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TOURIST UTILIZATION OF PROTECTED AREAS IN THE CONTEXT OF ALTERNATIVE TOURISM (A CASE STUDY OF NATURAL MONUMENTS IN BULGARIA)

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The aim of the present study is to determine the degree of tourist utilization of protected areas, in particular Natural Monuments in Bulgaria, in relation to alternative forms of tourism using selected criteria and indicators. A categorization of natural monuments according to the degree of their tourist utilization is proposed, and their distribution by class within mountainous regions is presented. The correlation analysis reveals a significant relationship between the variables "tourism attractiveness", "general infrastructure", "basic facilities", and "tourism infrastructure". The correlation coefficient is positive for all pairs of variables. Attention is drawn to the importance of natural monuments in Bulgaria for various forms of alternative tourism: ecotourism, hiking tourism, speleotourism, rock climbing, cycling tourism, photo tourism, cultural tourism, and religious tourism. It could be concluded that natural monuments are the main resource for one of the rapidly developing alternative forms of tourism – ecotourism. At the same time, it is noted that a single NM may be suitable for more than one type of alternative tourism, which proves their intertwining and mutual complementarity once again.

Keywords: natural monuments, criteria and indicators, degree of tourist utilization, correlation analysis, alternative tourism, classification.

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ТУРИСТИЧЕСКА УСВОЕНОСТ НА ЗАЩИТЕНИТЕ ТЕРИТОРИИ В КОНТЕКСТА НА АЛТЕРНАТИВНИЯ ТУРИЗЪМ (НА ПРИМЕРА НА ПРИРОДНИТЕ ЗАБЕЛЕЖИТЕЛНОСТИ В БЪЛГАРИЯ)

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Абстракт: Целта на настоящото изследване е да се определи степента на туристическата усвоеност на защитените територии, в частност на природните забележителности в България, спрямо алтернативните форми на туризъм, като се използват избрани критерии и показатели. Предложените критерии и показатели биха били основа за разработване на цялостна методология за оценка на защитените територии в контекста на алтернативните форми на туризма. Предложена е категоризация на природните забележителности по степен на тяхната туристическа усвоеност и е представено разпределението им по класове в пределите на планинските територии. Пространственото разпределение на природните забележителности показва известна неравномерност както по брой, така и по степен на туристическа усвоеност. Корелационният анализ показва значима връзка между променливите „туристическа атрактивност“, „обща инфраструктура“, „основна база“ и „туристическа инфраструктура“. Коефициентът на корелация е положителен за всички двойки променливи. Обърнато е внимание на значението на природните забележителности в България за различни форми на алтернативен туризъм и се установява, че развити или с перспектива за развитие са следните видове алтернативен туризъм: екотуризъм, пешеходен туризъм, спелеотуризъм, скално катерене, велотуризъм, фототуризъм, културен туризъм, религиозен туризъм. Може да се заключи, че природните забележителности са основният ресурс за един от бързоразвиващите се алтернативни видове туризъм – екотуризмът. Същевременно се констатира, че една и съща природна забележителност е подходяща за повече от един вид алтернативен туризъм, което доказва още веднъж тяхното преплитане и взаимодопълняемост.

Ключови думи: природни забележителности, методология, степен на туристическа усвоеност, корелационен анализ, алтернативен туризъм, класификация.

INTRODUCTION

Protected areas have become a core attraction for nature-based tourism activities, valued for their ability to generate financial benefits in a non-extractive way, thus effectively enabling the sustainability of biodiversity (Novelli, Scarth 2007).

The development of tourism is directly dependent on the quality of the natural environment. In this regard, nature conservation activities are of essential importance for this sector. In the present study, the focus is on the implementation of tourism in protected areas, and particularly in locations of natural monuments, through its alternative forms.

The alternative to mass tourism, in terms of both supply and mode of operation, implies long-term resource planning, care for the environment through its conservation, as well as improvement of the local population's well-being. This necessitates an analysis of the natural and anthropogenic resources of a given region, the results of which may serve as a prerequisite for the development of environmentally friendly types of tourism. An important part of the implementation and development of tourism is associated with specific places towards which tourist flows are formed.

Tourism in protected areas offers local communities certain economic opportunities while maintaining a healthy natural environment. However, the risk of a higher intensity of tourism development and the subsequent potential for conflict between maintaining a healthy natural environment and economic development must be considered (Nepal, 2000).

The aim of the present study is to determine the degree of tourist utilization of protected areas, in particular Natural Monuments in Bulgaria, in relation to alternative forms of tourism using selected criteria and indicators. The degree of tourist utilization of protected areas indicates the potential tourist pressure on the protected area. If a high level of tourist utilization is identified, a negative impact on the protected area is assumed, which would justify more thorough monitoring and control by local authorities to protect the natural environment. The criteria and indicators used can easily be adapted for any EU country based on available information. The selected criteria and indicators has been tested on a specific category of protected area on the example of Bulgaria. The natural monument category was chosen for several reasons. First, it does not have the strictest protection regime (IUCN category III), which results in fewer restrictions on attendance and mostly requires well-developed tourist infrastructure and superstructure. Second, this is the category in which the characteristics of the abiotic natural environment are directly related to the attractiveness of the respective natural object in terms of tourism development. Additionally, natural monuments are among the most numerous categories of protected areas in the country, which allows for comprehensive research and enables the selected criteria and indicators tested on them to serve as an example for its application to the remaining categories of protected areas.

THEORETICAL BACKGROUND

In this study we define tourist utilization of a protected area as the degree to which it is developed for tourist visits, taking into account the area's tourist attractiveness. Some studies emphasize sustainable tourism management in these areas (Butler, 1999; Bushell & Bricker, 2017; Blanco-Cerradelo et al., 2022; Trišić et al., 2023, and many others), while others focus on the carrying capacity of protected areas (Elio & Costa, 1991; Papageorgiou & Brotherton, 1999; Prato, 2001; Rocha et al., 2021, and many others). At the base of both concepts is the

idea of preventing the negative impacts of tourism on natural environment. Indeed, the concept of sustainable tourism development is often viewed as an extension of carrying capacity (Navarro Jurado et al., 2012; Salerno et al., 2013). The idea behind the present study is, when necessary, first to determine the degree of tourist utilization in the protected area before proceeding to the development of complex and labor-intensive assessments and strategic documents.

Protected areas

Protected areas in the world

On a global scale, the leading organization in the conservation of the natural environment is the International Union for Conservation of Nature (IUCN).

In 1984 Commission on National Parks and Protected Areas (CNPPA) established a task force to update the categories. This reported in 1990, advising that a new system be built around the 1978 categories I–V, whilst abandoning categories VI–X. CNPPA referred this to the 1992 World Parks Congress in Caracas, Venezuela. A three-day workshop there proposed maintaining a category that would be close to what had previously been category VIII for protected areas where sustainable use of natural resources was an objective. The Congress supported this and in January 1994, the IUCN General Assembly meeting in Buenos Aires approved the new system. Guidelines were published by IUCN and the World Conservation Monitoring Centre later that year. These set out a definition of a "protected area" – An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means – and six categories:

Areas managed mainly for:

I. Strict protection [Ia) Strict nature reserve and Ib) Wilderness area]

II. Ecosystem conservation and protection (i.e., National park)

III. Conservation of natural features (i.e., Natural monument)

IV. Conservation through active management (i.e., Habitat/species management area)

V. Landscape/seascape conservation and recreation (i.e., Protected landscape/seascape)

VI. Sustainable use of natural resources (i.e., Managed resource protected area).

For many countries, especially in Eastern Europe, the IUCN categorisation of protected areas is the basis for drawing up management plans (Proceedings…,1994).

Protected Planet is the most up to date and complete source of data on protected areas and other effective area-based conservation measures (OECMs),

updated monthly with submissions from governments, non-governmental organizations, landowners and communities[2].

Protected areas in Bulgaria

The Protected Areas Act (1998) in Bulgaria defines six categories of protected areas, aligned with contemporary international requirements (IUCN categories) and categories, differentiated according to the condition and degree of preservation of natural elements, objectives, and management regimes: Strict nature reserve (IUCN Category I), National park (IUCN Category II), Natural monument (IUCN Category III), Managed nature reserve (IUCN Category IV), Natural park (IUCN Category IV and/or V), Protected site (IUCN Category IV and/or V) (Protected Areas Act 1998).

According to the Register of Protected Areas and Protected Zones in Bulgaria, published on the website of the Environment Executive Agency (EEA) under the Ministry of Environment and Waters, as of 1 October 2025 Bulgaria has: 55 strict nature reserves, 3 national parks, 359 natural monuments, 35 managed nature reserves, 11 natural parks, and 603 protected sites.

Alternative forms of tourism

Many tourism products of alternative tourism used to be additional elements of mass tourism that later developed independently. Some even preceded mass tourism, i.e., religious and cultural-educational tourism. Therefore, alternative tourism is often not practiced independently but in combination with mass holiday tourism (Stamov and Nikovska, 2011a, p. 13).

Christou (2012) analyzes the relationship between mass and alternative tourism. The author concludes that although alternative tourism offers better overall characteristics in terms of sustainability, mass tourism cannot be completely disregarded due to its high revenues, which suggests the possibility of integrating the two approaches.

In this study, the focus is on alternative forms of tourism, as they imply environmentally friendly activities, which corresponds to the philosophy underlying the designation of protected areas. The smaller scale of tourist flows prevents the overloading of ecosystems. There is no denying the existing connection between natural monuments, respectively protected areas, and mass tourism. In mass tourism, NMs are usually a fragment of tourists' holidays, whereas in alternative tourism they are the main reason for the tourist trip.

Essence of alternative tourism

Cohen (1987) distinguishes two main concepts for the emergence of "alternative tourism": a reaction to mass consumerism (countercultural "alternative tourism") and a reaction to the exploitation of the Third World (caring

[2] Explore protected areas and OECMs. Protected Planet. https://www.protectedplanet.net/en/search-areas?geo_type=country

"alternative tourism"). The first concept strives for a change in the attitudes of mass tourism by seeking new, previously unexplored destinations, referred to by the author as “virgin” places. The second concept focuses on establishing personal relationships between the guest (tourist) and local hosts. Even back then, Cohen noted possible problems in the development of alternative forms of tourism and the need for reform in mass tourism.

Although decades have passed since alternative tourism entered the focus of scientific publications, there is still no universally accepted definition of the term today (Pearce, 1992; Macleod, 2005; Triarchi & Karamanis, 2017). Initially, it was perceived as the accommodation of tourists in the host’s home and an opportunity for developing countries. The aim of alternative tourism is to establish direct personal or cultural interconnections and understanding between guest and host (Dernoi, 1981) or the least desired or most undesired type of tourism, which is essentially known as mass tourism (Butler, 1990). Wackermann also argues that there can be no alternative tourism without alternative forms of hospitality (Le Tourisme international 1988, quoted by Alexova & Yordanov, 2014). According to some authors, the concept of alternative tourism complements that of sustainable tourism development (Öztürk, 2000; Neshkov et al., 2007; Triarchi & Karamanis, 2017; Akhalaia, 2023).

Alternative tourism has been defined in many ways. The concept sometimes includes a wide range of activities done in one’s free time, also classified as alternative tourism (from walking trips around the world to adventure holidays, cycling, etc.). Some authors define alternative tourism as everything that differs from mass tourism, new and unique experiences beyond traditional tourist destinations. Alternative tourism can be defined as a complex of tourist activities different from those of mass tourism, related to the use of diverse natural and anthropogenic tourism resources and attracting a specific market segment by satisfying a specific consumer interest different from that of mass traditional tourism (Stamov and Nikovska, 2011a, p. 13; Eğirmen et al., 2024; Nazim et al., 2025).

In the scientific community, there is still an ongoing discussion about the use of the terms "alternative" and "specialized" tourism. However, both have become well-established in practice, which gives us good reason to use them as synonyms in this study.

Classification of alternative tourism types

Triarchi and Karamanis (2017) note the complexity involved in classifying alternative forms of tourism. The authors present separate classifications based on different approaches and analyze in greater depth the following categories of alternative tourism: ecotourism, cultural tourism, and creative tourism.

Different types of alternative tourism can be distinguished according to: the key travel motive and activity in nature or the use of natural factors for recreation, treatment, or restoration of psychophysical and emotional health, as

well as amateur interest or pursuit of research goals combined with rest; the degree of use of specialized skills, interests, or curiosity and knowledge related to a profession or hobby; the level of risk during travel; the level of physical activity and readiness for new emotional experiences, etc. (Alexova & Yordanov, 2014). Based on this, various classifications of alternative tourism types exist.

There are different approaches to the classification of alternative forms of tourism in scientific literature, and there is no unified and generally accepted classification system. A common feature among the examined classifications is the emphasis on the sustainable use of natural and cultural-historic resources, active tourist participation, and the search for authentic experiences. The most frequently recognized forms across almost all authors' classifications include ecotourism, cultural, rural, health (balneological, spa & wellness), sports, and adventure tourism. At the same time, differences among classifications arise mainly due to the predominance of one or another tourism motive – contact with nature, doing sports, health improvement, etc. It can reasonably be assumed that alternative tourism represents a dynamic and multi-component system whose forms evolve and adapt in response to changing tourist needs, societal values, and the concept of sustainable development (Pearce, 1992; Marinov, 2011; Mileva, 2004; Stankova, 2006; Vasileva, 2007; Stamov & Nikovska, 2011a, 2011b; Rafailova et al., 2012; Aleksieva et al., 2017; Văduva et al., 2021).

For the purposes of this study, with regard to the tourist utilization of natural monuments, the following alternative forms have been adopted: ecotourism, hiking tourism, speleotourism, rock climbing, cycling tourism, photo tourism, cultural tourism, and religious tourism.

Tourism in protected areas

Tourism in protected areas refers to various forms of recreational opportunities within the realm of nature-based tourism, wildlife tourism, or ecotourism, taking place in different categories of IUCN-designated protected areas (Mandić, 2022, quoted by Birendra et al., 2024). 94,238 global terrestrial protected areas welcomed eight billion annual visits, resulting in about $600 billion in expenditures (Balmford et al., 2015, quoted by Birendra et al., 2024).

Protected areas have become tourist destinations. Tourism plays a significant role in raising public awareness of the need for environmental protection. It contributes to the preservation of natural characteristics and increases environmental investments. Hornoiu et al. (2014) examine tourist behavior in protected natural areas, which is essential for the sustainable development and conservation of natural resources. The authors emphasize that the development of tourism industry in these areas must be accompanied by responsible tourist behavior, which is of key importance for preservation of protected areas.

The preserved natural environment in protected areas significantly enhances their attractiveness compared to surrounding territories, subject to anthropogenic pressure. Therefore, protected areas are valuable natural tourism resources. They are what constitutes the main motive for tourist travel (Vasileva, 2024, p. 63). Hall (Hall, 1994, quoted by Hornoiu et al., 2014) summarizes the motives for visiting protected areas, considering the specific characteristics of each. Every motive is associated with a particular expected tourist experience (Tab. 1). This usually involves contemplating the unique landscape and wildlife. At the same time, many tourists look for a way to escape the stress of city life. The cultural experiences offered by some protected areas complement the motives for choosing a destination.

Table1.

Motives for visiting protected areas according to Hall (1994)

Motivation	**Experience**
Aesthetics/perception	Enjoying the landscape and the wilderness
Religious/spiritual	Experiencing God or the inner self into the wild
Escape	Finding freedom away from life's constraints and urban alienation
Challenge	Satisfaction attained through the overcoming of extreme situations
Historical/romantic	An opportunity to relieve or imagine the pioneers' experience in various fields
Time alone	Respecting solitude in a vast and indifferent setting
Companionship/fellowship	Desire to share the setting with friends and tighten the social bond
Discovery/learning	The thrill of discovering or learning about nature in an appropriate environment
Indirect appreciation	The pleasure of admitting that there are wild areas never seen before

The first attempts to regulate the conservation of natural resources in Bulgaria date back to the beginning of the 20th century with the adoption of forestry and hunting laws. Purposeful conservation of flora and fauna, however, started after 1928 with the establishment of the Union for the Protection of Native Nature (Petrova, 2020). Bulgarian nature conservation legislation can be periodized from the first law adopted in 1931 to the most recent one from 1998, which is still in force.

In 1960, the Decree on the Protection of the Country’s Nature was passed. It differentiates more precisely and correctly the regimes of the various categories of protected areas. Possibilities for their development as objects of economic tourism are also highlighted (Petrov, 2022).

The Protected Areas Act of Bulgaria (1998) clearly regulates the possibility for tourism development in three categories of protected areas: national park, natural park, and protected site. In the definitions of the remaining three categories of protected areas (strict nature reserve, managed nature reserve, and

natural monument), the possibility for tourism development is not explicitly regulated, but they are practically an integral part of many tourist routes, which makes them object of various forms of tourism.

In strict nature reserves, which are protected areas with the strictest protection regime, as well as in their derivative managed nature reserves, “walking along marked trails, including for educational purposes” is permitted. This essentially allows for the practice of various alternative forms of tourism. The latter is also suggested by the fact that many reserves fall within the boundaries of national parks and natural parks, one of their objectives precisely being development of tourism.

It is important to note that in 2007 the buffer zones of some reserves were reclassified as protected sites, which additionally enables tourist utilization of the natural environment close to protected areas with the strictest protection regime. A similar opportunity is also assumed for natural monuments, as the designation orders for most of them specify tourism development.

Previous scientific studies on tourism in/and protected areas in Bulgaria have been conducted by Bezlova & Georgieva (2009), Vasileva (2013), Alexova (2013), Lakov (2017), Mitova (2020), Cholakova & Dogramadjieva (2023), Vasileva & Sabrieva (2023), Vasileva et al. (2024), Dogramadjieva (2024), Bancheva-Preslavska (2025) and others.

METHODOLOGY OF THE STUDY

Study area

Protected areas, natural monuments located above 600 m above sea level in particular, are the subject of this study (Fig. 1). All categories of protected areas defined by Bulgarian legislation fall within its territorial scope, but emphasis is placed on natural monuments. Within the studied territory, a total of 469 protected areas are identified, including 3 national parks, 6 natural parks, 42 strict nature reserves, 15 managed nature reserves, 157 natural monuments, and 246 protected sites.

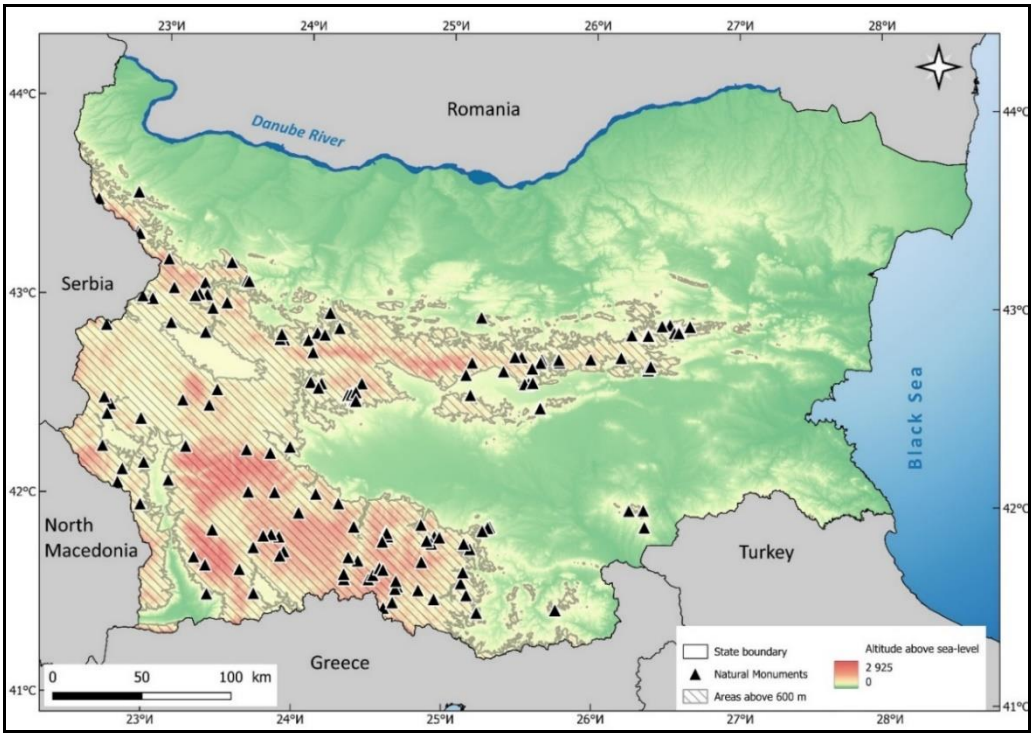


Fig. 1. Study area (authors' elaboration)

Methods used and data visualization

The role and significance of protected areas for tourism development, including alternative forms of tourism, correspond at any given time to the degree of their tourist utilization. In this study, natural monuments in Bulgaria located above 600 m above sea level are adopted as a sample for applying the selected criteria and indicators for determining the degree of tourist utilization.

A dichotomous approach. In determining the degree of tourist utilization of natural monuments (NMs), a dichotomous approach was applied, based on the dichotomous pair "yes – no" or "factor – non-factor", with criteria and indicators for comparison selected in advance. The dichotomous approach in statistics defines a variable at the nominal level, which has only two categories, such as gender (male or female) (Shammas, 1981; Hunter & Schmidt, 1990; Statistics.com, Glossary. Dichotomous n.d.).

Criteria framework. To determine the degree of tourist utilization, a criteria framework was developed (Tab. 2), including criteria from four areas: tourist attractiveness, general infrastructure, basic facilities, and tourist infrastructure. Each criterion is accompanied by corresponding indicators. For example, to determine the tourist attractiveness of NMs, indicators such as "On the list of 100 National Tourist Sites", "On the UNESCO list", and "In the Tourist Attractions Register" were used. The selected indicators reveal the presence of

Table 2.

Criteria framework for determining the degree of tourist utilization of natural monuments (authors' elaboration)

Criterion	Indicator
Tourist attractiveness	On the list of 100 National Tourist Sites
	On the UNESCO list
	In the Tourist Attractions Register
General infrastructure	Road
	Electricity supply network
	Water supply and sewerage network
Basic facilities	Accommodation establishments
	Food and entertainment establishments
Tourism infrastructure	Visitor or tourist information center
	Mountain transport (ski lifts, cable cars)
	Eco-trails (wooden bridges, steps, railings, observation platforms)
	Benches and/or gazebos
	Parking area
	Ticket office
	Information and/or guidance signs
	Tourist trail marking

sufficient tourist attractiveness and appeal capacity of NMs. General and tourist infrastructure, through "Road", "Eco-trails", and "Mountain transport" indicators, ensures accessibility to NMs, which is of primary importance for a tourism resource to turn into a tourist attraction. Basic facilities, through "Accommodation establishments" and "Food and entertainment establishments" indicators, satisfy tourists' basic needs for food and sleep. Tourist infrastructure (visitor/tourist information center, parking area, ticket office) assists in serving tourists.

Assessment scale. The following assessment scale is proposed: each criterion has a weight of 1 point distributed evenly among the respective indicators. For example:

1. Tourism attractiveness = 1 point:
   1.1. On the list of 100 National Tourist Sites = 0.333 points
   1.2. On the UNESCO list = 0.333 points
   1.3. In the Tourist Attractions Register = 0.333 points
2. General infrastructure = 1 point:
   2.1. Road = 0.333 points
   2.2. Electricity supply network = 0.333 points
   2.3. Water supply and sewage network = 0.333 points
3. Basic facilities = 1 point:
   3.1. Accommodation establishments = 0.5 points
   3.2. Food and entertainment establishments = 0.5 points
4. Tourism infrastructure = 1 point:

4.1. Visitor/tourist information center = 0.125 points
4.2. Mountain transport (ski lifts, cable cars) = 0.125 points
4.3. Eco-trails (wooden bridges, steps, handrails, observation platforms) = 0.125 points
4.4. Benches and/or gazebos = 0.125 points
4.5. Parking area = 0.125 points
4.6. Ticket office = 0.125 points
4.7. Information and/or guidance signs = 0.125 points
4.8. Tourist trail marking = 0.125 points.

Degree of tourist utilization. To determine the classes, the following formula is used:

$$C = (X\ max - X\ min) / k$$

where X_{max} and X_{min} are respectively the maximum and minimum observed values of the indicator, and *k* is the number of classes (Stoykov, 2003). For a more precise grouping of NMs and clearer differentiation of the degree of their tourist utilization, *k* was set equal to 5. The first class includes NMs unutilized in the context of tourism, while the fifth class includes fully utilized NMs. Classes 2, 3, and 4 include NMs with varying degrees of tourist utilization (Tab. 3).

Table 3.
Degree of tourist utilization (authors' elaboration)

Class	Degree of tourist utilization	Value
Class 1	Unutilized NMs	0 to 0.708
Class 2	Low degree of utilization	0.709 to 1.416
Class 3	Medium degree of utilization	1.417 to 2.124
Class 4	High degree of utilization	2.125 to 2.832
Class 5	Fully utilized NMs	2.833 to 3.541

GIS-based analysis and information support. To evaluate NMs, applying the selected criteria and indicators above, a project was created in a GIS environment. Open-source software was used, namely QGIS. Data layers were generated for the national road network, settlements, and protected areas, separating natural monuments located above 600 m above sea level. A raster layer from Google Satellite and an orthophoto layer with data for 2022 were used. Amateur photographs and video recordings freely available on the Internet were analyzed; information directly related to part of the selected indicators was extracted from them, such as the presence of guidance and information signs, a ticket office, benches and/or gazebos, a parking area, tourist trail marking, a visitor or tourist/information center, and others. For this purpose, Google Earth Pro tools also used, more specifically the Street View option, as well as Google Maps, BGMountains 2023, the Register of accommodation establishments, the Register of food and entertainment establishments, the Register of tourist attractions, the UESCO List of World heritage sites, and the List of 100 National tourist sites.

Field Observation. Fieldwork is an integral part of geographical research, including tourism-related research (Campos & Quesada-Román, 2026; Timothy, 2026). Поради тази причина For this reason the desk-based method for collecting the required information was combined with field observation. Some NMs of class 4 and class 5 were selected. Thus, confirmation of the information collected through desk-based research was sought. Protocols were created for the surveyed NMs (Appendix).

Correlation Analysis. Correlation analysis measures the strength and nature of the relationship between the selected variables. The end result of a correlation analysis is a Correlation coefficient whose values range from -1 to +1. A correlation coefficient of +1 indicates that the two variables are perfectly related in a positive (linear) manner, a correlation coefficient of -1 indicates that the two variables are perfectly related in a negative [linear] manner, while a correlation coefficient of zero indicates that there is no linear relationship between the two variables being studied. It is important to note that it does not track the causal relationship between the variables (Gogtay & Thatte, 2017; Franzese & Iuliano, 2018). The metric used is Pearson's correlation coefficient, which is the most common correlation method (Makowski et al., 2020). Open-source statistical software – JASP – was used for the correlation analysis.

RESULTS

Analysis of results related to the degree of tourist utilization

The analysis of the data shows that no NM forms a total score of 4 points according to the defined scoring system of the criteria framework. The maximum value of 3.541 points is achieved by only three natural monuments: "Ledenika Cave", "Stobskite Piramidi", and "Snezhanka Cave", while 8 NMs score 0 points (Tab. 4). The mean value (1.107) is higher than the median (0.833), and the median is higher than the mode (0.547); therefore, the data distribution is asymmetric (right-skewed). This means that there is a relatively small number of higher values, i.e., NMs of a higher class, which increase the mean value, while most data are grouped around lower values (the mode and median), indicating the predominance of low-class NMs. This is also proved by Fig. 3.

Table 4.

Descriptive statistics of the variable "degree of tourist utilization" (authors' calculation)

Descriptive Statistics							
Valid	Missing	Mode	Median	Mean	Std. Deviation	Minimum	Maximum
157	0	0.547	0.833	1.107	0.841	0.000	3.541

The distribution of NMs by classes is recorded in Fig. 3, while Fig. 2 shows their territorial distribution. It has been established that the largest number of NMs fall into the first class of "touristically unutilized NMs" – 71, which make up 45% of all NMs located above 600 m above sea level, whereas there are only 7 NMs in the "fully utilized NMs" class, which equals 4.5% of all NMs. The distribution in

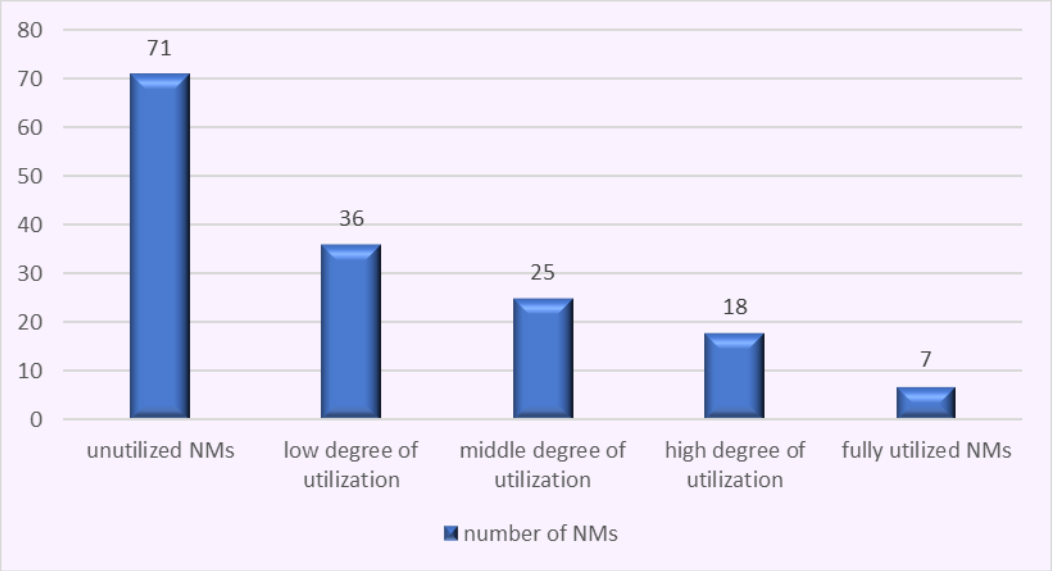


Fig. 2. Degree of tourist utilization of natural monuments (authors' calculation)

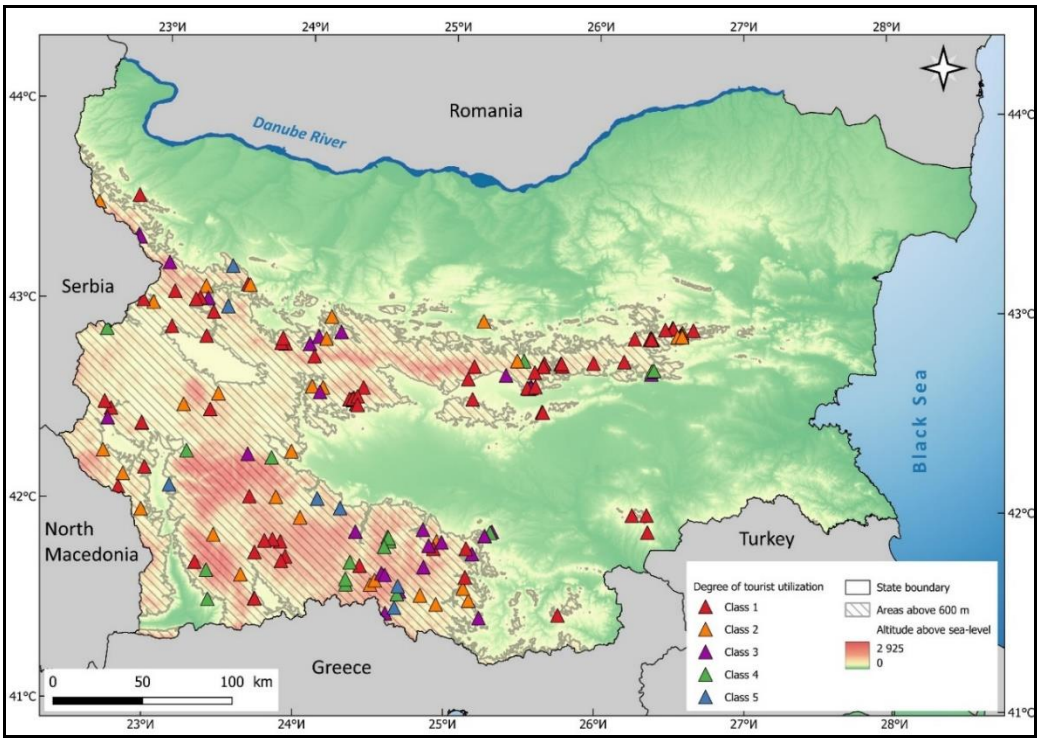


Fig 3. Distribution of natural monuments by classes (authors' elaboration)

the remaining classes is as follows: the “low degree of utilization” class – 36 NMs or nearly 23%; the “medium degree of utilization” class – 25 NMs or nearly 16%; the “high degree of utilization” class – 18 NMs or 11.5%. The reasons for the large share of touristically unutilized NMs could be sought in insufficient attractiveness, lack of necessary infrastructure, difficult accessibility of the area, and others.

Natural monuments emerging as the most attractive tourist destinations are: "Ledenika Cave", "Sedemte Prestola Monastery", "Stobskite Piramidi", "Ultsata Cave", "Snezhanka Cave", "Erma River Gorge", and "Buynovo Gorge". They belong to class 5, excluding the last two which belong to class 4. A fully developed general infrastructure, i.e., with road, electricity supply, and water and sewerage network, can be found in 10 NMs – 7 from class 5, 2 from class 4, and 1 from class 3. Nearly 40 NMs have well-developed basic facilities, as they are provided with both accommodation and food establishments nearby. Although only 25% of the NMs in the mountain belt have fully developed basic facilities, a large proportion of them are provided with various accommodation. The greatest diversity in accommodation types is observed with natural monuments located near the towns of Smolyan, Melnik, Samokov, and Sliven. Four class 5 and two class 4 NMs boast almost fully developed tourist infrastructure.

Regional analysis of NMs by degree of tourist utilization in a physical-geographical context

The spatial analysis of natural monuments in physical-geographical terms shows certain irregularity in their distribution across mountain ranges, both in terms of number and degree of tourist utilization.

The largest number of natural monuments is concentrated in Stara planina – 66 NMs. Distributed by sections, the largest number is in Central Stara planina (25), followed by Western (22) and Eastern Stara Planina (19). The next mountain region in terms of number of NMs is the Rodopi (together with the adjacent Sakar Mountain), which is home to 48 NMs. Most of them are located in the Western Rodopi (34), characterized by high-mountain relief, unlike the low-mountain Eastern Rodopi and Sakar with their 14 NMs. Next in terms of number of NMs comes Sredna gora (16), followed by Rila and Pirin (12). The smallest number of natural monuments can be found in Kraishte and Vitosha–Srednogorie (9 MNs), and the Osogovo–Belasitsa mountain range with only 6 NMs (Fig. 4).

Regarding the degree of tourist utilization, class 5 natural monuments are only located in the Western Rodopi, Rila, Pirin, and Western Stara planina, with 4 out of the 7 class 5 NMs located in the Western Rodopi. There are no natural monuments with a high degree of tourist utilization (class 4) in Western Stara planina, Sredna gora, and the Osogovo–Belasitsa mountain range, while their number is highest in the Western Rodopi. It is only the Osogovo–Belasitsa mountain range that lack natural monuments with a medium degree of tourist

utilization (class 3), while their number is highest in the Western Rodopi again. Natural monuments of the remaining two classes – 1 and 2 – are relatively equally distributed across mountain regions (Fig. 4).

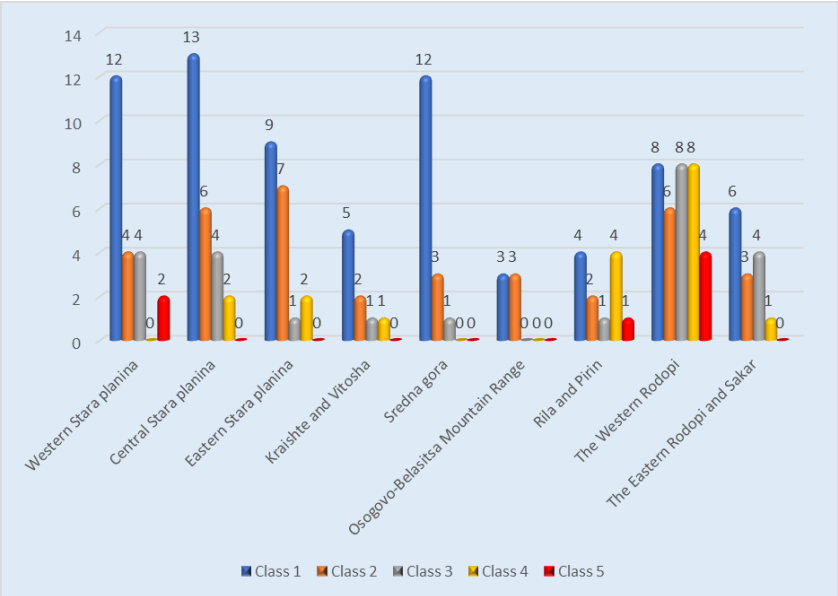


Fig. 4. Distribution of natural monuments by number and degree of tourist utilization (authors' calculation)

In Western Stara planina, there are 22 NMs overall. Of these, the largest number are unutilized in terms of tourist utilization (12 NMs from class 1), followed by NMs with low (4 – class 2) and medium (4 – class 3) degrees of utilization. It is important to note that 2 NMs with the highest degree of tourist utilization (class 5) are located here – "Sedemte Prestola Monastery" and "Ledenika Cave". This is partly due to the relatively good provision of accommodation establishments. They are of the same type – mainly tourist huts and guesthouses – but offer a considerable number of beds, ranging from 15 to 60 (Fig. 5).

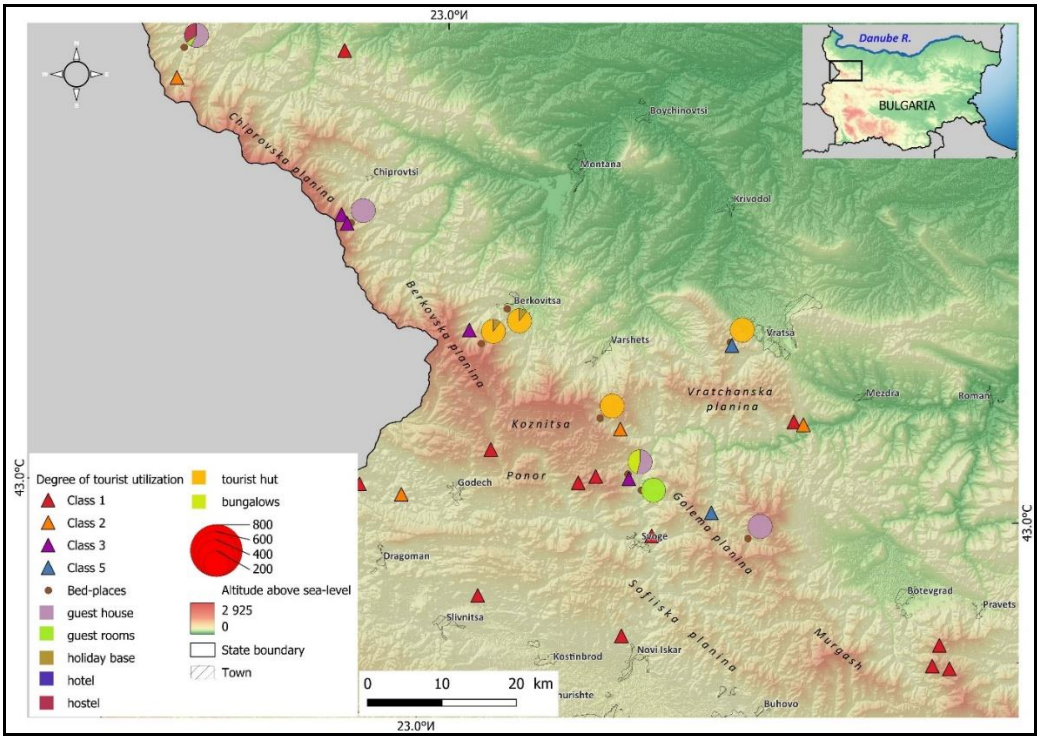


Fig. 5. Distribution of natural monuments in Western Stara Planina by degree of tourist utilization. Bed-places (authors' elaboration)

There are 25 NMs in Central Stara planina. Of these, the largest number are unutilized in terms of tourist utilization (13 – class 1), lacking in accommodation establishments nearby. The remaining categories are represented by 6 NMs with a low degree of tourist utilization (class 2), 4 NMs with a medium degree (class 3), and 2 NMs with a high degree of utilization (class 4). It can be said that accommodation establishments is mainly represented by mountain tourist huts, followed by rooms for rent, guest houses, and villas. The number of beds ranges between 30 and 120 (Fig. 6).

In Eastern Stara planina, 19 NMs are to be found. As in the other two sections of Stara planina, the largest share belongs to touristically unutilized NMs (19 NM – class 1), followed by those with a low degree of tourist utilization (7 NMs – class 2). NMs with a medium degree (1 NM – class 3) and a high degree of tourist utilization (2 NMs – class 4) form the smallest number. It is important to note that in close proximity to the latter two classes there stands one of the settlements with the largest accommodation establishments serving the NMs of the mountain belt, in this particular case from the Sliven section of Eastern Stara planina (Fig. 7).

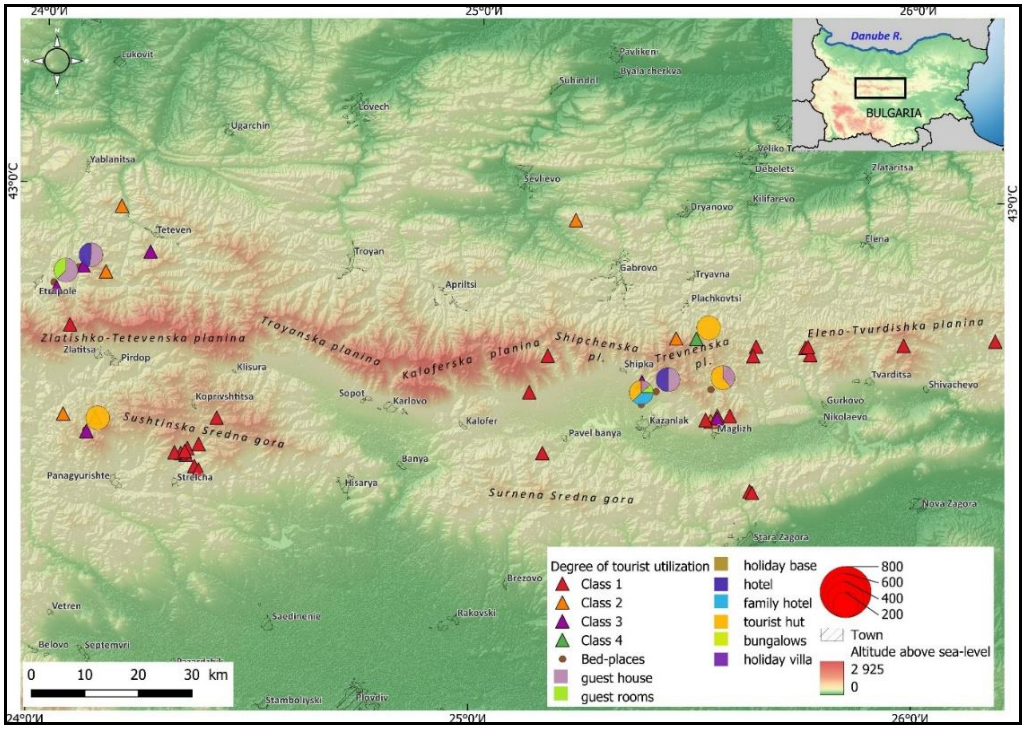


Fig. 6. Distribution of natural monuments in Central Stara planina and Sredna gora according to the degree of tourist utilization. Bed-places (authors' elaboration)

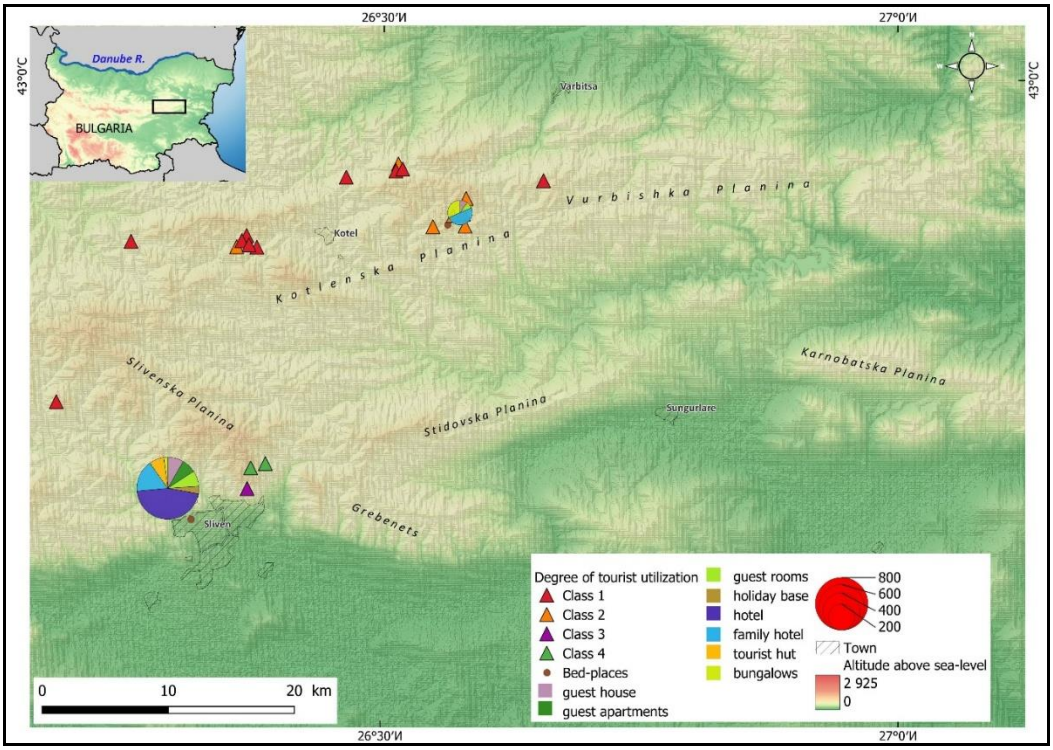


Fig. 7. Distribution of NMs in Eastern Stara planina according to the degree of tourist utilization. Bed-places (authors' elaboration)

A very small number of NMs and extremely limited accommodation establishments are characteristic of Kraishte and the Vitosha-Srednogorie (Zavalsko–Planska mountain range). Nine of all natural monuments can be found within their boundaries. Of these, 5 are touristically unutilized (class 1), 2 have a low degree of tourist utilization (class 2), 1 has a medium degree (class 3), and 1 has a high degree of tourist utilization (class 4). Accommodation establishments are uniform in type, and the bed-places is small – between 10 and 40 beds (Fig. 8).

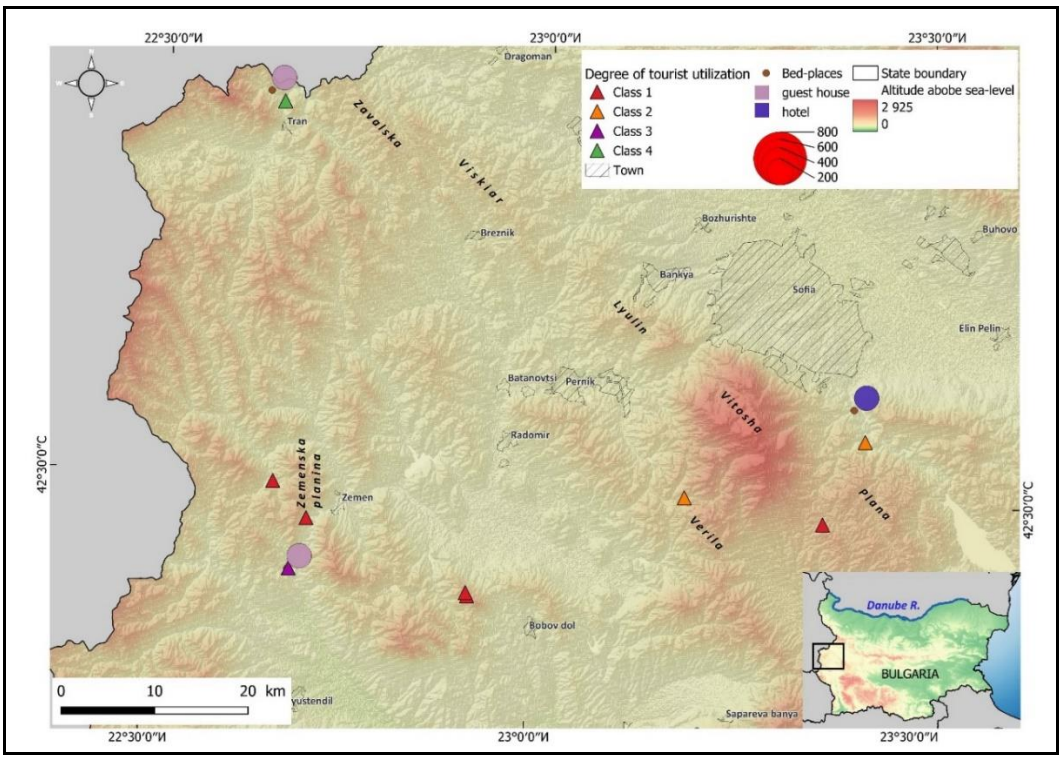


Fig. 8. Distribution of NMs in Kraishte and the Vitosha-Srednogorie according to the degree of tourist utilization. Bed-places (authors' elaboration)

Sixteen NMs are located within the boundaries of Sredna gora, of which 12 are touristically unutilized (class 1), 3 have a low degree of tourist utilization (class 2), and 1 has a medium degree of tourist utilization (class 3). Accommodation is only provided for the latter two categories, with a relatively large number of beds – 114 overall (Fig. 6).

The Osogovo–Belasitsa mountain range includes only 6 NMs. Of these, 3 are class 1 (unutilized in terms of tourist utilization) and 3 are class 2 (low degree of tourist utilization). Accommodation is represented by a guest house with only 10 beds. Within Rila and Pirin mountains, there are not many NMs either (only 12), but the important thing is that one of them is fully utilized in terms of tourist utilization (class 5). This is "Stobskite piramidi" NM. The protected area offers accommodation, though with small bed-places (15 beds in guest rooms). The remaining 11 NMs are distributed as follows: 4 are unutilized in terms of tourist

utilization (class 1), 2 have a low degree of tourist utilization (class 2), 1 has a medium degree (class 3), and 4 have a high degree of tourist utilization (class 4). Overall, there is good provision of accommodation establishments of various types, with many beds, ranging from 70 to 620 in the town of Melnik (Fig. 9).

The Western Rodopi is the mountain region with the largest number of natural monuments, 34 in total. They feature all categories of tourist utilization. The largest number of fully touristically utilized NMs (class 5) – 4 in total – are situated there: "Snezhanka Cave", "Ultsata Cave", "Paleontologichno Nahodishte", and "Smolyan Lakes". The remaining categories are distributed as follows: 8 NMs are touristically unutilized (class 1), 6 have a low degree of tourist utilization (class 2), 8 have a medium degree (class 3), and 8 have a high degree of tourist utilization (class 4). At the same time, this is also the mountain region with the largest number of beds, included in a variety of accommodation options (Fig. 9).

A relatively small number of natural monuments are to be found in the lowest part of the studied area, namely the Eastern Rodopi and Sakar Mountain. Within their boundaries, a total of 14 NMs are located, 3 of which – all touristically unutilized (class 1) – are in Sakar Mountain. There are 3 NMs of the same category in the Eastern Rodopi. The remaining sites are distributed as follows: 3 NMs with a low degree of tourist utilization (class 2), 4 with a medium

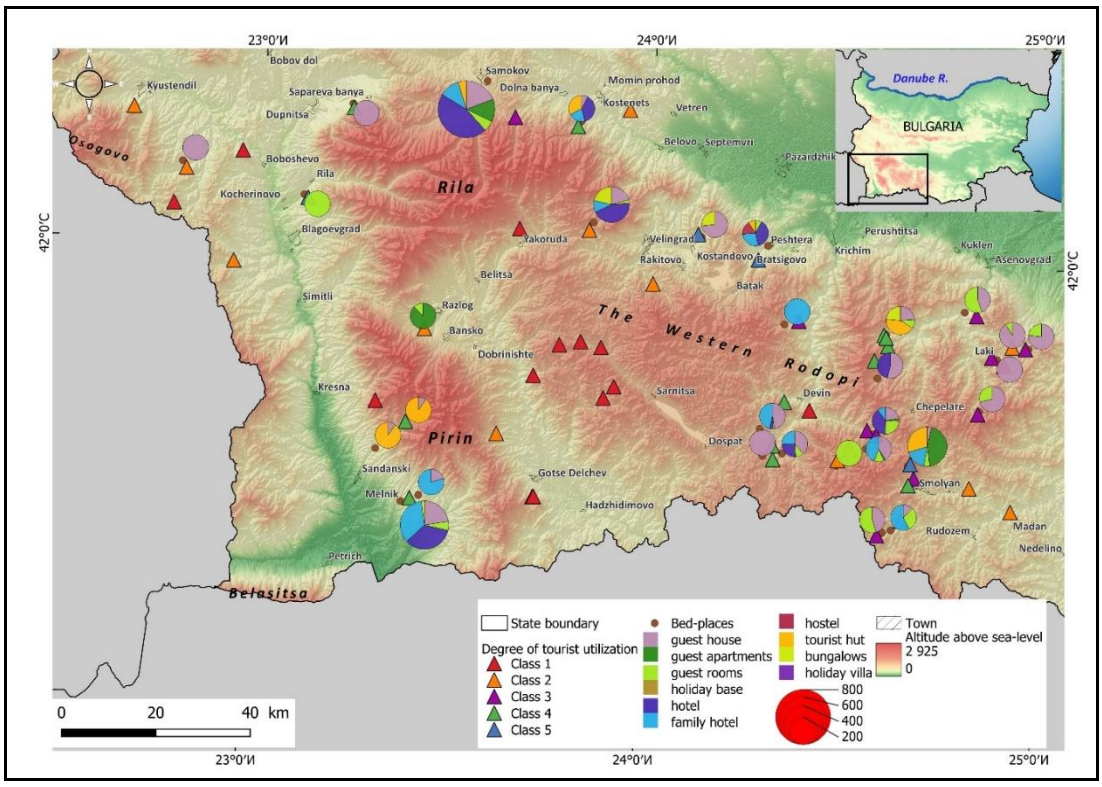


Fig. 9. Distribution of NMs in the Osogovo–Belasitsa mountain range, Rila, Pirin, and the Western Rodopi according to the degree of tourist utilization. Bed-places (authors' elaboration)

degree (class 3), and 1 with a high degree of tourist utilization (class 4). Accommodation establishments are of different sort, including a mountain tourist hut, bungalows, and guest houses, and the bed capacity can be considered relatively large for that number of NMs – between 30 and 60 bed-places (Fig. 10).

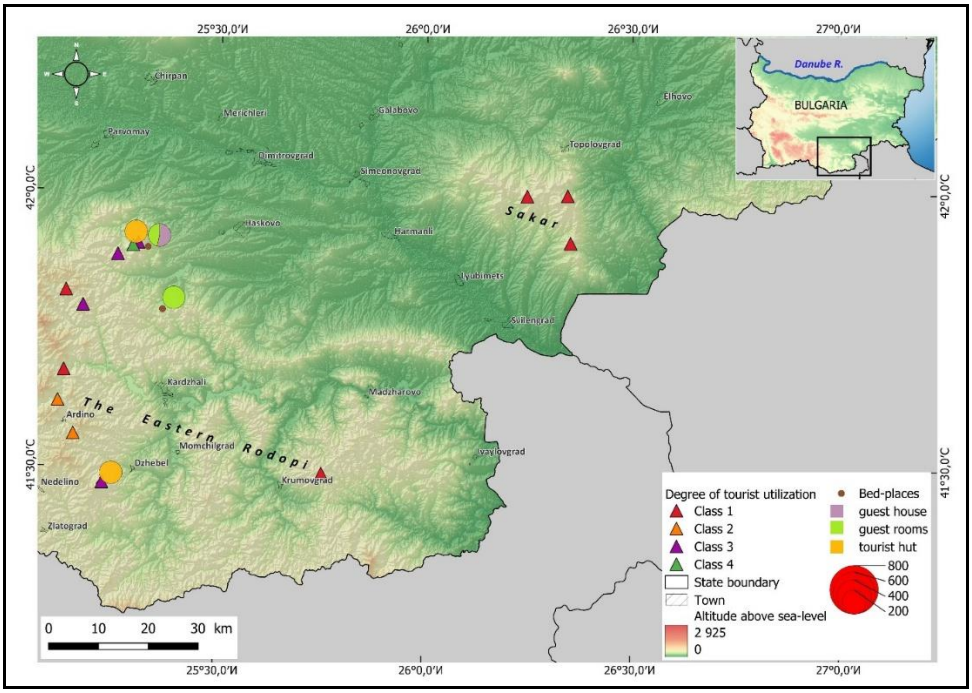


Fig. 10. Distribution of NMs in the Eastern Rodopi and Sakar according to the degree of tourist utilization. Bed-places (authors' elaboration)

Correlation analysis

The correlation analysis shows a statistically significant relationship between the variables "tourist attractiveness", "general infrastructure", "basic facilities", and "tourist infrastructure". The correlation coefficient is positive for all pairs of variables. Regarding the coefficient values, weak correlations are observed for the pairs "tourist attractiveness – basic facilities" and "general infrastructure – basic facilities". The presented results (Tab. 5, Fig. 11) make it clear that the strongest relationship exists between the variables "basic facilities" and "tourist infrastructure". This is due to the fact that, for most NMs, the availability of accommodation establishments and/or food establishments is invariably linked to a well-developed tourist infrastructure. For example, an essential condition for access to mountain tourist huts is the availability of sufficient guidance signs and clear tourist trail marking. The positive and significant correlation between the criteria suggests that a change in one of them would lead to a one-way change in the others.

Table 5.

Pearson's Correlations (authors' elaboration)

			Pearson's r	p
TA	-	GI	0.425	< .001
TA	-	BF	0.377	< .001
TA	-	TI	0.486	< .001
GI	-	BF	0.397	< .001
GI	-	TI	0.408	< .001
BF	-	TI	0.615	< .001

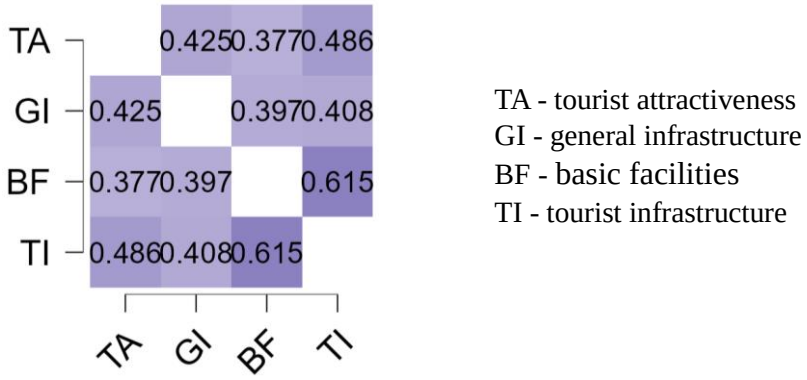


Fig. 11. Study area (authors' elaboration)

Significance of natural monuments for different forms of alternative tourism

NMs of classes 2, 3, 4, and 5 are significant for the development of alternative forms of tourism, with the latter two playing a bigger part in this context. Accordingly, the following types of alternative tourism are developed or have perspective for development, and they are the focus of this study: ecotourism, hiking tourism, speleological tourism, rock climbing, cycling tourism, photographic tourism, cultural tourism, and religious tourism.

Ecotourism is defined as a form of nature-based tourism involving visits to pristine natural areas, where participants are motivated to satisfy their needs for natural, social, and cultural knowledge as well as their concern for nature. One of

the earliest definitions of ecotourism, provided by the International Ecotourism Society in 1991, states that ecotourism is responsible travel to natural areas that protects the environment and improves the well-being of local people.

In 1996 the International Union for Conservation of Nature gave the following definition of ecotourism: environmentally responsible travel or visits to relatively unspoilt natural areas for the purpose of enjoyment and appreciation of nature (along with its associated cultural features, both past and present) that supports nature conservation, has low visitor impact, and promotes beneficial and active socio-economic development of local populations.

Summarizing different definitions of ecotourism, Stamov and Nikovska (2011b, p. 155) propose their own: ecological tourism is a type of specialized sustainable tourism that provides opportunities for conservation, appreciation, and use of comparatively best-preserved, rare, or unique flora and fauna and the natural environment, as well as the relationships between them, and of natural and other monuments, while contributing to their protection and having a positive impact on the communities where it is practiced.

According to Mihaylov (2013), the types and forms of ecotourism can be summarized as: observation of wild flora and fauna in their natural environment; mountain hiking tourism; educational scientific and study tourism; wildlife photography; hunting and fishing; collection of specimens of living and non-living nature for scientific and educational purposes; gathering of wild fruits, herbs, mushrooms, and others; mountaineering and cave tourism. Eco-trails are also classified as contemporary ecotourism products.

Considering the definitions of ecotourism, it can be argued that each NM offers conditions for its development. The determining factor in this case could be the degree of their tourist utilization. The role of protected areas is further emphasized by their inclusion in the portfolios of travel agencies. Organized excursions inside the country including visits to NMs have already become tradition.

Ecotourism is realized through hiking tourism. The development of the latter depends on the existence of eco-trails and marked routes. One of the problems is related to the lack of maintenance of some eco-trails, including absence of information and guidance signs, tourist trail marking, and overgrowth with vegetation, resulting in a lack of tourist flow.

Speleological tourism is a recreational form through which caves are explored. The challenges depend on the type of cave, the number of tunnels, and the presence of water. Speleological tourism is undertaken for recreation or physical activity, but also for scientific research in the fields of biology and physics (Stankova, 2006). Conditions for the development of this type of tourism are provided by NMs, such as "Ledenika Cave", "Snezhanka Cave", and "Ultsata Cave". These caves belong to class 5, that is, they are fully touristically developed NMs.

The separation of photographic tourism as an independent form of specialized tourism is largely conditional, since photography accompanies almost every journey regardless of location and primary motivation (Vasileva, 2007). In this context, every NM with unique characteristics is a destination for photo tourism, such as panoramic views, scenic landscapes, and the like ("Skalen Venets-Mestnost Mahnatite Skali" NM near the town of Plachkovtsi; "Vikanata skala" near the village of Radevtsi and the town of Plachkovtsi; "Skaklya Waterfall" near the village of Zasele; "Stobskite piramidi" near the village of Stob and others).

Natural monuments often complement the main tourist specialization of a destination. Examples include "Kozia kamak Rock Formation" near the village of Kovachevitsa, Garmen Municipality; "Nahodishte Na Bozhur I Momina Salza v m.Drenaka" near the village of Spahievo, Mineralni Bani Municipality; "Sariyska chuka – the head Rock Formation" and "Momata" near the village of Shiroka Laka, Smolyan Municipality. The cited settlements boast well-developed cultural tourism. Another example where a natural monument complements a more attractive tourist site is "Varovitets" – a waterfall located very near Holy Trinity Monastery of Etropole. The latter is included in the list of 100 National Tourist Sites, unlike the natural monument, which only proves the claim of its greater appeal. In such cases, the degree of tourist utilization of natural monuments is likely to increase through their integration into tourism. To form a major tourist specialization, it is necessary for a NM to possess exceptionally attractive and unique characteristics that would attract a sustained tourist flow, such as "Ledenika Cave" near the town of Vratsa or "Vikanata skala" near the village of Radevtsi and the town of Plachkovtsi, Tryavna Municipality. Not every NM has the necessary qualities to be touristically utilized, e.g., sufficient aesthetic value and attractiveness for tourists. Another role of NMs is to enrich the natural landscape, which is exemplified by "Ritlite" NM near the village of Lyutibrod, Mezdra Municipality, and "Zhabata" Rock Formation’ near the village of Medeni Polyani, Sarnitsa Municipality.

Tourists usually visit different types of tourism resources combined into routes, thus diversifying their tourist activities. In practice, a combination of several tourism types occurs, for example religious tourism, ecotourism, hiking tourism, and speleological tourism. (Nativity of the Virgin Monastery of Rozhen – "Melnishki Piramidi" NM near the town of Melnik, Sandanski Municipality; St. John of Rila Monastery of Ruen – "Nahodishte Na Turska Leska v m. Kosana" NM near the village of Skrino, Boboshevo Municipality; St. George the Victorious Monastery of Glozhen – "Morovitsa Cave" NM; Chertigrad, a Thracian fortress – a NM with the same name; Holy Trinity Monastery of Etropole – "Varovitets" NM, etc.)

Some NMs complement alternative forms of tourism such as rural tourism, alpine climbing, and golf tourism. For instance, near "Vodopad v m. Sveta Yana" NM close to the village of Smolichano, Nevestino Municipality, there is a guest

house offering children's rural tourism. Routes are also frequently used by cyclists for cycling tourism. Another example is "Erma River Gorge" NM, where more than 10 alpine climbing routes of varying difficulty categories exist. Around "Kyoshka" NM, a golf complex with a course and a number of guest houses has been built.

Mountain cycling, as a specialized tourism product, is defined as travel involving mountain biking in a natural environment along marked trails or unmarked routes with varied terrain. It is usually practiced in organized groups, most commonly in the cross-country form, involving riding along defined routes with ascents, descents, and flat sections (Mileva, 2004). Cycling routes of varying difficulty pass through some NMs ("Bratia" NM, the village of Chavdar; "Sakaradzha" NM, the village of Chavdar).

When analyzing the designation orders for declaring natural monuments, it was found that some of them are also declared for the development of tourism, both domestic and international, as already mentioned in the introduction. For example, Order №2810 of 1962, which declares "Ledenika Cave" a NM, states the following: "It is declared a natural monument due to its distinctive formations, rich morphology and shapes, for the development of domestic and international tourism, it is one of the most visited caves". Other examples in this regard include: "Orlov Kamak – Chervenata Stena" NM near the village of Lopyan, Etropole municipality; "Vodopad Skoka V Mestnostta Koznitsa" near the town of Teteven; "Vodopad v m. Sveta Yana" near the village of Smolichano, Nevestino municipality; "Duhlata Cave" near the village of Bosnek, Pernik municipality; "Stobskite Piramidi" near the village of Stob, Kocherinovo municipality; "Mechkite"; "Babu"; "Stolo"; "Bezdenski izvori"; "Konskata glava" and many others.

In some designation orders, the aesthetic value of the site is also emphasized, as with "Vodnia Skok" NM near the village of Kopilovtsi, Georgi Damyanovo Municipality, "Skalnia masiv v m. Pashovi Skali" near the village of Sveta Petka, Velingrad Municipality, and "Dyavolskia Most I Vodopada" near the villages of Borino and Chala, Borino Municipality.

DISCUSSION

Natural monuments are an important integral part of the protected areas network in the country. They are of interest to tourism and are distinguished by their attractiveness. Natural monuments are often part of an ensemble of tourism resources within a given territory or region, which, in their combination, create a synergetic effect in tourism. This contributes to the expansion of the territory's tourist specialization and an increase in its tourism attractiveness. Consequently, a longer stay of tourists and higher revenues from tourism can be traced. An example is "Gargina Dupka Cave" NM near the village of Mostovo, Asenovgrad Municipality. There are eco-trails nearby leading to Krastova gora and "Belintash"

(also NM) and "Karadzhov Kamak". The synergetic effect in tourism is expressed in the following way: the interaction between different resources causes a greater effect than when they are considered individually.

A characteristic feature of NMs with a lower degree of tourist utilization is visits by casual tourists or by people with specialized knowledge and skills. Undeveloped caves could serve as examples here.

Tourist utilization transforms a natural monument into a tourist attraction. A definition of a tourist attraction can be found in the supplementary provisions of the Tourism Act. There is a tendency towards mass visits to some protected areas (for example, "Ledenika Cave" near Vratsa, the lakes of Rila, which are part of Rila National Park, and others), which leads to negative consequences for the natural environment. This means that some protected areas are subject to mass tourism and can hardly be classified as alternative forms of tourism, which imply more limited tourist visits. There are often cases of combining a beautiful natural environment and a cultural-historic site (for example, "Kaleto" NM near the town of Ardino and the villages of Garbishte and Sinchets), i.e., the cultural-historic site is located in an attractive natural environment. In addition, NMs that are geographically close to established destinations have a larger accommodation base.

The key role of tourist associations and local authorities in the creation of new attractions could well be emphasized. The active work of local tourist associations is of great importance for tourism. Ponoriya Tourist Association, based in the village of Breze, Svoge Municipality, is a good example of this. On their initiative, a route to "Stolo" NM near the village of Dobravitsa, Svoge Municipality, is to be marked. Likewise, the local authorities of Kazanlak Municipality, together with Orlovo Gnezdo Tourist Association, are building an eco-trail that includes "Mechkite" NM. Furthermore, Vidin Municipality plans to build a route and an eco-trail with recreation and rest areas to "Babu" NM.

It is important to note the constant significance of the abiotic environment for the role of natural monuments in the development of alternative forms of tourism. The combination of karst and erosional relief increases the uniqueness of natural monuments such as caves, waterfalls, gorges and canyons, etc. This is also one of the reasons why an exceptionally large number of natural monuments are to be found in the Western Rodopi, covering all classes according to the degree of their tourist utilization. At the same time, this allows for the development of various forms of alternative tourism.

Such an analysis would be of interest for future application to other territories of the country with different altitudes and territorial scope, as well as to other categories of protected areas, taking into account their protection regimes according to Bulgarian nature conservation legislation.

Comparison with Bulgarian and global experience shows that nature conservation activities are an important resource for the development of tourism not only in its mass forms but also in its alternative forms, as it provides

opportunities for visiting a preserved natural environment. It is important, however, that this takes place in a controlled and environmentally sustainable manner.

A similar study was conducted by N. Popova (2008). The author determines the degree of tourist utilization of the resource potential in the Eastern Rodopi and highlights the main problems related to its transformation into tourist/visitor attractions. In this study, Popova uses a three-level classification defining the degree of utilization of natural and anthropogenic tourism resources.

The main limitations related to the present study are that the selected criteria and indicators have been tested only on natural monuments. In addition, the criteria framework could be expanded to include criteria and indicators regarding marketing, tourism revenues, number of visits, tour guide services, and others. This could serve as basis for future research in this field. In selecting the criteria and indicators, one of the starting points was the existing registers maintained by the Bulgarian administration. This raises the question of whether they could be applied to another country.

It is essential to bring to the forefront the practical significance of the study. Defining the degree of tourist utilization of protected areas, and particularly of natural monuments, makes it possible to establish effective monitoring of high-class sites. For those of a lower class, in-depth studies should be conducted and adequate measures implemented to increase their attractiveness and degree of utilization.

CONCLUSION

Protected areas, and natural monuments in particular, are the main resource for one of the rapidly developing alternative types of tourism, namely ecotourism. A careful analysis of the natural monuments' condition shows that a single natural monument falls within the scope of more than one type of alternative tourism. This once again proves their interconnection and complementarity.

The present article proposes a new and original criteria and indicators that allow for an objective assessment of the degree of tourism development in a given region. The proposed criteria and indicators can be the basis for developing a comprehensive assessment methodology.

The practical value of the study lies in the possibility of determining the degree of tourist utilization of the protected area, which implies greater significance for the development of alternative forms of tourism at higher levels on one hand, and potential tourist pressure on the protected area on the other hand. The latter would alert local authorities to conduct more in-depth monitoring and control regarding the protection of the natural environment.

The present study contributes to scientific research by proposing an indicative classification of NMs according to their degree of tourist utilization and

their mapping using GIS. Such a classification would help to identify protected areas that require more frequent and more detailed assessment of the negative impacts of tourism on natural components and to take timely measures for the protection and preservation of the natural environment.

A future application of the classification of natural monuments by degree of tourist utilization and its connection with alternative forms of tourism within different categories of protected areas would contribute to a more rational distribution of natural tourism resources in line with environmentally sustainable future development of tourist services.

Appendix

PROTOCOL
for monitoring NMs "……"

General infrastructure					
Road		Electricity supply network		Water supply and sewerage network	
Yes +	No –	Yes +	No –	Yes +	No –

Basic facilities			
Accommodation establishments		Food and entertainment establishments	
Yes +	No –	Yes +	No –

Tourism infrastructure															
Visitor Information Centre		Mountain transport (ski lifts, cable cars)		Eco-trails (wooden bridges, steps, railings)		Benches and/or gazebos		Parking area		Ticket office		Informa-tion and/or guiding signs		Tourist trail marking	
Yes +	No –	Yes +	No –	Yes +	No –	Yes +	No –	Yes +	No –	Yes +	No –	Yes +	No –	Yes +	No –

Date: ……
Prepared by: ……

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