

## Protected natural areas and geoheritage of Homolje – *an overview*

*Ljupče Miljković*, Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia, ljupcens@yahoo.com

*Durđa Miljković*, Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia

*Tin Lukić*, Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia

*Sanja Božić*, Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia

*Rastislav Stojstavljević*, Department of Geography, Tourism and Hotel Management, Faculty of Sciences, Serbia

*Dajana Bjelajac*, Society of Young Researchers "Branislav Bukurov", Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia

*Tanja Micić*, Society of Young Researchers "Branislav Bukurov", Department of Geography, Tourism and Hotel Management, Faculty of Sciences, University of Novi Sad, Serbia

---

Homolje is one of the most outstanding geomorphological areas of Eastern Serbia, surrounded by Beljanica Mountain on the South, Homoljske Mountains on the North, Black summit on the East and Gornjačke Mountains on the West. According to Spatial plan of the Republic of Serbia, Homolje represents an area of protected natural values with specific geo and biodiversity of national importance. The Central Registry of protected natural assets of Homolje encompasses the following natural assets: The Spring of Žagubica (The Mlava Spring), Homolje intermittent (rhythmic) spring, The Krupaj Spring, Uvala Busovata, The Osanička River Gorge and The Samar Karst Bridge.

The Mlava spring is located in the southeast part of Žagubica valley, in the lower part of the northeastern side of Beljanica Mountain. It is situated on the southern peripheral part of Žagubica, 1 km from its center. It looks like a smaller lake with a diameter of 25-29 m and the volume of 93 m, and it protrudes from the surface from the submerged sinkhole with a depth of 70 m. The total surface of The Mlava spring is about 655 m<sup>2</sup>, with an approximate volume of 2480 m<sup>3</sup> water (Dukić, 1975). It belongs to the group of siphon karst springs with a maximum bounty of more than 6 m<sup>3</sup>/sec. It is protected in 1979, as a hydrological natural monument of the first category.

Homolje intermittent (rhythmic) spring is the only active intermittent spring in Eastern Serbia and one of the rarest in this part of Europe. It is located on southwestern slopes of Homoljske Mountains. It is located 12 km from Žagubica. It represents real natural and hydrographic rarity, but also important religious and cultural place for the local community. Due to its extra ordinal natural value, this intermittent spring is protected in 1961, as a natural monument, but after revision of this

asset in 1995, it became a hydrological monument of the I category (Miljković and Mirković, 2006).

The Krupaj Spring is located below western limestone section of Beljanica Mountain, at 220 m altitude. It is placed in a southeastern part of Krepoljinsko-krupajska valley. It is located 10.5 km southern from Krepoljin, the nearest bigger town. This spring has been going out from the cave hole gravitationally until 1946, but after it was blocked by a concrete dam about 40 m downstream, it obtained the appearance of a small lake whose longer axis are 40 m long and the shorter axis is 17 m long. The spring is of siphon type. According to the latest measurements in the entrance area of the cave hole, which were conducted in 2009, the maximum depth of Krupaj Spring is 123 m. At about 40 m from the spring, there is a thermal spring which temperature is around 26 °C. Krupaj spring is the true representative of the hydrological heritage of Homolje, but also of Serbia, which was protected in 1979 as a hydrological natural monument of I category (Miljković et al., 2015).

Uvala Busovata is located in the central part of Beljanica Mountain, about 3 km eastern from Uvala Rečke. It is 1000 m long and 500 m wide. It has East-West direction, on the altitude of 1000 m. The bottom of uvala is made of the Paleozoic schists filled with a thick layer of sediment consisting of decaying rocks with the waterproof base, over 10 m thickness. It is protected in 1975.

Osanička River Gorge is a minor fluvial-karst form, located on the northern outskirts of the village Osanica. It was built by Osanička River, between Veliko brdo i Veliko Šetaće with a length of about 1.5 km. In some places it has a canyon-like appearance with vertical sides about 250 m high. In the middle section, where the gorge narrows to the width of the riverbed, there is Osanička Karst Bridge, a very interesting geomorphological form, created by cliffs collapse of a large hill. The length of the karst bridge is 18 m, and height from the water to the vault ranges from 0.9 to 2.8 m, width is from 3 to 4.5 m, and thickness of up to 5 m. It belongs to the III category of protection, with the total area of 30.44 ha (Marković, 1964). It is protected in 1979 as a nature reserve.

Samar Karst Bridge is located in the southeastern part of the Žagubička valley, in the eastern part of Beljanica Mountain, on the river Prerast which flows into the Mala Tisnica near Kraku Pešt. The span of the hole of this gigantic natural stone bridge is 15 m, its height is 14 m, the height of the arch is 24 m, and its thickness is 5-10 m. Unlike karst bridge of Vratna, in which the poles coalesced with the surrounding walls, polls of Samar karst bridge are quite isolated with a thickness of 18 m (left) to 20 m (right poll) and thus they reminiscent of the arcades (Marković, 1964). The site was protected in 1979 as a geomorphological natural monument.

Institute for Natural Protection suggests also protection of Tisnica and Crna reka Gorge, due to its rich plant and animal diversity. Moreover, it recommends protection of Gornjak Gorge with characteristic geoheritage and the highest parts of Beljanica Mountain, which represent the area of special natural values and important natural resource in terms of protection and usage of forests and water protection.

According to the classification of geosites of National council for geoheritage of Serbia, on the territory of Homolje, there are sites of extraordinary importance: sites of geomorphological heritage (uvala: Rečke and grass earth hummocks and Busova-

ta, the gorge and Samar karst bridge, Suvi Do Gorge, Buk tufa, tufa on the Perast, a headwater of the Tisnica); Structural geoheritage sites (the Krupaj Spring, Homolje intermittent spring, Geomorphologic geopark of karst topography

Kučaj-Beljanica, Ribarska Gorge of the Mlava, The Tisnica Gorge and superimposition and Gornjačka Gorge); Speleological geoheritage sites (Pogana peć cave and Ivkov sinkhole), Hydrogeological heritage sites (The Mlava spring).

The principal aim of the paper is a detailed overview of protected natural monuments and geoheritage of the Homolje area.



Dukić, D. (1975): Hidrografske osobine Istočne Srbije, GI „J. Cvijić“, SANU, knj. 26. Beograd.

Đurović, P. i Mijović, D. (2006): Geonasleđe Srbije – reprezent njenog ukupnog geodiverziteta, Zbornik radova Geografskog fakulteta, sv. LIV, Beograd.

Marković, J. (1964): Prirodne retkosti Homoljske kotline, Časopis Zaštita prirode, br. 21-25, Beograd.

Marković, J. (1963): Homoljska potajnica, Glasnik SGD, sv. XLIII, br. 2, Beograd.

Miljković, LJ. i Mirković, S. (2006): Turistička valorizacija i zaštita Homoljske potajnice, Prvi kongres srpskih geografa, Geografski fakultet iz Beograda i SGD, Soko Banja.

Miljković, Đ., Miljković, LJ. i Stojavljević, R. (2015): Krupajsko vrelo – reprezent hidrološkog nasleđa Homolja, IV srpski kongres geografa, Geografski fakultet iz Beograda i SGD, Kopaonik.