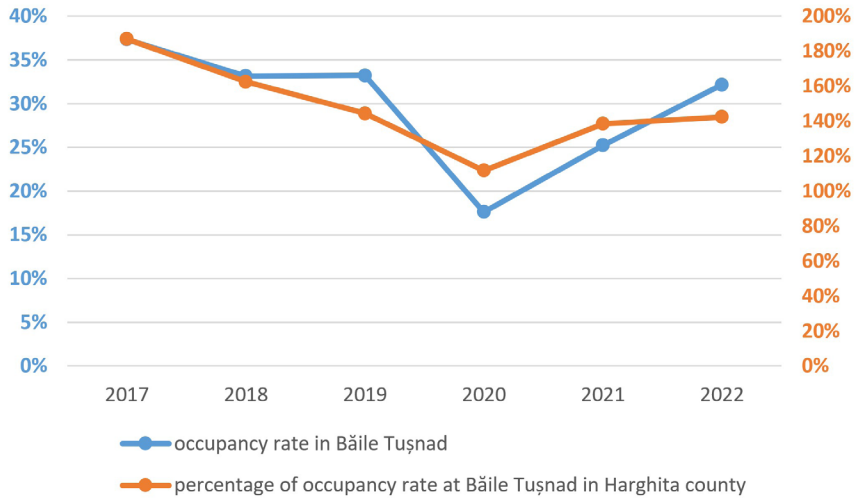
Source: insse.ro - National Statistical Institute – TEMPO database

Occupancy rate

The chart for occupancy values (Figure 7) closely follows the pattern of the absolute values of arrivals (Figure 3) and overnight stays (Figure 6). Like the above mentioned indicators, occupancy is relatively stable before the pandemic, with a sharp decrease in 2020 and a strong recovery trend from 2021 onwards. However, the recovery is not only in Băile Tușnad, but also in the other locations of Harghita County, since the reported values for 2021 and 2022 do not differ significantly, with a value indicating occupancy of 39-42% above the county level value. Before the pandemic this contribution was in the

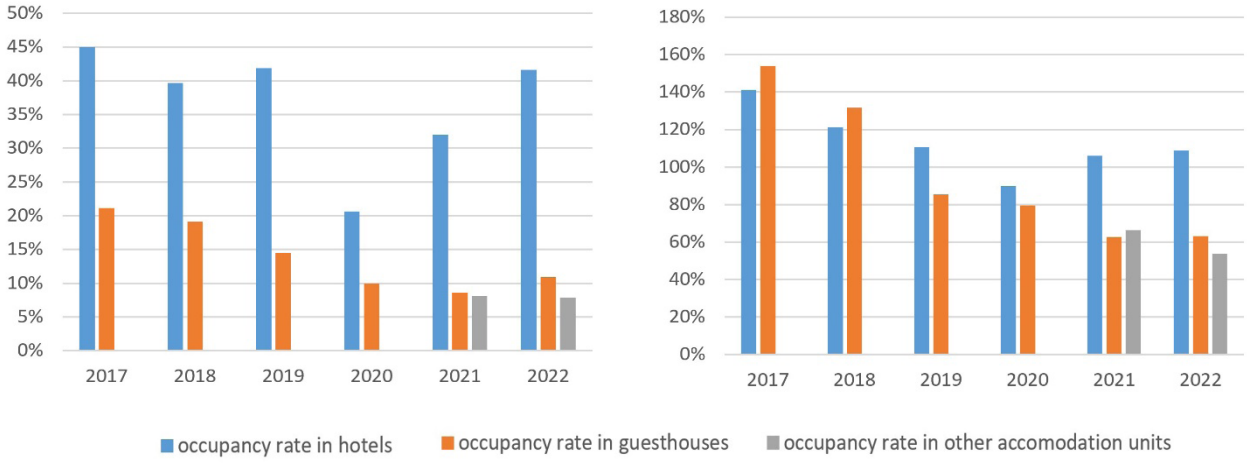
range 44-87%, thus significantly higher. The analysis by type of accommodation is not new compared to what was observed previously. The recovery to pre-pandemic values is observed only in the case of hotels: guesthouses (still) did not achieve this performance either in absolute values (Figure 8a) or in terms of contribution to the county values (Figure 8b). The occurrence of values very close to that of guesthouses for other types of accommodation units, including apartments and rooms for rent, is noticeable.

Figure 7. Evolution of the occupancy rate in the Băile Tușnad Resort



Source: insse.ro - National Statistical Institute – TEMPO database

Figure 8. a) Occupancy rate by category of accommodation units in Băile Tușnad. b) Occupancy rate by categories of accommodation units in Băile Tușnad compared to the values for Harghita county



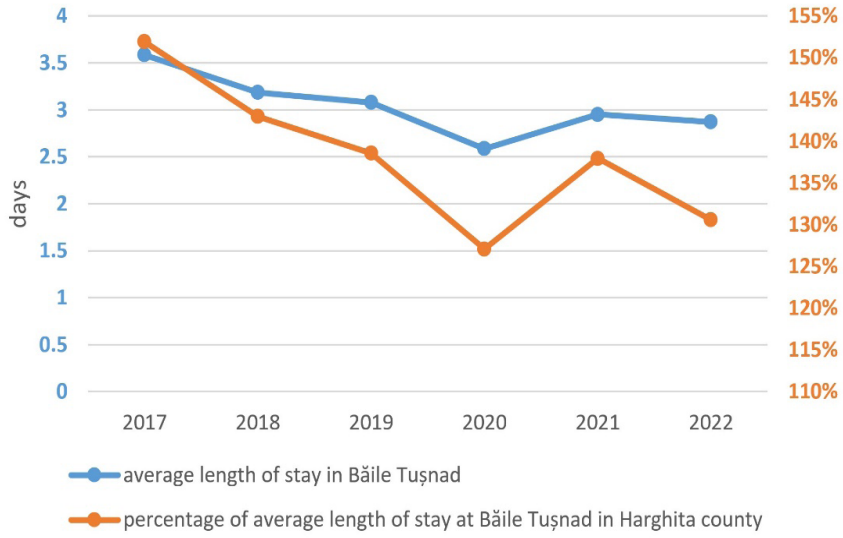
Source: insse.ro - National Statistical Institute – TEMPO database

Average length of stay

If the year of the pandemic was clearly identifiable in the number of arrivals and overnight stays, this is not so obvious in the average length of stay. The small fluctuation in the absolute value is part of the continuous decrease of this indicator (Figure 9). In nominal value this decrease is quite significant, being more than half a day, from 3.6 to 2.9. In the case of percentage value, the year 2022 is even

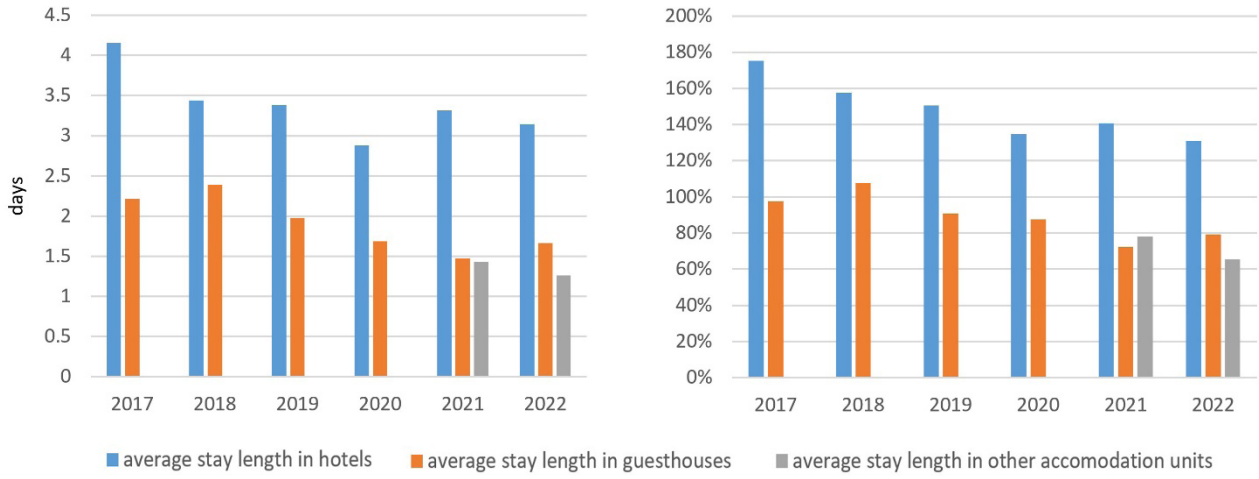
worse, here the value is the lowest since the pandemic (Figure 9). In 2017 the average length of stay was 52% higher in Băile Tușnad than the average value of Harghita county. In the year 2022 this value has reduced to only 31%.

Figure 9. Evolution of the average length of stay in the Băile Tușnad Resort



Source: insse.ro - National Statistical Institute – TEMPO database

Figure 10. a) Average length of stay by category of accommodation in the Băile Tușnad Resort. b) Average length of stay by categories of accommodation units in Băile Tușnad compared to the values for Harghita County



Source: insse.ro - National Statistical Institute – TEMPO database

If we look at the changes in the average length of stay, we can observe that the decreasing trend is manifest in both absolute and reported values for both hotels and guesthouses (Figure 10). A small increase is achieved in 2021 for hotels and in 2022 for guesthouses. It is worth noting that the average duration in other accommodation units, i.e. in apartments and rooms for rent, as well as motels, the average duration approaches that of guesthouses, in 2021 even exceeding their value in terms of percentage. At the same time, it can also be observed that there is a slightly increasing difference

between the average duration recorded in hotels and guesthouses. While before the pandemic this difference was around 1.5 days on average, after the pandemic it reached 2 days (Figure 10a).

CONCLUSIONS

"Little Switzerland" still holds the title of the smallest town in Romania, which – officially – has 1372 inhabitants, according to the 2022 census. Law no. 2001/351 stipulates, among other things, that a town must have at least 5000 inhabitants; Băile Tușnad falls well below this threshold, so it does not meet this condition.

The town maintains its title of urban settlement due to its international tourist reputation, which is characterized by its vibrant landscape with clean, strongly oxygenated air, rich in aerosols and negative ions, the great variety of local natural tourist resources, such as mineral waters, mofete, secular forests, the vicinity of the volcanic crater Lake Saint Ana and the biotic complex Mohoș Peat Bog.

Ecotourism, the new niche in the local tourism of Băile Tușnad, represents a new opportunity for urban regeneration: the resort has every chance of being remarked again and put on the map of national and international tourism, as a top destination for tourists from all over the world.

Although ecotourism is not specific to the urban environment, it is present in the studied area due to the unique natural setting, the great variety of natural tourist resources, and human activities with tourist functions. The city offers a wide variety of touristic services, thus favoring the practice of several types of urban tourism: social tourism, recreation and leisure tourism, health tourism, cultural tourism, sports tourism, business tourism, festival tourism, religious tourism, to which we recently added "quality" tourism, i.e. ecotourism, and from the study we can consider geotourism, slow tourism and scientific tourism, as well as educational tourism, in total 13 types of tourism.

The resort of Băile Tușnad is a good model for ecotourism in the Harghita Mountains, as well as for the use of natural resources for tourism purposes, respecting the principles of sustainable development.

The total value summed up in the evaluation sheet of the urban volcanic geomorphohydrosite Băile Tușnad (G9) is 23.75 points. It recorded appreciable values for both structural (geomorphological, aesthetic, ecological) and functional (scientific, cultural, touristic) values. The result of the restrictive value is 3.75 points: it contributed with some rather large weight to the decrease of the total values. It is one of the most representative volcanic geomorphohydrosites in the range of the Harghita Mountains.

The tourism value of the urban volcanic geomorphohydrosite (20.9 points), representing 84% of the maximum possible value according to the methodology, underlines its importance in the local, county, national and international tourist circuit. Its tourist attractiveness increases with the promotion of scientific interest in deciphering the genetic mechanisms that have shaped the natural resources of the subsurface, but also with the opportunity to learn about the influence of climate change on natural ecosystems and to decipher the reasons for the extinction of contemporary fauna and flora within the region.

The final conclusions of the study indicate that in the urban volcanic geomorphohydrosite Băile Tușnad Resort, except for the average length of stay, the majority of indicators show a marked return

to pre-pandemic values. The only indicator, namely the number of arrivals, is the only one which in 2022 exceeded the pre-pandemic values.

The values for hotels differ from those for guesthouses. In the case of hotels, the recovery, in terms of number of tourists, as well as overnight stays, shows a strong rising trend, while in the case of guesthouses a stagnation or a slight decline is noted. The causes are to be found in the type of tourism promotion (tourist brochures, tourism exhibitions, press, radio, television), but above all, in the detriment done by the media by exaggerating the 'attacks' of brown bears on the town's guesthouses.

Regarding the position occupied by the spa resort or the urban volcanic geomorphohydrosite of Băile Tușnad, within Harghita County, the most significant comeback is in the number of arrivals, exceeding the contribution before the pandemic. The recovery is also observed in overnight stays and occupancy, with levels close to those of 2018 and 2019. For the average length of stay, we can observe a slight but steady decline, the causes being of socio-economic origin (poverty of the population, pandemic, war in the neighboring country [i.e. Ukraine], as well as social unrest on a global and not only European level).

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