

Water and Man: The Janj Islands Near Sipovo

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Abstract— *The Janj Islands' locality (in Serbian: 'Јањске отоке'/'Јањска острва'), also, 'Growth on the Janj river' (in Serbian: 'Растоке на реци Јањ') is located in the Sipovo municipality (Geographical coordinates: 44°13'08.47"N, 17°07'14.92"E, elevation: 550 m). 'The Janj Islands' are about 8 km from the center of the Sipovo town, about 30 km from the Jajce town, and about 178 km from Sarajevo (by air). 3856 inhabitants live in the Sipovo town. The city is surrounded by the mountains Vitorog, Plazenica, Ravna gora, Gorica, Lisina and Cardak, and lies on the rivers Pliva and Janj, as well as Sokocnica, Lubovica and Volarica. The aim of this work is to present an exceptional geographical area that illustrates the relationship of man to the natural environment and his material and spiritual heritage, which is expressed by special physical structures: the remains of the culture of ancient Rome, the medieval stecaks necropolis, The Soko Old Town, the Glogovac Monastery, The New Mosque in Staro Sipovo, The old railway station of the former narrow-gauge railway in Jezero. The topics are elaborated according to the scientific methodology that is covered in the author's book: Hadrovic, A. (2007). Defining Architectural Space on the Model of the Oriental Style City House in Bosnia and Herzegovina, Serbia, Montenegro, Kosovo and Macedonia, Booksurge, LLC, North Charleston, SC, USA.*

Keywords— *Šipovo, Janj Islands, Janj Rainforest, Sustainability.*

I. INTRODUCTION

'The Janj Islands' locality (in Serbian: 'Јањске отоке'), also, 'Growth on the Janj river' (in Serbian: 'Растоке на реци Јањ') is located in the Sipovo municipality (Geographical coordinates: 44°13'08.47"N, 17°07'14.92"E, elevation: 550 m). 'The Janj Islands' are about 8 km from the center of the town of Sipovo, about 30 km from the Jajce town, and about 178 km from Sarajevo (by air). 3856 inhabitants live in the Sipovo town [1]. The Sipovo town is surrounded by the mountains Vitorog, Plazenica, Ravna gora, Gorica, Lisina and Cardak, and lies on the rivers Pliva and Janj, as well as Sokocnica, Lubovica and Volarica (Figure 1).

In this paper, the author deals with the topic of 'sustainability'. In this sense, he visited the entire area of Bosnia and Herzegovina and collected rich material, which he incorporated for the most part into his books [2,3] and scientific works.

Bosnia and Herzegovina is an extremely complex area in terms of the natural and social environment and its population. The three most numerous ethnic groups (Bosniaks, Serbs and Croats) live here, and thanks to its rich history, numerous people of different origins: Jews, Germans, Poles, Czechs, Italians, Hungarians... The composition of the population changed over time, but remained material and spiritual traces of their life in Bosnia and Herzegovina. The complexity of Bosnia and Herzegovina is also visible in its architecture. Hence, for elaborating on the topic of sustainability, in this

work on the example of the 'The Janj Islands' locality (in Serbian: 'Јањска острва') near Sipovo, the most suitable scientific methodology was [4], which is covered in his book: Hadrovic, A. (2007). Defining Architectural Space on the Model of the Oriental Style CityHouse in Bosnia and Herzegovina, Serbia, Montenegro, Kosovo and Macedonia, Booksurge, LLC, North Charleston, SC, USA.



Figure 1. 'The Janj Islands' locality

Source:

https://visitmycountry.net/bosnia_herzegovina/bh/index.php/turizam/27-vmc/geografija, Accessed: 8.1.2022., left

Google Earth: Accessed: 8.3.2022., right and below

The aim of this work is to present an exceptional geographical area that illustrates the relationship of 'man' to the 'natural environment' and his material and spiritual heritage, which is expressed by special physical structures: the remains of the culture of ancient Rome, the medieval necropolis of the stecaks, the Old Town of Soko, the Glogovac Monastery, the New Mosque in Staro Sipovo, the Old railway station of the former narrow-gauge railway in Jezero...

II. ENVIRONMENT

By 'environment' we mean every possibility in the Space in which man can realize his existence [4].

Natural environment

By 'natural environment' we mean all those features that nature gave, and on which man (mostly) did not exert his influence: geographical location, geomorphology, watercourses and reservoirs, plant and animal life, available soil, climate [4].

From a geomorphological point of view, Sipovo belongs to a hilly-mountainous area, which rises above the sea by an average of about 800 m. From the point of view of the global climate, Sipovo is located in a moderately continental climate zone, with certain differentiations that are the cause of differences in altitude, topography and vegetation elements. In Sipovo, the summers are warm and mostly clear, and the winters are very cold, snowy and partly cloudy [5]. During the year, the temperature usually varies from -4 °C to 26 °C and is rarely below -10 °C or above 32 °C. The warm season lasts 3.2 months, from June 6 to July 11, with an average daily temperature above 22 °C. The warmest month of the year in Sipovo is July, with an average highest temperature of 25 °C and the lowest of 13 °C. The cold season lasts 3.5 months, from November 22 to March 6, with an average daily temperature below 8 °C. The coldest month of the year in Sipovo is January with the average lowest temperature of -4 °C and the highest of 4 °C.

A wet day is a day with at least 1.00 millimeters of liquid or liquid precipitation equivalent. The possibility of rainy days in Sipovo varies throughout the year. The wet season lasts 8.9 months, from September 23 to June 21, with a greater than 25 % chance that a given day will be a rainy day. The rainiest month in Sipovo is November, with an average of 9.2 days with at least 1.00 millimeters of precipitation. The drier period lasts 3.1 months, from June 21 to September 23. August has the fewest rainy days in Sipovo, an average of 6.1 days with at least 1.00 millimeter of precipitation. Among rainy days, we distinguish those that have only rain, only snow or a mixture of the two. Only in Sipovo, the month with the most rain is April, with an average of 8.6 days. According to this categorization, the most common form of precipitation throughout the year is rain itself, with a peak probability of 30 % on April 23. It rains in Sipovo throughout the year. November has the most rain in Sipovo, with an average amount of precipitation of 81 millimeters. The month with the least rain in Sipovo is July, with an average amount of precipitation of 38 millimeters.

Sipovo experiences significant seasonal variations in monthly snowfall. The snowy period of the year lasts for 5.0 months, from November 5 to April 5, with a rolling 31-day snowfall of at least 1 inch. The most snow in Sipovo is in December, with an average snow depth of 121 millimeters. The snow-free period of the year lasts 7.0 months, from March 5 to November 5. The length of the day in Sipovo varies significantly throughout the year. In 2022, the shortest day is December 21 with 8 hours and 51 minutes of daylight; the longest day is June 21 with 15 hours and 31 minutes of daylight (Figure 2).

Due to the exceptional preservation of nature, as well as specific climatic conditions, 'The Janj Islands' locality (in Serbian: 'Jaњska ostrva'), form a real small natural ecosystem, rich in diverse plant and animal life. The forests here are home to many wild animals, such as rabbits, wolves, foxes, bears, roe deer, wild boars, and even lynxes, and the river Janj itself, which, along with Pliva, Sokoćnica, Lubovica and Volarica, is one of the five rivers that flow through this in the end, it is very rich in fish, especially trout. It is interesting

that the Janj is one of the colder rivers in the country, whose temperature is always around 8 °C regardless of the season. That's why, when it gets hot in July and August, it's a real treat here, and besides the river, there's additional refreshment and shade from the real trees on the islands between the backwaters.

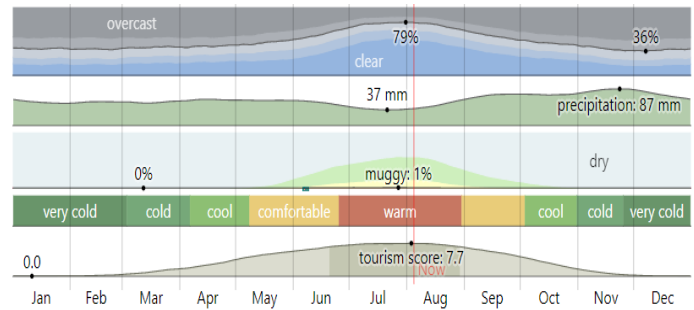


Figure 2. The Weather in Sipovo by month

Source: <https://weatherspark.com/y/82127/Average-Weather-in-%C5%A0ipovo-Bosnia-&-Herzegovina-Year-Round>, Accessed: 8.3.2022.

In addition to the favorable climate, the largest and most important natural resources of Šipova are water, forests, meadows and fields and pastures (Figures 3, 4, 5). This fact generated the complete life of people in this area, from prehistory to the present day.

In July 2021, the UNESCO World Heritage Committee made a decision declaring the 'Janj Jungle' near Sipovo a natural asset of world importance as part of the expansion of the UNESCO World Heritage site („Primitive beech forests of the Carpathians and other regions of Europe“) [6]. With the inclusion of the 'Janj Jungle' on the UNESCO World Heritage List, the first natural asset from Bosnia and Herzegovina was entered on that prestigious list. 'Janj Jungle' is a strict nature reserve, with an area of 295 hectares, of which 58 hectares are set aside, where exploitation of the forest and any human activity are prohibited.

The Janj river rises between the settlements of Strojnice and Babici, 13 km south of Sipovo. The total length of this river is 14.35 km, and its average water flow is 14.12 m³/s. 'The Janj Islands' locality (four kilometers downstream from the source) is famous, a part of the stream where the river splits into several smaller streams ('rastoke') forming a multitude of small islands. The Janj river, as a right tributary, flows into Pliva in Sipovo. Being clean and fresh, it supplies Sipovo with water. It is a habitat for noble species of fish (river trout and grayling).



Figure 3. Janj Jungle

Source: <https://seerspska.com/prasuma-janj-na-putu-za-unesco-listu/>, Accessed: 8.5.2022.

<https://www.klix.ba/vijesti/bih/prasuma-janj-kod-sipova-proglasena-prirodnim-dobrom-od-svjetskog-znacaja-unesco-a/210728120> Accessed: 8.5.2022.



Figure 4. The Pliva river source near Sipovo

Source: Author (8.26.2011.)

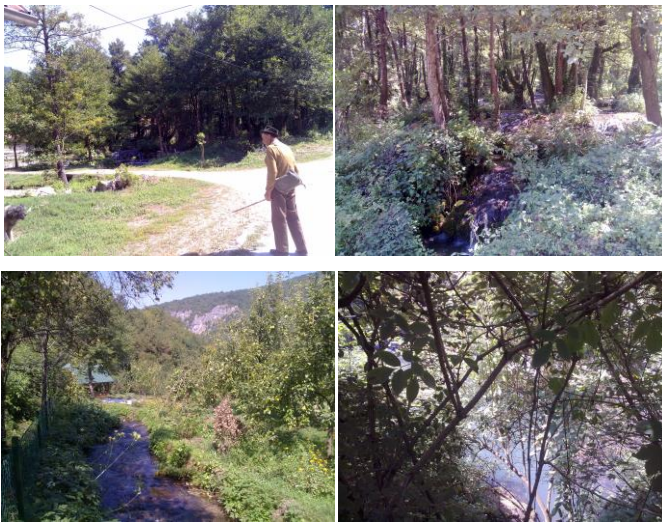


Figure 5. 'The Janj Islands' near Sipovo

Source: Author (8.26.2011.)

Social environment

Pig iron, apart from the Roman Gromile settlement in Sipovo, was also produced in Duljci, Cifluk and Bahici. The Italian Gracila and the Greek Telesphora were probably attracted to this area by its mineral wealth. One metallurgical factory (*officina ferraria*) was also located in Gromil in Metalca (Crveno Polje) near Jajce, for which ore was delivered from the mines around Majdan and Sinjakov. In ancient times, iron ore was smelted at Kovacnice in Klimenti near Jajce, where Roman building materials, foundations of larger buildings and slag are found [7]. Judging by numismatic sources, Baloja experienced its peak development during the 3rd and 4th centuries, when the exploitation of ores in this area was the most intensive. The very development of this advanced ancient city can be traced through numerous archaeological findings, the most important of which are those at Gromil. Pale remains of the building (probably a thermal bath) are also visible in the Sipovo city park [10]. Some of the most significant Roman monuments are the Minerva and Jupiter statue, the figure of the Genius in deep relief, the stone antefix from the tombstone - 'Gorgon Medusa', the Roman-Dalmatian relief 'The Game of Silvanus and the Nymphs' and part of the sarcophagus depicting a battle.

The architectural, cultural and historical heritage of Sipovo. More than 100 archaeological sites have been marked on the territory of the municipality. In SR Bosnia and Herzegovina, two localities in the area of Sipovo are marked as II (second) category monuments that are under state

protection (Register of monuments under state protection). The Old Soko town was mentioned as the third monument, but the categorization of the fortress as a monument was prevented by the war [7]. There are about 90 of these sites in the Archaeological Lexicon of Bosnia and Herzegovina.

Sipovo was a very important center in ancient times, one of the two most important cities that the Romans had in this area. As a result, there are a large number of important historical and cultural monuments and archaeological sites in the wider area of the municipality. So far, 264 localities of exceptional value have been recorded. There are several monuments on the list of national monuments of Bosnia and Herzegovina from the area of Sipovo municipality [11]: Necropolis with *stećci* in the village of Babici, Prehistoric Gromile settlement, Roman terminus inscription Blizanci in Vagan, Glogovac fortress and monastery in Babici, Building of the former narrow-gauge railway station Jezero .

On the left side of the road Jajce - Sipovo, at the very entrance to the city, there are fortifications, streets and squares from the Roman era, which were discovered by excavations and probe research. In the eighties of the last century, the local population found gold rings and jewelry in this place. The Old Soko town [12], i.e. the course of the Sokocnica river itself, which has been almost untouched for the last 200 years, is also significant. Hrid, that is, the Holy Hill near the source of the river Janja, is also very interesting, where there is an inscription carved into the rock from the Roman period. There is also the Salt Road that went from Split, Livno, via Pilano, where there was a large resort for caravans.

III. MAN

Space acquires meaning only if it stands in some relation to man. This relationship ranges from the relations of the already known dimensions of space, through those that can be sensed, to those that are currently beyond the reach of human imagination. The term 'man' is a huge question, the essence of which he himself is trying to decipher within his limits, within the limits of the Earth and the limits of the Universe [4]. Together with the rest of the living world, it participates in the process of circulation of matter and energy in nature, sharing the same fate with it, being born and dying against its will. Endowed with reason, will and feelings, he is the only one in the living world who can discover the given laws of the organization of nature.

During the works on the construction of the collector in Sipovo (2017), a tomb was found, the origin of which has not yet been determined. It is assumed that it is a Greek tomb, and the bones found were stored in the workshop. There is also the Glogovac monastery from the 18th century, and at the entrance to Glogovac there is a fort from the Illyrian period, which contains a large number of ceramic sherds, and about 250 ethnic and cultural-historical exhibits are stored in the workshop.

Boundaries: architecture as a framework of life

'The Boundaries' are those places in the environment where the encountered conditions are controlled according to very specific human needs. Conditions are all those discovered

and undiscovered phenomena in space that have a stimulating or degrading effect on humans. Borders, therefore, have the task of enabling the selection of influences. In an architectural sense, they enclose, but also include a person in the conditions of a certain environment [4]. Boundaries can be physical, but also of a mental nature, which is defined by the human observer based on the insight into the physical structures in the open space.

Ancient sculptural and architectural fragments from Šipovo are preserved in the National Museum in Sarajevo. Examples of this are the mausoleum from Sipovo (relief of Jupiter and Minevera) and the composition of lion heads, which was excavated in 1933. [7] (Figures 6,7).



Figure 6. Cultural and historical heritage of Sipovo

Source: The official website of the Municipality of Sipovo. History <https://www.sipovo.net/o-sipovu/istorija-opstine-sipovo/>, Accessed: 48.5.2022. (In Serbian)



C(aio) MINICIO
L(ucii) FILIO PAP(iria)
FUNDANO VII
VIR(o) EPVLONUM TRIB(un)o
LEG(ionis) VII (=XII) FLVMINATAE
QUESTORI TRIBVNO
/pl/ EBIS PRAETORI LEG(ato)
/legionis XV A/POLLINARIS
/ANTONIN(iannaes)?/ PIAE
/fidelis.....c/VR/atori...

Figure 7. The prehistoric Gromile settlement: a fragment of the honorary base C of Minicija Fundan from the position of Gromil from Sipovo, National Museum in Sarajevo, 2-3. century

Source: <http://www.anubih.ba/godisnjak/izdanja/Godisnjak%2036.pdf>, Accessed: 8.5.2022.

Medieval stecaks are connected with the history of Bogomils in these areas. The well-preserved necropolises of these oldest medieval monuments (also called the 'sea of marble') are located along the banks of the Janj river, the right tributary of the Pliva river, and near the Babici and Mujdzici villages (Figure 8).



Figure 8. Necropolis with stecaks in the Babici village

Source: <https://sipovo-tourism.com/V2/srednjevjekovni-steci/>, Accessed: 8.5.2022.

The Glogovac Monastery (in Serbian: Манастир Глоговац у Бабићима) is located in the village of Babici, about 20 kilometers south of Sipovo (Figure 9). It is located in the gorge of the Glogovac river on the Janj Plateau. According to folklore, there was an old medieval monastery from the early 14th century at this place. At the Glogovac monastery, the traditional spiritual and cultural manifestation 'Gathering in Janj' (in Serbian: 'Јањски сабор') is held, on the first Sunday after All Souls' Day ('All Souls' is the holiday of the descent of the Holy Spirit on the apostles in Jerusalem, 50 days after Easter). The monastery church is dedicated to the Holy Great Martyr George (in Serbian: Црква Светог великомученика Георгија).

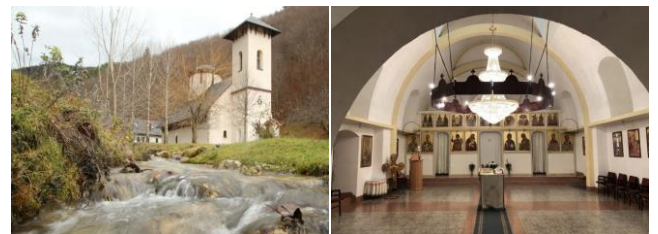


Figure 9. Glogovac Monastery in Babici (in Serbian: Манастир Глоговац у Бабићима)

Source: <https://srpskainfo.com/kako-je-narod-nadmudriog-vezira-manastir-glogovac-u-kome-je-ubijen-monah-ima-nevjerovatnu-istoriju-foto/> Accessed: 8.5.2022.

The first mosque in Staro Sipovo was located across the road from Mustagic Mahala, on the right side of the road towards Besnjevo. It was built (1707) during the Ottoman administration in Bosnia and Herzegovina. This mosque was demolished on August 27, 1941. The second mosque was built on the land of the Ribic Age vakif. The decision on construction and approval of the mosque board of the Sipovo Islamic religious community was issued on April 10, 1964. year, and was built in 1967. This mosque was demolished (August 28, 1993) during the war (1992-1995). Mr. Asim Hamidovic built a New mosque on the foundations of this mosque, in memory of his parents, father Nedzib and mother Hajrija, née Cuk. Construction lasted from 2003 to 2005, and it was officially opened on July 17, 2005. (Figure 10).



Figure 10. The New mosque in Staro Sipovo

Source: Author (8.26.2011.)

The building of the former Jezero narrow-gauge railway station is located on the left bank of the Pliva river, Jezero municipality. It was built in 1913. as the only building in Jezero from the Austro-Hungarian period (Figure 11). It was a very important object during the industrial development of Bosnia Herzegovina. The Austro-Hungarian monarchy also built many forest and mining railways in private ownership, which were used for the exploitation of mineral and forest wealth, as well as for passenger traffic. The Smetica-Jajce railway was put into service on 10 January 1916. in the length of 107 km. The railway stations on the Jajce-Smetica route were: Jajce, Plivska Jezera, Jezero, Volari, Sipovo, Sokolac, Pliva, Podovi, Cardak, Podgora, Mliniste, Ovcara, Lisina, Tisova Kosa, Kurijeva Kosa, Potoci and Smetica.



Figure 11. The building of the former Jezero narrow-gauge railway station

Source: <https://lh5.googleusercontent.com/p/AF1QipNsTmVsw9RR1H9HEGHUZZieFjCsN7pnF-r1wez4=h720>, Accessed: 8.5.2022.

Houses with gardens, farm buildings (watermills and stupas) were built on 'The Janj Islands', where grain was traditionally ground in large quantities, for the wider geographical area around Sipovo (Figure 12). This impressive complex, which reflects the synergy of the natural environment and man, can only be compared to the watermills complex on the Pliva river near Jajce, which are about 17 km northeast (as the crow flies) from 'The Janj Islands'¹.



Figure 12. The Janj Islands

Source: Author (8.26.2011.)

IV. CONCLUSION (PERSPECTIVES)

By the term 'perspectives' (in the framework of the theory of Architecturally Defined Space) we mean "that dynamic relationship that connects now - future, existing - possible, realized – desired" ^[4]. The emergence of a settlement (hamlet,

¹ The author visited the Sipovo town, the Pliva river source and 'The Janj Islands' on August 26, 2011. His guide was Mr. Savo Zekovic from Dragnic near Sipovo.

village) or architectural-engineering structure is never accidental, but is the result of a synergy between the 'natural' and 'social environment'-'man'^[4].

The Janj Islands complex is a unity of water and man. The Piljic family has traditionally lived there (for several generations). Among the built physical structures are residential buildings, water mills (for grinding grain), stupas (where cloth-coarse cloth is made from wool) and specially arranged 'cages' for washing floor areas and bedding ('bucnica'). The Piljic family provided its services to people in a wider geographical area (from Mrkonjic Grad to Kupres).

Although the physical structures on 'The Janj Islands' area have been preserved (and some have been rebuilt) to this day, and serve their traditional purpose, the Piljic family is now more involved in tourism, for which they have built suitable facilities for guests. Now tourists inhabit 'The Janj Islands' and use the benefits of this exceptional 'natural environment' (Figure 10).



Figure 10. 'The Janj Islands' as a tourist destination

Source: Author (8.26.2011.)

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<http://old.kons.gov.ba/main.php?mod=spomenici&extra=Peticije&blok=2&indexGrad=1&lang=1&idGrad=93>, Accessed: 8/5/2022. (in Bosnian-Croatian-Serbian).
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