

# GEOHERITAGE OF THE CENTRAL PART OF KOSOVO – ITS TOURISM POTENTIAL

Besa Jagxhiu<sup>1</sup>, Hazir Çadraku<sup>1</sup>

<sup>1</sup>*Faculty of Civil Engineering and Infrastructure, UBT College, Prishtina, Kosovo*

*\*Corresponding author-mail: [besa.jagxhiu@ubt-uni.net](mailto:besa.jagxhiu@ubt-uni.net)*

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## Abstract

Each country has different geological and geomorphologic features, which constitute the geo heritage of that country. This geo heritage has been created in different geological times and periods accompanied by different tectonic processes and physical, chemical, and biological alienation. Kosovo is characterized by a rich geo heritage, which has scientific, educational, historical, cultural, and aesthetic values. Therefore, the purpose of this paper is to identify, analyze, and document this geo heritage in the central part of Kosovo. Afterward, the study examines its tourism potential with the aim of protection, so that it remains as a heritage for future generations. This study sampled some of the identified geo monuments in the central part of Kosovo, analyzed their characteristics, as well as the possibility of their protection and adaptation for tourist and cultural heritage purposes.

**Keywords:** Geoheritage, Kosovo, tourism potential, geomonuments.

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## 1 Introduction

Geological characteristics and features of the earth's surface include geomorphologic forms and structural geological features of the earth's surface that have been formed by geological processes over time. They include terrestrial forms and other features that have scientific, educational, historical, cultural, aesthetic values and serve as outstanding monuments of natural beauty, earth dynamism, and ongoing environmental changes throughout history. Each country has different geological and geomorphologic features, which constitute the geo heritage of that country. This geo heritage has been created in different geological times and periods accompanied by different tectonic processes and physical, chemical, and biological alienation. Over time, the processes that take place on the earth have led to the degradation of geothermal features. This loss and degradation necessitate the preservation of representative features that explain the geological process over geological time or otherwise attract interest due to their magnificent visual characteristics [1].

Geoheritage sites are packed with aesthetic appeal, able to promote local tourism as well as regional tourism. These are critically important in advancing the knowledge about natural phenomena like climate changes, soil processes, mineral processes, groundwater supply changes, hazards, energy supply levels, environmental changes, and the evolution of life itself. Having said this, these sites offer a high potential for educational school trips, economic support for the local communities, and recreational uses. In all, they pack a host of benefits that we are yet to explore [2].

The recognition of what is geo heritage is based on the perception that some geo diversity elements have something that is unusually important, which means that they have an extra value. Due to this high value, these elements must be protected, particularly when the risk of degradation caused by natural or anthropic factors is critical [3].

Geosites, geological or geomorphologic sites with a recognized value determined through an audit, assessment, and selection process, are subject to a range of threats. Conservation of geosites for scientific, educational, geotourism, and other uses is an essential part of the conservation of geo heritage [4].

Geoheritage is formed by geological elements with special interest, mostly scientific, but also educational or touristic. Geoheritage is a part of natural heritage and includes all elements resulting from geological processes, whether objects, features, landforms, or structures, important to any field of geology, like geomorphology, stratigraphy, tectonics, petrology, mineralogy, paleontology, hydrogeology, etc. In many cases, it is associated with outstanding landscapes, but this is not always the case. Geoheritage also includes sites of exceptional (i.e. rare, unique, relevant) minerals, rocks, and formations reflecting geological processes that took place millions of years ago, as well as paleontological sites containing fossils of many types of organism and their activity, including the ancestors of modern humans [5].

Geoheritage and geotourism have a significant impact on the socio-economic development of countries. Monuments like these cannot just lead to the sustainable development of communities around them but also offer business development opportunities and it needs to be kept in mind while uplifting these sites [6].

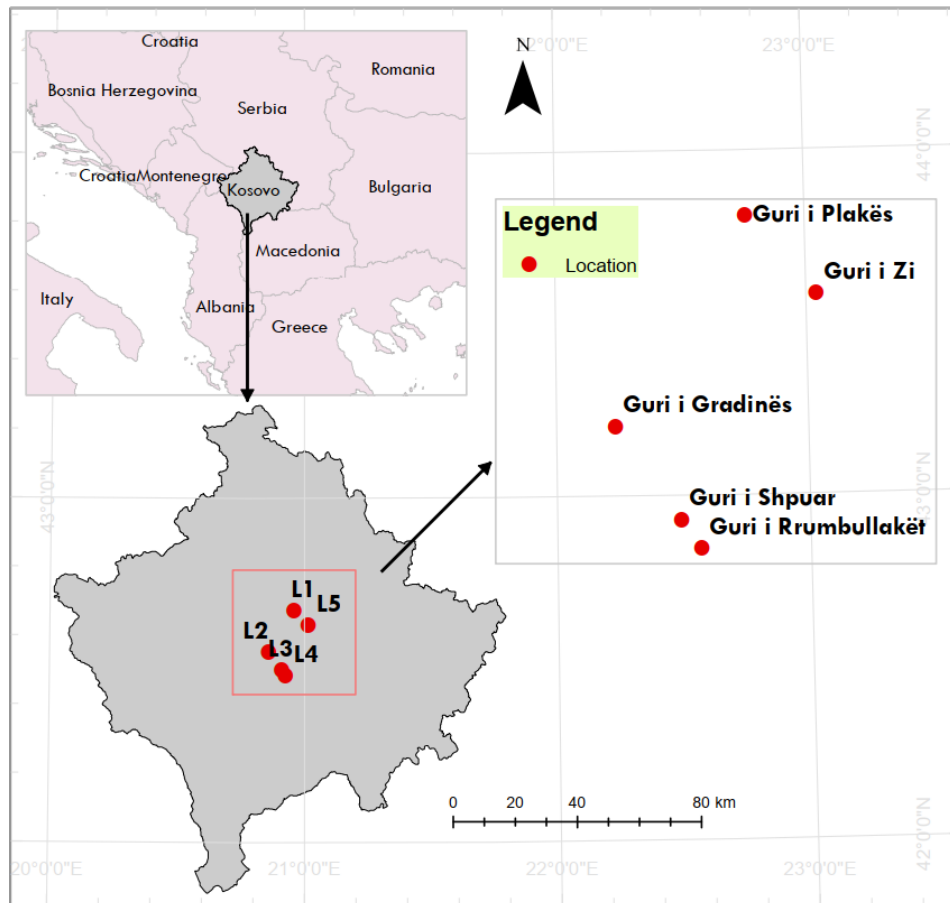
## **2 Geoheritage in Kosovo**

Kosovo is characterized by a rich geoheritage, which has scientific, educational, historical, cultural, and aesthetic values. However, it is a neglected feature in the conservation landscape of Kosovo and beyond declaration as geological monuments, and some of them listed as protected natural heritage, little has been done to preserve and promote this rich heritage of nature. Most of the geomonument sites are lying forlorn and desolate and may well be lost during development. In Kosovo, there is little awareness of the significance of this geological heritage from the public and decision-makers. At the same time, the threat to geoheritage is growing proportionately with the physical development and interventions in the landscape creating urgency for protection of these geological identities recognizing and understanding the scientific value of the features and landforms.

The purpose of this paper is to identify, analyze, and document some of these geomonuments in the central part of Kosovo. Afterward, the study examines their tourism potential and perspective with the aim of protection, so that it remains as a heritage for future generations. This study sampled some of the identified geomonuments in the central part of Kosovo, analyzed their characteristics, and the possibility of their protection and adaptation for tourist and cultural heritage purposes.

### **2.1 Study area**

*The study area that is treated is in the central part of Kosovo. The study area presents cultural, historical, and heritage values dating back centuries and inherited from generation to generation [7]. From many valuable elements of the historical importance of this area are several geomonuments. In the map (Figure 1) is presented the study area and are marked the exact locations of the geomonuments identified after analysis and field surveys in the study area.*



**Figure 1.** Study area in Kosovo map and locations of the identified geomonuments (map: Hazir Çadraku)

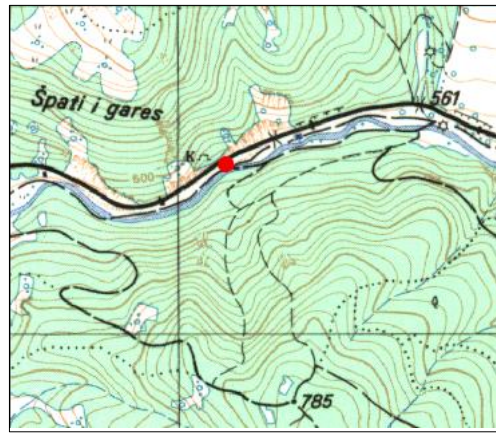
## 2.2 Case studies

### 2.2.1 Geomonument “Guri i Plakës”

Geomonument “Guri i Plakës” is located in village Dobroshevc, in Glllogoc Municipality, at the foot of mountain massif Çyçavica (Figure 2). It lies at northern latitude of  $42^{\circ}40'26''$  and eastern longitude of  $20^{\circ}57'36''$ , with an elevation of 568m above sea level.

It is one of the most important and valuable monuments of this area. In 2006 the monument is listed as a protected natural monument of botanic character in the list of protected areas in Kosovo, with the number MN\_034, and belongs to the third category [8]. A distinctive and important feature of this monument is that the railway Fushë Kosovë - Peja passes through this rock (Figure 3). The monument “Guri i Plakës” used to be a single rock, but with the construction of the railway Fushë Kosovë - Peja in 1936, it is divided into two parts so that the railway passes in the middle. In the folk tradition, there are many myths and legends associated with this rare nature monument.

Geological setting - the narrow area where the geomonument "Guri i Plakës" is located is attended by rock formations of the Paleozoic, Permian, Jurassic, and Cretaceous. Paleozoic is represented by harzburgite, serpentinite, quartzite; Permian is represented by sandstone, marbled limestone, conglomerates; Jurassic is represented by diabase and diabase-stral formation, while Cretaceous is represented by limestone [9].



**Figure 2.** Location in the map of the geomonument “Guri i Plakës” (map: Hazir Çadraku)



**Figure 3.** Geomonument “Guri i Plakës” (photo: Besa Jagxhiu)

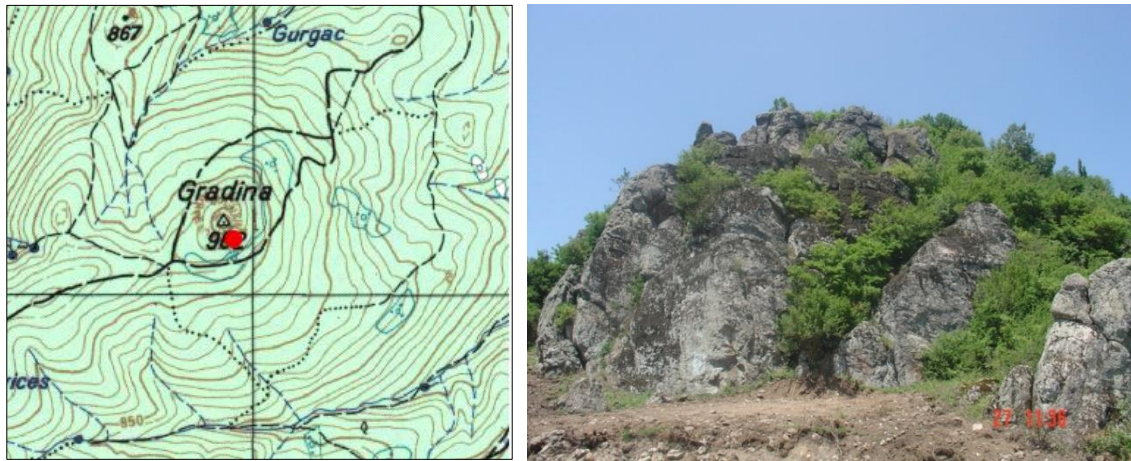
### 2.2.2 Geomonument “Guri i Gradinës”

Geomonument “Guri i Gradinës” is located in the south-eastern part of the village Llapushnik, in the place called Gradinë, in Gllogoc Municipality (Figure 4 – left). It lies at a northern latitude of  $42^{\circ}33'13''$  and an eastern longitude of  $20^{\circ}51'36''$ , with an elevation of 935m above sea level.

Guri i Gradinës is a natural monument with a geomorphologic feature that gives the area a very attractive view. It reaches a height of 30m and lies on an area of about 2ha (Figure 4 – right). This rock as a natural monument has unique scientific, cultural-historical, tourist, geomorphologic, geological, and archaeological values. In 2006 the monument is listed as a protected natural monument of geomorphologic character in the list of protected areas in Kosovo, with the number MN\_029, and belongs to the third category [8].

Geological setting – the narrow area where is located the geomonument “Guri i Gradinës” is built of Cretaceous rocks represented by rudist limestone, Upper Cretaceous-Maastrichtian, limestone with globotruncan, as well as chlorite-sericiteshales of the Paleozoic [10].





**Figure 4.** Geomonument “Guri i Gradinës”: left: location in the map (map: Hazir Çadraku); right: current state (photo: Hazir Çadraku)

### 2.2.3 Geomonument “Guri i Shpuar”

Geomonument “Guri i Shpuar” is located in village Shalë, in Lipjan Municipality (Figure 5 – left). It lies at northern latitude of  $42^{\circ}30'02''$  and an eastern longitude of  $20^{\circ}54'41''$ , with an elevation 673m above sea level.

This rock has a special shape, composed of limestone with a hole penetrating on both sides of the rock, therefore is called perforated rock (Figure 5 – right). The part from where one can enter has a diameter of 60cm by 1.70m, while the exit part has a diameter of 80cm width and 1.95m length.

This monument has a unique scientific, geomorphologic, educational, as well as aesthetic, and spiritual value. The people of this area visit this monument during the second day of St. George, entering inside the rock and putting coins in the small holes inside this rock, believing that they are leaving the bad things during the actual year and the goods will come to them for the following year.

Geological setting – the narrow area where is located the geomonument “Guri i Shpuar” is built of Cretaceous rocks represented by marble limestone, rudist limestone, and Paleozoic marble [10].



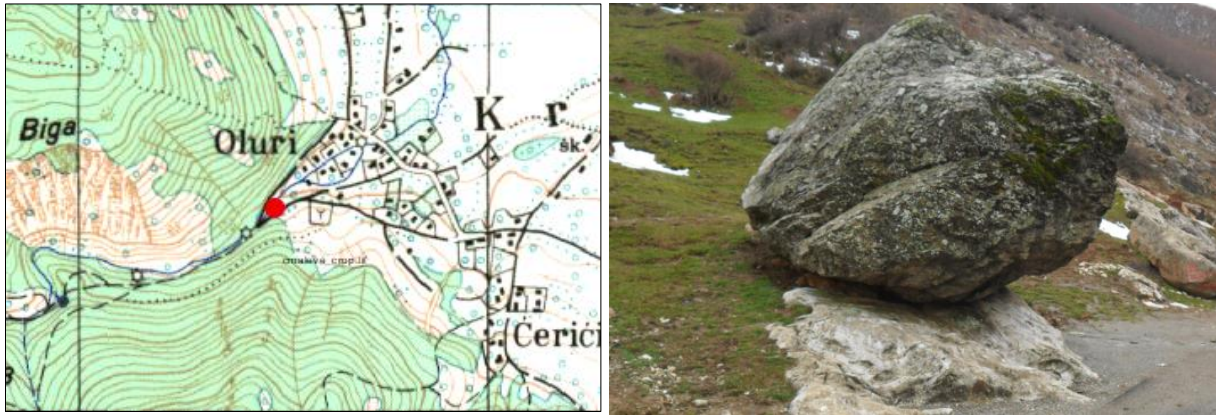
**Figure 5.** Geomonument “Guri i Shpuar”: left: location in the map (map: Hazir Çadraku); right: current state (photo: Hazir Çadraku)

#### 2.2.4 Geomonument “Guri i Rrumbullakët”

Geomonument “Guri i Rrumbullakët” is located in village Kroimirë, in Lipjan Municipality (Figure 6 – left). It lies at northern latitude of  $42^{\circ}29'04''$  and an eastern longitude of  $20^{\circ}55'39''$ , with an elevation of 665m above sea level.

A representative feature of this monument is the special shape and the way it is created and displaced on the limestone rock (Figure 6 – right). The base of this rock is limestone.

Geological setting – the narrow area where is located the geomonument “Guri i Rrumbullakët” is built of Cretaceous rocks represented by marble limestone, rudist limestone, and Paleozoic marble [10].



**Figure 6.** Geomonument “Guri i Rrumbullakët”: left: location in the map (map: Hazir Çadraku); right: current state (photo: Hazir Çadraku)

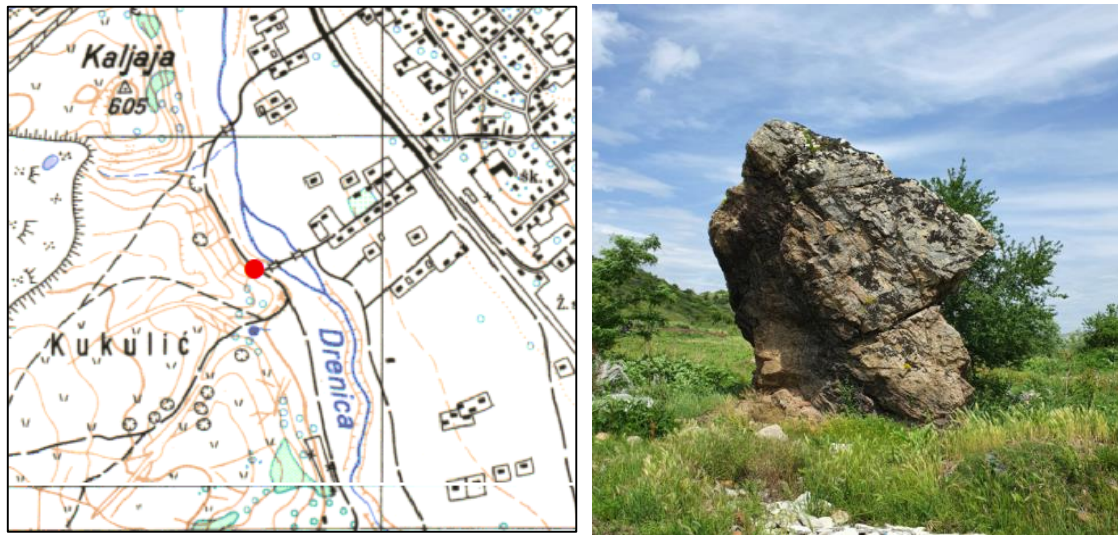
#### 2.2.5 Geomonument “Guri i Zi”

Geomonument “Guri i Zi” is located in village Bardh i Madh, in Fushë Kosova Municipality (Figure 7 – left). It lies at northern latitude of  $42^{\circ}37'49''$  and an eastern longitude of  $21^{\circ}00'55''$ , with an elevation of 549m above sea level.

This rock as a natural monument has unique scientific, cultural-historical, tourist, geomorphologic, geological, and archaeological values (Figure 6 – right).

Geological setting – the narrow area where the geomonument “Guri i Zi” is located has a diverse geological structure in which rock formations of antiquity from the Paleozoic to the Quaternary participate. The Paleozoic is represented by marble and quartzite, the Jurassic is represented by amphibolites and amphibolite shale's, the Neogene is represented by gravel, sand, clay sand, while the Quaternary is represented by proluvones [11].





**Figure 7.** Geomonument “Guri i Zi” left: location in the map (map: Hazir Çadraku); right: current state (photo: Besa Jagxhiu)

## Conclusions

Geoheritage sites hold enormous potential for education and recreation which can be connected to raising public awareness. The holistic approach towards these sites will sensitize common people and will promote geotourism together with geoconservation.

There is an urgent need to preserve this geo-heritage in Kosovo in general and in particular in its central part, as part of a larger bio-diverse landscape. By sensitizing local administrations, tourism departments, and the general public about this neglected heritage, a great economic potential can arise from these geomonuments in a sustainable and eco-friendly manner.

There is a need to list all these geomonuments and encourage tourism departments to promote this heritage in tourism circuits. Simple measures of protection, raising visibility and awareness, can make a significant difference. Creating more awareness about this geoheritage and supplying people with information about these geomonuments to realize the significant value that can be derived from this heritage. There is a need to properly demarcate, protect and highlight these sites for their significance. Proper explanatory signage, lighting, site planning to incorporate visitors' movement and facilities can make these geoheritage sites tourist-friendly and protected.

This heritage, if rediscovered, protected, and adapted for tourism purposes, can play an essential role in the socio-economic regeneration of the area where it is located.

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